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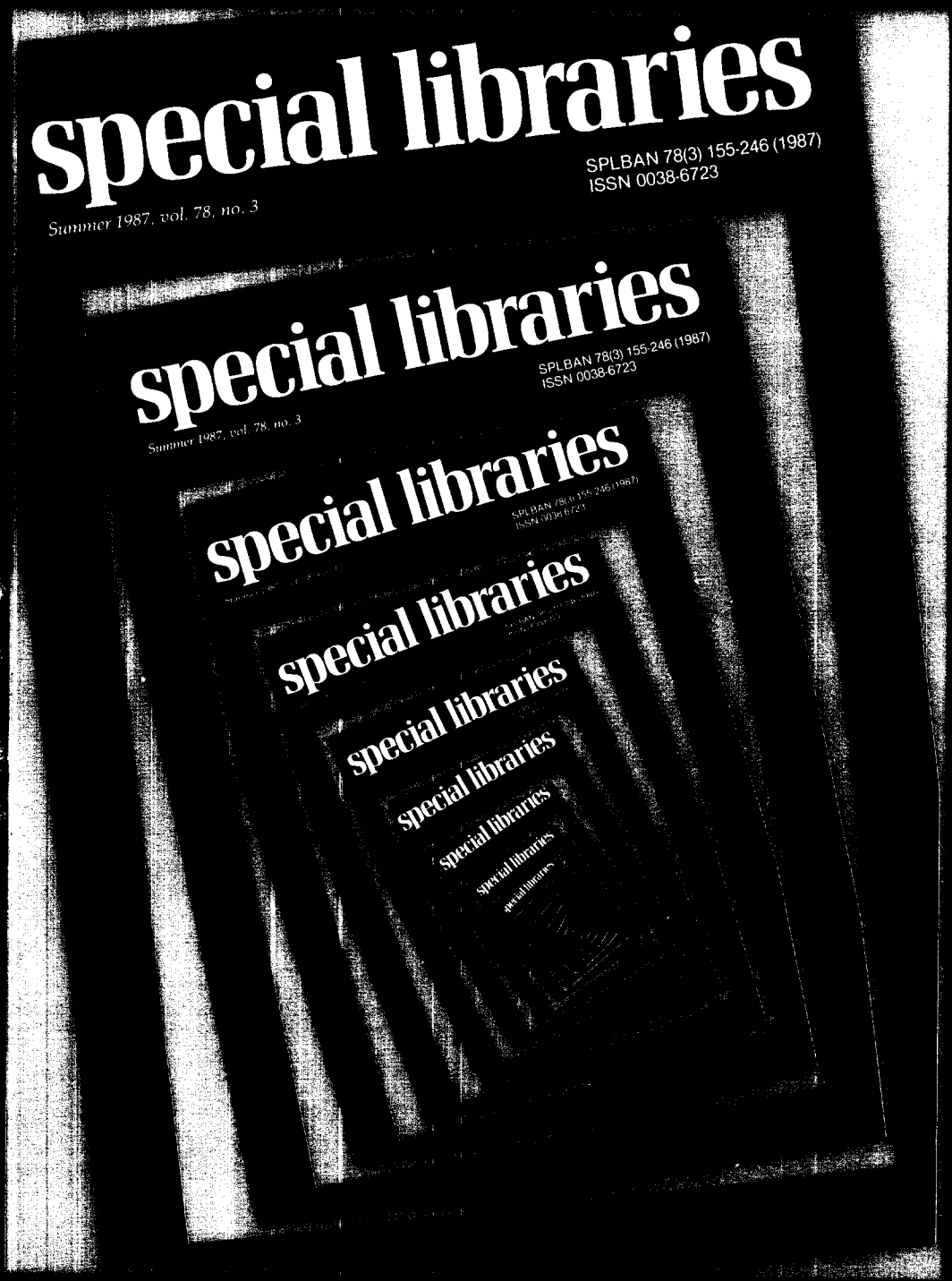

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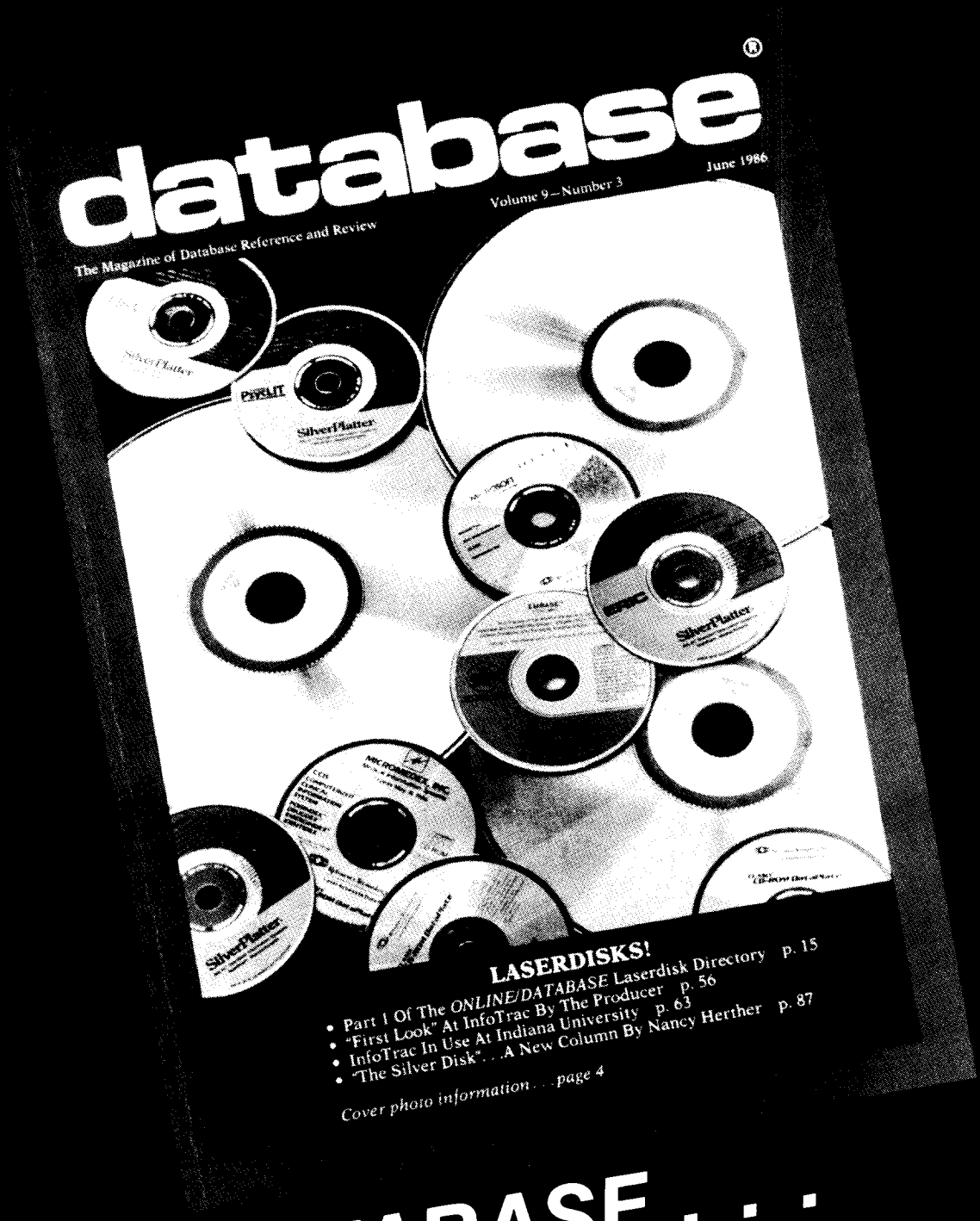

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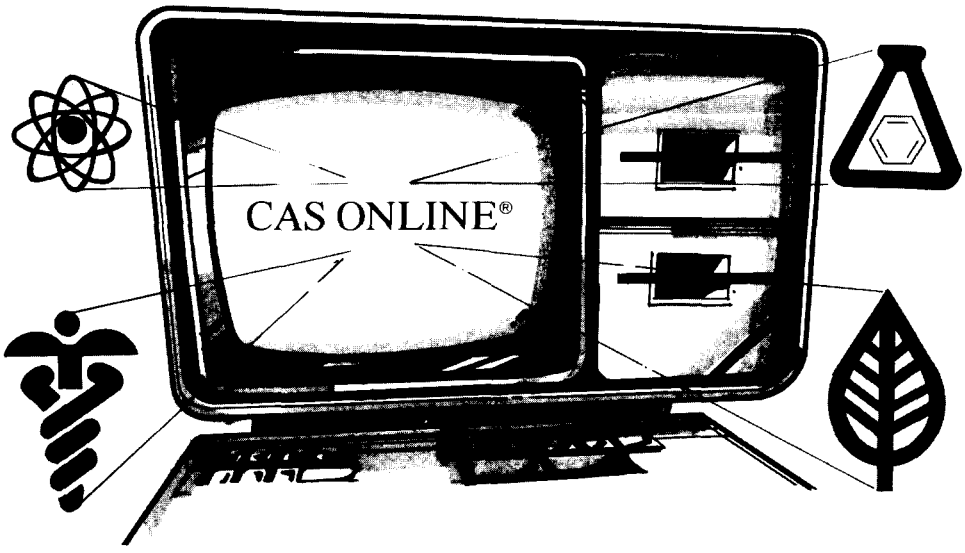

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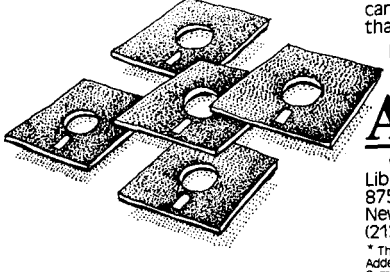

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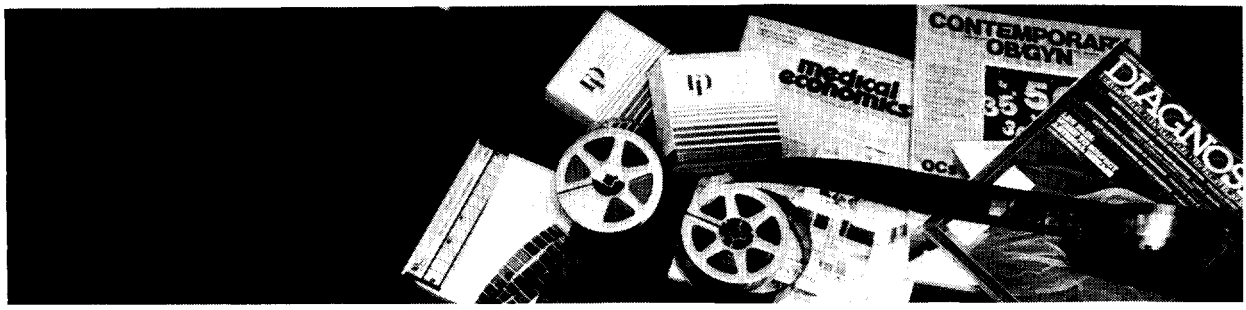

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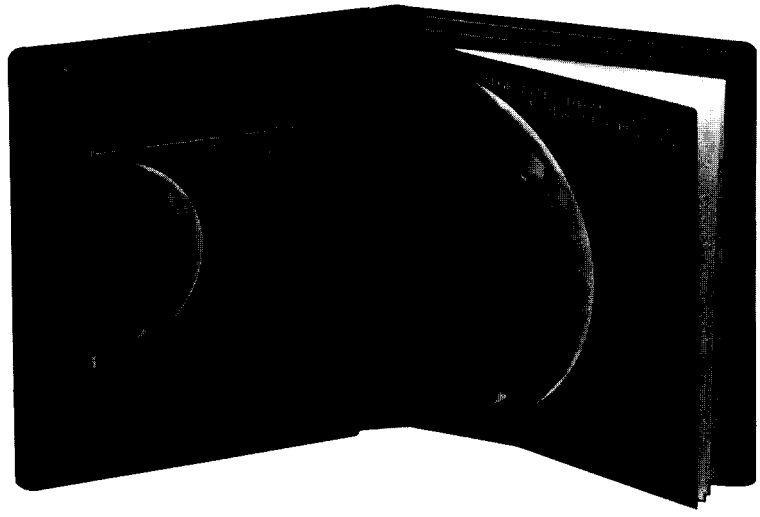

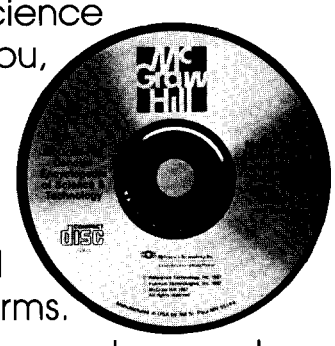

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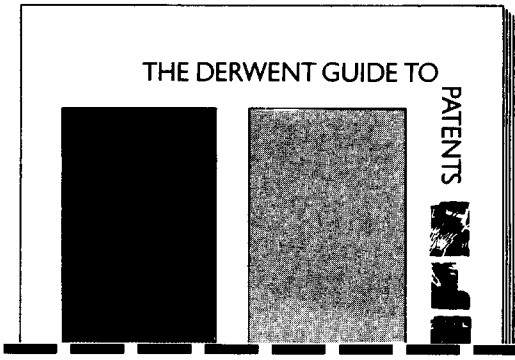

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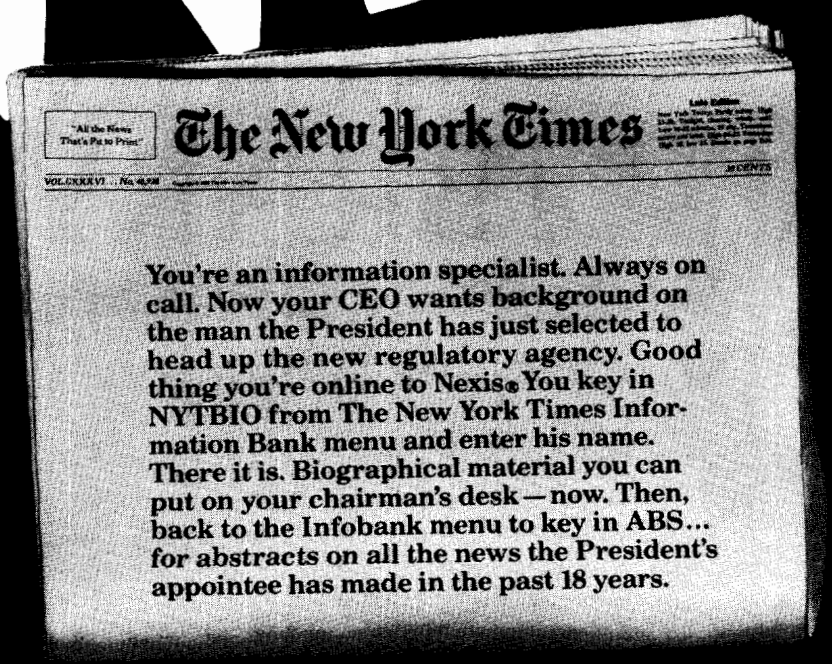

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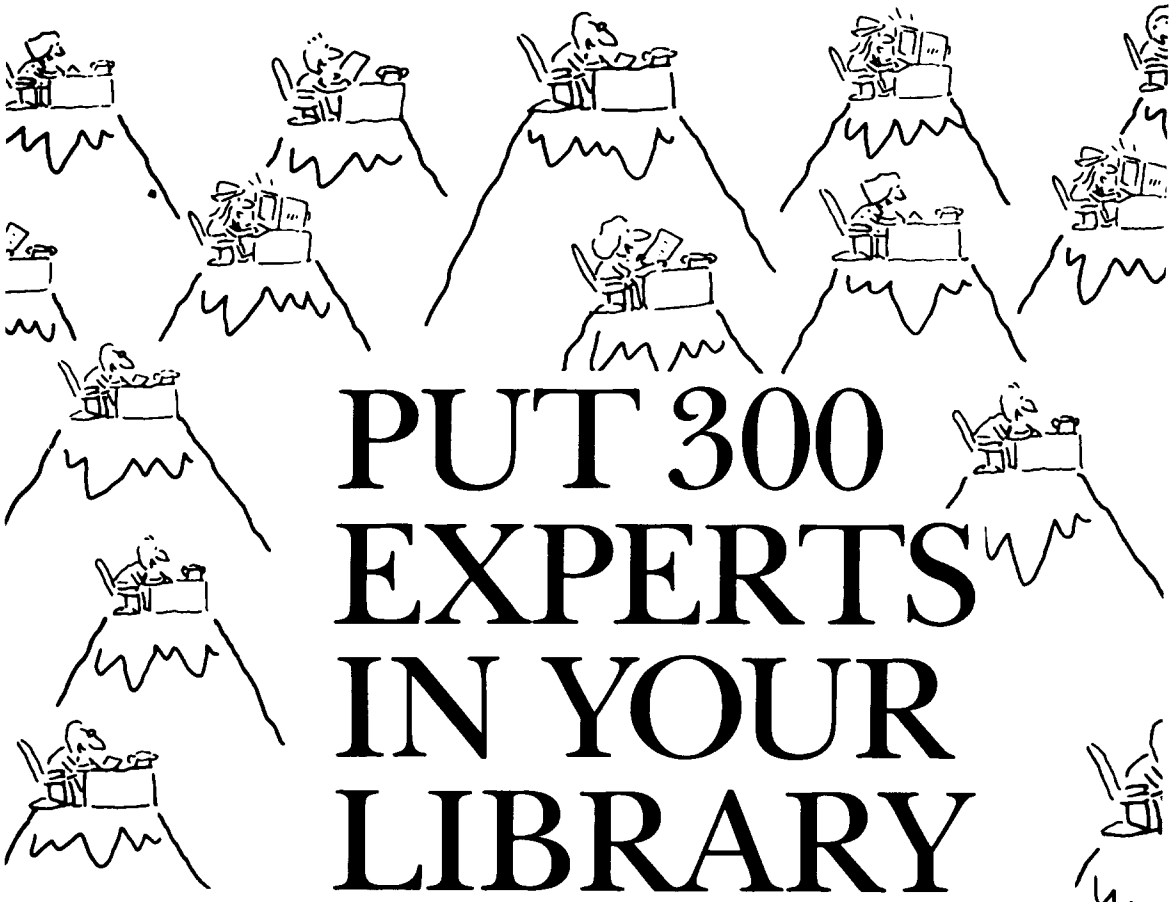

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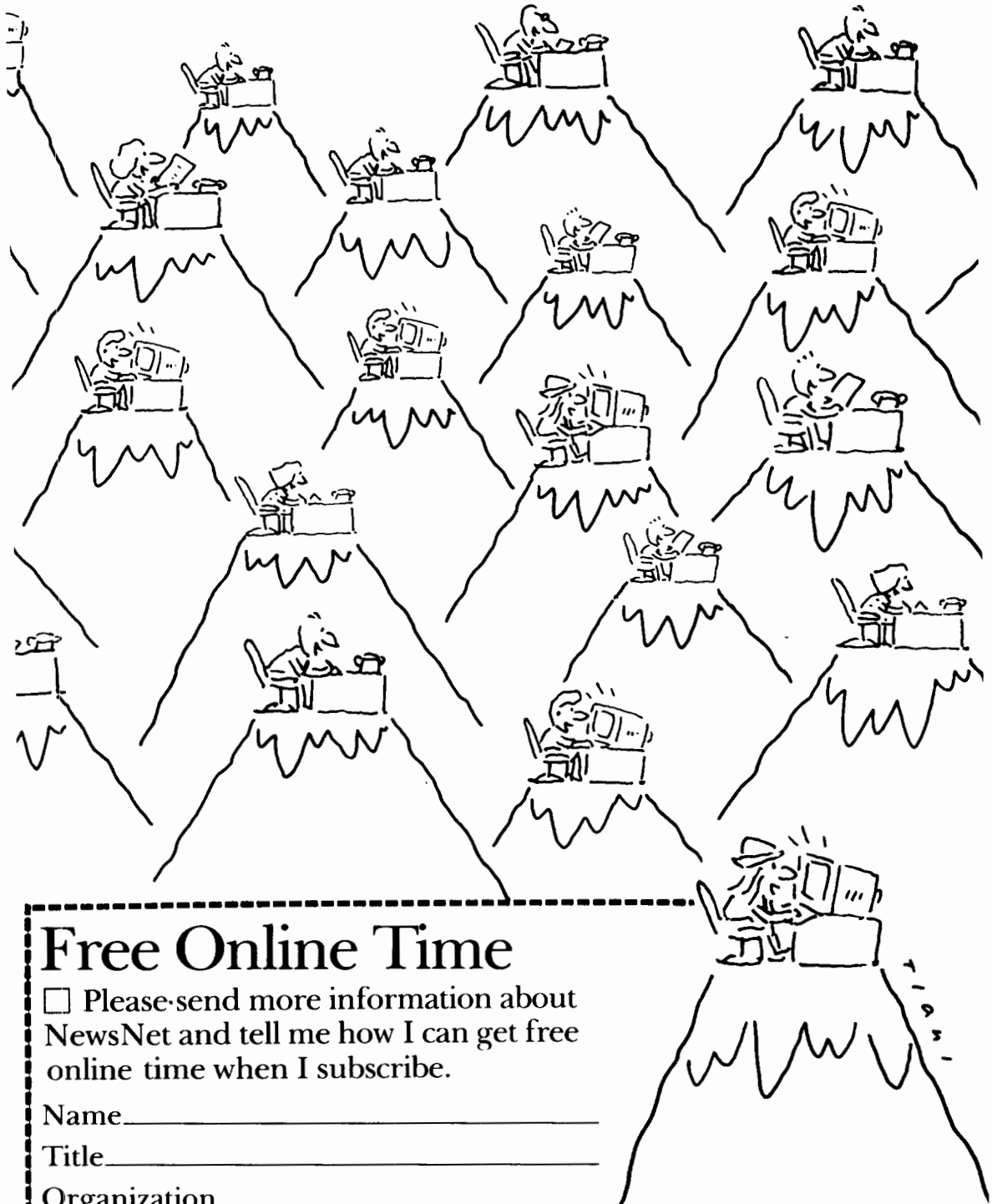

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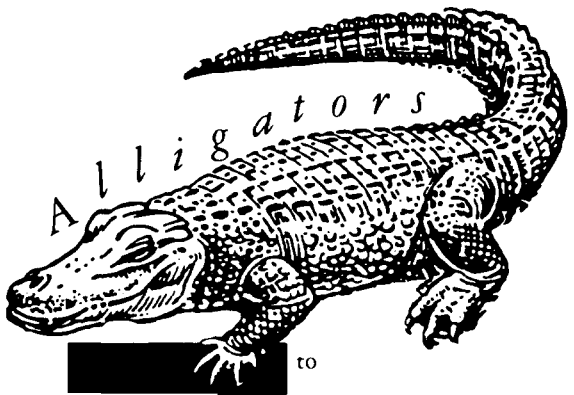

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The Funding of Corporate Libraries—Old Myths and New Problems

Herbert S. White

■ **Economy drives in corporations never end—particularly for overhead organizations, such as libraries—since management does not know what it should spend on support services and feels that it does not hurt to try to cut. Unfortunately, some librarians, ground down by incessant propaganda, accept the suggestion that we "do more with less"—a suggestion recognized as patent and dangerous nonsense, even if it must be publicly endured. Our job is to run effective libraries, not cheap ones, which may require that we spend more, even as it requires that we insist on spending wisely, by establishing priorities and eliminating the trivial and pointless tasks now assigned to us.**

CORPORATE libraries, like their counterparts in the academic and public sectors, have always led a precarious existence. They are the beneficiaries of a great deal of good will, being judged, in one sense, as "self-evidently good." At the same time, there is no clear indication of what defines good, and of what it takes to provide library service at that level. Unlike academia, which measures libraries by the size of their collection, and municipalities, which tend to compare circulation statistics, corporate libraries have no such criteria that organizational statisticians either collect or care about. It is interesting that many corporate libraries, perhaps out of habit or out of a dearth of anything else to report, still carefully report holdings, acquisitions, and circulation statistics on a monthly basis, as though that mattered to the parent organization and its programs.

Corporate libraries are part of the organizational overhead structure, that is, what they do does not contribute directly to the preparation of a marketable product or the generation of income. As such, they are immediately suspect as potential "waste." We do not hold that distinction uniquely; we share it with purchasing, accounting, personnel, public relations, and even research. However, these organizations have probably been more

successful in establishing the premise that without them the rest of the organization could not function.

Corporate libraries are also part of a general category of service institutions, which exist directly for the purpose of assisting others in doing whatever it is that they are supposed to be doing. In writing about the service professions in his most recent book on entrepreneurship and innovation, Peter Drucker does not mention libraries, but his characterization of service professions (he specifies nursing and social work) certainly fits us as well. (*1*) Drucker argues that service professions exhibit three characteristics: 1) Their performance is measured by how much they spend rather than by what they do; 2) their agendas are controlled by others or even by groups of others, whose priorities may even be conflicting and contradictory; 3) service professionals accept the "moral imperative" of somehow doing whatever it is they are supposed to do whether resources are provided or not, and they consider it their own fault if this does not happen.

When these general characteristics of overhead and service organizations are applied to corporate libraries, several indicators appear. For example, organizations do not know how much to spend for support services, and specifically for libraries. Since they do not know, the safest thing to do is to cut. Economy waves, therefore, run through the organization continuously. At times they peak, but at least the appearance of a drive for economy is never over. At an attempt at humor, I once responded to the announcement of a new economy drive with feigned amazement, stating that I had not realized that the earlier economy drive had ever ended. I cannot recommend this tactic to my colleagues. Economy drives are taken very seriously by accountants and bureaucrats, and librarians are supposed to take them seriously as well. Scientists, by contrast, tend to shrug them off as minor annoyances, and, therefore, they do not let economy drives get in the way of what they planned to do, or what they planned to have the library do.

Furthermore, since the appearance of economy is at least as important in a bureaucratic environment as economy itself, there is an immediate attempt to reduce the visibility of library costs. This is most often done by either getting users to buy things out of their own budgets, or through charge-back mechanisms under which users agree to accept the costs of books, subscriptions, online searches, or interlibrary loan. These exercises of moving peas from one shell to another accomplish nothing in the way of savings, because the assumption that users will constrain their appetites if they are to be charged has no substantiation. The amount is too trivial for them. However, the process looks good, and that is frequently what matters. As one cynic once observed: "We will have economy no matter what it costs us." However, this scenario, aside from being absurd, also causes some real problems for the corporate library professional.

First of all, it is based on the assumption that the user is the best judge of what needs to be purchased, and of what will satisfy his or her information gap. That concept is not necessarily true; users can only judge on the basis of what they already know. As one user commented with a rare insight of honesty: "My problem is not just that I don't know, it is that I don't even know what I don't know." That, of course, defines precisely the appropriate role of the professional librarian. Furthermore, reliance only on a response to user requests tends to clericalize the entire process. What users ask us for (as trained in school and academic libraries) is material—specific books, articles, and reprints. Obtaining these for users may require some ingenuity, but it is still a clerical process, and is recognized to be exactly that.

The appearance of a low-cost service, through the various techniques of squelching the proper level of information access, can end up costing more. Hiding and distributing costs can lead to duplication, as well as to a lack of control. If the process really works as it is intended, then an absence of needed information can end up costing the parent

institution even more. The fact that we know what we have saved but don't know what we have lost is a poor comfort.

The low-cost approach deprives librarians of a professional role and of a professional visibility. As Drucker has noted, we are judged by how much we spend and not by what we accomplish. In fact, the pressures for cost cutting can become so ingrained that I know of situations in which substantial increases in materials and service budgets have been approved, sometimes with such a strong mandate that no dollar ceilings are even imposed. Some librarians, when confronted by this sudden largesse, simply have forgotten how to spend money. It is as though they were starving prisoners suddenly presented with a banquet, and the sight of so much food makes them ill. The lack of professional identification for what librarians do has, in some special libraries, led to the insistence that all new librarians have subject degrees, sometimes advanced subject degrees. Where a case for a real need to understand the materials in such depth can be made, the need is justified, but when the requirement is cosmetic and simply serves to placate personnel officers or to make users feel more comfortable, the emphasis is misplaced and becomes wasteful. In addition, all libraries are, as we well know, clerical traps. Clerical work takes precedence over professional work, and is also what users specify most immediately as their primary priority when they are unaware of the ability to delegate professional interactions. At a minimum, the library becomes nothing more than a purchasing department. In the final analysis, the library can become so small and so useless that closing the library, rather than cutting its budget again, becomes an act of euthanasia, as Matarazzo has noted. (*2*)

Ground down by organizational propaganda, librarians, as the good soldiers they are, begin to believe that their primary job is to save money. This produces several ugly side effects. When librarians do receive funds, such as for the hiring of a clerk, this is presented by management as a favor, rather than simply as a carrying out of management's responsibility for judgement and action. The need for a clerk has presumably been justified, not as largesse for the librarian but for the organization at large. One does not normally like to look gift horses in the mouth, but this point must be made; otherwise, management is likely to establish its own quid pro quo, one "favor" for another. Usually, librarians are expected to repay by being cooperative, often by accepting problem employees nobody else wants (the phenomenon of the library as the personnel dumping ground is too real to assume coincidence), by accepting undesirable space not needed by "more important" groups, or by taking on an undesirable project that nobody else wants to do, probably with good reason.

Under incessant pressure and propaganda, librarians sometimes forget what their job is: to run an effective library—not necessarily an expensive one, but not necessarily a cheap one either. The cost of running the library is truly irrelevant to the profitability of the parent organization, since you, as a librarian, would not be able to squander enough money (although nobody suggests that you should) to affect earnings by one cent per share. Besides, others are paid a great deal more with the specific responsibility for seeing to it that neither you nor anyone else spends the organization into oblivion. Furthermore, the library budget is in most corporations only the tip of the iceberg of what the organization spends for information. Depressing that tip under water does not save money; in fact, it may cost more money, since it also leads to a loss of control.

Saving money is *not* your job. In fact, if you are successful enough in implementing a program in which that becomes your prime priority, the ultimate savings you will be able to engineer will be your own salary. Avoiding waste of money in information operations (yours or others in the corporation) *is* your job. Running a productive and effective professional information service *is* your job, and sometimes that suggests spend-

ing more money in order to establish the likelihood of greater profits, or the avoidance of other expenditures. Sometimes it suggests aggressive action to save the corporation money by insisting that others don't spend it wastefully. It is recognized that economy drives are more cosmetic than real, but a cost reduction exercise that affects the library but has not addressed the list of *Wall Street Journal* subscriptions does not mean a great deal. There is something of an assumption that only money spent by overhead organizations is potentially wasteful, and that money spent by direct profit centers carries its own presumed justification. However, any controller would agree that a dollar spent in a direct operation impacts profits just as directly as a dollar spent in an overhead operation, particularly if that dollar is wasted. Controllers know this, but even controllers must work through a certain level of accommodation. Unfortunately, nobody accommodates to libraries. If economy is to be meaningful and effective, it must function across the board. I can accept the knowledge that my budget is being cut a lot more easily if I learn that everybody else's is also being cut. Who besides the service departments is affected by the economy drive?

Another vestige of what is largely a stylistic approach to economy comes in the fascination with decentralized decision making. It is assumed that decentralization of authority means better control over decisions. To a large extent that is even true, because if people can be made to care they can be made to be more careful. However, such decentralization does not work for library costs, because the implications of any transaction (one book, one photocopy) are simply too trivial for any user or user group to monitor or care about. What we are left with is simply the cost of record keeping, and that is pure waste. Controllers cannot condone waste if the point is made directly and forcefully enough.

Moreover, decentralization can also lead to inequities of information access. Such varying levels of information service, as between the information informed and the information ignorant, cannot really be tolerated by organizational management once management understands what is happening. These individuals often move to other parts of the organization where their ignorance penalizes innocent bosses. There needs to be at least some level of minimum information service to which every professional is entitled, regardless of what his penny-pinching boss thinks. That is a corporate responsibility in order to establish a level of consistency of approach. It is understood clearly enough with regard to legal services, which are almost never decentralized precisely because the organization cannot afford the risk of inconsistent actions and decisions. The organization can not afford it for library services, either. Management just does not realize it.

How do we deal with across the board cuts? First of all, why do organizations use such meat axe approaches anyway? Sometimes, of course, cuts occur out of dire necessity. If a company has just filed for protection under the Bankruptcy Laws, the librarian presumably knows this. Other times, however, across the board cuts result simply from a desire to improve profits further, or from the suspicion that over time organizational fat has accumulated. The suspicion is, in fact, often correct. Corporations have found that a 10 percent layoff every five years will not only reduce costs but also improve productivity IF the cuts are made through qualitative selection of the lowest performers and not through longevity rules. Union contracts inevitably specify this, but even organizations not bound by such restrictions usually follow a unionized approach because it is easier to explain and to justify. Most recently, organizations—driven by a sense of responsibility to their employees that is commendable, but not necessarily consistent with the achievement of the objective—have achieved staff reductions simply by not replacing retiring or resigned employees, or by finding homes for surplus personnel whether they fit the new job or not. The result for libraries from such action can be particularly dis-

astrous. While personnel departments usually understand that there are minimum qualifications that must be met for a reactor safety engineer, it is assumed that anybody can answer reference questions, and most certainly anybody who has been with the company for 30 years.

Across the board cuts are usually accompanied by the admonition that these cuts are to be absorbed without reductions in service—the old suggestion that we do more with less. For fat and overstaffed units (which, unfortunately rarely turn out to be libraries), doing more with less is possible. Since management cannot really determine whether it is possible, they consider the effort worth making. Such slogans cannot be openly challenged; however, they can be, and usually are, ignored as the simplistic nonsense they represent. Only a few individuals, which inevitably includes librarians, ground down and brainwashed by propaganda that tells us that our primary job is to save money and that every clerk assigned to us is a favor, tend to believe the premise that we can indeed do more with less.

How, instead, should we deal with budget cuts and retrenchments? A number of articles in the last 10 years have suggested approaches, but the work of Hedberg (*3*) represents perhaps the clearest and most direct exposition. Hedberg makes it clear that budget cuts can not simply be absorbed, and he suggests several reasons:

Absorption, without impact, is a self-indictment, for yourself and for your staff. If cuts are made and nothing happens, then indeed you were overstaffed; however, even if it were true, you could not admit to the premise. Most importantly, you cannot make such a commitment on behalf of your subordinates—that they can do more because you said so. Their disillusionment and rage will be reflected in one of the two ways they have of fighting back—increased backlogs or increased errors, perhaps both.

Attempting to do more with the same staff, or as much with fewer people, or, more absurdly, more with less, puts an even greater emphasis not on reducing costs, but on hiding and distributing them to others in the organization. It is the great shell game we already play, and on which we spend a considerable amount of our energy. Furthermore, such an emphasis stresses *how much* is done, not *what* is done or what *ought* to be done. The concentration is on efficiency, not on effectiveness. As I have noted in an earlier article, (*4*) even when you do the wrong things you should do them as quickly and as cheaply as possible. However, surely there are better ways. Unfortunately, under the pressure of doing more with less, we are usually so busy doing things that we do not have time to think about what we are doing. The answer, as we should know, is not working harder, it is working smarter. For librarians, this means an examination of the entire premise of what we do. This is particularly important, because to a great extent what we do is not necessarily any sort of cogent plan we put together, but rather an accumulation of tasks devised by others, and sometimes these are junk tasks. We need to remind ourselves of Drucker's second injunction. The work of libraries is controlled by a number of other groups, and these groups have differing and sometimes contradictory objectives for us.

Hedberg tells us that the answer to the dilemma lies in program budgeting. It is perhaps ironic that program budgets were developed initially not at the behest of subordinates, but at the insistence of superiors who were disturbed that they were constantly being asked for more money in a line-item budget scenario, but never understood what happened because of the money. For libraries, for which line-item budgets mean only cuts in the face of cost increases and increased demand, program budgets offer the only possible salvation. Program budgets must be prepared even when the organization operates on a line-item budget arrangement, as most of them do. The program budget, once approved, can be turned into a line-item budget to serve the needs of the accounting department. Libraries that have no budgets, except through the whims of their managers, or that have

budgets but the librarians have not been told what they are, clearly have even more fundamental problems that must be addressed before any of this makes sense.

A program budget is a contract, and it is a mutually negotiated contract. It can start with a management specification of what services are to be provided, with a librarian implementation plan that then leads to a negotiation of dollars. Alternatively, it can start with dollars; in which case, we then negotiate the services to be provided. Management can not specify both—common sense tells them that—but that does not mean they will not try, particularly if they have taken Drucker's third characteristic to heart, that librarians, like other service professionals, will "somehow" find a way.

When a contract reached through a determination of funds and programs is changed, then it must be renegotiated. Bear in mind that management has the right to change the financial terms of the equation by cutting the budget at any time, but only if it is then willing to discuss the implication for activities. Alternatively, management can insist that the library take on additional functions, or the proposal for this can come from within the library itself. Again, this changes the premise, and we must then discuss cost implications. As already noted, management is not necessarily anxious to renegotiate, and some bosses are pretty good poker players, particularly if their bluffs have worked with you in the past, or with your predecessor. However, the suggestion that something can be done with nothing is not a serious one, and they know it. Tell them that, and ask them when they want to talk meaningfully.

A budget cut does not simply mean an equivalent cut in all activities, because a budget reduction of 10 percent, translated into a 10 percent (or even 8 percent) reduction in everything we do, suggests a simplistic style of nonmanagement. However, a cut in budget requires that things *change,* although we may even do more of some things and less of others, or eliminate some activities entirely. Similarly, the addition of a new task of high priority without additional funding means the identification either of another task to be eliminated or the discussion of alternatives that will ease and simplify how we do what we now do.

The process of contract negotiation provides the librarian with risk, but also with opportunity. The emphasis on working smarter, which usually accompanies an announced budget cut, allows you to recommend getting rid of activities and procedures you consider annoying, or dumping useless routines and record keeping. There will never be a better time! It also provides the opportunity for cleaning house, for getting rid of a chore that does not really fit your mission but was only handed to you because somebody else was arranging his or her own budget cut. In general, in staff-poor organizations, such as corporate libraries, you should concentrate on doing what you can do uniquely, or what you can do better. If anybody else can do it just as well, and the task adds neither prestige nor importance, it forms a poor premise for building your empire.

The primary advantage in this process is that it allows you to take the initiative in proposing changes that your boss can either approve or replace with his or her own changes. Chances are that your boss has few, if any, alternatives, and that his or her real approach was to test your willingness to try to "absorb" this budget cut. A sense of humor for both parties is helpful here because it allows you to smile and say "Nice try. Now when can we talk seriously about this?"

You need to be aware of one final injunction. During periods of budgetary curtailment, just as you are looking for opportunities to unload dead weight projects, so are others. The process may yield for you "offers" to take on additional activities, sometimes made to you directly, sometimes through your boss. (If your boss has already accepted the assignment for you without even consulting you first, you obviously have BIG problems that transcend this issue.) Your response obviously depends on whether or not taking on this assignment is good

for you and/or good for the company, and usually it is not difficult to rationalize a consistent answer so that the two questions, in fact, become one. If you see this as an opportunity, you may even want to propose reshuffling priorities to do this instead of something else. You probably have some activities you would be happy to dump. If, conversely, you are not really anxious to have this new assignment (it can be assumed that much of what others are willing to give you is dull, routine, troublesome, and clerical) then, at a minimum, you should insist that acceptance of this task depends on a full and total funding transfer and that the job stays only as long as the money stays.

Bear in mind that you are not being paid to save money (although there is no reason to squander money), and that you are not being paid to be charming and cooperative (there is nothing to be gained in being either more or less cooperative than anyone else). Management is not a popularity contest. It is, however, as Thomas Galvin noted, a contact sport. Your job is to provide a professional ingredient that nobody else can provide and to provide a level of information service that nobody else really understands as well as you do, although some bosses have to be trained to that realization. You will succeed or fail specifically on the basis of how well you meet these obligations. In one sense, the drive toward corporate cost effectiveness provides (or, at least, should provide) strong opportunities for corporate libraries to establish their importance, and even to grow while other parts of the organization are declining—this is because strong corporate libraries are cost effective and far more of a bargain than any alternatives. By contrast, weak, ineffective, and so-called "cheap" libraries are probably not worth what little money is spent on them, and the risk for you is that sooner or later management will find that out. There is no safety in being small, and there is no safety in being cheap. There is only safety in being unique and in being valuable.

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Department of Defense Information Analysis Centers

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■ **The Department of Defense (DoD) Information Analysis Centers (IACs) have been assisting the research, development, and engineering efforts of the defense community for more than 40 years by analyzing, repackaging, and disseminating highly technical information in specialized subject areas to a select user community. Twenty-one IACs* are managed and funded by the DoD, with technical expertise provided by scientists and engineers working in DoD laboratories and agencies. Not only do DoD IACs collect all available materials in clearly defined subject areas of critical importance to the DoD, they create new, state-of-the-art information through an analytical and evaluative process.**

Background

IN the mid-1940s, Information Analysis Centers (IACs) were established to overcome the following problems in the transfer of scientific and technical information, which were the result of an unprecedented growth of journals, government technical reports, and the numbers of papers presented at conferences and meetings:

(1) the variety of ways in which information can be originated, whether through primary journals, secondary journals, letters, trip reports, person-to-person, proceedings, or phone messages, each with its attendant different time lapses;

(2) scientists' and engineers' impatience with great masses of paper . . .; and

(3) management's critical need to know what the state of the art is now. (*1*)

However, it was not until the early sixties that the "information analysis center," as a clearly defined entity, began. Two documents are noteworthy for their

* *See appendix for a complete list of the 21 DoD IACs.*

role in this process. First, a seminal report on the transfer of information, *Science, Government, and Information,* written in 1963 and commonly referred to as the Weinberg Report, gave needed impetus to the scientific and technical information program. It acknowledged the impact of modern science and technology on national defense, and named the IAC as a means to solve some of the information transfer problems. (*2*) Second, the Department of Defense (DoD) Instruction 5100.45, *Centers for Analysis of Scientific and Technical Information,* issued July 28, 1964, recognized and endorsed the role of the IACs in the information transfer process. (*3*)

The DoD IACs have a broad mission of increasing the productivity of scientists, engineers, and technicians engaged in scientific and engineering programs for DoD. DoD directly benefits from the work of its IACs through:

1. Increased cost effectiveness,
2. Reduced costs,
3. Maximization of research and development efforts, and
4. Expansion of the industrial base of the United States. (*4*)

Today the DoD funds and manages 21 IACs. (*5*) Twelve are administratively managed by the Defense Technical Information Center (DTIC) and funded by the Defense Logistics Agency (DLA); nine are managed by other DoD activities. All of the IACs receive technical management from DoD laboratories and agencies with leading competence in science and technology, e.g., the U.S. Army Engineer Waterways Experiment Station and the Battelle Columbus Laboratories. Technical expertise is also provided by working scientists and engineers associated with these research and development facilities. (*6*)

What are Information Analysis Centers? What purpose do they serve? How do they differ from technical and special libraries and other kinds of information centers? Where are they found? How are they staffed? What is their role in the transfer of scientific and technical information? These are some of the questions this paper addresses.

An IAC Defined

An agreed upon definition of an IAC is problematical; one definition that seems to have attained general acceptability was advanced by the Committee on Scientific and Technical Information (COSATI) at their meeting on federally supported IACs held in 1967:

> An Information Analysis Center is a formally structured organizational unit specifically (but not necessarily exclusively) established for the purpose of acquiring, selecting, storing, retrieving, evaluating, analyzing, and synthesizing a body of information in a clearly defined specialized field or pertaining to a specified mission with the intent of compiling, digesting, repackaging, or otherwise organizing and presenting pertinent information in a form most authoritative, timely, and useful to a society of peers and management. (*7*)

The DoD, for the most part, describes the DoD IACs in terms similar to those stated in the preceding definition. The major distinguishing characteristic is that DoD IACs must concern themselves with scientific and technical information and engineering data in a clearly defined, specialized field or subject area of "significant" interest to the DoD and its research and development programs. (*8*) The DoD IACs carry out their mission on a worldwide basis, collecting both published and unpublished materials.

Since the IACs managed by the DoD must support defense programs, the implication is transparent—that their user group is limited to the DoD and its contractors, and within that group technically trained managers, scientists, and engineers. Exceptions do exist; most IACs circulate widely an unclassified newsletter, and some, because their subject matter is less sensitive, will service the more general scientific and technical community. An example of an IAC that serves the general public is the DoD Concrete Technology Information Analysis Center (CTIAC).

DoD IACs also assist the DoD Research, Development, Test, and Engineering (RDT&E) efforts by providing administrative and technical support to joint or interservice committees in the DoD. These committees review and coordinate the R & D efforts undertaken by the military services and associated government agencies, and ensure that weapons requirements provide maximum interservice compatability. (*9*)

The work of an IAC is, in every sense, a part of science, and the staff are first and foremost scientists and engineers, specialists in their fields. The interdisciplinary staff of the DoD Nuclear Information and Analysis Center (DASIAC), for example, has academic training and work experience in electrical, mechanical, and chemical engineering; physics; biology; operations research; mathematics; computer science; and library science. However, the evaluative and analytical demands of the work require that these scientists and engineers be more than subject experts; they must have established reputations for competence and vigor. (*10*) The High Temperature Materials—Mechanical, Electronic and Thermophysical Properties Information Analysis Center (HTMIAC) lists seven Ph.D.s, three M.S.s, and three B.S.s among their staff. Data analysts, computer program analysts, systems analysts, and computer scientists are a few of the information specialists who supplement the scientific and engineering staff of the IACs.

Often, in answer to specific information requests, or for special projects, the IACs use staff from the science centers where they are housed, or they contract for outside consultants, nationally recognized authorities from the larger scientific and technical community. The Nondestructive Testing Information Analysis Center (NTIAC) regularly calls on the broad expertise of over 200 professionals at the Southwest Research Institute; the Reliability Analysis Center (RAC) augments its in-house expertise by engaging consultants recognized as reliability experts in specific fields.

Furthermore, due to the criticality of this relationship between science and technology and specialized, timely information, IACs are located in areas where science and technology are flourishing. By way of example, five of the DoD IACs are situated at the U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi; two at Battelle's Columbus Laboratories in Ohio; one at the Applied Physics Laboratory of Johns Hopkins University, Laurel, Maryland; and one at the IIT Research Institute, Chicago, Illinois. This placement of IACs within a laboratory setting is essential because of the following:

1. Although the IAC staff is comprised of nationally recognized experts, no one person is completely knowledgeable in a subject.
2. Successful feedback from evaluation to research and vice versa provides symbiotic and synergistic benefits to each activity.
3. Time sharing of competent individuals and specialists for information-related tasks is made possible at reduced investment and increased efficiency.
4. IAC staff members are better received by their scientific and engineering peers working in the larger scientific and technical community which facilitates the IACs acquisition of unpublished information.
5. In turn, the IAC products are well received by the user community precisely because that community knows and respects the producers of the products. (*11*)

IAC/Library Relationship

There is a general consensus on the distinctions between the IAC and the library:

1. IACs produce specialized products: handbooks, manuals, abstracts, symposium proceedings, and technical journals. Libraries, even highly technical, specialized libraries, do not.

2. IACs work with information and, in fact, are retailers of information; libraries work with the materials which contain the information. In other words, IACs process and transfer information; libraries process and transfer books, journals, and other kinds of documents in which the information is found.
3. IACs directly help solve real problems with their critical state-of-the-art reviews and compilations and inquiry services; libraries indirectly help with problem solving by supplying a user with the materials from which the user extracts the critical information.
4. IACs create new knowledge; libraries do not.

Some believe that libraries and IACs have complementary and mutually supporting functions: The libraries provide the documents; the IACs analyze and repackage them, and can, in turn, supply libraries with this new information. These people contend that libraries are better prepared to select, acquire, process, and control the physical materials, leaving the IACs the time to successfully carry out their mission. Others would take issue with this separation of responsibilities, stating unequivocably that the IACs must be involved in the acquisition of materials and related processes because they are the experts in the field and they are the only ones with sufficient knowledge to properly carry out these activities.

The DoD differentiates the library and the IAC in this way: DoD libraries circulate materials, do bibliographic searches, and provide reference and other services. The IACs of DoD produce authoritative technical information in their specialized fields. (*12*)

What is the Role of IACs in the Transfer of Scientific and Technical Information?

The IACs, through their activities, have a unique and significant role in the transfer of scientific and technical information. The data they acquire and select is in the forefront of science and technology. Moreover, by virtue of their position as centers for specialized knowledge, they have access to information through unconventional means, such as unpublished, interim reports of colleagues or trip reports from staff members.

Then, too, scientists and engineers find it expedient to go to one main source for their information. They have learned to rely on the IACs because they know they can turn to them for the best possible, most up-to-date, individually tailored information, saving both time and money.

IACs not only gather all the relevant materials worldwide, they sift out the useless from the useful through their analytical and evaluative activities. These functions, central to the work of the IAC, increase the density of the useful information and they improve the quality and reliability of the information held. "Systematic evaluation of reports on results of research—in some cases of work still under way—leads to an understanding of the sources of error in this work, to an evaluation of the experimental techniques and, by making these sources of uncertainty known to the practitioners in the fields, leads to an upgrading of the quality of the work in these fields. It has been documented by means of a citation analysis of IAC issued papers that IACs impact directly on fundamental science." (*13*)

The peer review process has been the established method for determining the credibility of new scientific information. Scientists publish their findings in professional journals where they are subjected to critical examination by their colleagues. The results of scientific work published in government technical reports do not receive this kind of peer review. "Consequent [sic] such products are often not perceived by the scientific and technical community as prestigious sources of information." (*14*) The IACs moderate the effects of this deficiency through their evaluative and analytical

functions, performing in a very real sense a type of peer review.

Bibliographic control of this kind of information, appearing in such varied formats, has been troublesome to accomplish. IACs, by gathering all of the relevant, difficult to find, not readily available data of a particular field in one place, perform a useful and necessary service for this type of literature.

IACs are also known to set the standards in their individual areas of expertise within the DoD. The handbooks they produce, for example, are looked upon as definitive works in their fields. "The Aerospace Structural Metals Handbook" published by the Infrared Information and Analysis Center (IRIA), the "Structural Alloys Handbook" put out by the Metals and Ceramics Information Center (MCIC), and the series of six looseleaf "Propulsion Manuals" updated annually by the Chemical Propulsion Information Agency (CPIA) are but a few sample titles.

IACs perform a monitoring function when they facilitate solutions to particular problems through the mobilization of available resources. Concerned users can turn to the IACs as a central information exchange for guidance, stimulation, and the latest knowledge. For example, the review committee investigating the recent Pershing Missile accident in Europe approached CPIA for assistance. CPIA investigated and reported on the shock, friction, impact, and spark ignition sensitivities of Pershing Missile propellants.

As an informed monitor of its specialized subject field, the IAC is in a position to both recognize the emergence of new topical matters and to mobilize the community for necessary action. (*15*) For example, the Survivability/Vunerability IAC (SURVIAC) developed the survivability section for the vehicular technology component of the DoD Military Critical Technologies List, identifying those technologies that contribute to the development, production, or utilization of items being controlled for national security purposes.

Issues

The DoD IACs are not without their problems and concerns. Most of these issues center around the question, "How well are the IACs accomplishing their mission?" Over 20 years ago, the Weinberg Report recognized there could be problems in establishing and maintaining IACs. One potential area for concern was the securing of enough qualified scientists and engineers to serve on the staff of the IACs. This does not seem to be a problem, and DoD IACs are well staffed. The Chemical Propulsion Information Agency (CPIA), in continuous operation since 1946, has a full-time staff of 12 professional scientists, engineers, and information specialists and 9 support staff. On the other hand, the Cold Regions Science and Technology Information Analysis Center (CRSTIAC) does not have its own staff, but, as an integral part of the Cold Regions Research and Engineering Laboratory of the U.S. Army Corps of Engineers (CRREL), CRSTIAC can use CRREL's staff of about 300, including more than 100 research scientists and engineers.

A second issue is the conflicting demand of secrecy and the free exchange of information. Much of America's scientific research and development is aimed at maintaining its military strength, and the results of these efforts cannot be transmitted as freely as nonmilitary efforts. Yet the problem is complicated because within the military research establishment, rapid and open communication is vital. Many believe the "need-to-know" required by the DoD for access to DoD information is a major deterrent to the fundamental capability for knowledge transfer, especially in a democratic nation.

It is contractually required that each DoD IAC, consistent with the security and other limitations on the center's information, serve the public. In addition to having a need-to-know, organizations must, in some cases, be registered with the DoD to receive export-controlled information. Requirements vary from in-

formation center to information center and depend largely upon the sensitivity of the subject focus of the particular IAC. The Tactical Weapon Guidance and Control Information Analysis Center (GACIAC) is an example of an IAC with severely restricted access. Users must be registered with DTIC at the confidential or higher security level, with fields of interest specified and their facility cleared to receive this kind of information. (*16*) In contrast, the "[Manufacturing Technology Information Analysis Center] MTIAC provides services to government agencies, contractors to the government or subcontractors and, to the extent that funds permit, to firms in the general industrial community as well as universities and research institutes. U.S. firms are not required to have contracts with the government in order to use the services of the center." (*17*)

Proprietary information presents another obstacle in the information transfer process. Industry justifiably refuses to share such information that they have acquired at great expense and effort. "Whenever an industrial organization develops scientific or technical information which would provide that organization with a competitive advantage, a technological advance, or a completely new piece of hardware, the organization will not release this information until it either has obtained patent protection or a copyright." (*18*)

All IACs are expensive to operate if only the dollars and cents outlay is considered. The work of an IAC is labor intensive, and the scientists and engineers performing the work command high salaries. The broader the IAC's scope, therefore, the more technical people required and the higher the salary budget. However, a strong case can be made for the savings that issue from the work of the IAC. The prevention of duplication of efforts is cited as one of the major ways IACs save real monies. The costs of scientific and technical work can increase if a piece of relevant information is unknown, the result of an inadequate information transfer process. Notwithstanding, it has not been easy for IACs to statistically measure their real value to the scientific and engineering community. There is no simple way to measure dollar and cents savings, and, at best, only estimates are made.

In the early seventies, the DoD made a decision that by 1973 all DoD IACs would have to recover 50 percent of their operating budgets through user charges. The Metals and Ceramics Information Center (MCIC), for example, began a phased transition to service charges in August 1971, seeking to derive monies from three principal sources: 1) publications, 2) inquiry services, and 3) special studies. The stated objective of the service charge program was twofold: to allow each IAC a means to recover part, or all, of the costs associated with the output of the IAC, providing an income to offset rising costs, and to provide for expansion of services to the technical community. It was believed by the DoD that users would pay for those services and products they wanted and the IACs, in turn, would become more responsive to the needs of their user community.

Charges are assessed in two main ways:

1. On the basis of costs incurred; for example, on the number of files searched, the number of references supplied, or how much staff time was used; and
2. According to a pre-established fee structure for specific products and services.

Certain services remain free to the user and vary from IAC to IAC. These might include general informational queries, certain kinds of bibliographic searches, or minor technical inquiries. There are several payment options: subscription plans, prepaid accounts, standing order plans, deposit accounts with the National Technical Information Service (NTIS), blanket purchase agreements, military deposit accounts, and Military Interdepartmental Purchase Requests.

Once the cost recoupment policy was put into effect and the procedures for

assessing charges were in place, the IACs found themselves in the business of marketing their products and services. Initially, marketing of products and billing for inquiry services were handled by NTIS. According to Clara Gannon of NTIS, however, the relationship is limited today, with most of the IACs selling documents on their own. The reasons for this are twofold: first, much of the material the IAC produces is sensitive and cannot, by law, be distributed through NTIS, and secondly, the financial rewards are greater to the IAC if they handle the marketing and distribution of their own products. (*19*)

Conclusion

The problems and concerns facing the IACs do not exist in isolation. They are part of the more basic issues that trouble all institutions and individuals involved with the transfer of scientific and technical information in this country, and can only be understood in light of our nation's federal information policies. Unfortunately, the history of these policies exhibits a variety of disparate positions and seems to depend upon the current attitudes about science, technology, or information. The DoD IACs, however, over a 40-year period, have been making a very real, positive contribution to the flow of scientific and technical information.

Appendix

Coastal Engineering Information Analysis Center (CEIAC)

Chemical Propulsion Information Agency (CPIA)

Chemical Warfare/Chemical Biological Defense Information Analysis Center (CBIAC)

Cold Regions Science and Technology Information Analysis Center (CRSTIAC)

Concrete Technology Information Analysis Center (CTIAC)

Data and Analysis Center for Software (DACS)

DoD Nuclear Information and Analysis Center (DASIAC)

Tactical Weapon Guidance and Control Information Analysis Center (GACIAC)

Hydraulic Engineering Information Analysis Center (HEIAC)

High Temperature Materials-Mechanical, Electronic and Thermophysical Properties Information Analysis Center (HTMIAC)

Infrared Information and Analysis Center (IRIA)

Metals and Ceramics Information Center (MCIC)

Metal Matrix Composites Information Analysis Center (MMCIAC)

Manufacturing Technology Information Analysis Center (MTIAC)

Nondestructive Testing Information Analysis Center (NTIAC)

Plastics Technical Evaluation Center (PLASTEC)

Pavements and Soil Trafficability Information Analysis Center (PSTIAC)

Reliability Analysis Center (RAC)

Soil Mechanics Information Analysis Center (SMIAC)

Survivability/Vulnerability Information Analysis Center (SURVIAC)

Tactical Technology Center (TACTEC)

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Docu/Master Information Retrieval System

William E. Poor

■ **Docu/Master is an information storage and retrieval system for mainframe computer applications. Produced by DSI, Inc., Docu/Master provides the ability to store citations, abstracts, or full-text documents and retrieve the information in an interactive online mode. In this application, Docu/Master is utilized for a corporate library catalog intended for end-user searching. System features are described, and the changeover from a previous IBM STAIRS application is discussed.**

THERE are numerous programs and software packages for storing and retrieving text information in mainframe computer systems. In fact, one system, IBM STAIRS, was reviewed by this author in an application at the libraries of Cummins Engine Co., Inc., a leading worldwide manufacturer of diesel engines and components, located in Columbus, Indiana. Since that review, however, the Cummins libraries have changed to a different mainframe online catalog system—Docu/Master, produced by DSI, Inc. in Norwalk, Connecticut.

The libraries' online catalog of over 50,000 documents is accessible to all company locations and is the largest application of Docu/Master in the company. There are several other applications in the law, personnel, and health and safety departments. Most of these applications include only abstracted information. One particular application, the company policy manual, is full text.

Changing Systems

Using the STAIRS system, the business and technical libraries at Cummins had developed an online catalog, including the traditional card catalog of books and internal technical and business reports. While this database evolved over a period of years, there were problems in the use and structure of the STAIRS catalog. In looking for a system which was less complex, easier for users, and which provided easier document updating, the library services department and systems department considered the Docu/Master System.

Docu/Master offered several features that were considered favorable. First, the system seemed much easier for the fre-

quent, and infrequent, user. Since the libraries' catalog is intended for end-user searching, the system has to be comfortable for individuals who are not information professionals and who might be confused by an overwhelming number of commands.

Another feature that Docu/Master offered was online editing for simple document correction and updating. With the proper access code, documents could be edited for updated information, correction of typos, or deletion of information. With this feature, of course, whole documents would not have to be deleted and reloaded just to correct a minor typographical problem. From the systems point of view, Docu/Master seemed to offer a greater degree of simplicity in structure.

Docu/Master basically is comprised of two files, a text file and an index file. This simplicity could greatly reduce the storage requirements for the information in the system and reduce the amount of time needed for systems support.

One feature that was appreciated by both the libraries and systems alike was the ability to easily create additional files within an application. Once a database application was set up, new files within that application could be created anytime by the authority over that application without systems interface.

Following a review process, which included various STAIRS users within the company, the Docu/Master system was selected. The transition from the STAIRS system to Docu/Master was not painless, but it was carried off fairly efficiently. Since the library database had been built up over the previous years, the reformatting of data for Docu/Master could be done electronically. There were a few technical "bugs" in the process, but the bulk of the data survived the trauma of transfer. For three months, the libraries and systems department maintained a dual STAIRS Docu/Master arrangement to ensure that everything worked properly.

Docu/Master (version 3.1), is currently operating in the CICS 1.6.1 region of an IBM 3084 (MVS/XA) computer.

Database Structure

Docu/Master files are organized around a database and subdatabase structure. A main database, or file, can be subdivided into subdatabases. In the library application, the master database (named INFO) is subdivided into nine subdatabases (table 1). These subfiles are organized around the type of documents (ie., patents, internal reports, etc.). The subdatabases are not grouped by subject; although, it is possible to do so if that is what is desired in the database design. Subdatabases are identified by a letter/number ID. This naming convention, which may not always allow for logical subdatabase names, does allow for 198 databases within each main database.

With this database/subdatabase structure, Docu/Master has the capability of searching a specific subfile, group of subfiles, or the entire database, as desired by the searcher. This cross-file searching provides a great deal of flexibility and thoroughness to searching.

When entering the system, the default is to search the entire database. Thus, for example, a search in the INFO database on "air pollution" would automatically locate books, patents, SAE publications, internal reports, etc. on the subject.

However, the search can be restricted to a particular subdatabase by using the SELECT command. For example, if at the outset of the search the searcher is interested in looking only for patents, the SELECT P1 command will lock the search

Table 1. Database/Subdatabase Structure

Database	Subdatabase ID	Contents
INFO	E1	card catalog of books
	F1	internal business reports
	G1	competitor information
	H1	sales/service manuals
	P1	patents
	S1	SAE information
	T1	internal technical reports
	V1	audio-visuals
	X1	personnel (experts) index

strategy into the P1 (patent) file only. The SELECT command can be used for multiple subdatabase searching, too. SELECT P1, S1, T1 would restrict the search to the patent, SAE, and internal technical reports files.

Searching

Upon entering Docu/Master, a large sign-on screen is displayed (figure 1). The user is prompted for entering a database ID (in this case INFO) and an operator ID. For the library application, a general purpose ID is used to provide access to the INFO database. However, for security reasons, IDs can be set up to restrict access to certain databases and/or subdatabases.

Once the proper database ID and user ID are entered, Docu/Master responds with "SESSION STARTED." The "SESSION STARTED" message is the last prompt the user receives from Docu/Master. From here on, searchers are on their own; fortunately, however, Docu/Master searching is so easy that even new and infrequent users can pick up on searching very quickly.

The basic command for searching for information is the FIND command. The fact that one wants to "find" information on a given subject is a major point in the ease of learning and using Docu/Master. To execute a search, one enters FIND and search term(s)—for example, FIND MANUFACTURING. Since the FIND command can be abbreviated to F, the above search can be entered as F MANUFACTURING.

Multiple terms, of course, can also be searched. Any multiple term search, however, must include an operator "and," "or," or "not" between the search terms. For example, FIND DIESEL AND TRUCKING AND INDUSTRY would find any documents with the words diesel, trucking, and industry. The operator "or" can be used to find synonymous words—for example, FIND TRUCKING OR TRANSPORTATION. Searches can eliminate words by using the "not" operator—for example, FIND TRANSPORTATION NOT AVIATION. All these operators can be used together—for example, FIND SOFTWARE OR PROGRAM AND FINANCE NOT ACCOUNTING. Docu/Master search logic works strictly left to right, so one must

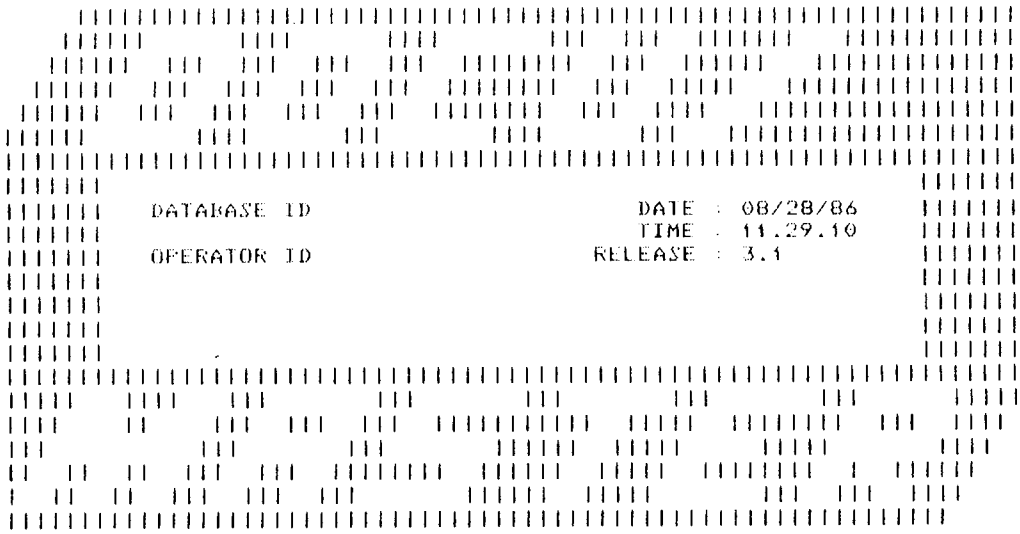

Figure 1. Docu/Master Sign-on Screen

be careful in combining operators in order to achieve the desired results.

Truncated terms may be searched using the hyphen "-" after a search term. Thus, FIND AUTOMAT- will find AUTOMATED, AUTOMATIC, AUTOMATION, etc.

Terms can be found in specified locations of a document, such as the author or title field. Each entry in Docu/Master has field prefix tags (table 2). To look for information in a particular field, one enters the field tag, a colon, and the term.

To locate a document by author, for example, one would enter FIND AU:DRUCKER to find all publications by the author Drucker.

Each time a FIND command is executed, Docu/Master assigns a search number to the inquiry. Prior search numbers, then, can be used in a search to repeat the prior search without retyping the previous search strategy.

Because a number in a search refers back to a prior search, to search for a whole number in the database the number must be put in single quotes, ie., FIND '2'. Docu/Master uses quotes to handle other terms requiring special handling, too. For example, to search for command words, such as "find," the search would be FIND 'FIND'.

Another search concept, which is very handy, is using subdatabase identifiers for search terms. That is, while searching the complete database, a subdatabase identifier used as a search term will restrict the search just to that particular subdatabase. For example, the following search FIND PRODUCTIVITY AND E1 will look only in the E1 (card catalog of books) for the term "productivity." Using this feature is similar to using the SELECT command, mentioned earlier. However, using the subdatabase identifier as a search term is a more flexible search strategy. The SELECT command "locks" the searcher into the specified subdatabase until another SELECT is entered. Using the subdatabase ID as a search term, on the other hand, can be used anytime, for any subdatabase.

Field prefixes, as illustrated in table 2, are also used by Docu/Master for numeric and date ranging. As an example, FIND YR:1981 THRU 1986 will find all documents published in the last five years. Or, a search can make use of "greater-than" or "less-than" features, such as FIND YR GT 1984 to look at documents for the last two years.

Table 2. Document Format/Fields

Field Prefix	Information in the Field
NU	document number
AU	author
TI	title
SO	source/publisher
SU	subject
AB	abstract
YR	year of publication
DE	date entered

Displaying Results

Once a FIND command is executed, Docu/Master responds with the search results (figure 2). To display the first document, simply press the ENTER key. Each time the ENTER key is pressed the next document in the results list is displayed.

If the display list is lengthy, or a particular abstract runs over one screen, the searcher can use programmed function (PF) keys to move around the list. The PF keys (figure 3) allow the searcher to quickly display the previous document, first document, next document, etc.

The default display format is the complete entry of all prefixed fields, i.e., author, title, abstract, etc. (figure 4). If an altered format is desired, the SET OUTPUT command is used to specify any prefixed field(s) for display. For example,

Figure 2. Search Structure

```
          FIND COMPUTER AND
            AIDED AND DESIGN
        2323      COMPUTER
         100      AIDED (142)
          68      DESIGN (7450)
SEARCH 0001  68   DOCUMENTS FOUND
```

PF1 next document	PF2 next page	PF3 prior page
PF4 first page	PF5 last line	PF6
PF7 all documents	PF8 first document	PF9 last document
PF10 next document	PF11 prior document	PF12 current document

Figure 3. Docu/Master Programmed Function (PF) Keys

SET OUTPUT NU,AU,TI changes the display to show only the document number, author, and title (figure 5).

Results of a search can be sorted by using the SORT command. Again, the SORT utilizes the field prefix. The command structure for sorting is SORT, followed by the prefixed field to be sorted, and the number of columns (or characters) to be sorted. For example, SORT YR:4 sorts the YR (year) field by four characters, left to right, placing the search results in chronological order by the year published. Sorting can be done in ascending or descending order.

Printing is accomplished by using the SEND command. In essence, the searcher SENDs the document(s) to a designated printer. SEND CURRENT DOC TO XXXX sends the current document being displayed to the designated printer XXXX (the printer ID). Or, SEND ALL DOC TO XXXX sends all the documents in the list to the printer.

One other command—INDEX—is very useful. INDEX is similar to the EXPAND command in the Dialog system or the NBR command in the SDC system. Indexing a word displays a listing of terms alphabetically above and below the indexed term and an indication of the number of times the term is used in the database. Figure 6 illustrates INDEXing the word "modeling."

Figure 4. Complete (Default) Display

NU	TA345.I5485 1983
AU	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
TI	COMPUTERS IN ENGINEERING 1983
SO	NEW YORK, ASME, 1983
AB	3 VOLUMES: VOLUME 1—COMPUTER AIDED DESIGN, MANUFACTURING AND SIMULATION. VOLUME 2—ROBOTICS THEORY AND APPLICATIONS, COMPUTERS IN EDUCATION. VOLUME 3—COMPUTER SOFTWARE AND APPLICATIONS. (PROCEEDINGS OF THE 1983 INTERNATIONAL COMPUTERS IN ENGINEERING CONFERENCE, AUGUST 7–11, 1983, CHICAGO, ILLINOIS).
SU	ENGINEERING—DATA PROCESSING—CONGRESSES. COMPUTERS—CONGRESSES. CAD/CAM.
YR	1983
DE	840419

Figure 5. Abbreviated Display

NU	TA345.I5485 1983
AU	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
TI	COMPUTERS IN ENGINEERING 1983.

Data Entry and Editing

Docu/Master is flexible in allowing for various means of data input. While data can be entered via different systems, with appropriate access authority data can be input and edited directly in the system itself, while online.

Figure 6. Index of Terms

	258	MODE
	3585	MODEL
	70	MODELED
	4	MODELER
****	341	MODELING
	2	MODELL
	73	MODELLING
	1107	MODELS
	139	MODERATE
	480	MODERN

Docu/Master works in a line-edit process. Document lines can be entered, deleted, or replaced. It is important to note the "edit mode" is not a true word processor. Characters, such as typos, can be corrected, but, again, the editing process works on a line-by-line basis. Thus, for example, to correct a typo, a REPLACE CHARACTER command is used to replace incorrect characters on a given line. While the line-edit process is somewhat cumbersome for those who work regularly with true word processors, the ability to correct, add, and delete directly in the document while online is a positive feature, which some retrieval packages do not provide.

As stated earlier, information can be entered into the database by various other systems. One such system is DSI's companion product, Key/Master. Key/Master is a data entry system that, although aimed at pure numeric data, can be adapted for text entry into Docu/Master.

At Cummins, several input systems are employed. Some documents can be, and are best, input directly into Docu/Master itself. Key/Master is also used in some cases, and other systems, such as IBM/TSO, IBM/ATMS, and the company's internal electronic mail system, TOSS, have been adapted for input.

Pro's and Con's

Docu/Master has several positive features that make it a good system for document retrieval in a large user-base system. First, the simplicity of the search procedure has been very favorably received by the end user within the company. In most cases, information is requested by infrequent users trying to locate needed information in a hurry. Accessing the library database from any terminal in the company allows the user access to thousands and thousands of documents instantly. But, since this typical user is not an information professional, the need is for an easy system in which just a few logical commands can be quickly recalled. Herein lies the simplicity and advantage Docu/Master offers the end (and often infrequent) user. For the average search, the user need only to use the FIND command and the ENTER key.

Associated with the ease of the use of the system, training time for learning Docu/Master is minimal. With just a few minutes of instruction, the average user can pick up on the basics. Of course, for more advanced searching and system features, additional training is needed. The Library Services Department does teach a regular class in Docu/Master.

A second positive feature of Docu/Master is the ability to edit documents online directly in the system. This allows for a much cleaner database and much more efficient use of clerical time in database maintenance.

A third positive feature of Docu/Master is the flexibility in database/subdatabase design and searching. From the searchers point of view, the default of searching the entire database provides an extensive total search. We have seen in the past that if a searcher has to specify a database for a search then often the search is too restrictive, and the user does not have the benefit of finding information in other files which may not have been considered. Docu/Master defaults to a "global" search, but does allow for a "restricted" search by subfile, if desired.

From the database design point of view, the ability to create a new subdatabase at any time is very beneficial. If the libraries, for example, decide to set up a new subfile of information, it can be done without the consultation and intervention of the systems department. Simply filing a document in a new subdatabase creates a new subdatabase, a fact that has greatly reduced the time needed for systems to attend to database management matters. And, the database authority now has complete flexibility in maintaining or expanding the respective application.

A fourth positive feature of the system is the simplification of database maintenance. Obviously, this reduction of

disk space and the simplicity of managing the files is a real plus for the systems area.

As for faults or problems, there are a few. While one of the positive features is the simplicity of the system, an experienced information professional will find the system over simplified. String searching (adjacency) is possible but very cumbersome, and nesting of terms using parentheses is not allowed. Thus, the Boolean logic must be a simple left-to-right string.

Several other commands, or lack of, will also aggravate the professional searcher. Sending documents to the printer allows for only a few logical print options, such as current document or all documents, and, thus, is somewhat inflexible. Displaying previous searches also is cumbersome, since there is not a command for displaying all previous searches. The searcher has to display one previous search at a time. This inflexibility in display carries over to displaying documents also. The PF keys let you quickly move around a list, but there is no capability to display the "nth" document of the list. That is, in a results list of 20 documents, for example, you cannot enter a command to display or print the 10th document in the list. Nor, can you display a range of documents, i.e., the 10th, 11th, and 12th documents.

The handling of special words that have to be put in quotes is confusing. Certainly the requirement for putting certain commands, such as FIND, SELECT, SORT, etc. in quotes can be understood, but there seems to be an inordinate number of "reserved" words, such as DIRECTORY, FRENCH, GERMAN, that can play havoc with a library search.

Along this line, too, the standard stop word list of words Docu / Master does not index is fairly extensive. A classic example is the film by Dr. Morris Massey entitled "What You Are Is Where You Were When." In the standard Docu/Master stop word list, every one of these title words is a stop word. Needless to say, the stop word list may have to be modified for specific applications.

Conclusion

Overall, Docu / Master is a very useful information retrieval system, especially for basic search environments. The system may sacrifice sophistication for simplicity and flexibility, so any consideration of the system must seriously look at the needs and makeup of the organization. The system is not the "ultimate" in information retrieval, but, with a few modifications, Docu / Master is capable of providing information retrieval for a wide range of users.

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Cataloging in Focus

Anne Jones

■ **The American Management Association (AMA) Library in New York City has improved service to members by automating its book catalog and article index. Using PC FOCUS, a database software package, we are able to enter a book in the system within two weeks. Approximately 5,000 articles are indexed annually using the same package. Bibliographies can be created instantly on any of our 1,000 management subjects. Programmed menus and screens facilitate data entry and reporting. Our two years of experience with the system has convinced our staff and visitors that we chose the best system for our needs.**

THE American Management Association (AMA) Library and Management Information Service in New York City serves 70,000 AMA members nationwide and the employees of several thousand corporate members. The library answers almost 20,000 requests annually for written materials in the field of management. Although we are often asked for books and periodicals by title, most of our inquiries are for unspecified references on a particular subject. Seventy-five percent of our patrons borrow materials by mail or messenger, and rely on the five professional staff members to make a selection. In addition to the lending service for our members, we try to provide bibliographies gratis to nonmembers.

The recession of 1982–1983 reduced our department by half, leaving the survivors with an incredible workload. One of the positions eliminated was that of the bibliographer who had prepared the subject reading lists for AMA course notebooks and for our nonmember service. A second position eliminated was that of the cataloger.

The AMA Library, founded with AMA in 1923, has always followed Simple Library Cataloging rules using the Elliott Business Classification System. In the seven years prior to 1982, we had ordered LC cards rather than producing our own, adapting them to our subject headings and the Elliott System. With the departure of the cataloger, the new books started to accumulate. I attempted to catalog the more important ones as an after hours project and, in the first year, added about 300 titles to the collection (half the usual number). However, it was impossible to keep ahead of the books coming in. Fed up with card processing and with our backs against the wall (with more than 500 uncataloged books shelved by

title), the library staff asked AMA in April 1984 for an online cataloging system.

Bruce Borner of Computer Projections in New York is AMA's PC consultant. Our systems department asked him to work with us in selecting a suitable package. A number of stand-alone library cataloging packages for PCs were in development at that time and were presented among the exhibits at the SLA Annual Conference in June 1984. In the end we chose PC FOCUS with the intention of designing our own system, which could produce professional-looking bibliographies by subject quickly. We also hoped to go beyond the book catalog and recreate online the extensive article indexing system that we had maintained for 30 years and which averaged 4500 citations per year. (These references, indexed to our subject file headings, are more valuable to us than the 10,000 cataloged books. Indeed, there are numerous management subjects which are rarely discussed in books that must be answered by periodical references.) Likewise, we intended to index the library's extensive holdings of company documents in the subject files.

In January 1985 an IBM PCXT arrived. MultiMate, our word processing package, was installed, and we began our training. The entire department was unfamiliar with computers, and the initial training in MultiMate provided practical hands-on experience with the keyboard. When PC FOCUS arrived in April, programmed by Computer Projections to our specifications, most of us were ready for it.

PC FOCUS, an adaptation of mainframe FOCUS, is a fourth-generation language and database-management software package. Although it has the capability to do many mathematical computations that we do not need, it also will sort by any field and (within any report) will sort up to 32 fields deep. We have never strained it to that extent. We appreciate PC FOCUS because its report time, particularly when handling large files, beats the competition. In benchmark tests conducted by National Software Testing Laboratories, PC FOCUS consistently outperformed dBase III, R:base 4000, and R:base 5000. The larger the file, the greater the difference in performance.

PC FOCUS requires 512K RAM and a minimum 10MB hard disk. However, in a 640K RAM environment, its compiled procedures increase the speed of operation. If the files outgrow 10MB, as ours will soon, a larger disk will be needed. We put in a budget proposal to change to an IBM PCAT in July 1986. Eventually, our book catalog will contain 10,000 titles and our article index about 20,000 titles. The package lists for about $1,500. If outside programming is needed, it would probably cost another $5,000 for a system similar to ours.

Our database presently contains three files—the subject headings coded with six-digit numbers (which already existed), the book records, and the article records. Any record can be searched by any field (author, title, publication, etc.), and any set of records can be sorted by any field and screened using any field for a report.

In previous years, our library assistant had maintained the article index manually by typing the citations on blue paper, which gave the name 'blues' to our automated file. With the new system, she has continued that function, entering the citations directly from the periodicals, which are cross referenced by the professional staff. I catalog the books and enter the data directly myself. As soon as the system was up, I entered the 1,000 subject headings with their codes. This file is changed very rarely—perhaps twice a year—and needs no maintenance.

Figure 1.

```
> >TABLE FILE BLUES
> print author over title over pubname pubdate
year pages
> by author noprint
> if subj_id is 87580
> end
```

Figure 2.

```
AUTHOR
TITLE  BUSINESS COALITION OVERCOMES ITS SUBURBAN ISOLATION.
PUBNAME  PERSONNEL ADMINISTRATOR          PUBDATE  DEC.          YEAR
AUTHOR
TITLE  TRACKING TRENDS IN EMPLOYEE SERVICES AND RECREATION.  (SURVEY)
PUBNAME  EMPLOYEE SERVICES MANAGEMENT     PUBDATE  DEC/JAN.      YEAR
AUTHOR
TITLE  EMPLOYEE SERVICES & RECREATION AS RECRUITING TOOL: ATTRACTING NEW EMPLO
PUBNAME  EMPLOYEE SERVICES MANAGEMENT     PUBDATE  DEC/JAN.      YEAR
AUTHOR
TITLE  ROCKWELL'S TAILGATE SALE: A TREASURE-HUNTER'S DELIGHT.
PUBNAME  EMPLOYEE SERVICES MANAGEMENT     PUBDATE  AUG.          YEAR
AUTHOR  BIERI, JEANIE
TITLE  LIGHTING—LET IT SHINE ON YOUR EMPLOYEE SERVICES PROGRAM.
PUBNAME  EMPLOYEE SERVICES MANAGEMENT     PUBDATE  NOV.          YEAR
```

The language of FOCUS is said to be English, which means that it uses English vocabulary in a way that might make sense to an English-speaking person. However, the syntax of FOCUS differs considerably from that of English. Figure 1 is a simple report request using our field names, which will be printed along with the data in the report. Figure 2 shows the result of this request. All of the data is there, but the format makes it difficult to decipher. However, shorter forms of the field names, called 'aliases,' can be used to save time. The addition of the phrase as " after a field name allows the data to be printed without the field name. Figure 3 is a report request using these refinements and figure 4 shows the result. If you wish to concatenate empty spaces at the end of a field, you may program a report request to do it. Figure 5 shows part of such a request in which you redefine your fields, setting up a field called 'xpub' to join together four other fields in one neat line. Figure 6 shows the result.

As you can see, with each step it starts to look more like programming and less like English. However, it is far simpler than Basic or Cobol and, if the documentation were better, it would be possible for a novice to master it. Information Builders, Inc., the publishers of PC FOCUS, are revising the documentation with a view to making the package more accessible to nonprogrammers.

The great virtue of a fourth-generation language is the ability to make spot changes easily and run them immediately to test them. This saves weeks of work and eases anxieties about proposing changes. In fact, after using the system for a few months, the staff asked for a change in one of the standard reports, and, by that time, I was able to do it myself.

Figure 7 shows our report menu for the book catalog. The first two reports, 'A' and 'B', provide lists of books by subject code. The 'A' report lists title, author, and classification number for each book on

Figure 3. The Same Report Request in which the Field Names Will Not Be Printed and a Blank Line Will Separate the Citations

```
> >TABLE FILE BLUES
>print au as ' ' over ttl as ' ' over pbnm as ' ' pdt as ' ' yr as ' ' pg
>by au noprint on au skip-line
>if si is 87580
>end
```

Figure 4.

ROCKWELL'S TAILGATE SALE: A TREASURE-HUNTER'S DELIGHT.
EMPLOYEE SERVICES MANAGEMENT AUG. 1985 PAGES 30

EMPLOYEE SERVICES & RECREATION AS RECRUITING TOOL: ATTRACTING NEW EMPLOYEES
EMPLOYEE SERVICES MANAGEMENT DEC/JAN. 84/5 PAGES 17

TRACKING TRENDS IN EMPLOYEE SERVICES AND RECREATION. (SURVEY)
EMPLOYEE SERVICES MANAGEMENT DEC/JAN. 84/5 PAGES 12

BUSINESS COALITION OVERCOMES ITS SUBURBAN ISOLATION.
PERSONNEL ADMINISTRATOR DEC. 1984 PAGES 81

BIERI, JEANIE
LIGHTING—LET IT SHINE ON YOUR EMPLOYEE SERVICES PROGRAM.
EMPLOYEE SERVICES MANAGEMENT NOV. 1984 PAGES 19

that subject. The 'B' report is a complete citation, alphabetized by author, but excluding the classification number. We use 'C' to search authors, 'D' to search key words in titles, 'E' to find references indexed to two specific separate subjects. The 'F' report allows us to search for an organization affiliated with the publication, but not the publishers, such as an institute or a company name that might not be in the title. The 'G' report provides a combined bibliography of books and articles by subject. Following the choice of report, the prompt asks the patron whether to send the information on screen or to the printer. Figures 7a, 7b, and 7c show reports generated by this menu. The article report menu is virtually the same, and these two sets of reports satisfy all of our usual requests. In fact, the report system has proved so simple to use that many of our visitors run reports for themselves with a few minutes of instruction—mostly about how to keep out of trouble with the printer paper.

Entering data is also quite simple. Figure 8, the screen for entering books, shows all of the fields used. The tab key moves the cursor from field to field; the return key writes the data to disk. The next two screens (not shown) represent

Figure 5.

```
C:LATEST.FEX                    SIZE = 59                    LINE = 23

DEFINE FILE BLUES
XPAG/A16 = PG ||(' ' | 'PAGES');
XALT/A16 = ('  '| 'PG. ')| PG;
XPG/A16 = IF PTYP NE 'J' THEN XPAG ELSE XALT;
XPUB/A78 = PBNM||(' '|PDT)||(' '|YR)||(' '|XPG);
XSP/A1 = ' ';
END
TABLE FILE BLUES
HEADING
"                                   AMERICAN MANAGEMENT ASSOCIATION
"                                              SUBJECT BIBLIOGRAPHY
" </2  "
PRINT AU AS '' OVER TTL AS ''
OVER XPUB AS '' OVER XSP AS ''
IF SI EQ &XSUB1
BY AU NOPRINT
END
= = = >                                                      T E D
```

Figure 6.

AMERICAN MANAGEMENT ASSOCIATION
SUBJECT BIBLIOGRAPHY

SUBJECT ID: 87580

ROCKWELL'S TAILGATE SALE: A TREASURE-HUNTER'S DELIGHT.
EMPLOYEE SERVICES MANAGEMENT AUG. 1985 PG. 30

EMPLOYEE SERVICES & RECREATION AS RECRUITING TOOL: ATTRACTING NEW EMPLOYEES
EMPLOYEE SERVICES MANAGEMENT DEC/JAN. 84/5 PG. 17

TRACKING TRENDS IN EMPLOYEE SERVICES AND RECREATION. (SURVEY)
EMPLOYEE SERVICES MANAGEMENT DEC/JAN. 84/5 PG. 12

BUSINESS COALITION OVERCOMES ITS SUBURBAN ISOLATION.
PERSONNEL ADMINISTRATOR DEC. 1984 PG. 81

BIERI, JEANIE
LIGHTING—LET IT SHINE ON YOUR EMPLOYEE SERVICES PROGRAM.
EMPLOYEE SERVICES MANAGEMENT NOV. 1984 PG. 19

the next two segments of the file, the subjects assigned and the copies recorded. Each subject is entered and written to disk separately for as many as needed; each copy is registered separately and noted whether reference or not.

This segmented aspect of database structure is the most uncomfortable one for a cataloger, since all of the information on a single title is not in a single place, such as on a shelflist card. Although the screens, such as those in figure 8, can be brought up by accession number, they do not show the subjects assigned nor the copies available. Each particle of information needed in a report must be specifically requested. For example, if a request is programmed without specifying that the edition number field be printed, then no edition numbers will appear, although they were recorded by the cataloger and are part of the data in the file. That takes a little getting used to. However, the good news in that department is that PC FOCUS has never lost any data we have entered, including all of our typos.

To add, change, or delete data, a file must be programmed using the FOCUS Dialog Manager or a FOCUS feature

Figure 7.

AMERICAN MANAGEMENT ASSOCIATION
BOOK CATALOG REPORTS

CHOOSE REPORT TYPE:

A = AUTHOR & TITLES FOR SPECIFIC SUBJECT
B = AUT, TTL, PUBLSHR, PGS BY SPEC SUBJ
C = SEARCH FOR AUTHOR(S)
D = SEARCH TITLES BY KEYWORD
E = SEARCH TITLES BY 2 SUBJECTS
F = SEARCH BY ASSOCIATED ORGANIZATION
G = BOOKS & ARTICLES BY SUBJECT
X = TITLES AND COPIES BY CALL NUMBER
Q = QUIT

WHICH REPORT DO YOU WANT?
PRINTER [P] OR SCREEN [S]

Figure 7a.

AMERICAN MANAGEMENT ASSOCIATION
SUBJECT BIBLIOGRAPHY

COUNSELING
446.2 F FIELDING, JONATHAN E., M.D.
CORPORATE HEALTH MANAGEMENT

883 M MASI, DALE L.
HUMAN SERVICES IN INDUSTRY

213 M MINER, JOHN B.
PEOPLE PROBLEMS: THE EXECUTIVE ANSWER BOOK

Figure 7b.

AMERICAN MANAGEMENT ASSOCIATION
SUBJECT BIBLIOGRAPHY

COUNSELING

FIELDING, JONATHAN E., M.D.
CORPORATE HEALTH MANAGEMENT
READING, MA: ADDISON-WESLEY, 1984.
416 PG.

MASI, DALE L.
HUMAN SERVICES IN INDUSTRY
LEXINGTON, MA: LEXINGTON BOOKS, 1982. 246 PG.

MINER, JOHN B.
PEOPLE PROBLEMS: THE EXECUTIVE ANSWER BOOK
NEW YORK: RANDOM HOUSE, 1985.
320 PG.

called 'FIDEL' (FOCUS Interactive Data Entry Language). Using these features, screens and prompts are created for data entry and for standard report requests. The programming techniques needed to set up data entry are much more difficult than report programming, especially for a nonprogrammer. However, once completed, the data entry programs will probably never need changing.

The size of the files determines the report time. On a PCXT any report will take approximately 15 seconds. However, with our article index approaching 6,000 entries, a search of any field, such as author or title, runs about 1.75 minutes. A report of all the articles on a particular subject, sorted by author with a complete bibliographic citation, runs 2.5 minutes. However, the same 2.5 minutes will pull all of the articles on any number of subjects and then sort them out by subject. Our 'B' report allows a search by as many as five subjects at once, a feature that is very useful when we are answering several questions at once. Naturally, these times will be improved when we have a PCAT. Until then, we have an Orchid Turbo Accelerator Board installed which improves the processing speed of our XT about halfway up to an AT.

Cataloging time has been cut from an average of 42 minutes per title to 14 minutes. The waiting time had been anywhere from six weeks to a year using LC cards. New titles are now entered within two weeks of arrival. The backlog is gone and there are close to 800 books in the catalog. We are already exploring the feasibility of converting the existing card catalog.

The AMA Library and Management Information Service staff are all quite pleased with the performance of our system. If I would leave you with any advice for designing your own database it would be this: Know how you want your standard reports to look and be certain that the software you choose can produce such reports.

Conclusion

On the night of May 15th, 1986, our PCXT was stolen. That took care of the budget request, although it was a rough

Figure 7c.

AMERICAN MANAGEMENT ASSOCIATION
BOOK REFERENCE BY AUTHOR

530.1 D DESSLER, GARY
IMPROVING PRODUCTIVITY AT WORK: MOTIVATING TODAY'S EMPLOYEES
RESTON 1983 EDITION__NO

110 D DESSLER, GARY
MANAGEMENT FUNDAMENTALS: MODERN PRINCIPLES AND PRACTICES
RESTON PUBLISHING CO. 1985 EDITION__NO 4

820.1 D DESSLER, GARY
ORGANIZATION THEORY: INTEGRATING STRUCTURE AND BEHAVIOR
PRENTICE-HALL, INC. 1986 EDITION__NO 2

Figure 8.

```
AMERICAN MANAGEMENT ASSOCIATION
BUSINESS LIBRARY CATALOG

CALL NO.:  VOL. NO:  ACCESS NO.: ØØØ6Ø6
REFERENCE (Y/N):  EDITION NO:

FIRST WORD IF ANY:  E.G. THE, A: ...
TITLE:

AUTHOR:

PUBLISHER:
PLACE PUBLISHED:  YEAR:
ASSOC ORGANIZATION:
ST. PRICE:  NO. PAGES:
BOOK TYPE:  DOCUMENT TYPE:
AMA STOCK NO:

*** HIT CARRIAGE RETURN ***
```

way to get a PCAT. We had previously ordered the updates for PC FOCUS. The greater speed of the new version combined with the speed of the PCAT changed all the report times mentioned above. While setting up again we discovered a feature of FOCUS reporting that we should have been using anyway.

Figure 9.

```
TABLE FILE BLUES.SI
```

Figure 9 shows an 'indexed' report request. The program starts TABLE FILE BLUES.SI, which tells FOCUS to look for the subject code needed first, then fill in the other fields in the request. When looking up an author, the program would start TABLE FILE BLUES.AUTHOR. Using these faster features, our report times now run from 12 seconds to 40 seconds, which is lightning speed for a PC.

In November 1986, we acquired a second PCAT for our front desk. It is reserved for reporting, and our first PCAT is for input. PC FOCUS Version 2.0, which arrived in December 1986, shaved a few more seconds off the reporting time; however, this update requires 640 K Ram. After two years of experience, our staff and visitors are extremely pleased with the system.

This paper is based on a talk given at the 1986 SLA Annual Conference in Boston.

Anne Jones has been a librarian at the American Management Association in New York City for 18 years.

General Progress in Automation of Chinese and Other Asian Materials:

An Overview

John H. Maier

■ **Library automation and the information technology revolution began less than two decades ago. It has now expanded to include almost all parts of the world and all major world languages—most recently the Asian languages, including Chinese. It is now economically feasible to automate special library Asian materials in the vernacular, and this trend is the beginning of an important revolution in machine multilingual capabilities.**

Introduction

WE'VE all seen the signs "Today is the first day of the rest of your life" and "The future is now." While reading a trade journal recently—my field is computer science—I came across an announcement that a Japanese corporation had a near-product-ready software system that would machine translate from English to Japanese (using a large Hitachi M-680H mainframe and at 60,000 words-per-hour, offering the user up to 99 different translation options per sentence). At the same time, IBM has been making significant progress towards a product typewriter to which you can talk, that is, a typewriter with a stored vocabulary of up to 10,000 words that will type what you are saying as you say it. These developments, in very different parts of the world, are the future directions in computers and in the storage, processing, and retrieval of human language. They are, in fact, the very near future.

The point is that information technology is very rapidly transcending traditional—and the word is a misfit in such a young technology—bounds of language and methods of language interface and processing. The day will soon come when it will be possible to talk directly in any major language to an automated, "smart" library repository system, as well as search for and retrieve materials stored

in any other language, including Asian languages. The pieces of this kind of universalized system are now being built, sometimes for different reasons, in many different parts of the world. It is largely a localized, meticulous, technical task, but sometimes it requires great multidisciplinary conceptual leaps in linguistics, computer science, library science, and other collateral activities.

At the bits and bytes level, there are enormous obstacles to the success of constructing such systems, equivalent in difficulty, perhaps, to current work to "computerize" the structure of a single DNA strand with—on average—its 10^9 molecules, and that is only for one DNA specimen. The real goal is a DNA library.

Within recent years, I have seen examples of working automated systems for Chinese, Japanese, Korean, Thai, Malay, and Hindi (and also, of course, French, Spanish, Italian, Hebrew, Arabic, Russian, Greek, and so on), though it will be a while before these systems are voice automated. Nevertheless, multilingual automated library systems are now increasingly feasible, including for the more difficult Asian languages. Of course, once a human language and its vocabulary are "captured" in the computer, it is then possible to begin to build software procedures to process that stored information, and even to translate it into the domain of another, and different, human language (realizing, of course, all of the cross-cultural, semantic, and lexical stumbling blocks which make that immensely difficult). We will, in fact, within a decade or so, have machines to which we can speak, which will then almost immediately produce a Spanish, Chinese, or Arabic translation, but I think it will be a long while before we allow the machine to handle the nuances of our most delicate translation requirements, at the United Nations, for example. Routine tasks, though, especially in some fields of science, will be greatly aided by this expanding machine capability, which might also become an important adjunct capability of library science.

This is the near future.

Who Would Want These Systems?

The United States is now a postindustrial, information technology society and economy. More than half of all U.S. revenues and expenditures—according to the Harvard Program on Information Resources Policy—are now the result of transactions in the United States of information and service industries. Globally, of the two-and-a-half trillion dollars in 1985 international trade, eight hundred billion dollars were in services and information-technology-related trade, and these overall trends are increasing. In this environment of increasing information-based activity, and global connectivity, libraries (the repositories of information) will find their role enhanced. Humans, in fact, are the only species that store information outside of themselves, and we will see an increase in this activity in universities, research institutes, large multinational corporations, government organizations, and so on. Now, as a result of trends mentioned above, sources of relevant information and materials for libraries could be in any part of the globe, regardless of whether the topic is science, commerce, law, or any other human activity or interest. Thus, libraries and machines for processing information—computers—will have to be prepared to deal with multilingual, globally sourced documents and other materials. Furthermore, now that the United States does more trade with Pacific Basin nations than it does across the Atlantic Ocean, we can also expect that our contact with original language documents and materials from Asia will increase.

Not insignificant in this constellation of developments is the rapidly growing strength and importance of relations with the People's Republic of China, a now agrarian, developing country that is industrializing, and which could become an economic powerhouse in the 21st century. China's spoken language, Mandarin, is the most widely used language in the world (one billion people speak

Mandarin). World trends, and trends in library science requirements, will make it necessary for us to deal with Asian-material, multilingual repositories. Advances in computer science will make it routinely possible, even in special libraries operating under limited budgets.

Activity in Asia

Actually, the three most important East-Asian languages are Chinese (Mandarin), Japanese, and Korean, and only Chinese is an official United Nations language, perhaps because of China's permanent position on the U.N. Security Council, and perhaps because about 20 percent of the people in the world use Chinese as their primary language. The Chinese, Japanese, and Koreans have all been working very diligently and successfully on developing and implementing routine computer applications (database management systems, library systems, various information retrieval systems, etc.) for their respective languages. This work has included development of a variety of keyboards, printers, display units, and other hardware, all capable of both the Asian script and standard English. It is now technologically quite possible to automate materials that include both Asian and non-Asian vernacular, something not possible 10 years ago. Now most large American computer vendors (IBM, DEC, Honeywell, WANG, and so on), in fact, offer Asian-language-system capabilities. This is not to say that Rome can be built in a day, or that your library can adapt to Asian materials tomorrow; it would probably take more like a year, and would require some serious systems analysis and planning, just as any other substantive automation enhancement or conversion activity.

A Few Thoughts on Language

How does all of this work? Well, first let us think a bit about language itself, and the way that it works, and then we can advance to the way that automation of a language works. Let us use the Chinese language as a good, and very important, example.

Before humans had written language, there was no efficient and reliable way to pass information from one generation to the next. Written language, thus, was a very significant invention, and its invention occurred independently in China more than 4,000 years ago in the forms of ideographs—pictographs depicting ideas, things, actions, and so on. Remarkably, that system has sustained itself to the present, so that the entire Chinese language now consists of about 40,000 ideographs, or characters, all nonphonetic, and each conveying an idea or ideas. The written language has also managed to adapt to the modern world, and, for example, the Chinese phrase for "computer" is a combination of the words for "electric" and "brain." A Chinese today can read without difficulty something written 4,000 years ago during the Shang Dynasty, but a Chinese today, also, must contend with memorizing a vast number (at least 2,000 to 3,000 for minimal literacy) of the symbols in the language, far more than our efficient, but aesthetically sterile, alphabet of 26 letters, which we are able to use phonetically to effortlessly construct our entire spoken vocabulary.

Also, for example, when it came time to design a Chinese computer keyboard, there were obvious nontrivial problems in how to devise a device with at least several thousand keys. It was, therefore, not an easy event for the computer revolution to expand around the world into Asia. Now, however, those problems are behind us, and feasible solutions have been ingeniously devised; Asia, also, will benefit from the growing dimensions of the social and economic values of information technology.

The Chinese Case

For a further discussion of automation of Chinese, we are going to have to be-

come a bit technical. Standards—that is, mutually agreed upon conventions—are immutably necessary to systemic effectiveness, whether concerning the content of a unified field theory in physics or in human language communication, or in the DNA transfer of a protein molecule, or in machine communications, and so on. Therefore, the first and singularly most important advance in China's entering the information technology revolution (which concerns machine processing of information, rather than numbers) occurred in 1980, when the People's Republic of China officially standardized the bit representation (using 16 bits) for Chinese characters (China's National Standard, GB 2312-80, Code of Chinese Character Graphics Set for Information Interchange), just as we have a standard (using 7 bits) for the alphabet (the American Standard Code for Information Interchange, or ASCII). Importantly, China's standard subsumes ASCII, and, therefore, the two standards are not incompatible. Now, for example, one Chinese processing system can communicate with another Chinese processing system, and they both can communicate with a Western manufactured system, for example, in a network. It was an important, and necessary, establishment of ground rules, which had to occur before development of widely useful applications could occur. China's standard has been formally submitted to the International Standards Organization (ISO) for acceptance as a world standard for bit representation of Chinese characters.

Next, to work together and have our systems communicate effectively, we have to agree on applications-level formats, such as in the use of MARC (Machine Readable Cataloging format), which was developed by the U.S. Library of Congress to facilitate compatibility for electronic exchange of information between libraries, which is in widespread use, and which complies with the International Standard of Bibliographic Information Interchange (ISBII). And, in fact, China's National Peking Library—the equivalent of the Library of Congress—is currently undergoing an extensive first-time automation. China's National Peking Library (which the author visited during a one year 1984–85 research residency in the People's Republic of China) is now working with the U.S. Library of Congress—for example, sending part of the Chinese automation team to work for a period of time in the Library of Congress—and MARC format is widely understood, and sometimes adopted, in China's library science activities. It is possible, for example, to combine Chinese and English data in MARC records, as long as there is agreement among systems on the conventions and standards used.

As a note of interest to the computer science readers, it is equally possible to even write software in Chinese—to, in effect, have a Chinese COBOL. Operating systems, and so on, can all be adapted into Chinese versions, because at the bit level it does not matter what the pattern is as long as there is agreement as to the representation mapping.

For an input mechanism, because there is an immense amount of inexpensive, standard "ASCII" keyboard terminals on the market, the ideal solution was to somehow use standard hardware and not require specialized keyboards. This has been accomplished with a variety of solutions, but the most common one was to input Chinese phonetically, that is to spell out on the standard keyboard the sound of the unique ideograph. If a homonym set resulted, then the system software was programed to sort out discriminating options for the user. Because of storage requirements for a larger vocabulary (16 bits $\times$ 40,000), and also for storage requirements to store the more dense images of the ideographs, Chinese word processing information systems generally are heavy memory users.

For printers and other display peripherals, the most important enhancement needed for Chinese systems was the increase of the pixel matrix so that more "little dots" were used to form the more robust Chinese ideographs, compared to the more sparse geometries of the 9 $\times$

12 matrix commonly used to form the English alphabet set.

The Chinese love their writing system in spite of its difficulties. While the Chinese child in the sixth grade is still struggling to build a vocabulary, committing each ideograph to memory, the Western child, even in the first grade, for example, can begin quickly to function in the native language once he or she has learned to sound out words. Nevertheless, valued by-products of the Chinese written language are a deeply learned sense of discipline, respect for a rich cultural tradition, and a honed aesthetic appreciation that matches art. With the advent of computers, and also with the beginning of official use in the People's Republic of China primary school system of "pinyin" (the system of using the Western alphabet to spell out sounds of ideographs, adopted to accelerate the educational process), many Chinese lamented the eventual death of the Chinese traditional writing system, a great cultural accomplishment and the repository of the core of the Chinese identity. Now, however, with the successful automation of Chinese, the traditional language has clearly entered the epoch of the information technology revolution, and has been saved from extinction.

Databases and Networks

The U.S. Library of Congress, according to a press release by the Research Libraries Group (RLG), a corporation based at Stanford, California, on September 12, 1983, created its first online cataloging Chinese vernacular record in the Research Libraries Information Network (RLIN) database. The RLG project has involved creation of a "CJK"—Chinese-Japanese-Korean—video terminal, and the project's goal is "to achieve nationwide bibliographic control of East Asian vernacular material."

Network users may enter their own records and search for each other's. Services include: online reference for patrons, interlibrary loan requests, preorder searching, acquisitions processing, cataloging, and catalog maintenance. As of early 1986, the network had 66 terminals in use, including 26 at the Library of Congress, and had a database that had grown to more than one hundred thousand in the books file and more than two thousand records in the serials file. Participating institutions included more than 58 percent of the important East Asian libraries in the United States—many with holdings of more than a million items. Some of the participants are as follows: the Library of Congress, Columbia University, The New York Public Library, the Hoover Institution at Stanford University, Yale University, University of Michigan, University of Pennsylvania, Princeton University, Rutgers University, Brigham Young University, Brown University, Cornell University, University of Minnesota, University of Toronto, University of Chicago, and the Los Angeles County Public Library.

Most users are large organizations, and medium and small libraries seem to be waiting and watching before making a commitment to this network. Cost, of course, is a factor. Additionally, the Online Computer Library Center (OCLC) will also soon introduce its own "CJK" service and capabilities. Thus, potential customers will have a choice.

But the important point is that the direction of the future is clear: multilingual information technology capabilities, even in difficult Asian languages, will become increasingly routine machine functions. It will be possible in the not distant future to do a keyword search on "special" and "library" and receive citations from all of the important languages of the world. As an enhancement, a bit further in the future, the dialogue with the machine-system will be conducted verbally, without resort to a keyboard, and even perhaps over a telephone. That, of course, then makes the library's knowledge base accessible from any point in the world where there is an ordinary telephone. If I were a young library science specialist, this is the kind of future scenario I would think about and build my skills for in the first quarter of the 21st century.

An Interim Option for Small Special Libraries

Services and cost efficiencies of the larger "CJK" networks may not fit the needs of some smaller special libraries that, nevertheless, contain substantial East Asian materials—in an international law firm, for example, which might have an entire collection of Chinese contracts and joint-venture agreements—and there is an option whereby this category of special library can create its own automated system for vernacular materials. There are now many 'stand alone' systems on the market, many of them being software packages which can be installed on a variety of standard personal computers. Others involve customized small systems and personal computers that must be purchased as a unit. Many cost less than $5,000 to $10,000, and a good source of guidance is the Association for Asian Studies, headquartered at the University of Michigan. While these packages and/or small systems are not full library automation systems as such, most do provide all standard word processing capabilities for the Chinese language so that it is possible to build lists, files, records, etc., as well as compose and manipulate materials in Chinese, mixed with English. This allows sufficient flexibility for a special library with Chinese materials to automate many of its activities. In the future, of course, it will be possible to connect with, and use the services of, the larger RLG or OCLC networks. Individuals who are interested in languages other than Chinese can inquire with the Association for Asian Studies.

Summary

There will come a day when, even as we now can online routinely search Library of Congress holdings (located in Washington, D.C.), we will be able to routinely online search National Peking Library holdings (located in Beijing), all from our own offices and special libraries. This capability may not appeal to everybody; but for those with certain special interests, it is difficult to wait for this exciting future to emerge.

Appendix

A Partial List of Organizations that the Author Visited from September 1984 to August 1985

Beijing, China
- Chinese Academy of Sciences Institute of Computing Technology (Library)
- Beijing University (Library)
- Qinghua University (Library/English holdings automated)
- Beijing National Library (Large automation project in progress)

Changsha, China
- Hunan University
- National Defense University

Guangzhou, China
- Guangdong Provincial Academy of Sciences (Library)
- Sun Yatsen University (Library/Library School)
- Jinan University (Library)
- Guangdong Provincial Library
- Guangdong Science and Technology Service Corp. (Library)

Nanjing, China
- Nanjing University (Library/Automation in progress)
- Chinese Academy of Sciences Astronomical Observatory (Library)

Shanghai, China
- Fudan University
- Shanghai Jiaotong University
- Shanghai Computer Association

Wuhan, China
- Wuhan University (Library/Library School/Automation Project being planned)

Hong Kong
- Hong Kong University (Library/Automation planned)
- Chinese University of Hong Kong (Library)

Stanford, Calif.
- Stanford University/Hoover Institution (Libraries/RLG automation of Chinese-Japanese-Korean implemented)

Note: The author will accept further correspondence on this topic and/or about any of the above institutions. If (Library) is not mentioned, then the library for that institution was not visited.

Resources

The Research Libraries Group, Inc.
Jordan Quadrangle
Stanford, Calif. 94305
(415) 328-0920

Qi Wang
Director
Orientalia Division
Library of Congress
Washington, D.C. 20540

Association for Asian Studies
One Lane Hall
University of Michigan
Ann Arbor, Mich. 48109
(Contact: David Wyatt)

OCLC
6565 Frantz Road
Dublin, Ohio 43017–0702

International Service Section
Division for Interlibrary Services
National Diet Library
1–10–1 Nagata-cho
Chiyoda-ku, Tokyo 100
Japan

Automation Division
National Peking Library
Beijing
People's Republic of China

Acknowledgments

I would like to thank Dr. Thomas E. Cheatham, Jr., director of the Harvard Institute for Research in Computing Technology; Dr. John N. Hawkins, associate director of the UCLA Office of International Programs; and Qi Wang, director of the Orientalia Division of the U.S. Library of Congress. Each one has made special contributions to China's entry into the age of computers. I would like to mention Zhi Pingyi, the Shanghai linguist who produced the first system for automation of Chinese and thereby showed everybody that it was possible. Finally, I would like to acknowledge those pioneers who are hard at work on automating other Asian languages.

John H. Maier is currently an independent consultant in international information technologies. From August 1984 through August 1985, Maier served as an adjunct faculty member at Sun Yat-sen University in Guangzhou, China.

CD-ROMs for the Library

Carolyn Dodson

■ **Optical technology has opened up a new method of data storage and retrieval for libraries. Compact Discs with Read Only Memory (CD-ROM) are available for cataloging aids, bibliographic searching, full-text searching, and other tasks. To evaluate a CD-ROM product, a potential user should look at size of database, updating requirements, and price.**

CD-ROMs have become a major topic in library journals and conferences. Almost overnight, it seems, librarians are faced with decisions about acquiring CD-ROM systems for their libraries. In this article, that is intended to serve as background information for librarians who are considering adding CD-ROMs to their libraries, I will describe CD-ROMs and list examples of products of optical disc technology. Then I will point out some ways of evaluating CD-ROM publications.

Compact Discs—Read Only Memory are plastic discs 4.72 inch in diameter with a storage capacity of over 500 megabytes, which is roughly equal to 250,000 pages of text, or 1500 floppy disks, or 50 hard disks. This is enough typed characters to stretch from San Francisco to Denver. CDs are read on a "player" that can be attached to a desktop IBM compatible personal computer.

Pits etched on the discs are read by a laser, and indeed, CD technology was only made possible by the development of mass produced, low-powered lasers. Because the laser reads the digital information through a coating of plastic, the head mechanism does not touch the disc, eliminating wear and head crashes. Thus, reliability of CDs is the highest of any present-day computer memory.

The costs of a CD information system are low. Although producing a master disc costs several thousand dollars, production of injection-molded copies from the master is $10 to $20 each or less, and, in addition, the CD-ROM drive containing a laser to read the data and transmit them digitally to a personal computer will sell for only several hundred dollars.

The recent standardization of CD-ROM hardware makes it possible to purchase a drive and start a collection of discs. Software standards, however, have not been fully developed yet, so that, whereas a disc can be run on any drive, each database has its own software, either on the disc itself or on a floppy disk. Not only is software not standardized, but up to now most have been adapted from either mainframe/magnetic disks or pc/small magnetic disks. In fact, what is needed is software developed specifically for CDs.

As the name indicates, data on CD-ROMs cannot be erased, added to, or edited. Consequently, to update a database, a new disc containing both the old and new data is produced and delivered to the user, with a turn-around time of two to four weeks. Therefore, for publications requiring monthly or more frequent updating, better alternatives are print or online.

To sum up, CDs have very large storage capacity with high reliability but, to date, lack a current updating capability. Although the cost of producing a master disc is high, copies are inexpensive and the turnaround time for creating updated discs can be up to four weeks. Librarians are looking at applications of CDs to cataloging, online bibliographic searching, and full text searching.

Cataloging Aids

A MARC records database on CD, Library Corporation's Bibliofile, is now ready for use. On this system of multiple discs, 3,000,000 MARC records can be searched by any of several access points. From each record, information can be modified and printed instantly on catalog cards, added to records on magnetic tape, or printed on order forms for acquisitions.

Bibliofile differs from online cataloging systems in that there are no telecommunication charges, the system is available for use 24 hours a day, and the cost is fixed. The two discs of Bibliofile are manageable because of a queuing feature, but using more discs for one database would be slow. Thus, cataloging with CDs should be used only by small libraries that can use subsets of LC records.

Full bibliographic databases, such as OCLC or the MARC files, are many times too large to be accommodated on a CD. OCLC will produce subsets on CDs of half a million records of the OCLC database on a system that can communicate online with the rest of the records not on the disc.

Bibliographic Databases

Online database vendors are viewing the field with interest. Although most large commercial databases contain several gigabytes of information, and are thus too large to fit on a CD, subsets of these databases can be published on CDs.

It is not clear if CD technology will detract users from online database systems or if it will bring in more online users. How, and if, the products are marketed depends on market needs, how much will be charged for the discs, and how the data owners will be compensated.

As a stand-alone system, with no cost after the initial purchase of the disc, bibliographic databases on CD-ROM will be searched in a different fashion from online databases. Search strategies for online files are carefully worked out ahead of time to minimize online costs. Since the full price of the discs is fixed, however, searching on them will be more cost effective if longer time is spent going through the data. The major consideration of the searcher, consequently, will be completeness of search, rather than online costs. Indeed, the fixed price of CDs is well suited to end-user searching since there is no cost penalty for experimenting and learning.

A hybrid system can incorporate searching archival databases on CDs and current data stored more expensively in mainframes. A user will be able to retrieve data from both portions of the file on one search using a transparent hybrid system, unaware that he is searching recent segments online and older portions of the file on a disc.

Full Text

A CD-ROM full-text file is Grolier's electronic *Academic American Encyclopedia*. One disc contains the complete text of the *Grolier Encyclopedia* and an inverted index of the text. In addition, the search and retrieval software enables one to browse casually through the text or to carry out a complicated search strategy.

With all this, the disc is less than half filled.

The traditional, bound encyclopedia set is comparable in price to the electronic version, and takes up five cubic feet of space instead of ½ inch of shelf space. But, more important than saving space, information can be easily obtained from the electronic form that is buried in the printed books.

The technology that went into the encyclopedia will be transferred to more specialized full-text items, such as the *McGraw Hill Encyclopedia of Science and Technology*. Likewise, this year, when the 17-volume *Oxford English Dictionary* has been keyed into a mainframe, it will be available for publication on disc.

Data

Scientific and business databases are excellent candidates for CD storage and retrieval. For instance, Compact Disclosure is business information on over 10,000 companies. This information can be used by financial specialists, advertisers (mailing labels can be generated), business students, and others.

The information on Compact Disclosure is not as complete as on the Disclosure microfiche, but, on the other hand, it is much easier to use.

Other Uses of CD-ROMs

An example of a novel use for CDs that takes advantage of their particular attributes is the Library Corporation's PC Laser Library, a collection of public domain software programs. Libraries can purchase this software collection for $200 and organize it and dispense it to users.

The uses of CDs follow the standard pattern of technology implementation. At first, a new system is used for tasks currently done by systems at hand. Then, as people become more familiar with how the new system works, entirely new tasks are devised that could not be performed before.

How to Evaluate Publications on CD-ROMs

CD products have not been used in the library long enough to permit valid user evaluations. At this time, these decisions are influenced by enthusiastic promotional material and company demonstrations, but there are some basic features that a librarian can look at when considering acquiring publications on CD-ROM. These features are size of database, updating requirements, and price.

The most important factor in determining if a database is suitable for a CD system is size. Databases larger than 300 to 500 megabytes must be distilled into subsets for compact disc distribution. Tailored subsets for individual libraries are precluded by the high cost of the master disc, so a subset will have to be created that many libraries will use. Will researchers be content with a partial database on a CD, or will they want to go to full databases online?

Many bibliographic databases are simply too large to be managed on CD-ROMs. Indeed, one of the first companies to be involved in CD-ROM technology, and who is the publisher of four important bibliographic databases, announced last summer that it has quit the CD-ROM database publishing business and is granting full refunds to its subscribers. The reason given is disappointing sales.

The six-week interval for updating precludes handling current bibliographic material on CD. A useful bibliographic database must be up-to-date, which a CD can never be.

Prices quoted now are tentative. The cost of reproducing a disc is low, but it must be remembered that the intellectual effort that goes into producing a database must be distributed among the users. For files that are updated periodically, the plans are to discard the old ones, since, after all, they cost only $10 to $20 to produce. But these obsolete discs, which lack only 3 to 12 months from being current, may be sold to small, poor libraries, and, if so, the impact on the price of current discs is not known. Yet to be

worked out are how data owners will be compensated and how data should be distributed.

Are CDs an interim solution to the information problem that will be soon superseded by more sophisticated information storage and retrieval systems? From the speed with which CD-ROMs came on the scene, it can be inferred that new technologies just around the corner will outdo the capabilities of CDs.

Expect to see, in the near future, improvements in the design of CD systems, including provision for multiuser access to data. Also, one will want to keep track of the use of 12-inch video disks with 800 megabyte capacity and a seven-day turnaround time for updating that has been successfully used for InfoTrac.

In the near future, the following CDs will be available: WORM (Write Once Read Many); DRAW (Direct Read After Write), where there is user workspace on the optical disk itself; CD-PROM (Programmable); and CD-I (CD-Interactive), which will handle music, speech, still pictures, graphics, computer programs, and computer data. Farther in the future are erasable optical discs that can be used as floppies are now, but with many times the storage capacity.

CDs, with large capacity and low cost of production, have capabilities not achievable now with other technology. It is clear that they can perform some storage and retrieval functions better than mainframe or telecommunication systems on desktop pcs with floppy disks. In addition, cataloging, acquisitions, and even public access catalogs can be based efficiently on CD systems.

CD-ROMs illustrate an instance where librarians must steer between the Scylla and the Charybdis. They must avoid investing funds in a short-lived technology on the one hand, while, on the other, they must provide their patrons with as up-to-date forms of information as possible.

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Tomorrow's Library Today

W. David Penniman

■ **Libraries are challenged on a variety of fronts in terms of their role and function. While technology is advancing at an incredible pace, our ability to absorb and use the technology in an essentially human endeavor, i.e., information transfer, is still limited. The library as an institution is on the brink of becoming either crucial or superfluous, depending upon strategies selected by library leaders within the very near future. Strategies for extending library services without creating more "bricks and mortar" are presented based on a government/industry cooperative project involving the National Commission on Libraries and Information Science and direct experience with the Library Network at AT&T Bell Laboratories.**

Introduction

THIS paper covers four major topics. In it I describe what I see as the current environment for libraries in business as well as in the public sector. I describe a model or structure for looking at the future and influencing that future. To do so, I talk about the past. I describe how the Library Network operated by AT&T Bell Laboratories has responded to a changing environment not only with the aid of electronic technology but also with other tools from the business world. Finally, I characterize the challenge we all face as a response to the real crisis for most institutions today, i.e., a changing environment.

Current Library Environment

When technologists discuss "the future," we invariably hear about cost per chip or bit capacity of a communication channel and the fact that the capacities are rising and costs are dropping exponentially. Discussion may extend to artificial intelligence, expert systems, and the potential onslaught of fifth-generation computing from "Japan, Inc."

We also hear about "courses on a chip, schools on a wafer and libraries on a disc," which will be part of our solid state culture. In his article on future libraries in the *Wilson Library Bulletin,* Surprenant raises the question as to "whether or not we can manage to merge the information and electronic revolution with essential humanitarian and humanistic values." (*1*) There is an equally fundamental and related issue: How do we absorb the technologies now available to libraries in a useful way and contain the rising costs of staff and the bricks and mortar in which they are housed?

Pat Batten (*2*) has described three generations of library computing:

- *First generation*—automation of processing activities (i.e., backroom functions plus circulation control).
- *Second generation*—development and installation of integrated systems including online catalogs.
- *Third generation*—local area networks with computing/communication capacities moved to the individual's workstation.

Within many settings, including some academic and industrial, the third stage presents a major challenge by potentially merging the computing center and library functions. Far more prevalent a challenge, however, is that of introducing most libraries to the first stage. There are significant differences between what is technically possible and what is widely successful or even economically acceptable. Witness the painfully slow growth of online catalogs within the library community. Predictions of a "tidal wave" involving the replacement of traditional card catalogs with online terminals have not been realized. The realities of cost have prevented most libraries from embracing technology already well understood, let alone breaking new ground with "state-of-the-art" technologies.

Even in cases where significant commitment has been made and resources invested, the human aspects of information processing and delivery have continued to limit the full utilization of available technology. A library is essentially a labor-intensive institution because information transfer relies in a large part on human-to-human communication. Finding methods for making this process more efficient and effective is the real challenge facing librarians today.

Bridging the Gap

With that as a backup, I would like to present a problem and challenge not limited to libraries—that is, how to bridge the gap between what is technically possible (which drives our predictions of the future) and what we ultimately realize (which is often far less than we have predicted).

In this second area, I describe a model of how to bridge the gap between prediction and realization, and I use some examples from the past to help make my case.

But first, some definitions (*3*) according to the dictionary:

Prediction: To make known in advance
(Can also be the statement of a goal)

Realization: To make actual
To comprehend completely

I will go back over a decade to give a case in point; I want to talk about interactive cable television, the technology of the early seventies that was to change the way we worked, played, and learned. It was closely related to widely held concepts and libraries of the future at that time, because the kinds of services that this technology was to deliver overlapped with those that libraries already provided or hoped to provide.

In the early seventies, predictions were widely enthusiastic. Paul Baran, writing in the *Futurist,* (*4*) identified 30 services to be provided by this technology and, via the Delphi forecasting process, (*5*) zeroed in on 16 services to be in place by 1980.

The services included:

- Video Library of Plays and Movies
- Cashless Transactions
- Computer Tutor
- Adult Evening Courses
- Answering Services
- Computer Assisted Meetings
- Secretarial Assistance
- Banking Services
- Grocery Price List, Information and Ordering
- Consumer Advisory Service
- Weather Bureau
- Fares and Ticket Reservations
- Message Recording

- Index of All Serviced by Terminals
- Bus, Air, Train Scheduling
- Restaurants.

One of the dangers of publishing predictions is that they can be referred to in the future and that introduces an element of feedback between prediction and realization. This element could also be considered accountability. How did Paul Baran do in his predictions? Not one of the services in his list is available today via interactive cable television. There were some skeptics—even in the seventies. One article in the August '74 issue of *Datamation* (*6*) pointed out weaknesses due to capitalization requirements and (even more critical) a lack of understanding of the social impacts of this technology.

Referring to figure 1, the first connection between prediction and realization is a simple bridge accomplished by a retrospective feedback loop.

Next, I would like to add a new element to the model in figure 1. That element is intervention. It is not enough to predict and get feedback (though we do need to look back); we also need a forward acting device. Let us look at some interventions in the seventies for interactive cable TV. There were at least nine experiments in interactive cable (*7*) ranging from California to South Carolina and from Florida to Pennsylvania. Many were funded by the federal government. By the early eighties, there was one barely surviving commercial venture in Columbus, Ohio. (*8*)

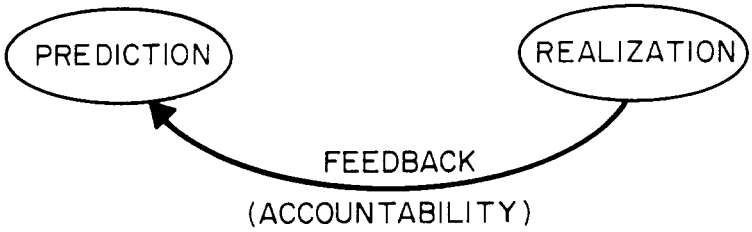
How does this relate to the challenges facing the library profession? The answer lies in a closer look at the intervention phase of the model.

Intervention is more than experiments. It is successfully moving an idea from creation to application, and that is a key factor in the future for libraries. What do we know about that process of successfully moving ideas from creation to application? We know from past studies (*9, 10*) that there must be certain factors for success. These factors are summarized here:

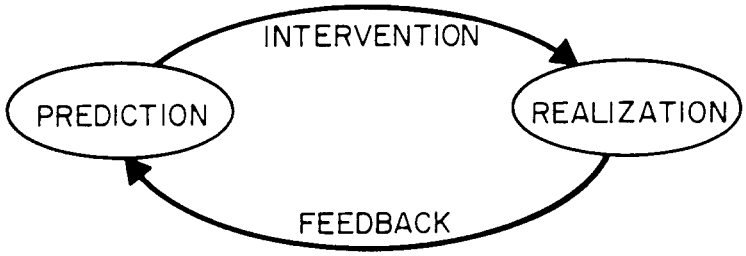
- There must be an understanding of the technology in terms of its advantages over other technologies already available. This understanding must include a thorough knowledge of costs and the relation to processes already in use.
- Feasibility demonstrations are necessary, but not sufficient. Such demonstrations help to identify shortcomings and give early warning signals where improvements are needed.
- Advocates or champions are needed among both the producers and user groups to assure that early obstacles do not become permanent barriers.
- External pressures, such as competition and other threats, help to stimulate the implementation process.
- Joint programs involving multiple organizations provide a broader base of support for the innovation in its early stages.
- Availability of adequate capital is essential and must not be taken for granted. Ideas do not sell themselves; they require constant attention, and that requires capital.
- Visibility of consequences is a strong motivator to avoid failure. Announcing publicly an objective makes it more difficult to turn away from that objective.
- Social support is often a key element and may involve organizations that can provide moral, if not financial, support.
- Promotional agents, such as the press, or other public relations groups can help to assure that all affected parties understand the technology and how it will benefit them. Such agents also help to elevate the visibility of consequences (see above).

We also know from past research (*11*) a fair amount about reasons for failure in the information arena. In a study of over 100 information innovations that did not succeed in the marketplace, an

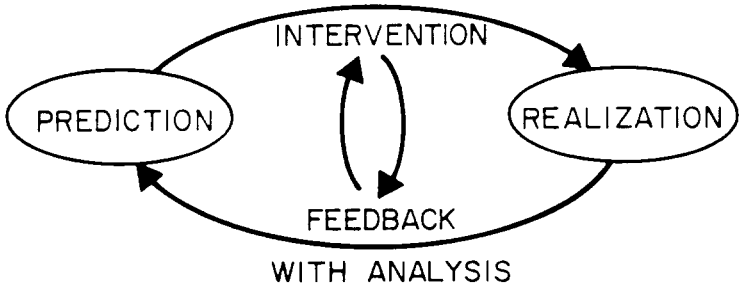
Ia. THE GAP BETWEEN PREDICTION AND REALIZATION



Ib. FEEDBACK OR ACCOUNTABILITY AS A RETROSPECTIVE BRIDGE



Ic. INTERVENTION AS A FORWARD-ACTING BRIDGE



Id. REFINEMENT OF FEEDBACK TO INCLUDE ANALYSIS

Figure 1. Model for Realizing Predictions

interesting pattern emerged regarding reasons for failure. Over 70 percent of the failures were due to nontechnical reasons. Marketing, management, capitalization, and organizational issues caused the demise most often. It is not adequate to have the right technology; the rest of the environment must be correct as well.

My model is almost complete; you can see its complete structure at the bottom of figure 1. I have identified intervention and feedback (or accountability) as crucial elements in bridging the gap; now I would like to go back and elaborate on the feedback component. This element should contain an analysis element. In our context this means not only *analysis of technologies* but also *analysis of markets and services.* We must determine how markets, services, and technologies fit together in the current social/political/economic environment. For *libraries* we must be willing to do hard-nosed analysis of the *value* of our services. We must not delude ourselves. It is not enough to ask for better libraries or more money for our services because "it's the right thing to do." We must provide strategies that demonstrate our ability and innovativeness to expand library services while containing costs. We must be innovators, as well as interveners and analyzers. We cannot be merely managers. Further, we must look at libraries as *business ventures,* as well as social institutions, because we operate in a competitive arena, competing for limited resources. This is true for public libraries, university libraries, and special libraries equally.

We must understand in a business-like manner our costs, services, and markets, as well as our technologies, and we must lead our libraries as if we were new venture extrepreneurs *because we are.*

Now I am going to make a prediction. I am going to paint a scenario for you that has 100 percent probability of realization.

I see an important social institution (and corporate resource) in the following way:

- This institution is caught in the trap of rising costs of bricks and mortar.
- Automation, while used, is mostly in backroom operations; service is still labor intensive.
- Changing social patterns and competition from service providers threaten its status.
- The institution responds by using current technology and techniques to deliver service without expensive additions of bricks and mortar and enters a new era.

Why am I willing to say this prediction has 100 percent probability of happening? Because I am not referring, in this case, to libraries today. I am referring to the banking industry of over a decade ago. Banks responded to their changing environment with low-cost structures that were portable and easily erected. They went to where the customers were—in suburban shopping malls and parking lots of shopping centers. They supported these units with minimal staff and relied on 24-hour automated teller machines to deliver basic service to a new generation of computer-friendly users. They revolutionized the image and service delivery concept of their institution.

Library Services in AT&T's Changing Environment

The Library Network operated by AT&T Bell Laboratories is responding to a changing environment. In January 1984, when I joined the Laboratories, the organization was just beginning to realize the true impact of the divestiture it had been preparing for. I arrived at the Library Network as a messenger with an unpleasant message. As an outsider, I was preaching change to the premier private-industry library network in the country. I started preaching a paradox. And the paradox is—if you have something good and you are in a changing environment, you must change to hold your position, otherwise your position will degrade. At AT&T Bell Laboratories, we are radically revising our view of library service delivery mechanisms while moving to expand our services and reduce our per

patron cost. We are doing this with the concept of an information access station. This concept builds on the existing backbone of libraries already in place in the Library Network. (The Library Network, operated by AT&T Bell Laboratories, consists of 35 libraries and 19 specialized service units linked electronically and by a common set of procedures and databases within AT&T.) The access station concept combines the physical, electronic, and human elements of information delivery.

The access station uses only proven off-the-shelf technologies and draws upon resources already available elsewhere in the network. It is a means of moving service closer to the patron's workplace. If this sounds familiar, it should. The banking scenario I painted earlier is a direct model for the information access station concept. The information access station provides the following functions:

- Access to current journals in hardcopy on site.
- Access to key works including reference material and selected books for local circulation only.
- Access to local databases by terminals or microcomputers with user friendly front-end software.
- Access to remote databases offered by commercial vendors as well as central AT&T databases with user friendly front-end software and downloading software.
- Access to backcopies of journals and other normally space-intensive material stored on high-density storage media. Currently this media is microform, but will soon include optical disk technology.
- Access to holdings of other sources via bibliographic utilities, such as OCLC, and via a union catalog of holdings within AT&T. Access in this sense includes the ability to transmit facsimiles or request hardcopies via slower delivery mechanisms.
- Access to human interaction with an onsite staff member who is a trained generalist in the areas of marketing or cross-selling of services, training of users, and generalized reference service.
- Access to expert assistance by means of telephone or electronic mail in specialized reference areas.
- Access from the client's own workstation by means of electronic mail and specialized UNIX(TM) command functions for selected functions listed above (e.g., local and remote database access, expert reference assistance).

The access station is housed in a small footprint facility (less than 400 square feet), and is easy to assemble, easy to move, and requires low initial investment and maintenance cost. It is designed to attract patrons in terms of its location and arrangement so as to be visually attractive. See figure 2 for the "free-standing" access station and refer to the appendix for a more detailed, top-level, functional description. Like banking institutions, we expect service to move away from the bricks-and-mortar concept and go where our employees are regardless of size or austerity of the facility. This will be accomplished first by access stations and ultimately by direct delivery to the workplace (desk) and home via electronic searching and document delivery.

Some reasons to expect success in our current efforts to place information access stations include the following:

- The concept is market driven, where the market consists of our current users who indicated in focus interviews and surveys that they wanted onsite access to resources and reference help, even if a full-scale library was not economically possible.
- The access station uses understood technologies selected from off the shelf. New technologies are incorporated only after being proven in the market.
- The design is in response to external pressures: AT&T has made it clear that services previously taken for

Figure 2. Free-standing Access Station

granted must prove their cost effectiveness against competitive external services available from the marketplace.

- The design was prepared as part of a joint program that included NCLIS and the 1985 IFLA show, and, thus, the project had initial high visibility.
- The project had champions in its early stages. Besides my support, we had the strong backing of Dr. Toni Bearman, then executive director of NCLIS and now dean of the School of Library and Information Science at the University of Pittsburgh.

These factors fit the elements for success described in my model when I discussed intervention and what has been learned from previous research in moving ideas successfully through the implementation stage.

Implications for Libraries and Librarianship

How does this help institutions to respond to the challenge regarding expanding information services while containing cost? It provides one example of how libraries can extend their reach via low-cost network nodes, where once only more or bigger libraries were thought to be acceptable. It is only an example. As interveners, librarians must find other innovative means to revolutionize their operations. Lew Branscomb has stated:

> If *libraries* are to play a creative role in this period of experimentation, they must again become teachers and innovators, and not custodians, lest the treasures in their custody are made obsolete by alternative services that fail to serve humanity as imaginatively and profoundly as they could. (*12*)

What is needed in the library profession is education in ways of business as well as librarianship. This includes such areas as marketing and technology, but, most important, librarians must be educated in the ways of change.

While Wilf Lancaster has stated that "the survival of the library profession depends on its ability and willingness to change its emphasis and image," (*13*) Pat Battin has pointed out that "one of the most powerful deterrents to change in conservative institutions is the existence of strong autonomous vested interests and the fear of losing one's empire. (*14*) While she was talking specifically about academic institutions, I can assure you that the statement holds true for other institutions as well. In a recent article in the *Journal of the American Society for Information Science,* there appeared a concise statement of what is needed:

> Library administrators have the responsibility to create organizational climates that encourage and promote change. Traditional committee structures are an insufficient approach to anticipate and meet the challenges. Experimentation is essential, improvisation inevitable, and the sharing of both successes and failures a professional and organizational imperative. The great responsibility, however, rests with the individual who must adapt, and adopt the idea of continual change as a goal and mode of both personal and organizational operation." (*15*)

Remember my model and the key role of intervention. I do not believe the future "unfolds" as some forecasters would have us believe. That implies a technological predestination for which little evidence exists. I believe we must shape our future. A new technology will neither do

us in nor save us. Our failure to respond will. It is appropriate to conclude this message with two brief quotes. The first is from former Librarian of Congress Daniel Boorstin:

> Libraries remain the meccas of self-help, the most open of open universities ... where there are no entrance examinations and no diplomas, and where one can enter at any age. (*16*)

The second quote is from a novel about the romantic possibilities of a public library in California:

> We don't use the Dewey decimal classification or any index system to keep track of our books. We record their entrance into the Library in the Library Contents Ledger and then we give the book back to its author who is free to place it anywhere he wants in the library, on whatever shelf catches his fancy.
>
> It doesn't make any difference where a book is placed because nobody ever checks them out and nobody ever comes here to read them. This is not that kind of library. This is another kind of library. (*17*)

To remain the meccas that Boorstin speaks of, we must change. If we do not change, we risk becoming the other kind of library that Brautigan describes. That is the paradox.

APPENDIX A

Functional Description of the AT&T Library Network Information Access Station

This appendix provides a top-level functional description of an information access station such as used as a node in the Library Network operated by AT&T Bell Laboratories where modular, small footprint (less than 400 square feet of floor space), current technology capabilities are helping to offset the rising cost of information service delivery.

The access station is the development of the Libraries and Information Systems Center of AT&T Bell Laboratories, and was shown publicly in August 1985 in Chicago at the annual meeting of the International Federation of Library Associations and Institutions (IFLA) in conjunction with the National Commission on Libraries and Information Science (NCLIS).

The approach described accommodates three means of information packaging and delivery—physical, electronic, and human. Further, it recognizes that these three means are merging, and any system must acknowledge and encourage the rapid and easy migration of information from one of these domains to another.

The following paragraphs identify the necessary functions, describe those functions, and provide guidelines for housing the functions.

I. **Functions for Library of the Future**

A. Access to current journal literature in hardcopy for browsing (and distribution).

B. Access to selected reference and key works in hardcopy for browsing (and distribution).

C. Access to local databases in interactive mode with ability to produce hardcopy and to download and massage output. Local update must also be available in a protected fashion.

D. Access to remote databases in interactive mode with ability to produce hardcopy and to download and massage output.

E. Access to the content of back copies of journals on site with the ability to produce hardcopy.

F. Access to holdings of other libraries and information sources with electronic delivery for brief material and delayed delivery for lengthier material.

G. Access to human interaction and assistance in locating information.

H. Access to expert assistance in locating/interpreting/analyzing specialized information.

I. Access to local and remote databases and expert assistance from the patron's workstation located in an office or at home.

II. Functional Descriptions

For each function identified in Section I, a brief description is provided here along with identification of the technologies currently available to provide this function. The intention here is to use readily available technology and not require significant development of new systems.

The structure in which to house the access station should also be based on current technology, and should incorporate low first-cost and low maintenance-cost design techniques. The structure should attract patrons into the access station. These characteristics are further described in Section III.

A. *Access to Current Journal Literature in Hardcopy for Browsing (and distribution)*

This function is provided by shelving for the organization and display of current printed material. The shelving should be located so that the material is prominent and readily accessible to patrons passing by the Access Station.

The shelving should accommodate the storage of recent back copies of journals so that recent issues not being routed are also available for browsing.

The distribution aspect of this function should be accommodated by a local charge-out mechanism.

B. *Access to Selected Reference and Key Works in Hardcopy for Browsing (and distribution)*

This function is provided by book shelving for the organization and display of book material. The shelving should be located so that patrons have access to the material for browsing.

The distribution aspect of this function should be accommodated by a local charge-out mechanism.

C. *Access to Local Databases in Interactive Mode with Ability to Produce Hardcopy and Download and Massage Output. Local Update Must be Available in a Protected Fashion.*

This function is provided by an online information storage and retrieval system running on a local computer with storage capable of accommodating multiple databases of 5000 to 10,000 records of 500 bytes each. Access to these records should be via search keys built from selected fields within each record, and search strategies should be accommodated which involve multiple fields. Online update/addition of records by selected users must be possible. At least two terminals capable of querying these databases should be available in the access station, one for patrons and one for staff, and a hardcopy printer should be accessible from either terminal. These terminals should have enough intelligence to allow for reformatting, duplicate elimination, and data manipulation of output.

D. *Access to Remote Databases in Interactive Mode with Ability to Produce Hardcopy and to Download and Massage Output*

This function should be available from the terminals in the access station and provide access to databases not residing at the local host, including central Library Network Databases as well as commercially available databases. The function should incorporate currently available software that simplifies searching of commercially available databases. Output should be available for massaging of the type described in "C" prior to dispatching to the printer. In addition, there should be the potential for downloading records to the local databases described in "C."

E. *Access to the Content of Back Copies of Journals Onsite*

This function must be provided by compact equipment that stores page images of journal articles and retrieves/displays page contents for patron access. Hardcopy of the page images should be available on demand.

Current technology to perform this function includes microfilm and videodisc with microfilm more readily available. While videodisc is promising, the necessary databases are not yet available in this media.

F. *Access to Holdings of Other Libraries and Information Resources with Rapid Delivery of Brief Material*

There are two aspects to this function. The first is to provide access to the holdings within the Library Network and provide rapid delivery of that material to the requester. The second is to provide access to material held outside of the Library Network.

The internal aspect of this function is provided by access to the online catalog of the Library Network in conjunction with the circulation control system so that the location of desired material can be identified, and the material can be requested and circulated to the requester.

The external aspect of this function is provided by gaining access to one or more of the existing bibliographic utilities. Dial-up access must be available from at least one of the existing terminals in the access station. The utility should be used to identify sources of material not held by the organization and to execute interlibrary loan requests.

In the cases where material is brief in nature and lends itself to photocopying, the option to transmit material directly to the access station by facsimile transmission should be available. At a minimum, the access station should be capable of receiving facsimile copies from one external "super" source (e.g., UMI, Information Store, or ISI), as well as other traditional libraries within and outside of AT&T. The facsimile transmission feature must be capable of full node-to-node transmission within the Library Network.

G. *Access to Human Interactions and Assistance in Locating Information*

This function is provided by an onsite trained generalist (i.e., reference librarian or information specialist). One generalist is located at each access station site and serves as the human interface to all information services. As such, this generalist must be capable of promoting as well as delivering such services and training patrons to use these services.

H. *Access to Expert Assistance in Locating/Interpreting/Analyzing Specialized Information*

This function is provided by access to remotely located reference specialists who are skilled in selected areas (e.g., marketplace information).

Access could be by both telephone and terminal and should be invoked by either the access station staff or the patron directly.

I. *Access to Local and Remote Databases and Expert Assistance from the Patron's Workstation Located in an Office or at Home*

This function is provided by electronic mail and specialized "library" commands as part of the UNIX(TM) system in place at AT&T Bell Laboratories. These functions allow for direct searching of Library Network database, including the book catalog and other specialized collection databases. In addition, documents can be ordered directly via these commands and reference questions can be submitted. Commercial databases can be searched via a front-end software package.

III. **Housing the Functions**

The functions described in Section II of this appendix must be packaged in an efficient manner that: a) uses a small footprint (less than 400 square feet of floor space); b) is easy to assemble, disassemble, and move; c) requires small initial investment and small maintenance cost; and d) attracts patrons to use all of the available functions.

Commercially available, prefabricated library structures can satisfy these requirements and lend themselves to installation in atriums and other areas where heavy staff traffic would assure wide exposure to the information services. Where more austere environments are required, there are packaged designs developed to place an access station within an existing room of 300 to 400 square feet.

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This paper is based on a talk given at the 1986 SLA Annual Conference in Boston.

Dr. Penniman is the director of the Libraries and Information Systems Center at AT&T Bell Laboratories. Prior to assuming that position, he was vice president for planning and research at OCLC, Inc.

SLA Award Winners 1987

Hall of Fame Award:	**Janet M. Rigney**
John Cotton Dana Award:	**Laura N. Gasaway** **Nancy Terry Munger**
Professional Award:	**Naomi C. Broering**
SLA President's Award:	**Catherine A. Jones**
Honorary Member:	**The Honorable Major Owens**
Fellows Award:	**Patricia Berger** **Ron Coplen** **Joseph M. Dagnese** **Robert W. Gibson, Jr.** **Elinor M. Hashim** **David E. King** **Jack Leister** **Pat Molholt** **Edythe Moore** **William C. Petru** **Jeannette M. Privat** **Ruth S. Smith** **Miriam H. Tees** **Mary Vasilakis** **Herbert S. White**
H. W. Wilson Award:	**Robert Arnold Russel**

Hall of Fame Award

Janet M. Rigney

Janet M. Rigney, librarian at the Council on Foreign Relations until her retirement this year, has served as a distinguished leader for the Special Libraries Association at the chapter, division, and association levels for more than 17 years. Through an outstanding career and her affiliation with SLA, she has focused international attention on both special librarians and the Association.

Ms. Rigney joined SLA in 1960, the same year that she received her MLS from Columbia University and was promoted to assistant librarian at the Council. Throughout the 1960's, she served both the New York Chapter and the Social Science Division of SLA. At the chaper level, she served as chair of the Social Science Group (1961–62), chapter vice president (1966–67), chapter president (1967–68), and chair of the Nominating Committee (1970).

Her division activities are equally impressive. In 1961, she served as vice chair of the Social Science Division and as division chair

in 1962–63. Additionally, she was director of the International Affairs Section (1979–80), chair-elect (1980–81), and chair of the division (1981–82). She is also a member of the Library Management Division.

On the association level, her involvement began in 1970 as treasurer, a position she held for six years. During her six-year term as treasurer (1970–76), she also chaired the Finance Committee (1972–76). She was co-chair of the New York Conference Registration Committee (1976) and a member of the New York Conference Committee (1977). In 1979, she chaired the Special Committee on *Special Libraries*. Beginning in 1981, she started her three-year term as SLA president-elect (1981–82), president (1982–83), and past president (1983–84). In 1983, she served as a member of the Awards Committee and became committee chair in 1984.

For three years, Ms. Rigney served as SLA representative to the Council of National Library and Information Associations, during which time she was chair of the Committee on Committees (1985–87).

While serving the Association as treasurer, she was an advocate for a dues increase, which has since put the Association on a firm financial footing. As president, she promoted the campaign for the Building Fund and spurred the search for a new Association office.

Professionally, Ms. Rigney has enjoyed a distinguished career. For the past 10 years, she has edited the bibliography, *Source Material*, for the prestigious periodical *Foreign Affairs*, published by the Council on Foreign Relations. Numerous scholars have recognized her contributions to their publications by thanking her in introductions and prefaces to their works.

Her sustained and active participation at every level of the Association, her participation in other professional library associations, and her dedication and contributions to the special libraries profession and to the world of scholarship form the basis of her admittance to the SLA Hall of Fame.

John Cotton Dana Award

Laura N. Gasaway

Laura N. Gasaway, law librarian and professor of law at the University of North Carolina at Chapel Hill, has received the 1987 John Cotton Dana Award for her achievements and contributions to law librarianship. Ms. Gasaway got her start in the field of special librarianship with an SLA scholarship in 1967. Since her graduation from Texas Woman's University in 1968 with an MLS and her graduation from Bates College of Law at the University of Houston in 1973, she has successfully merged the two interests into a single career.

In addition to her responsibilities as both a law professor and law librarian, she teaches courses on law libraries and legal resources for the School of Information and Library Studies at UNC. Ms. Gasaway has published extensively in both law and library journals. Her credits include articles in *Special Libraries, Law Library Journal, American Libraries, Georgetown Law Journal,* and *Legal Times.* She has taught continuing education courses and workshops in the areas of copyright law, employment discrimination, and gender-based discrimination.

Her service to the Association is commendable. She has served as a bulletin editor (1971–73), president-elect (1972–73), and president (1973–74) of the Texas Chapter. She was treasurer of the Publishing Division from 1977 through 1981.

As chair of the Association's Special Committee on the Pilot Education Project, she wrote the pamphlet "Equal Pay for Equal Work; Women in Special Libraries." She also chaired the Education Committee, during which time the committee was evolving into what is today the Professional Development Committee. Since 1983, Ms. Gasaway has served as the chair of the Copyright Committee, a post she will hold through 1989. She has also served as a representative to the American Association of Law Libraries (AALL), an appropriate position since she is the outgoing president of AALL.

Nancy Terry Munger

Nancy Terry Munger was vice president and manager of information services at J. Walter Thompson Company until her retirement in December 1986. She has had a career filled with achievement, both in terms of her 28 years of accomplishment at J. Walter Thompson and her contributions to the advancement of special librarianship and SLA. She is the recipient of the 1987 John Cotton Dana Award for her leadership and contributions to the profession.

In 1958, after her first experience in an advertising company library, Ms. Munger joined the staff of J. Walter Thompson as a reference librarian. In 1961, she was appointed director of the Center. In 1964, she took a leave of absence to earn her MLS from the School of Library Service at UCLA. Returning in 1965, she continued her work of improving the standards of the staff and the quality of service. Under her supervision, the reference staff grew from two to seven professional special librarians.

In 1974, she incorporated an art library, which had been placed in storage, into the collection. The art library collection has since quadrupled in size and has become a valuable working collection, supporting the work of J. Walter Thompson's art directors, the Center's second largest user group.

In 1975, Ms. Munger achieved the first of many notable firsts—she became the first female librarian in an advertising agency to be named a vice president.

In 1978, Ms. Munger developed a concept which led to a unique collection of broadcast advertising organized as a "creative library." In setting up the library, she developed a compatible classification system for the print advertisements in the Information Center and the commercials in the Creative Library.

In 1979, at her suggestion, J. Walter Thompson created the first advertising agency archives to preserve and document the history and the development of the company. In a joint venture with the *New York Times,* she assisted in the development of the Advertising and Marketing Intelligence Service, the first online bibliographic database devoted to advertising, marketing, and communications. She is a member of the Advertising Women of New York and was a contributing author to *A Handbook for Advertising Agency Account Executives.*

Ms. Munger's career is best summed up with a statement by one nominator who wrote, "The career of Nancy Terry Munger has been one of innovative leadership in promoting the profession's philosophy, creative vision in anticipating the company's needs and consistent support of the Association."

Professional Award

Naomi C. Broering

Naomi C. Broering, director of the Biomedical Information Resources Center and medical center librarian at the Georgetown University Medical Center in Washington, D.C., has received the 1987 SLA Professional Award for her expertise in library automation and her contributions which have assisted other special librarians working in medical libraries. Specifically, Ms. Broering was cited for developing the Georgetown University Library Information System (LIS) and the miniMEDLINE SYSTEM. Currently, she is spearheading a major program at Georgetown to develop an Integrated Academic Information Management System (IAIMS) through grants from the National Library of Medicine.

Both the Library Information System and the miniMEDLINE SYSTEM have been recognized nationally and adapted by libraries throughout the United States. The miniMEDLINE SYSTEM is based on a subset of the National Library of Medicine's MEDLINE

and is designed to meet the specialized needs of medical, pharmaceutical, scientific, biological, and hospital libraries.

Her contributions to the field of special librarianship are many. In addition to her work at Georgetown University, she also teaches at the Catholic University's Graduate School of Library and Information Science on "Application of Computer Technology to Health Sciences Information Services."

SLA President's Award

Catherine A. Jones

Catherine A. Jones, chief of the Congressional Research Division of the Congressional Research Service at the Library of Congress, is the recipient of the 1987 SLA President's Award for her contributions to the Association's Government Relations Committee.

Ms. Jones has been instrumental in advancing the workings of the Government Relations Committee for the Association. She has served as chair of the Committee since 1984 and is responsible for the successful development of the Government Relations Program. Her contributions have included monitoring government actions that may affect special libraries, identifying and reviewing government activities with a potential impact on the provision of information, and recommending actions for the Association to take. She has reviewed numerous statements and policy positions formulated by the Association.

At the last three SLA annual conferences, she has conducted a legislative update and has assisted in developing SLA's Government Relations Network. In 1986, she assisted in developing the program for the Association's first State-of-the-Art Institute on government information and participated in a panel discussion.

Ms. Jones is regularly consulted by SLA's leadership and staff for her knowledge of the legislative process. She has been a leader in developing a successful Government Relations Program for the Association that benefits the entire information community.

Honorary Member

Congressman Major R. Owens was elected to Honorary Membership in the Association for distinguishing himself as the only librarian in Congress and for his support of libraries. Mr. Owens is proud to be the "Librarian in Congress" and has been involved with all issues affecting libraries. He lead the fight against the Administration's effort to contract out library services. He serves on the Education and Labor Committee and, as a member of the Conference Committee, was instrumental in this year's reauthorization of the Higher Education Act, which funds academic libraries and information technology enhancement; library training, research, and development; college library technology and cooperation grants; as well as strengthens research library resources.

Prior to his election to Congress in 1982, Mr. Owens was a New York State senator. He is currently serving his third term in the U.S. Congress.

Congressman Owens received his MLS in 1957 from Atlanta University. He was an adjunct professor of library science and director of the Community Media Program at Columbia University. He also served as community coordinator at the Brooklyn Public Library before his appointment as commissioner of the New York City Community Development Agency in 1968. In 1979, he was the keynote speaker at the White House Conference on Libraries and Information Services, and is a cosponsor of legislation calling for a second White House Conference in 1989.

(A photograph of Congressman Owens was not available.)

Fellows Award

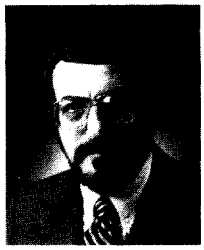
The Fellows Award is given to individuals in recognition of their leadership in the field of special librarianship and for their outstanding contributions to the Association. The Fellows may be called upon to advise the Association's Board of Directors, to prepare discussion materials, and to alert the membership to issues and trends warranting action. An additional responsibility of the Fellows is to nominate peers for the Award.

To initiate the Fellows Award, 15 members were selected. The Award was established by the Association's Board in June 1986. In future years, no more than five members will be selected as Fellows.

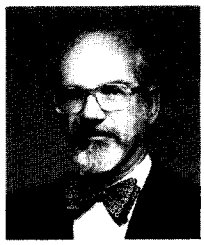
Recipients of the Fellows Award are as follows:

Patricia Berger
U.S. National Bureau of Standards
Gaithersburg, PA

Ron Coplen
Gossage Regan Associates, Inc.
New York, NY



Joseph M. Dagnese
Purdue University
West Lafayette, IN



Robert W. Gibson, Jr.
General Motors Corporation
Warren, MI

Elinor M. Hashim
OCLC
Dublin, OH

David E. King
Standard Educational Corporation
Chicago, IL

Jack Leister
University of California at Berkeley
Berkeley, CA

Pat Molholt
Rensselaer Polytechnic Institute
Troy, NY

Edythe Moore
Aerospace Corporation
Los Angeles, CA

William C. Petru
Hewlett Packard Company
Palo Alto, CA

Miriam H. Tees
McGill University
Montreal, Canada

Jeannette M. Privat
Seattle First National Bank
Seattle, WA

Mary Vasilakis
Westinghouse Electric Corporation
Pittsburgh, PA

Ruth S. Smith
National Technical Information Service
Springfield, VA

Herbert S. White
Indiana University
Bloomington, IN

H. W. Wilson Award

Robert Arnold Russel, a well-known Canadian futurist, received the H. W. Wilson Award for his outstanding article "The High Tech Revolution" published in *Special Libraries 77,* no. 1 (winter 1986).

The H. W. Wilson Award generously funded by the H. W. Wilson Company, is presented annually for the best article published that year in *Special Libraries.* The five-member committee appointed by the SLA president, elects the article that provides the most significant contribution to the philosophy, development, and general practice of special librarianship. Originality, innovativeness, universal implications, validity, and communicative effectiveness are also criteria considered in selection. Although SLA members are given preference, any contributor to *Special Libraries* is eligible to receive the award.

Russel's article was presented as a keynote address at the Special Libraries Association 76th Annual Conference in Winnipeg, Manitoba, Canada, on June 10, 1985.

(A photograph of Mr. Russel was not available.)

SLA Interviews Vivian Arterbery

Elaine Hill

On March 23, 1987, I had the pleasure of interviewing Vivian Arterbery, the new executive director of the U.S. National Commission on Libraries and Information Science (NCLIS). Ms. Arterbery, former library director of the Rand Corporation in Santa Monica, California, took over the position of executive director of NCLIS on November 3, 1986, the same year that NCLIS celebrated its 15th anniversary.

Ms. Arterbery has been a longstanding active member of the Special Libraries Association (SLA). She served as SLA president from 1973 to 1974, and received the 1986 SLA President's Award for her role as the guiding force behind the Long-Range Plan. She has worked on numerous committees, and was an invited participant at the SLA/NCLIS Conference in 1975.

Ms. Arterbery's following comments reflect her own views and not necessarily those of the U.S. National Commission on Libraries and Information Science or the U.S. Government.

I would like to thank David Malinak, SLA director of communications, and Sandy Morton, SLA director of government information and fund development, for their kind assistance in helping me prepare for this interview.

NCLIS celebrated its 15th anniversary in 1986. In your opinion, what are the major accomplishments of the Commission's first 15 years?

V.A.: NCLIS has made a difference to the library and information community as well as to all citizens of this country. To answer your question specifically, I believe that one of the Commission's greatest accomplishments was the 1979 White House Conference. From that massive conference, there arose 64 resolutions. To date, there has been action toward implementation of 55 of them; in fact, parts of 22 of the resolutions were incorporated into the reauthorized Library Services and Construction Act. NCLIS has also contributed immensely to the whole area of networking and has encouraged the inclusion of all types of libraries in networks. The NCLIS report "Public Sector/Private Sector Interaction in Providing Information Services" is another important contribution. The Commission has always been on the cutting edge in identifying and assessing the impact of national information policy issues. Basically, NCLIS serves as a catalyst, an advisor, and an honest broker in addressing these important issues. NCLIS was also instrumental in getting the five-year review in the Copyright Act of 1976. NCLIS advises the legislative and executive branches, and provides a forum to bring segments of the library and information community together when there are differing opinions on issues. Last year the Commission, in its testimony to Congress, submitted an extensive statement on its historical accomplishments.

At a time when other library programs have been zeroed out of the President's FY 1988 budget, how do you account for the fact that there is a budget allocation for NCLIS?

V.A.: I would have to attribute it to the Commission's track record, the strong support of the library and information community, and to the fact that NCLIS is really making a difference. The Commission's mandate to advise the legislative and executive branches on implementation of national policy for library and information services is essential in an area where so much still needs to be done.

What do you see as the result of budget cuts for library and information programs?

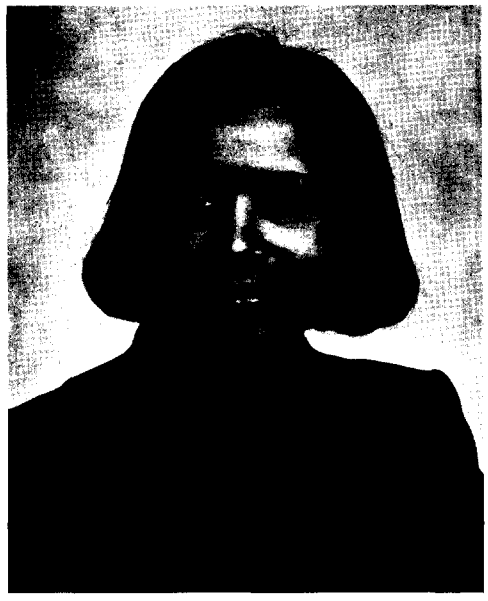
V.A.: I think the major impact of budget cuts is that some of the innovative programs in libraries may be cut back or new programs will not be initiated. While federal funding support for libraries is only four percent, that relatively small amount makes a big difference to the libraries in this country.

In the past year alone, we have seen a number of restrictions placed on accessing government information—for example, the Government Printing Office's plan to reduce the number of paper documents at depository libraries; the National Security Council's memo, which added a new layer of unclassified government information labeled "sensitive"; and charging fees for congressional documents. In light of these restrictions, what actions will NCLIS take to assure continued and open access to government information?

V.A.: One of the initiatives that came out of the NCLIS Conference on Libraries and Information Science held in February 1987 was the Commission's decision to hold hearings on the issue of sensitive but not classified information. The hearing, which was held at the end of May, provided a forum for public debate. The issues were clearly articulated and the input will assist in the development of Commission recommendations to Congress and the executive branch.

You came to NCLIS from a corporate library setting. As an information professional, how do you feel NCLIS benefits special librarians?

V.A.: Anything that NCLIS does to cast light on the importance and value of libraries is going to benefit all types of libraries. First and foremost, all libraries are in the same business. When we view



Vivian Arterbery, executive director of the U.S. National Commission on Libraries and Information Science.

what NCLIS does from this perspective, we realize that all the Commission's efforts are bound to benefit special libraries as well. The accomplishments of the SLA/NCLIS Task Force on Networking have also reaped benefits for special libraries. Specifically, NCLIS' work in support of getting special libraries involved in networking has opened many resources to these libraries. I do not think that there is a special librarian today who thinks of the library as just the walls and resources of one particular library.

Did the Commission take any position on the contracting out of government libraries?

V.A.: Contracting out is part of the whole issue of privatization of government activities. NCLIS held meetings in 1985 and 1986 to discuss the implications of A76. One meeting was with the Office of Management and Budget, and the other was with federal librarians. A third meeting was planned in order to bring the two groups together. NCLIS served as an "honest broker" to define the issues and foster productive communication.

You have been involved with the Coordinating Committee for an Information Age Commission. What role do you see for NCLIS in such a commission?

V.A.: Although the legislation was not enacted to establish the Information Age Commission, the agenda of the proposed Information Age Commission relates closely to NCLIS' mandate. NCLIS commissioners have proposed that NCLIS address the issues of the impact of information technology on society.

For FY 1988, NCLIS has plans to launch a Campaign for Libraries, to begin program initiatives for the handicapped and disabled, and to address issues related to the present and future impact of information technology. Could you discuss this proposed Campaign for Libraries?

V.A.: The Campaign for Libraries is a very exciting initiative. The thrust of the Campaign for Libraries is to encourage every child to have a library card and to use it. The campaign will also promote reading, as well as encourage the development of information finding and using skills, or what NCLIS commissioners often refer to as the fourth "R"—research skills. The actual implementation of the program will be carried out by local public libraries. This campaign could have great beneficial impact on our society; we hope that everyone will enthusiastically support it.

According to an NCLIS summary of FY 1986–1988 objectives, the Commission believes that the major issues of concern at the national level and to the library and information community and citizens are access to information, information to meet changing information demands, and using information resources to improve productivity. To address these issues, the Commission has defined a program around four major areas: Literacy; Democracy; Productivity; and Policy, Planning and Advice. Could you briefly explain these four areas and how NCLIS intends to accomplish these goals?

V.A.: To take the last area first, Policy, Planning and Advice is part of our mandate to advise the legislative and executive branches that is carried out on an ongoing basis. It ranges from responding to a congressman's question on a library matter for a constituent, to studying particular library or information issues, or making recommendations on legislation. For example, in FY '85, the Commission received a special appropriation from a Senate Subcommittee to do a study on censorship in school and public libraries.

In the program area of Democracy, one of the Commission's initiatives is "information for local governance." This program is a part of a Commission plan to promote access to more effective information for local governance, both for local decision makers and for citizens.

The Commission's plans call for determining the relationship between public libraries and local decision makers, identifying exemplary partnership programs, and promoting the involvement of every public library in governance.

The Commission has a very successful program with the Administration on Aging, which promotes access to timely information to meet the personal needs of the elderly. The Commission has also signed an agreement with ACTION to promote greater involvement of volunteers in libraries. Our main focus is to draw public awareness to the various roles of libraries in society. Getting libraries involved in the celebration of the Bicentennial of the Constitution is another Commission initiative. Preservation is another program area.

Two projects dominate the Commission's Productivity program area. The first, the Information in the Economy program, is concerned with determining the crucial role of information in our economy, including how the management of information resources and the effective use of information technology can improve productivity.

As the second project, the Commission will complete a series of three trilateral meetings in FY 1987 with key decision makers from industry, academia, and government in the U.S., U.K., and Canada on the role of information in the economy.

In the program area focusing on Literacy, a major initiative is the Campaign for Libraries. A major goal of this national campaign is to promote public awareness

of the importance and value of libraries. As a first step, the Commission is joining forces with the American Library Association (ALA) and the U.S. Department of Education to launch a national library card campaign in 1987. The campaign responds to "First Lessons: A Report on Elementary Education in America" which states, "Children should belong to the public library. There is one within striking distance of practically everybody. Let's have a national campaign: by the end of the 1986-87 school year, every child should obtain a library card—and use it."

Another important Literacy program scheduled through FY 1988 focuses on the importance of finding and using information effectively. In 1984, the Commission stated that, "The ability to find and use information is a fundamental skill. The need to develop this skill as a basic part of each person's education is not yet widely recognized. It requires greater recognition. . . ." In FY 1986, a key paper on conceptual thinking skills was prepared at NCLIS' request. NCLIS plans to work with the library and information community to institute a recognition program for outstanding skills development projects.

I have noticed in the professional literature that NCLIS has been speaking out on the importance of preservation in libraries and information centers.

V.A.: Preservation is one of the Commission's FY '87 program areas and will remain a continuing initiative. Preservation of the intellectual and cultural heritage that resides in library collections is a very critical issue. Most citizens are not aware that our library collections are deteriorating to the point of serious risk. In the Library of Congress alone approximately 77,000 books each year become embrittled. The Commission's role will be to focus on preserving this heritage, to publicize the efforts of the organizations that are engaged in preservation projects, and to take a leadership role in promoting preservation of electronic records.

Could you update us on the activities planned for the 1989 White House Conference on Library and Information Services?

V.A.: In FY '85, the Commission appointed a Preliminary White House Conference Design Group that recommended a plan of action for conducting the Conference. On January 21, 1987, legislation was introduced in the 100th Congress calling for a 1989 White House Conference on Library and Information Services. To date, there are 42 senators and 166 congressmen supporting the legislation. Several of our commissioners testified at hearings held in the Senate on April 3. When the legislation is passed, NCLIS will work to develop and implement the second White House Conference. NCLIS is already involving other organizations and agencies, as well as the federal library community. We appreciate the efforts of SLA and other professional associations that have passed resolutions in support of the Conference.

At the end of February, you participated in a strategic planning retreat, which you earlier referred to as the NCLIS Conference on Libraries and Information Science. What were the major outcomes of the retreat?

V.A.: The major outcome of this Conference was the identification of the high priority issues in the library and information community. While many of the issues were not new to the commissioners, this exercise should help immensely in updating the longer term Commission agenda. The issue areas discussed include: the concern for recruitment in the profession; the need to emphasize research; a need for a Code of Ethics for the Information Age; the continued promotion of the value, needs, and problems of libraries; the impact of the Information Age—particularly the changing role of the library; and the impact of information technology. The equality of access to information, the role of the public and private sector in disseminating information, the importance of a national preservation effort, and the need for a second White House Conference continue to loom large.

In the past year, NCLIS has experienced a number of changes, including a new executive director and a new chairman. What does the future hold for NCLIS?

V.A.: When an organization has a new chairman and a new executive director that usually causes the organization to pause, to take time to plan and reassess its vision. In terms of specific programs, it is too soon to tell you exactly what lies ahead. The Conference on Libraries and Information Science was one step in looking at future directions for the Commission.

If enthusiasm, energy, and real advocacy for libraries and information science can make things happen, then certainly we will see NCLIS moving forward, capitalizing on the best of what has happened in the past and utilizing all the impetus that new ideas and new energy can bring to an organization.

CALL FOR PAPERS—79TH ANNUAL CONFERENCE

SPECIAL LIBRARIES ASSOCIATION
JUNE 11–16, 1988: Denver, Colorado

"Expanding Horizons: Strategies for Information Managers"

The 1988 SLA Conference will focus on strategies information managers use in service and information, either to expand their own capabilities or to adapt to the expanding horizons around them. The active world of information managers is constantly changing, with opportunities for those managers to test new frontiers.

Denver, Colorado, part of the western frontier with horizons of mountains and plains, provides the time and place for "Expanding Horizons." Its "I can do it" frontier spirit promotes the exchange of new ideas and response to challenges. The Conference will focus primarily on the human side of information management with topics such as working with information users, resolving conflicts, adapting to changing conditions in parent organizations, and new ways of bringing together information and the people who need that information. The relationship of special librarians to the ever-expanding horizons of new technology also relates directly to the 1988 Conference.

You are invited to submit papers on topics related to the Conference theme. Successful management strategies, research results, problem solutions, marketing, and human resource management topics can explain strategies that take advantage of expanding horizons. Papers accepted will be presented at the Contributed Papers Sessions, and very specific submissions will be referred to the appropriate Divisions. Multi-media presentations and poster sessions related to the Conference theme will also be considered.

Papers to be considered must comply with the following guidelines:

1. *Abstract*—A 250–500 word abstract, which accurately conveys the subject of the paper, its scope, conclusions, and relevance to the Conference theme, must be submitted with the form below by **October 2, 1987.**
2. *Text*—The complete text of the paper is due at the Association Office by **April 1, 1988.**
3. *Originality*—Papers must be original work and not previously presented or submitted to any national or international group.

4. *Length*—Paper presentation should take approximately 20 minutes.
5. *Acceptance*—Papers will be accepted only if the abstract has been submitted and evaluated, and if the author plans to present the paper at the Conference.

You will be notified by the Conference Program Committee by November 15, 1987, about acceptance of your paper. All papers are the property of Special Libraries Association and will be considered for publication in *Special Libraries.*

To: Marilyn Stark
Arthur Lakes Library
Colorado School of Mines
Golden, CO 80401

Attached is an abstract of my proposed paper for the 1988 SLA Conference.

Name: _____
Organization: _____
Mailing Address: _____
_____
Telephone: _____
Working Title: _____

A History of the "Super" Survey

David R. Bender, Ph.D.
Executive Director, SLA

Throughout the history of the Special Libraries Association, a variety of surveys and studies have been undertaken to ascertain specific information, characteristics, and needs of the profession. For example, in 1914, only five years after the founding of the Association, a committee was formed to study special library training and classification schemes of special collections. In 1959, the fiftieth anniversary of SLA, a personnel study was conducted by Price Waterhouse and Company for the Association. Another 27 years would pass before the Association would embark on a comprehensive membership survey, which would define the membership of SLA.

The need for accurate statistics and characteristics of the membership surfaced in 1979. The leadership of the Association had begun work on the foundation of the Long-Range Plan. At that time, a sample of the membership was polled to identify concerns and suggestions in the areas of membership services, membership growth, external relations, publications, funding, and staff relations with Association units. The results of the poll, which were used in the formation of SLA's strategic plan, pointed to the need for in-depth information on the membership, their needs, and future directions for the Association.

In 1985, the Long-Range Plan was adopted by SLA's Board of Directors to guide the Association on a successful course through the end of the century. The Plan identified five institutional goals, one of which was "To respond to the needs and concerns of the Association's constituents through a full range of support services. . . ."

In order for the Association to meet this goal, a membership survey was necessary. A membership needs assessment was seen as critical to the evaluation and improvement of existing Association activities and programs, as well as for the design and implementation of new services, which were needed to attract new members for a strong Association.

A membership survey was included in the Plan for completion in 1986. As the Board, membership, and staff discussed the survey, the purpose was simple, ". . . to determine members' needs for new services, as well as (to) provide an opportunity for evaluation of existing services."

The Board of Directors, Association leaders, and staff contributed questions and types of information needed. Targeting the membership who were to receive the questionnaire, as well as blending the myriad of needs and questions, was a monumental task, which, in part, lead to the nickname of "super" survey. A total of 54 questions and a section entitled "Additional Comments / Suggestions" made up the survey. In early 1986, the survey was mailed to the respondents and, at the 1986 Annual Conference, the membership of SLA received the first analysis of the information obtained through the survey.

The following article provides additional details on the methodology and results of the survey. As Executive Di-

rector of SLA, I found the information from the survey to be enlightening and invaluable. The results will provide a wealth of knowledge that will assist SLA in helping all of our members in "putting knowledge to work."

I hope that you find this summary of the membership survey useful. I encourage you to contact any member of the professional staff or me with your comments and concerns on the "super" survey.

Results of the 1986 Membership Survey

An accurate assessment of existing services and an understanding of members' needs are critical tools in the management of any professional association. This information guides the development of future policy, contributes to the successful implementation of existing services, and facilitates the planning of new activities.

In the spring of 1986, SLA conducted an extensive membership survey to collect the information necessary to respond effectively to the changing needs and concerns of members and to further the goals of the Association. The membership survey project began in 1985 at the direction of SLA's Long-Range Planning Committee. Throughout the year, information was gathered from Association leaders and by SLA staff members to determine primary areas of interest and survey scope.

In November 1985, a request for proposal was developed and sent to eight survey research and analysis firms. A professional survey analysis firm was needed to assist SLA staff with the technical aspects of survey design and implementation. The survey analysis firm would help SLA staff refine the survey scope, develop survey methodology, design the collection mechanism, analyze the data, and interpret the results.

Seven proposals were received and evaluated according to a set of standard criteria, including design and methodology techniques employed, extent of data analysis services offered, timetable for implementation, overall cost, and experience with professional associations. In January of 1986, the Center for Organization Development was selected to assist with the design and implementation of the survey. Throughout the winter, a team of key SLA staff members worked with the Center for Organization Development (COD) to refine the survey scope, develop survey methodology, and design the collection mechanism.

Survey Scope and Design

The overall purpose of the survey was to gain a detailed understanding of SLA members, their characteristics and attitudes toward the Association, and services provided. However, these broad goals had to be translated into key areas of interest on which measurable data could be obtained.

During 1985, as information was obtained from SLA leadership and staff, it was determined that the survey should gather as much demographic information as possible while evaluating Association services and member satisfaction. Within these two broad categories, the survey scope was narrowed to include the following areas of interest:

- Demographics;
- Association-wide services—professional development, membership, Annual Conference, publications, and public relations; and
- SLA leadership, chapters, and divisions.

Once the survey scope had been focused to address a manageable number of interest areas, the SLA staff, with the assistance of COD, began to construct a pool of potential questionnaire items. Each item was designed to obtain measurable data in one of the primary areas of interest identified above.

Sampling Technique and Data Collection

Having refined the survey focus, the next step in the implementation process was selection of the sample population and development of the data collection instrument. Early in the design stage, it was decided that SLA would not include the entire membership in the survey process. Polling all 12,000 members would have been a time-consuming and

inefficient method of obtaining data. Using proper sampling techniques and established procedures, a sample survey would yield results that could be inferred accurately to the overall membership. For this reason, SLA decided to construct a representative sample for polling purposes.

Due to the composition of the Association and number of subunits, a simple, random sampling technique would not have produced a proportionately representative sample. At the recommendation of SLA Executive Director Dr. David R. Bender, SLA staff constructed a modified random sample that was adjusted to include SLA chapters and divisions in proportions similar to their representation within the overall membership. The final sample included just over one-third of SLA's 12,000 members and represented 36% of each chapter and 30% of each division. With a return of 25% or more, this sample would yield results that could be accurately inferred to the overall SLA membership.

The next step in the survey process was to develop the data collection instrument, an extensive questionnaire that would incorporate the various areas of interest mentioned previously. Based on their past experience with professional associations, COD made several recommendations.

The first recommendation was to construct a questionnaire composed primarily of multiple-choice items. Multiple-choice formats tend to be the most accurate and cost-effective means of gathering data, since this method allows for computer-coded responses that can be automatically translated into empirical data. In comparison, open-ended formats, while allowing respondents to comment freely, are costly to conduct and do not yield measurable data without interpretation. Since errors in judgment can be made during the interpretation process, open-ended formats typically yield results that are less reliable than other formats.

To achieve the ideal format, combine cost effectiveness and accuracy, and still allow space for individual comments and concerns, SLA and COD agreed upon a multiple-choice questionnaire with an additional page devoted to free response. These responses would be compiled/analyzed by SLA staff and appropriate units but not included in the empirical data.

COD's second recommendation was to limit the questionnaire to approximately 50 items. This length would enable SLA to achieve the objectives of the survey project, while allowing respondents to complete the questionnaire in 30 minutes or less. It was agreed that a longer survey, while providing additional information, could discourage response, reduce the number of returns, and jeopardize the accuracy of results.

Throughout the fall of 1985, SLA staff compiled and condensed potential questionnaire items. By January 1986, 54 items had been selected that adequately addressed the various areas of interest. COD reviewed the items to ensure that response categories were exhaustive and mutually exclusive, and that the language used was unambiguous and free of bias.

The next step in the development of the final questionnaire was to conduct a test with a small group of SLA members. The purpose of the test was to gain insight on any possible misinterpretations or difficulty in answering questions.

In late January, 12 members of SLA with diverse backgrounds in the information community and within the Association met at SLA headquarters to test the questionnaire. Several questions were modified based on insight gained from this exercise. By the end of February, the questionnaire was finalized and ready for distribution.

Implementation

On March 3, 1986, using the sample that SLA had constructed, the membership survey was mailed to 4,480 SLA members. The survey included a cover letter from SLA's 1986 President, H. Robert Malinowsky, stating the purpose of the survey and stressing the importance of participation.

Throughout 1985, the survey had been the subject of numerous articles and Association-wide discussions designed to stimulate interest in this project and encourage a high response rate. Several weeks after the mailing of the survey, a reminder postcard was sent to those who had not responded, encouraging them to do so.

On April 30, 1986, the deadline for receipt of questionnaires, 2,327 responses had been received, representing 54% of the total sample. According to COD, SLA had achieved a very high response rate, since the average return on a mail survey is 5%.

Analysis of the Data

As questionnaires were returned, COD coded and input responses. Preliminary data was presented in June at SLA's 1986 Annual

Conference; however, final analysis was not completed until early fall. In September, COD presented SLA with a full analysis of the results and a management report. The management report summarized key findings, compared SLA results with those of similar organizations, and offered recommendations for action in each area of interest.

The following section presents a summary of the 1986 Membership Survey findings.

RESULTS

Demographics

The first section of the survey addressed demographics and general characteristics of the SLA membership. In the first question, members were asked in which geographic region their chapter is located and were provided with 11 possible response categories, including Canada and Europe. Members in the Middle Atlantic states were best represented, with 23% of the response. Six European members and 152 Canadian members responded.

The regional distribution of respondents represented in table 1 is very similar to that of the 1983 and 1986 Triennial Salary Surveys. This similarity establishes the validity of the 1986 Membership Survey sample.

In the next question, respondents were asked to indicate their primary chapter and division. Tables 2A and 2B indicate the distribution of respondents according to their chapter and division affiliations, in comparison with the total membership distribution as of February 1986.

As indicated in the introduction, the survey sample was carefully selected to include representative proportions from each chapter and division; however, there was no guarantee that returns would match these proportions. The accuracy with which the sample data on chapters and divisions reflects the total membership breakdown in table 2A and table 2B confirms the representativeness of the sampling procedures used. Due to the high degree of representativeness, the following statistics may be inferred to the membership as a whole.

In the next question, respondents were given six categories, ranging from "30 or under" to "over 65," and were asked to indicate their age. Response indicates that 70% of SLA members are under the age of 45, 15.3% are under 30, and 3% are over 65.

In the following item, members were asked to indicate their sex. The majority of SLA members, 84.7%, are women. Respondents were then asked if they were married and, if so, whether their spouse is a library/information professional. Just over 56% of the membership is married. However, of this group, only 1.3% are married to library/information professionals.

The next question asked respondents to indicate the highest educational level they had obtained in both subject field and library/information science. Seventy percent of the membership have a bachelor's degree in a subject field. Just over 20% have a master's degree in their subject area, and 3% have obtained their doctorates. Over 80% of SLA members have a master's degree in library/information science, and 1.5% hold a doctoral degree in the library field. Close to 10% of the SLA membership holds no advanced degree.

When asked to indicate the number of years they had been employed in the library/in-

Table 1. Regional Distribution of Respondents

Region	Total Sample	1983 Salary Survey	1986 Salary Survey
New England	8.6%	7%	8%
Middle Atlantic	23.0%	22%	23%
East North Central	14.7%	16%	15%
West North Central	4.7%	5%	5%
South Atlantic	14.4%	15%	14%
East South Central	2.4%	2%	2%
West South Central	4.7%	6%	6%
Mountain	3.2%	4%	3%
Pacific	17.4%	15%	17%
Canada	6.6%	7%	7%
Europe	.3%	.5%	.5%
TOTAL N	2,305	3,255	5,913

Table 2A. Distribution of Respondents by Chapter

Chapter	% of Total Sample	% of Total Membership
Alabama (290)	.8	.6
Arizona (480)	.4	.7
Baltimore (010)	.9	.8
Boston (020)	5.0	5.0
Central Ohio (330)	.6	.9
Central Pennsylvania (490)	.6	.5
Cincinnati (030)	.6	.6
Cleveland (040)	1.6	1.6
Connecticut Valley (050)	1.6	1.6
Eastern Canada (140)	2.5	2.2
European (400)	.1	.4
Fairfield County (009)	.9	.9
Florida (370)	1.7	1.8
Hawaiian Pacific (390)	.4	.5
Heart of America (090)	.5	.6
Hudson Valley (440)	.7	.9
Illinois (070)	5.4	5.3
Indiana (080)	1.1	1.2
Kentucky (410)	.1	.2
Long Island (380)	.8	.8
Louisiana (100)	.8	.7
Michigan (110)	3.0	2.9
Mid-Missouri (420)	.3	.3
Mid South (450)	.3	.3
Minnesota (130)	2.0	1.9
New Jersey (150)	3.7	3.4
New York (160)	9.4	11.4
North Carolina (340)	2.0	1.8
Oklahoma (300)	.6	.5
Omaha Area (007)	.3	.3
Oregon (430)	.6	.8
Pacific Northwest (190)	2.5	2.4
Philadelphia (170)	3.0	3.2
Pittsburgh (180)	1.4	1.4
Princeton-Trenton (360)	1.4	1.2
Rhode Island (470)	.4	.4
Rio Grande (310)	.5	.6
Rocky Mountain (260)	1.4	1.9
St. Louis Metropolitan Area (060)	1.5	1.1
San Andreas (006)	2.4	2.6
San Diego (320)	.7	.8
San Francisco Bay Region (200)	5.3	5.1
Sierra Nevada (460)	1.0	.7
South Atlantic (270)	1.2	1.3
South Carolina Provisional (004)	.1	.2
Southern Appalachian (280)	.7	.5
Southern California (210)	4.4	4.9
Texas (220)	3.8	4.0
Toronto (230)	2.9	3.9
Upstate New York (250)	2.0	1.9
Virginia (350)	1.2	.9
Washington, DC (240)	6.2	6.9
Western Canada (008)	.9	1.1
Western Michigan (005)	.6	.5
Wisconsin (120)	1.4	1.3
Dual Chapter Affiliation (98)	1.8	

formation science field, 24.2% of the respondents indicated that they had been employed in the field five years or less, with almost 11% having been in the field less than two years. Almost 27% have been in the field 6 to 10 years; 22.4%, 11 to 15 years; and 26.8% have been in the field 16 years or more. These re-

Table 2B. Distribution of Respondents by Division

Division	% of Total Sample	% of Total Membership
Advertising & Marketing (610)	1.8	3.0
Aerospace (620)	1.9	1.5
Biological Sciences (630)	5.8	3.9
Business & Finance (640)	17.6	14.3
Chemistry (660)	2.2	2.5
Education (880)	1.3	1.2
Engineering (690)	4.1	3.6
Environmental Information (810)	1.2	1.3
Food, Agriculture & Nutrition (600)	1.5	1.5
Geography & Map (700)	1.9	1.7
Information Technology (670)	6.9	12.1
Insurance & Employee Benefits (720)	2.9	1.5
Library Management (820)	6.3	9.3
Metals/Materials (730)	1.0	1.0
Military Librarians (750)	1.8	1.8
Museums, Arts & Humanities (760)	2.8	3.5
Natural Resources (770)	1.0	1.0
Newspaper (780)	3.7	2.8
Nuclear Science (790)	.8	.8
Petroleum & Energy Resources (650)	2.6	2.4
Pharmaceutical (710)	2.5	1.7
Physics-Astronomy-Mathematics (890)	1.2	.9
Picture (740)	.6	1.2
Public Utilities (580)	1.7	1.1
Publishing (590)	.7	1.5
Science-Technology (800)	10.6	9.1
Social Science (900)	6.0	5.3
Telecommunications (830)	1.5	1.8
Transportation (680)	1.6	1.2
No Division Affiliation (990)	.2	5.2
Dual Division Affiliation (98)	2.2	
Indecipherable (99)	1.6	

sults indicate a healthy distribution in years of experience among the SLA membership.

The next question asked respondents to indicate how long they have held their current positions. More than half of SLA members have held their current position for three years or less. Of the remaining categories, close to 20% have been in their current positions 4 to 6 years, and 11%, 7 to 10 years. Respondents who have been in their positions more than 10 years represented 15.5% of the sample. This data suggests that SLA members are highly mobile within the profession of library/information science.

The next series of questions pertained to the types of organizations in which members are employed, addressing items such as number of information center employees, budget, and purchasing decisions. When asked in what type of organization they were employed, results indicated that 48.4% are employed in corporations, 18.3% in academic institutions, 14.5% in nonprofit organizations, and 13% in government. Approximately 3% of SLA members are self-employed, and 3% are unemployed or retired.

The number of employees in respondents' library/information centers varied widely, from a minimum of one person to as many as 5,000. However, 75% of SLA members have 13 or fewer employees in their library/information centers. Table 3 indicates the breakdown by the five response categories available.

In the next question, members were asked to what degree they are responsible for purchasing various products and services, including books and periodicals, library software, computer hardware, microforms and microform equipment, database services, and library equipment and furniture. For each of these items, respondents could indicate that they are the "primary decision makers," "influence the decision," or are "not involved in the decision" to purchase.

Response indicated that approximately 45% of SLA members are the primary decision makers for items such as books, periodicals, and database services. Thirty-five percent are primary decision makers for library software and 20% for library hardware. Between 39% and 43% of the members influence purchasing decisions in all categories of products and services. Approximately 22% of the members are not involved in purchasing decisions for the products and services listed.

One possible explanation for the lower number of primary decision makers for computer hardware involves the size of the budget required to purchase an item of this nature. Due to the high cost of computer hardware, members may heavily influence purchasing decisions but may not be authorized to make final decisions.

Table 3. Number of Employees in Library/Information Center

Number of Employees	Total Sample
1 Person	15.8%
2 to 6	44.6%
6 to 13	15.2%
14 to 50	16.3%
Over 50	8.2%
TOTAL N	2,033

In the following items, respondents were asked what size budget, excluding salaries, was allotted to their library/information center for fiscal year 1986. Almost 30% of members' library/information centers have budgets under $50,000, while 20% have budgets of $250,000 or more.

The actual breakdown of responses in the seven categories offered is as follows: 18.5% are under $25,000; 10.8% are between $25,000 and $49,000; 7.8% are between $50,000 and $74,999; 7.4% are between $75,000 and $99,999; 15.6% are between $100,000 and $249,999; and 20.2% have budgets of $250,000 or more. Just under 20% of the respondents indicated that they "did not know" the budget of their library/information center.

Membership

The second interest area addressed in the survey was SLA membership. In this section, respondents were asked how many years they have been a member, who pays their dues, and to what other professional organizations they belong.

In the first item, respondents were asked who paid their membership dues and were provided with three response categories, including "employer," "myself," and a combination of these two categories. Response indicates that 51.5% of SLA members pay their own dues and 46.8% have their dues paid by their employers. Less than 1% of SLA members split dues payments with their employers.

In the next question, respondents were

asked the number of years they have been a member of the Special Libraries Association. The "0 to 2 years" option was the largest category of response, representing 38.3% of the sample. The primary explanation for the size of this response is supported by the previous item, which addresses "length of time in current position." This item indicates that library and information science specialists are highly mobile within the profession, since more than half of SLA members have been in their current positions less than three years.

This mobility, combined with the proliferation of career opportunities in related professions, suggests that SLA members are moving in and out of the profession, changing their membership status as they change positions. According to COD, this is the most likely explanation for the high proportion of members in the "0 to 2 years" category. This is further supported by the results of the remaining categories of response, which indicate a low rate of attrition. These categories, representing 61.7% of the respondents, present a fairly even distribution from 3 years as an SLA member to 16 years or more. These results suggest that once members pass the two-year point, they are likely to retain SLA membership throughout their careers. Because of the large proportion of members in the "0 to 2 years" category, future emphasis will be placed on new member orientation and communication.

The last question in this section asked respondents to what other professional associations they belong. Response categories included American Library Association, American Society for Information Science, Medical Library Association, and Association of Information Managers. The ALA had the highest category of response, with 27.7% indicating that they are members of this organization, followed by ASIS with 13.3%, MLA with 9.7%, and AIM with 2.8% of the response.

SLA Leadership, Chapters, and Divisions

This section addressed various chapter and division functions, members' degree of satisfaction with these services, and the concept of SLA leadership.

The first question asked respondents if they had ever served in a voluntary leadership position at the international level (Board of Directors, Association committees, chapter president, or division chair). The results indicate that only 17% of the membership has served in one or more of these capacities.

In the next question, respondents were asked if they had not served in a leadership position to indicate their primary reason. Response categories included "Too many responsibilities," "Not enough time," "Never been asked," and "Don't know enough about what is involved." Thirty-eight percent of the respondents indicated that they did not have enough time, followed by 24.7% indicating they had never been asked, and 22% responding that they did not know enough about the responsibilities or opportunities involved. Only 14.8% indicated that there were too many responsibilities associated with voluntary leadership.

COD observed that close to one half of the members have not served because they "don't know enough" or "have never been asked." Since this group represents a large, untapped pool of potential leaders, COD suggests that SLA chapters and divisions more actively recruit leaders and disseminate more information about leadership opportunities.

The next question asked respondents how often they attend local chapter meetings. Twenty-five percent of the sample attend meetings regularly, while 41% attend occasionally. Just over 32% of SLA members seldom or never attend chapter meetings. When asked to give their primary reason for not attending, close to 39% of the respondents cited scheduling conflicts, followed by 20.6% indicating travel time. Only 9% cited poor program content or quality, with 8.6% indicating expense and 3.6% identifying lack of peer attendance.

Since the main reasons for lack of attendance are scheduling conflicts and travel time, COD suggests that chapters serving a wide geographic area use a variety of meeting sites. It was also suggested that chapters schedule meetings on various days and at different times, rather than at a set time and day of the week.

The next question asked respondents to rate eight chapter functions/services according to degree of effectiveness. Table 4 represents the membership's perception of these services.

To determine relative effectiveness of chapter performance and to identify overall areas of strength and weakness, mean ratings were calculated on the above data. In table 5, functions with the lowest mean effectiveness rating are those functions that SLA chapters perform most effectively.

The following question addressed division

Table 4. Effectiveness of Chapter's Performance

Functions	Very Well	Acceptably	Poorly	Not Done	Total N
Educational programs	34.0%	52.7%	9.2%	4.2%	1,611
Chapter meetings	44.9%	49.0%	5.5%	.5%	1,702
Placement services	20.6%	44.0%	21.1%	14.3%	1,353
Newsletters	49.4%	43.4%	5.0%	2.3%	1,771
Chapter directory	41.2%	38.6%	8.5%	11.6%	1,537
Recruiting members	11.8%	52.3%	28.1%	7.8%	1,280
Community involvement/public relations	8.1%	39.8%	36.8%	15.3%	1,217
Interaction with local academic institutions	22.5%	48.6%	19.8%	9.0%	1,265

Table 5. Mean Rating of Chapter Functions

Functions	Mean Rating
Newsletters	1.55
Chapter meetings	1.60
Chapter directory	1.63
Educational programs	1.74
Interaction with local academic institutions	1.97
Placement services	2.01
Recruiting members	2.18
Community involvement/public relations	2.34

performance and included six function areas. Table 6 represents the results of this question.

Table 7 identifies division strengths and weaknesses in a mean rating calculation. The lowest ratings indicate function areas in which divisions perform most effectively.

A comparison of tables 5 and 7 indicate that chapters and divisions are comparably effective in all function areas and excel in the production of newsletters and directories. According to COD, services such as placement, recruiting, community involvement, and academic interaction are more complex and difficult for small units to perform effectively. It is intended that SLA's new *Membership Recruitment Guide* and the additional information provided by headquarters to career development officers will increase effectiveness in these service areas. COD's final observation was that public relations efforts needed to be improved by both chapters and divisions. A Public Relations Handbook is currently being developed to assist chapters and divisions in this effort.

Table 7. Mean Rating of Division Functions

Functions	Mean Rating
Newsletters	1.70
Educational programs	1.89
Division directory	1.89
Interaction with academic inst./professions	2.16
Recruiting members	2.26
Public relations	2.27

Professional Development

The next section addressed professional development to determine level of attendance

Table 6. Effectiveness of Division's Performance

Functions	Very Well	Acceptably	Poorly	Not Done	Total N
Educational programs	24.5%	47.7%	14.7%	13.2%	1,095
Newsletters	39.6%	45.4%	11.0%	4.0%	1,355
Division directory	25.6%	35.7%	16.8%	21.8%	1,030
Recruiting members	9.6%	43.6%	31.6%	15.2%	900
Public relations	8.7%	43.9%	31.0%	16.4%	896
Interaction with academic inst./professions	12.9%	40.4%	25.2%	21.5%	824

and to obtain information critical to the planning of future programs.

The first question was designed to determine overall attendance, asking respondents whether they had attended one or more headquarters-sponsored CE courses in the past two years. Close to 27% indicated that they had attended at least one CE course; the remaining 73.3% had not attended a headquarters-sponsored CE activity.

In a related question, members were asked to rate various factors that influence the decision to attend educational programs as "very important," "moderately important," "slightly important," or "not important." Mean ratings were calculated to determine the relative importance of each factor. Table 8 represents the results of this calculation, with the lowest rating indicating factors of greatest importance.

The next series of questions was intended to provide SLA staff with information to facilitate the planning and implementation of professional development activities. Questions included best months and days of the week, ideal duration, fees for registration, and preferred topics. The results are as follows:

- When asked how far in advance information was needed regarding upcoming professional development opportunities, the highest proportion of respondents indicated that they prefer to have two to three months' advance notice.
- The most preferred months for professional development activities, in order of preference, are May, April, and October, followed by June, September, and March.
- When asked their preference for weekday versus weekend programs, 48% indicated a preference for weekdays and 22.2% preferred weekends. Close to 30% had no preference.

Table 8. Mean Rating of Factors Influencing Decision to Attend Education Programs

Factors	Mean Rating
Program content	1.10
Quality of program	1.22
Addresses anticipated need	1.34
Location of seminar	1.40
Speakers	1.68
Reputation of sponsoring organization	1.89
Registration fee	1.90
Time of year	2.48

- Respondents were asked to indicate the maximum length of time, excluding travel, that they are willing to devote to a professional development program. Approximately half indicated that two days was the maximum, followed by 24.2% choosing one day and 21.8% choosing three days. Only 4.5% of the sample indicated they would be willing to devote four or more days to a professional development activity.

The next set of questions addressed topics of interest, level of awareness, new programs, and the value of a special professional certification. Participants were given a list of seven topics, plus space to add additional topics, and were asked to indicate level of importance. Categories of response included "very likely to attend," "somewhat likely" to attend, "not likely," and "definitely not likely" to attend. Table 9 represents the results of this question. To gather additional information, mean ratings were calculated to determine the comparative level of importance of each topic, as is shown in table 10. The lower the mean rating, the more popular the program topic.

Table 9. Likelihood of Attending Education Programs with these Topics

Topics	Very Likely	Somewhat Likely	Not Likely	Definitely Not	Total N
Software applications/review	35.0%	42.8%	17.7%	.5%	2,083
Library management/skills training	32.9%	42.4%	18.8%	5.9%	2,074
General management	18.4%	40.9%	31.6%	9.1%	2,040
Personal development	14.9%	30.8%	37.8%	16.6%	2,048
Financial/budgeting	18.2%	39.7%	30.7%	11.4%	2,040
Marketing	22.1%	34.0%	31.0%	12.8%	2,051
Human resources	13.5%	37.2%	37.0%	12.3%	2,014
Other topics	54.9%	14.6%	12.4%	18.1%	226

Table 10. Mean Rating of Topic Popularity

Topic	Mean Rating
Software applications/review	1.92
Library management/skills training	1.98
General management	2.31
Financial/budgeting	2.35
Marketing	2.35
Human resources	2.48
Personal development	2.56

The results in table 10 support SLA's current emphasis on technology and management-related topics in all areas of professional development.

The next question introduced the idea of an executive development program and asked participants how likely they would be to enroll in this type of educational activity. Over 37% of the respondents indicated they would be "very likely" or "moderately likely" to attend; 31% responded "somewhat likely." The remainder of the sample indicated they would not attend an executive development program. Based on this response, SLA is continuing development of the Executive Development Academy, as outlined in the Association's Long-Range Plan.

The next question asked participants to indicate the value of a special professional certification to overall career advancement. Over 46% of the membership indicated that professional certification would be "moderately" to "very" valuable to career advancement. Just over 32% indicated that certification would be "slightly valuable," while 21% indicated that a special professional certification would be of "no value" in their careers.

Annual Conference

The next interest area addressed by the survey was the SLA Annual Conference. Respondents were asked a variety of questions on topics of importance, factors influencing attendance, and preferred location.

When asked if they had attended at least one Annual Conference in the past five years, 41.1% of the sample indicated that they had, and 59% had not.

The next question asked respondents who had never attended an SLA Annual Conference to indicate why. The most frequently cited reason for not attending was "budget constraints," followed by "inconvenient location" and "overall expense." Table 11 represents the breakdown of total response by the 12 possible responses.

Respondents who had attended an Annual Conference were then asked whether the amount of time spent in key activity areas should "increase," "decrease," or "remain the same." Activity areas included general sessions, peer interaction, social activities, continuing education courses, exhibit viewing time, division programming, and career opportunities. Over half the sample indicated that more time should be spent on peer interaction. Over a third would like more time devoted to division programming and career opportunities. Approximately three-quarters of the respondents indicated that general sessions, social activities, continuing education, and exhibit viewing time should remain at current levels.

The last question in this section asked respondents about their preference regarding type of location. Almost half of the respondents indicated a preference for smaller, less expensive cities. Eighteen percent of the sample preferred major cities, regardless of the cost, and 33.8% had no preference for type of location.

Publications

The fourth area of interest pertained to the SLA Publications Program, including an evaluation of *Special Libraries,* non-serial publications, and the Membership Directory.

The first question asked respondents to rate seven library/information science publications, including *Special Libraries,* according to

Table 11. Reasons for Not Attending an SLA Conference

Reasons for Not Attending	Total Sample
Budget constraints	28.7%
Inconvenient locations	17.7%
Too expensive	16.7%
Inconvenient scheduling	9.8%
Nothing of interest offered	4.2%
Quality of program content offered	1.1%
Quality of instructors/speakers	0.7%
Employer policy not to pay expenses	14.1%
Employer policy not to give time off	8.3%
Attended other library/information conferences instead	16.3%

(Base of 2,327; do not add to 100%, because respondents allowed multiple answers.)

their value. Categories of response included "of no value," "minimally valuable," "moderately valuable," "very valuable," and "not read." Respondents indicated that *Special Libraries* was the most valuable publication, followed, in order of value, by *Library Journal, American Libraries, Library Trends, Online Review, ASIS Bulletin,* and *Wilson Library Bulletin.*

In the next question, respondents were asked to rate different types of articles published in *Special Libraries* according to their importance. Table 12 is a mean rating calculation that indicates the relative importance of article topics. The lower the mean rating, the greater the importance of the article to *Special Libraries* readers. The data in table 12 supports the current emphasis in *Special Libraries* on library management and software topics.

The last set of publications questions were designed to gather information on the Membership Directory, its use, and the importance of its component sections. When asked for what purpose they used the Membership Directory, half of the respondents indicated "personal use/networking" as the primary reason, followed by 45% for "job-related" use, and 21% for "Chapter or Division affairs." Over one-quarter of the respondents do not use the SLA Membership Directory.

Respondents were then given a selection of eight component sections found at one time in the SLA Membership Directory and asked to rate their levels of importance. In a mean rating calculation of comparative importance, the alphabetical membership listing was rated highest, followed by the overall directory, chapter and division indexes, future meetings listing, business index, Board of Directors and committees listing, Association staff, and Bylaws.

Membership Services—General

The purpose of this section was to evaluate the level of service provided by SLA headquarters staff.

The first question asked respondents how many times they had contacted SLA headquarters in the last six months, either by telephone or letter. Over 28% of the membership have contacted SLA headquarters "one to three times" in the last six months, 2.7% "four to six times," and approximately 1% "seven times or more." The remainder of the membership has not contacted SLA headquarters in the last six months.

The next question asked those respondents who had been in contact with SLA if their contact was satisfactory. Close to 84% of the respondents indicated that their contact with SLA headquarters had been satisfactory. According to COD, a high rate of satisfaction is a particularly significant measure of effectiveness for an association. Quality of contact often becomes the only tangible method of assessing membership services for those who are unable to attend the Annual Conference or other professional development activities. Members will often evaluate membership services solely on monthly publications and the responsiveness of staff to occasional inquiries.

Table 12. Mean Rating of *Special Libraries* Topic

Topic	Mean Rating
Library management/skills	1.68
Software applications/review	1.80
General management	2.06
Personal development	2.17
Marketing	2.20
Financial/budgeting	2.25
Human resources	2.29

Public Relations

The last section of the survey was designed to gather additional information on members' attitudes toward SLA's Public Relations Program and on the possibility of an Association name change.

The first question was designed to help the Association target appropriate markets for public relations efforts. Respondents were asked to indicate their level of agreement with several statements regarding the potential influence of SLA's Public Relations Program. The statements were as follows:

- "I feel SLA's public relations program could improve the image of the profession vis-à-vis the *library community.*"
- "I feel SLA's public relations program could improve the image of the profession vis-à-vis *my employer.*"
- "I feel SLA's public relations program could improve the image of the profession vis-à-vis the *general public.*"

Participants were asked if they "strongly agreed," "agreed," "disagreed," or "strongly disagreed" with each of the above statements. Mean ratings were calculated to determine members' relative levels of agreement. Results indicate that SLA would be most successful

in influencing the general public, followed by the library community and employers.

In the second question, respondents were asked whether an enhanced image would result in higher salaries, promotions, increased responsibility, increased budget, increased staff, and/or greater visibility. Upon calculation of a mean rating, the results indicate that an enhanced image would have the greatest affect on members' visibility, followed by an increase in responsibility, higher salaries, promotions, an increased budget, and, finally, an increased staff.

Respondents were then asked which promotional tools, including posters, brochures, audiovisual materials, or handbooks, they would use to promote the profession. Close to 56% of the respondents indicated they would use a handbook first, followed by brochures, posters, and audiovisual materials.

The final question in the survey asked respondents whether the name "Special Libraries Association" accurately describes the make-up of the present membership and attracts the appropriate professionals to the Association. Over three-quarters of the respondents indicated that the name "Special Libraries Association" serves this purpose adequately.

OVERVIEW

Evaluation

As stated in the introduction, the purpose of the 1986 Membership Survey was to gather comprehensive information on members' attitudes and needs and to facilitate the planning and implementation of Association activities and services. The survey data will be used extensively by two groups within the Association structure: SLA's Board of Directors and leadership, and the SLA staff.

On the evening of October 22, 1986, the Board of Directors met to discuss those survey findings that held possible implications for Association policy. The Board and key staff members discussed the survey findings in the context of current and future policy direction. Although areas of stability were identified, the meeting emphasized those statistics that suggested change or redirection of policy.

The Board concluded that, in general, the survey results supported the current activities and operation of the Association, as well as the objectives of the Long-Range Plan. Several aspects of membership services were targeted for additional emphasis. In the future, greater attention will be given to the new member and marketing of membership benefits, as well as chapter and division recruitment efforts. The SLA leadership, particularly the Long-Range Planning Committee, will continue to use the survey results as future goals, objectives, and Association-wide policies are developed.

Shortly after the special Board meeting, 10 members of the SLA staff met for a more in-depth review of the survey findings, including the 200 cross-tabulations provided by COD. This meeting emphasized use of the survey findings in future planning and identified potential areas of expansion of membership services.

In addition to achieving its original goals, the SLA Membership Survey brought attention to the Association from both the library and nonprofit communities. The SLA Membership Survey project was mentioned in a number of library-oriented publications, including two separate articles in *Library Journal*. The survey project prompted numerous inquiries from the nonprofit/association sector.

Future Outlook

In an effort to gain additional information regarding possible implications of the survey findings, the results were sent to David Pearce Snyder, noted authority on the future of major U.S. institutions, industries, and professions. Mr. Snyder, author of *Future Forces*, was asked to use the survey findings to compare SLA with similar organizations and to forecast future trends for the special library/information profession.

According to Snyder, the findings of SLA's 1986 survey reflect general societal and professional changes that are taking place as we move into the next century. SLA members' degree of mobility and level of Association participation are similar to those of comparable organizations.

Snyder contends that economic constraints and demands on nonprofessional time are growing. His studies of association behavior indicate that professionals are devoting less and less time to association activities, including voluntary leadership. Related to this trend is the fact that the ongoing migration of corporations into suburban and exurban areas is dispersing salaried professionals geographi-

cally, making regional activities increasingly inconvenient. Snyder suggests that SLA must uphold the high quality and utility of services and programs to overcome these economic and geographic constraints.

Regarding the future of the profession, Snyder states that the survey findings support his view that information specialists will have an influential role in the society of the future. Compared with other professions, the information specialist will excel in the new knowledge-based economy, playing an important role in the retraining of the labor force for information-service occupations.

Snyder recognizes that information professionals are more familiar with new technologies than any other profession and states that this knowledge will be particularly powerful in the future. He projects that information management will be an increasingly crucial function, critical to the success of future enterprises. Snyder identifies the information professional as the best source for applied knowledge and the most qualified to design future technologies, such as expert systems. However, he stresses that information professionals must capitalize on this advantage immediately, or other professions will move into these functions.

Conclusion

The 1986 Membership Survey was an ambitious undertaking, designed to help SLA's voluntary leadership and staff understand current needs and project future trends in special librarianship. This objective was successfully met as the survey effort culminated in the collection of over 275 statistics that represent the characteristics and attitudes of SLA's nearly 12,500 members. This information will be used extensively in the years to come as the basis for development of future programs and services and as the foundation for the future collection of membership statistics.

Audit Report January 1, 1986– December 31, 1986

To the Board of Directors
Special Libraries Association, Inc.

We have examined the balance sheet of Special Libraries Association, Inc. as of December 31, 1986, and the related statements of revenue, expenses and changes in fund balances, and changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the financial statements referred to above present fairly the financial position of Special Libraries Association, Inc. as of December 31, 1986, and the results of its operations and the changes in its financial position for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Garner, Bloom & Klein, Chartered

Garner, Bloom & Klein, Chartered
Certified Public Accountants
March 18, 1987
Silver Spring, Maryland

SPECIAL LIBRARIES ASSOCIATION, INC.
BALANCE SHEET
DECEMBER 31, 1986

	Total All Funds	* General Fund	Nonserial Publications Fund	Scholarship Fund	Special Programs Fund	Building Reserve Fund
ASSETS						
Current Assets						
Cash and money market funds	$ 1,598,917	$ 1,344,563	$ 26,220	$ 55,132	$ 84,177	$ 88,825
Marketable securities (Note 2)	216,447	136,816		79,631		
Accounts receivable, less allowance for uncollectible accounts of $11,129	100,272	81,547	17,401	1,324		
Due from (to) other funds		(72,551)	54,908	(10,976)	725	27,894
Inventory (Note 4)	82,038		82,038			
Prepaid expenses	56,939	56,939				
Total current assets	2,054,613	1,547,314	180,567	125,111	84,902	116,719
Marketable Securities (Note 2)	134,056	84,737		49,319		
Building, Furniture and Equipment (Notes 3 and 4)	1,575,983	1,575,983				
Other Assets	47,415	47,415				
	$ 3,812,067	$ 3,255,449	$ 180,567	$ 174,430	$ 84,902	$ 116,719
LIABILITIES AND FUND BALANCES						
Current Liabilities						
Current maturities of long-term debt (Note 4)	$ 60,000	$ 60,000	$	$	$	$
Accounts payable—trade	55,917	52,417			3,500	
Subscriptions, dues, fees and contributions received in advance	731,450	731,450				
Withheld taxes and accrued expenses	30,757	15,075	15,682			
Income taxes payable	18,882	18,882				
Total current liabilities	897,006	877,824	15,682		3,500	
Long-Term Debt, less current maturities (Note 4)	792,000	792,000				
Commitments and Contingencies (Note 5)						
Fund Balances	2,123,061	1,585,625	164,885	174,430	81,402	116,719
	$ 3,812,067	$ 3,255,449	$ 180,567	$ 174,430	$ 84,902	$ 116,719

See accompanying notes to financial statements

* *Includes General, General Reserve, and Computer Funds*

SPECIAL LIBRARIES ASSOCIATION, INC.
STATEMENT OF REVENUE, EXPENSES AND CHANGES IN FUND BALANCES
YEAR ENDED DECEMBER 31, 1986

	Total All Funds	* General Fund	Nonserial Publications Fund	Scholarship Fund	Special Programs Fund	Building Reserve Fund
Revenue						
Dues and fees	$ 815,494	$ 815,494	$	$	$	$
Subscriptions and advertising	231,336	231,336				
Conference income less $275,159 expenses	497,888	497,888				
Education income less $125,091 expenses	77,844	77,844				
Mailing list service program less $19,393 expenses	81,408	81,408				
Interest, dividends and net gain on sale of investments	155,317	110,493	1,674	32,129	5,934	5,087
Sale of nonserial publications	122,605		122,605			
Miscellaneous	33,275	33,275				
Contributions	46,654			7,618	812	38,224
	2,061,821	1,847,738	124,279	39,747	6,746	43,311
Costs and expenses (Note 5)						
Allotment of funds to sub-units	197,087	197,087				
Salaries, wages and benefits	590,357	590,357				
Office services & occupancy costs	205,062	205,062				
Professional fees and services	43,393	43,393				
Travel and meetings	50,348	50,348				
Program services and promotion	123,886	123,886				
Cost of periodical publications sold, including allocation below	200,015	200,015				
Cost of nonserial publications	73,618		73,618			
Scholarships, stipends and grants	18,850			18,000	850	
Miscellaneous	15,490	15,490				
Depreciation	82,993	82,993				
Interest	77,949	77,949				
Taxes on income	21,044	21,044				
Allocation of above expenses to:						
Cost of periodical publications	(20,520)	(20,520)				
Conference	(48,889)	(48,889)				
Other funds and programs	(30,120)	(36,719)	6,599			
	1,600,563	1,501,496	80,217	18,000	850	
Excess of revenue over costs and expenses	461,258	346,242	44,062	21,747	5,896	43,311
Fund balances—beginning of year	1,661,803	1,268,286	120,823	152,683	75,506	44,505
Fund transfers		(28,903)				28,903
Fund balances—end of year	$ 2,123,061	$ 1,585,625	$ 164,885	$ 174,430	$ 81,402	$ 116,719

See accompanying notes to financial statements

* *Includes General, General Reserve, and Computer Funds*

SPECIAL LIBRARIES ASSOCIATION, INC.
STATEMENT OF CHANGES IN FINANCIAL POSITION
YEAR ENDED DECEMBER 31, 1986

	Total All Funds	* General Fund	Nonserial Publications Fund	Scholarship Fund	Special Programs Fund	Building Reserve Fund
Source of Working Capital						
Excess of revenue over costs and expenses	$ 461,258	$ 346,242	$ 44,062	$ 21,747	$ 5,896	$ 43,311
Add expense not requiring use of working capital—depreciation	84,189	84,189				
Working capital provided by operations	545,447	430,431	44,062	21,747	5,896	43,311
Use of Working Capital						
Purchase of furniture and equipment	59,762	59,762				
Reduction of long-term debt	60,000	60,000				
Increase in other assets	2,604	2,604				
Transfer to building fund from general fund		28,903				(28,903)
Increase in marketable securities	44,970	26,526		18,444		
Total	167,336	177,795		18,444		(28,903)
Increase in working capital	$ 378,111	$ 252,636	$ 44,062	$ 3,303	$ 5,896	$ 72,214
Changes in working capital items						
Increase (decrease) in current assets						
Cash and money market funds	$ 613,581	$ 593,183	$ 1,674	$(11,047)	$ 5,934	$ 23,837
Marketable securities	57,702	33,088		24,614		
Accounts receivable	(8,429)	5,756	(14,303)	118		
Due from (to) other funds		(118,758)	80,801	(10,382)	(38)	48,377
Inventory	(20,042)		(20,042)			
Prepaid expenses	(4,654)	(4,654)				
Total	638,158	508,615	48,130	3,303	5,896	72,214
Decrease (increase) in current liabilities						
Current maturities of long-term debt	(12,000)	(12,000)				
Accounts payable—trade	21,049	21,049				
Subscriptions, dues, fees and contributions received in advance	(270,425)	(270,425)				
Withheld taxes and accrued expenses	(7,789)	(3,721)	(4,068)			
Income taxes payable	9,118	9,118				
Total	(260,047)	(255,979)	(4,068)			
Increase in working capital	$ 378,111	$ 252,636	$ 44,062	$ 3,303	$ 5,896	$ 72,214

See accompanying notes to financial statements

** Includes General, General Reserve, and Computer Funds*

SPECIAL LIBRARIES ASSOCIATION, INC.
NOTES TO FINANCIAL STATEMENTS

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Fund Accounting
To ensure observance of limitations and restrictions placed on the use of resources available to the Association, the accounts of the Association are maintained in accordance with the principles of fund accounting. This is the procedure by which resources are classified for accounting and financial reporting into funds established according to their nature and purposes. Separate accounts are maintained for each fund; accordingly, all financial transactions have been recorded and reported by fund group.

The assets, liabilities, and fund balances are reported in five self-balancing fund groups as follows:

General Fund
Nonserial Publications Fund
Scholarship Fund
Special Programs Fund
Building Reserve Fund

Operations
The Association encourages and promotes the utilization of knowledge through the collection, organization and dissemination of information. It is an association of individuals and organizations with educational, scientific and technical interests in library and information science and technology.

Marketable Securities
The marketable securities of the General and Scholarship Funds are combined and managed as one fund for investment purposes, with participating percentages in income and gains and losses based on respective participation accounts at the end of the year. Marketable securities carried as current assets are valued at the lower of cost or market and those carried as non-current assets are valued at cost. It is the Association's intention not to utilize the non-current portion of these assets in the normal course of operations.

Inventory
Inventory of nonserial publications is stated at the lower of average cost or market.

Building, Furniture and Equipment
Fixed assets (including land) are stated at cost. Expenditures for additions, renewals and betterments are capitalized; expenditures for maintenance and repairs are charged to expenses as incurred. Upon retirement or disposal of assets, the cost and accumulated depreciation or amortization are eliminated from the accounts and the resulting gain or loss is included in income. Depreciation is computed using straight-line and accelerated methods based on the following estimated useful lives:

Building	40 years
Building improvements	10–20 years
Furniture and equipment	5–10 years

Subscriptions, Dues and Fees
Except for subscriptions to the periodicals *Specialist* and *Special Libraries,* membership in the Association is based on either a December 31 or June 30 year. Dues, fees and subscriptions are credited to income as earned.

Income Taxes
The Association is exempt from federal income taxes under Section 501(c)(3) of the Internal Revenue Code and applicable local law. Income taxes arise from unrelated business activities of the Association.

MARKETABLE SECURITIES
Marketable securities at December 31, 1986, consist of the following:

	Cost	Market
Current assets		
Common stocks	$ 216,447	$ 263,262
Non-current assets		
U.S. Government obligations	$ 49,461	$ 54,655
Corporate bonds	84,595	82,226
	$ 134,056	$ 136,881

3. BUILDING, FURNITURE AND EQUIPMENT
Major classes of building, furniture and equipment at December 31, 1986, consist of the following:

Building and building improvements	$ 1,437,559
Furniture and equipment	339,507
	1,777,066
Less accumulated depreciation	201,083
Net building, furniture and equipment	$ 1,575,983

4. LONG-TERM DEBT

Long-term debt consists of the following at December 31, 1986:

Note payable to a bank, due in monthly installments of $4,000 increasing by $1,000 each year beginning 1/31/87 to 2/28/95 plus a final payment of $10,000 on 3/31/95, with interest payable monthly at the bank's prime lending rate plus ¾% (currently 8¼%) secured by all real and personal property of the Association	$ 852,000
Less: current maturities	60,000
Long-term debt	$ 792,000

The note is subject to the provisions of the business loan security agreement covenants which include the following:

a. The Association may borrow $25,000 or more only upon the bank's prior consent.
b. Until termination of agreement, the debtor agrees to maintain cash plus liquid investments at a minimum of $400,000.

Future minimum principal payments for the five years following December 31, 1986 are as follows:

1987	$ 60,000
1988	72,000
1989	84,000
1990	96,000
1991	108,000
	$ 420,000

5. COMMITMENTS AND CONTINGENCIES

Annual Conference Contract

The Association is obligated under various letters of agreement with certain hotels in connection with its annual conferences through 1991. The liability, if any, under these agreements is not determinable at this time.

Retirement Plan

The Association has a contributory group annuity defined contribution retirement program with an insurance company covering substantially all qualified employees. The Association's policy is to fund costs currently. Pension expense for the year ended December 31, 1986, was approximately $17,200.

LETTERS

SLA MEMBERS PROMOTE AN ELITIST ATTITUDE

I attended the SLA Midwinter Conference in Pittsburgh as an officer of the Arizona Chapter. There was much concern raised at one of the open sessions regarding the possibility that Board members were appearing elitist. I don't have an opinion about the impression Board members are making, but I do have an opinion about the impression many SLA members are making. SLA members with the MLS degree are an elitist group.

I have been an SLA member for four years. Prior to that, I was an ALA member. I have a lot of experience in the library field. Many SLA members have made me feel uncomfortable and inadequate because I do not possess the MLS.

SLA is going to a great deal of effort to survey its membership, and is making a concerted effort to be responsive to the membership. One of the items that seems to be of major interest to the Association is how many of its members hold the MLS. From these surveys, SLA is also finding out that librarians feel that their pay and image are poor.

Every time that I attend a national SLA Conference, I hear members criticizing anyone that does not hold the MLS. In fact, MLS librarians are so concerned about this issue, they ask others they encounter if they have the MLS. Of course, they are also concerned about whether or not it is ALA accredited and if it is from a prestigious school. I have never been around any other group of professionals that is so concerned about status and degrees!

The SLA survey showed a high percentage of members holding the MLS. I don't believe that it is as high as the survey suggests. I think that there are situations where librarians have presented themselves as holding the MLS, when in fact they do not. The elitist attitude of SLA members encourages this type of response. It is sometimes easier to create a false impression, than to face embarrassment and criticism.

I have been made to feel like a second-class citizen. Many experienced non-MLS librarians are as good or better than their MLS counterparts. Isn't there more to being a good librarian than just possessing an MLS? If we are good librarians and love our work, don't we have a right to the same respect that MLS members are given? MLS members feel that the profession is suffering a poor image. Don't they realize what they are doing to our image and the way we feel about ourselves?

There are information-related bachelors' and masters' degrees now emerging in many of our universities that may prepare us as well for special library work. Unfortunately, the current culture of SLA is unaccepting of its membership holding anything other than an MLS as a standard for librarianship. I don't know what percentage of the membership I am speaking for, but I see this as an elitist attitude of a majority of the "current" SLA membership. I think that it is time to stop bickering over this issue and start preparing "together" for the information future.

Bonnie Mason Klassen
B.A.: History and Sociology
Minor: Library Science
Tempe, Arizona

Reviews

Coordinating Cooperative Collection Development: A National Perspective, edited by Wilson Luquire. New York: The Haworth Press, 1986. 253 pp. ISBN 0-86656-543-4. $39.95.

Coordinating Cooperative Collection Development: A National Perspective, the proceedings of a conference sponsored by Eastern Illinois University and the Illinois Board of Higher Education in Chicago on April 1–2, 1985, has been published as a book and also as the journal *Resource Sharing & Information Networks,* Vol. 2, Nos. 3/4, Feb. 1986.

The conference was held to discuss the issues involved in Coordinating Cooperative Collection Development (CCCD) and to learn how other institutions have worked together to formulate goals, define policies and programs, secure funding for projects, and to discover the successes and benefits reaped in spite of problems, limitations, and constraints. The speakers are actively involved in CCCD projects in all sizes of libraries and consortia from diverse geographic locations, and they bring their practical experience to bear upon the joint concerns of management, access, shared cataloging, document delivery, weeding, storage, preservation, training, information gathering instruments, and so on.

The conference proceedings include a review of the history of the Research Libraries Group/North American Collections Inventory Project (RLG-NCIP), its uses and benefits. Another presentation assesses NCIP: 1984 Phase II results in Indiana. The project is a developed and working model used by Indiana University, the University of Notre Dame, and Purdue University to test the training program and materials of the RLG Conspectus. A cooperative collection development in Colorado, which began with the development of cooperative purchases among research libraries, is also discussed. This stimulating volume includes a number of other interesting examples and papers on cooperative collection development.

In the final chapter, the model criteria are extrapolated from the conference papers and arranged under six headings: administration and funding, access and delivery of materials and information, planning, requirements of participation, activities most appropriate for cooperative collection development, and assessment of resources. These criteria will be of critical importance to those responsible for discussions concerning CCCD at their institutions. The appendix repeats the model and assigns speakers' names to criteria that originated with that particular participant.

This publication contains valuable practical information about the progress made by libraries and research centers in CCCD. The proceedings are an important addition to the literature of Coordinated Cooperative Collection Development and will provoke much thoughtful discussion.

Sue Hanson
Case Western Reserve University Libraries
Cleveland, Ohio

Excellence in Library Management, edited by Charlotte Georgi and Robert Bellanti. New York: Haworth Press, 1985. 71 pp. ISBN 0-86656-478-0. $19.95.

Excellence in Library Management is a compilation of speeches given at the Tenth Annual Workshop on Management for Librarians sponsored by the Southern California Chapter of SLA. While some of the material may be helpful for library managers, I was distressed to find that the same information had already been published in the *Journal of Library Administration,* Fall 1985 issue. Thus, not only is this volume available in a less expensive format, but it is also a bit outdated.

The material presented in *Excellence in Library Management* is interesting but not substantive. This reviewer would have preferred a compilation of several years' worth of papers from the SLA Southern California Chapter's annual workshops or possibly papers from similar conferences on the subject of excellence in library management.

Excellence in Library Management contains seven presentations, with one brief question-and-answer session. The speeches are candid and practical rather than theoretical, but they present very little that is new or refreshing. Much of what is discussed has been borrowed from *In Search of Excellence* and applied to library settings. The speeches are appropriate conference material, but again this reviewer feels that these are best published as part of a journal or as conference proceedings.

The first section in *Excellence in Library Management* contains two presentations on managing a special library. Judy Labovitz indicates how concepts from *In Search of Excellence* are part of her own philosophy of management. Meryl

Swanigan continues in this vein, stressing such topics as entrepreneurship, autonomy, and productivity in the corporate library setting. The second section describes the experiences of two public library managers. In part II, Michael Cart looks at the importance of excellence in library public relations.

The third section includes two presentations on the management of academic libraries. Both presenters discuss the management techniques and concepts used to implement automated library systems in their libraries.

A separate presentation entitled "Power and Human Relations at Work" completes the volume. This is by far the most valuable and unique part of the text. The scenarios used by John McDonough to illustrate particular problems in dealing with people, power, and politics are especially enlightening. McDonough considers the irrational part of human behavior in the context of how it can be reconciled within a typical organization.

Excellence in Library Management is short and easy to read. While it would be most beneficial for library administrators, it is simple enough for anyone interested in either library/information science or management. It is neither detailed nor deep. Though the subject may be of interest, readers must realize that the same information has already been made available as a journal issue.

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Food and Nutrition Quarterly Index, Volume 1, Number 1, Phoenix: Oryx Press, 1985. 156 pp. ISSN 0887-0535. $101 pbk.

This quarterly is an annotated index to print and audiovisual materials in the areas of food, human nutrition, and food service management. The citations are taken from cataloging records prepared by the U.S. Department of Agriculture's Food and Nutrition Information Center (FNIC) for the National Agriculture Library's AGRICOLA database. It covers the 1985 acquisitions. There were similar items called FNIC catalogues several years ago, which are no longer published by USDA. This new quarterly will fill the much needed void, providing information on print and nonprint materials in the three areas indicated.

Subsequent editions are divided into six sections—main entry section, author index, title index, media index, subject index, and intellectual level index—and media citations are conveniently arranged by type of media; however, none appear in this first issue. The subject index is excellent for locating hundreds of different area topics. The other index categories are likewise valuable except for one, that of the intellectual index, as there are but two subheadings—general and specialized.

Eighty journals and other items are sources for the annotations in this 123-page, 8½" by 11" paperback. All items are available for loan to eligible users from FNIC as were items from the now defunct catalogues. The Center's collection is used as a lending source and FNIC call numbers are included in each citation, set up in an easy-to-use fashion, in the main entry section.

The table of contents includes: Agriculture—General; Geography, Climate and History; Education and Advisory Work; Administration and Legislation; Economics, Development, and Rural Sociology; Food Science and Food Products; Human Nutrition; Home Economics; and Auxiliary Discipline; as well as the various index chapter headings. With the exception of the indexes, most have subheadings which help in searching for topics of interest.

Overall, the citations and the annotations are valuable. Each has an abstract or extract following necessary call numbers, title, author, other pertinent data, and a list of descriptors or key words overviewing the subject matter included. Like everything else, they are not perfect. There are some citations with typographical errors, my own article a case in point. It is credited to Winter 1985 when in actuality it appeared in 1984.

Despite this minor carping, the quarterly index is welcome. Certainly it should be on the shelves of all SLA Food, Agriculture, and Nutrition Division members. It is recommended for all academic, medical, public, and general libraries, too.

Jacqueline M. Newman
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Flushing, New York

Information Sources in Science and Technology, 2nd ed., by C. C. Parker and R. V. Turley. Stoneham, Mass.: Butterworth Pub-

lishers, 1986. 328 pp. ISBN 0-408-01467-9. $64.95.

This is truly a how-to-do-it introductory reference tool for both information *users* and *organizers,* but actually the apparent dichotomy is a false one. The first half concerns literature that should normally be found in science and technology collections—in both academe and industry—and might be good refresher material for practicing librarians, while the second half deals in great depth with information services, particularly those which are computerized.

Though the work is somewhat biased to material published and services rendered in the United Kingdom, the intent and overall approach remains rather international, much to its credit. The contents are arranged in a logically structured fashion, but completeness and comprehensiveness are consciously not provided. Nevertheless, the examples used were carefully selected to serve the desired intent.

The 16 literature sections (e.g., abstracting and indexing journals) each start out with a discussion of the category, followed by sections on Uses, Access, Caution, and numerous examples. Many of the examples provide extensive, but not exhaustive, instruction on arrangement and use (e.g., *Chemical Abstracts, Science Citation Index*).

This presentation of the more traditional material is followed by a smooth serving of information on computerized information services. As in the first part, these categories (e.g., online, databases, etc.) also use the by-now standard Uses, Access, Caution, and example sections. Following this comes a chapter on searching (manual and by computer databases) and then one on obtaining the literature in usable form and on organizing information. A separate chapter on current awareness problems provides a neat conclusion to the guide.

This work (especially now as a second edition) should be in the hands of librarians in the United States and Canada who may wish to supplement their collections on library science and service with information on what is available in the United Kingdom and how librarians and information officers operate there, especially in academe.

Because the book's price is rather high and frequent updating of the cited literature and computing services is required, it might be well if the volume were made available in paperback format. This would then encourage wider distribution and the purchase of later updated editions as they become available, not to mention encouraging the publisher to consider preparing newer editions more frequently.

Robert G. Krupp
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Libraries and Information Science in the Electronic Age, edited by Hendrik Edelman. Philadelphia: ISI Press, 1986. 225 pp. ISBN 0-89495-058-4. $39.95.

This is the first volume of the Samuel Lazerow Memorial Lecture Series; the 12 lectures included were presented in seven schools of library and information science during the two-year period 1983 to 1985. As a result of this sponsored lectureship, designated schools can now invite Lazerow Fellows to their campuses annually, a boon for all students and faculty but especially for those that are relatively isolated from metropolitan areas.

The names of these twelve fellows read like a "Who's Who" of the information field: from Asheim to Paisley, and including Bacon, Baker, Bearman, Bradshaw, Cuadra, DeGennaro, Kent, Kilgour, Landou, and Nemeyer—although the lectures are presented in chronological rather than alphabetical order. Their common theme is the information age, or the advance of the electronic age, as the preface puts it, and many different, even divergent, opinions are presented. Only two of the contributions, those by Kilgour and DeGennaro, are reprinted from the periodical literature, so the rest are unavailable elsewhere and, for the most part, well worth reading. Bradshaw, Landau, and Paisley include excellent bibliographies that would be useful for those who would like to read more on a topic. Paisley's article on the convergence of communication and information science is the lengthiest and most scholarly, with abundant charts and tables. Some of the most interesting tables list cited and citing journals from different communication sub-disciplines to illustrate the flow of ideas. Carol Nemeyer presents a unique insider's view of LC's collection and services, along with a thoughtful discussion of the economics of information. She also revives an earlier proposal of forming a corporate business council for librarians, an idea well worth developing. Asheim's view of the future is exhilaratingly upbeat, a welcome antidote to a stale but often reiterated sug-

gestion that librarians are ill informed, insecure, reactionary, and inflexible.

Predictably, however, with such a roster, virtually all the essays offer informed, articulate views from many vantage points on a topic that has to be of interest to members of the profession. This is an enjoyable and often provocative book. Libraries with fairly good-sized professional collections will want this slim, well-bound volume on their shelves.

Marcy Murphy
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Bloomington, Indiana

Managing the One-Person Library, by Guy St. Clair and Joan Williamson. Stoneham, Mass.: Butterworth Publishers, 1986. 178 pp. ISBN 0-408-01511-X. $19.95.

This book, written for both the novice and the experienced librarian, is a thorough and comprehensive guide for establishing and/or managing a one-person library. It presents broad overviews of the philosophy of library service while at the same time it offers specific suggestions for handling day-to-day operations. The authors, one of whom is associated with the publication *The One-Person Library: A Newsletter for Librarians and Management,* have geared this book to both American and British readers by including references to British organizations, practices, and library services as well as the more familiar American sources.

The book begins with an introduction and history of small libraries and presents a profile of the typical one-person librarian, a professional who frequently must work without clerical or secretarial help. "More than 25% work in the corporate world and in the United States . . . almost as many work in public libraries, especially in rural communities." (p. 12) It continues with a chapter on how to deal with professional isolation (one of the main drawbacks of a one-person library) by setting up lines of communication with other librarians through personal contacts, participation in professional associations, and informal networking. The following chapters provide guidelines on: effective self-management techniques; collection development and the advantage of drawing up a written policy statement; technical services and how they can be individualized to fit the needs of the particular library, although the use of a recognized classification scheme is recommended; personnel considerations, such as job sharing, employment contracts for British librarians, the use of temporary help for special projects, and the use of students, young people enrolled in job training programs, library school interns, and volunteers; the budgeting process and how it can serve as a planning device; provision of library services, such as answering reference inquiries, circulation of materials, interlibrary loan, and selective dissemination of information (SDI); role of automation, such as the use of microcomputers and online database searching; promotion of the library through maintaining positive public relations with the library users; and organizing the library into an efficient office with well-defined written office procedures and convenient physical layout.

A considerable amount of space is devoted to discussing the pros and cons of working in a one-person library. The authors indicate that much job satisfaction comes from a feeling of independence, the ability to organize one's own time, the larger variety of tasks, the lack of external and/or political pressure found in larger libraries, and a greater expression of appreciation from the user as a result of the direct interaction between the user and the librarian. The disadvantages include the lack of librarian colleagues to consult with and the lack of opportunity for advancement to the next rung in a professional hierarchy found in larger libraries.

The book is well written and can be used both as a guide for a beginner and as a "refresher course" for a seasoned practitioner. There are many references to the professional literature with complete bibliographic citations at the end of each chapter. Although the book does focus on the one-person library in a corporate setting, the suggestions can be adapted easily to libraries in other environments.

Beatrice Sichel
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Kalamazoo, Michigan

Power and Influence: Beyond Formal Authority, by John P. Kotter. New York: The Free Press, 1985. 218 pp. ISBN 85-1574 0-02-918330-8. $19.95.

Those who work in large, complex corporations usually find that there are two types

of organizational structures present: the formal, hierarchical structure that is illustrated on the company's organization chart and the informal, networking structure that evolves as a result of people interacting in their responsibilities. Getting things done often requires calling upon the cooperation of individuals who are not under our supervision, but without whose help we would be up the proverbial creek. This fact is illustrated in Kotter's book in several case studies. For example, as talented as some technical researchers or marketing mavens may be, they never work in a vacuum. As the case studies show, the valuable contributions they are capable of making are lost if they do not rally support for their worthy projects. The assertion Kotter makes is that individuals must develop networks within the organization.

The author explores methods of developing these essential support networks. He points to the social, financial, and cultural complexities within most corporations, identifying them as potential strengths. Sound decisions are based on input from many diverse sources in the company, he maintains. While this approach increases the potential for conflict, it makes for well informed long-range decisions. In order to deal with the conflict, Kotter suggests techniques to pave the way in the "relational context of work." By this he means identifying all lateral relationships that may influence the course of a project, anticipating any resistance which may occur, and developing good relationships with those involved. When all else fails, Kotter recommends subtle manipulation. Expanding on these principles, Kotter plots a course of action for each of three career stages—early, middle, and late. Case histories are used to describe these career stages and the appropriate approaches to building power and influence at each stage.

Most of this material is self-evident, and individuals with good interpersonal skills do not need to study what common sense dictates. However, the approaches prescribed in this book are systematic, and several good support-building techniques are detailed. Among the most useful are questions to ask oneself before embarking on a project. These relate to identifying priorities and demands on one's boss and those in lateral relationships. Attention is also paid to laying the groundwork in terms of clearly setting one's own goals and knowing one's vision of the future.

This is the sixth book by Kotter, chair of the Organizational Behavior and Human Resource Management Area at the Harvard Business School. His publications on the subject of organizations and management also include articles related to "Managing Your Boss" and "Power, Dependence and Effective Management" in the *Harvard Business Review.* Bibliography and index are included. This book is recommended for all types of libraries serving those in the working population.

Jean Fisher
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State Library Services and Issues: Facing Future Challenges, edited by Charles R. McClure. Norgood, N.J.: Ablex Publishing Corporation, 1986. 301 pp. ISBN 089391-317-0. $45.00 Institutional; $29.50 Personal.

This text is a state-of-the-art review of the state library agency's history, present activities and services, and needed future developments. It consists of 15 chapters, each written by an author well qualified to discuss the topic. Chapters fall into the following categories: history of the state library, funding, political environment, role, and future needs and developments. The chapters on the role of the agency cover the following: planning for statewide services; library development; performance measures, planning and standards; continuing education; services to handicapped and institutionalized persons; and multitype library networking and resource sharing. The emphasis throughout the book is the analysis of key issues affecting the effectiveness of services and activities of the state library agency to recommend future changes.

A large amount of information is found in tables and figures throughout the text, and a number of individual chapters are followed by appendixes with additional information. The book has an extensive, up-to-date bibliography, as well as a section of short biographical notes on the authors of the various chapters. It also includes both an alphabetical subject and author index. The latter includes references to the text and items listed in the bibliography.

While the primary audience of this book will be persons interested in state librarianship and the state library's role in the devel-

opment of library services, special librarians will find it informative and useful.

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Strategic Planning for Sponsored Projects Administration: The Role of Information Management, by Keith Harman and Charles R. McClure. Westport: Greenwood Press, 1985. 279 pp. ISBN 0-313-24931-8. $45.00.

The central purpose of this work is to help the sponsored projects administrator integrate strategic planning and information management techniques into his or her philosophy and practice. A general systems approach to management is employed and an effective case is made for viewing the organization as an information processing system. Having made their case for this theory of management, the authors then follow it up with well developed and useful chapters on the strategic planning process, implementation of strategic planning, information management as a component in strategic planning, the incorporation of boundary spanning, and, finally, the integration of all of these into an effective management style through a contingency approach.

Billed as a "desktop handbook," the work is actually more of a textbook for sponsored projects administrators. While there are over 75 charts and tables illustrating the usefulness and application of the concepts, the extensive discussions of management theory partially negate the handbook approach. These discussions (amply documented in the text and an extensive bibliography) are useful, however, in giving a good overview of a variety of management theories and philosophies. The two chapters on strategic planning and implementation are an exception to this mixed handbook/textbook approach. The step-by-step approach employed there easily takes the reader through this complex process.

The section on the application of an information resource management (IRM) approach is simultaneously both useful and disappointing. The informed discussion on how to create internal databases and the benefits that may be gained from the sophisticated use of external databases (DIALOG, BRS, etc.) should be very helpful to those administrators who have neglected those tools. The authors, however, do not succeed in showing how the IRM approach can be integrated into the philosophy and practice of the sponsored projects administrator. The role of IRM in relation to establishing a decision support system is well covered but the specific processes for implementing it in the context of sponsored projects is lacking. Indeed, this lack of specific examples of how a principle or procedure applies in the context of sponsored projects is a problem throughout the volume. To some extent, however, this is to be expected because of a lack of an extensive literature devoted to this field.

Despite these problems, the work is a useful and welcome one to this growing occupational group and to other managers as well who need to know more about the role of information management in organizations. Individual project administrators, as well as institutional sponsored programs administrators who use it, should be able to improve their performance and thereby stay ahead of the competition for grant and project funds.

Robert V. Williams
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University of South Carolina
Columbia, South Carolina

Vocabulary Control for Information Retrieval, by F. Wilfrid Lancaster. Arlington, Va.: Information Resources Press, 1986. 270 pp. ISBN 0-87815-053-6. $27.50.

F. W. Lancaster, a recognized authority in the field of information science, has authored seven titles on online information retrieval, library services, information systems, and related investigative methods. His first edition of *Vocabulary Control for Information Retrieval,* published in 1972, was intended as a comprehensive overview of the relevant literature. This edition has a more focused scope and cites only the sources directly supporting the points the author wanted to make. This second edition is also more exclusively devoted to the thesaurus than to other means of vocabulary control.

In a brief evolutionary history of controlled vocabularies, standards and guidelines established by information-intensive organizations are presented (Unesco, ANSI, U.S. Department of Defense, American Institute of Chemical Engineers, etc.). Lancaster offers uncomplicated explanations of theoretical material, including pre-coordinate vs. post-coordinate indexing systems, syntagmatic and paradigmatic logical relationships, hierarchi-

cal and associative organization of terms, phrases as compared to single-word compounding, natural language searching, and the post-controlled vocabulary.

In addition to theory, which is addressed to the information scientist or student, Lancaster has more practical material to offer the information professional whose daily work involves building or maintaining information retrieval systems based on controlled vocabularies. He offers guidance in selecting and establishing thesaurus terminology, updating the vocabulary, suggests visual representations of term relationships, methods of cross-referencing, and discusses cost factors in constructing and maintaining large controlled vocabularies.

In predicting the future of vocabulary control, Lancaster points to escalating costs of human information processing and the increasing availability of full-text information through electronic publishing and concludes that natural language will become the norm in information retrieval.

Other issues Lancaster addresses are multilingual aspects, evaluation of thesauri, and compatibility among various controlled vocabularies. A 13-page bibliography and an index complete the volume. A glossary would have been a useful addition. This book can be recommended for university libraries and special libraries in which important decisions are being made about whether to build databases with vocabulary control or to choose the full-text option.

Jean Fisher
Senior Account Representative
Mead Data Central
New York, New York

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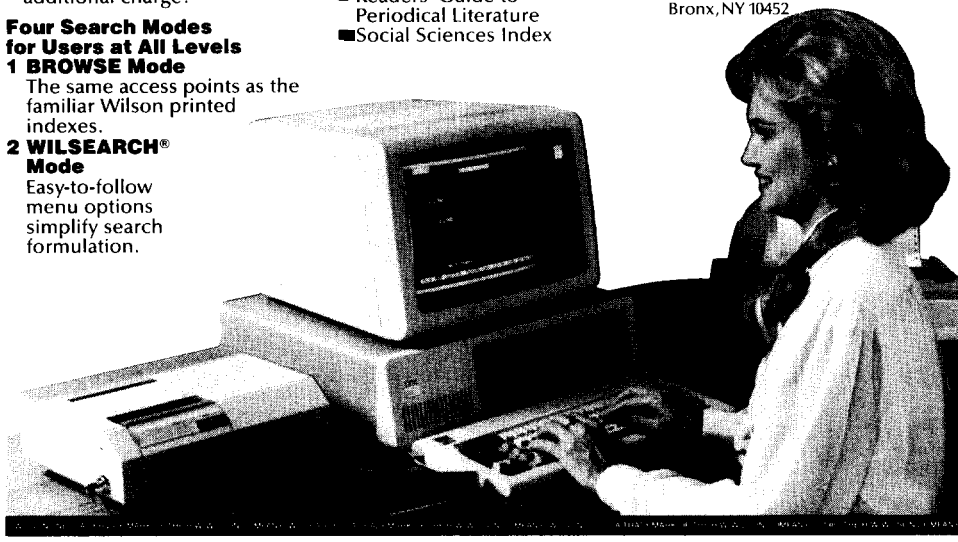

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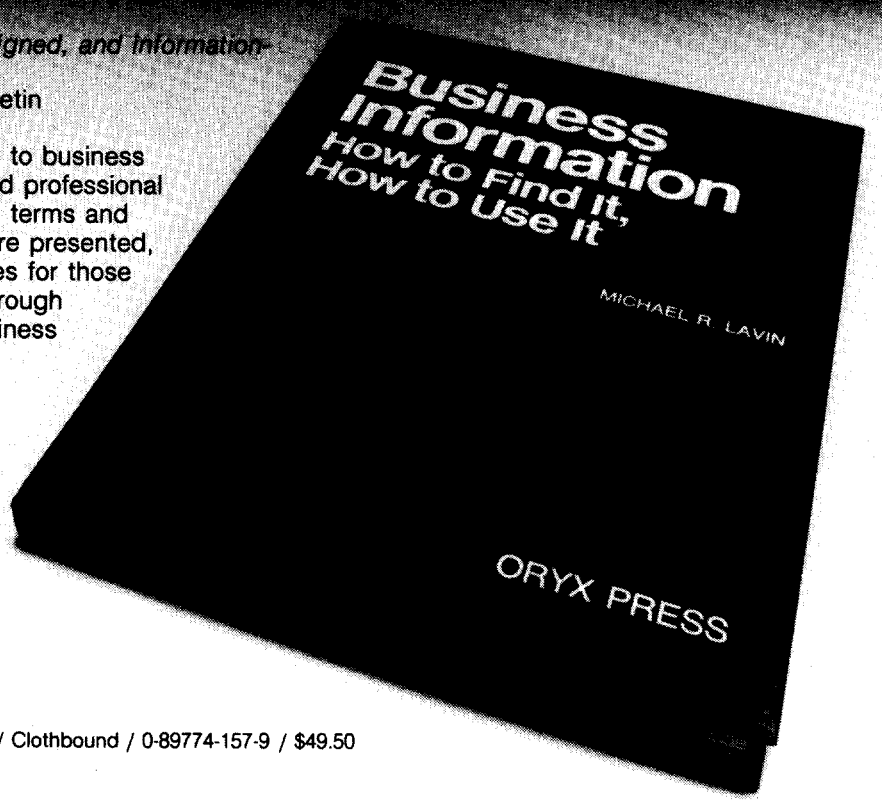

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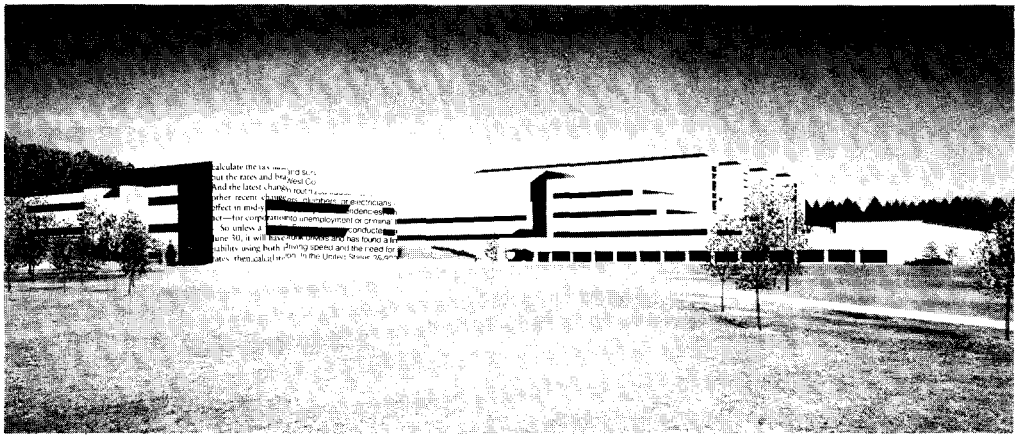

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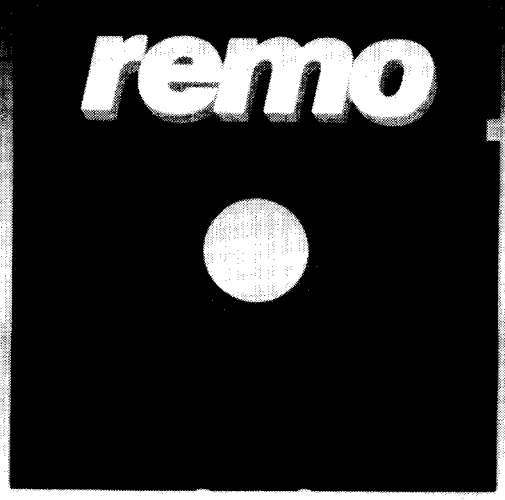

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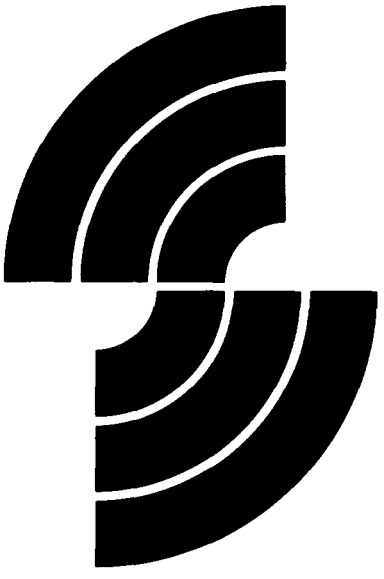

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Featherly, W. "Steps in Preparing a Metrification Program in a Company." ASME Paper 72-DE-12 presented at the Design Engineering Conference and Show, Chicago, Ill., May 8–11, 1972.

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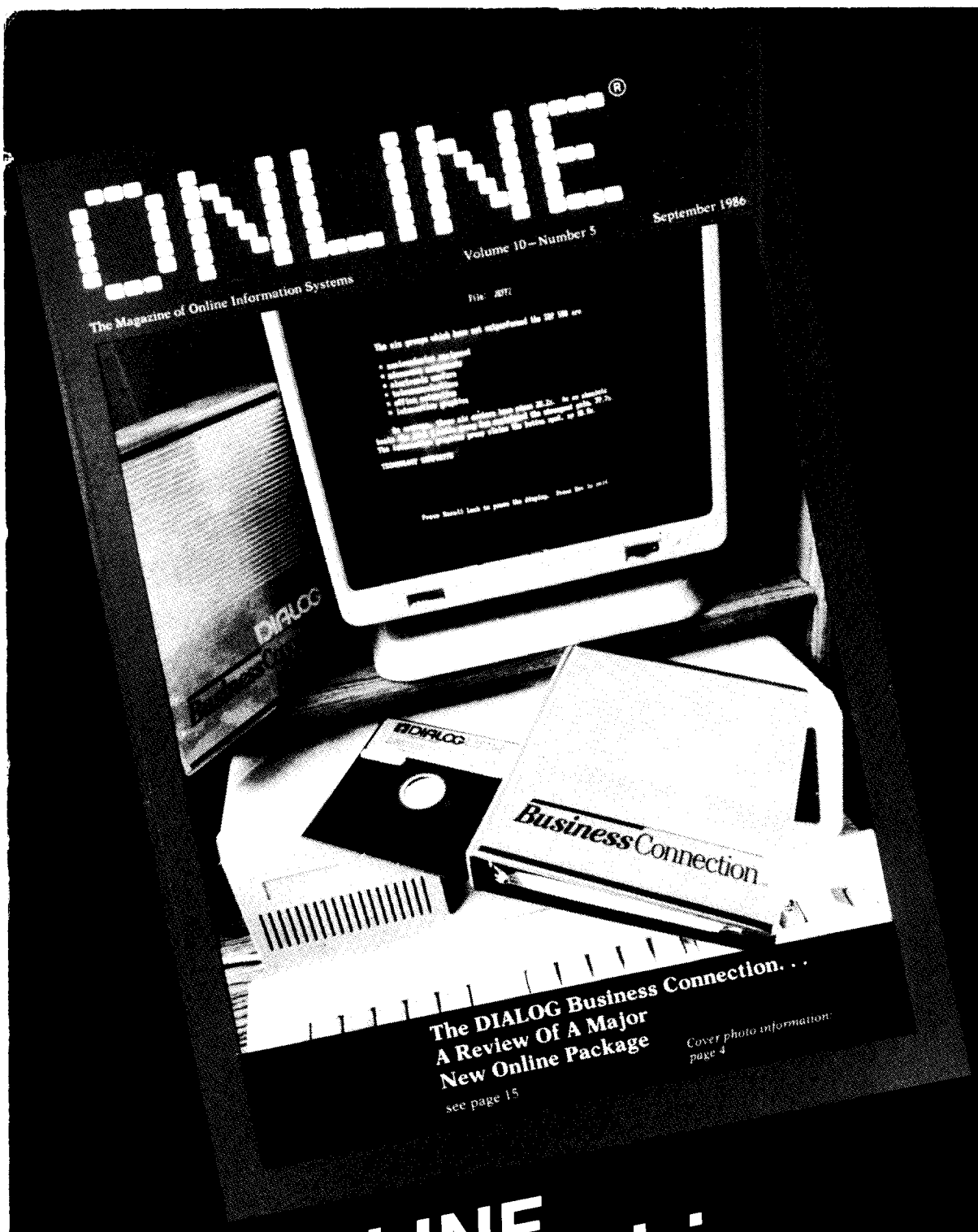

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