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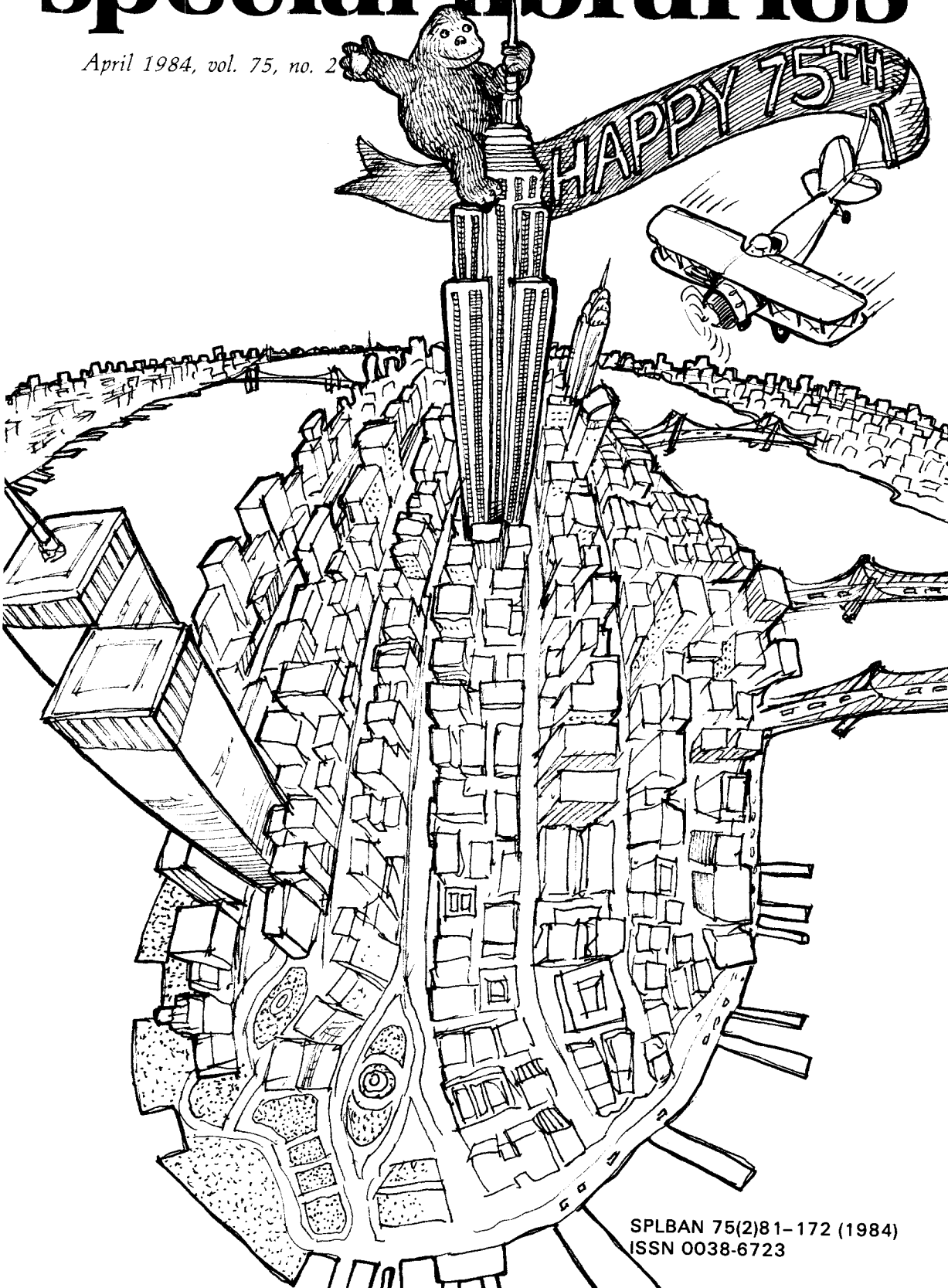

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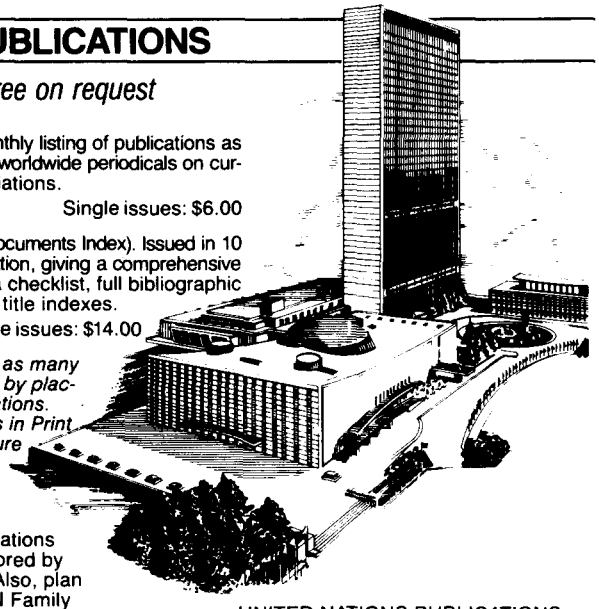

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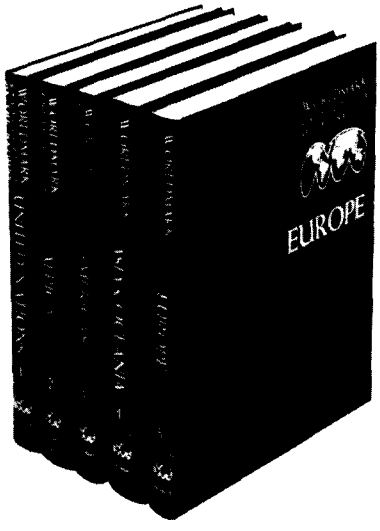

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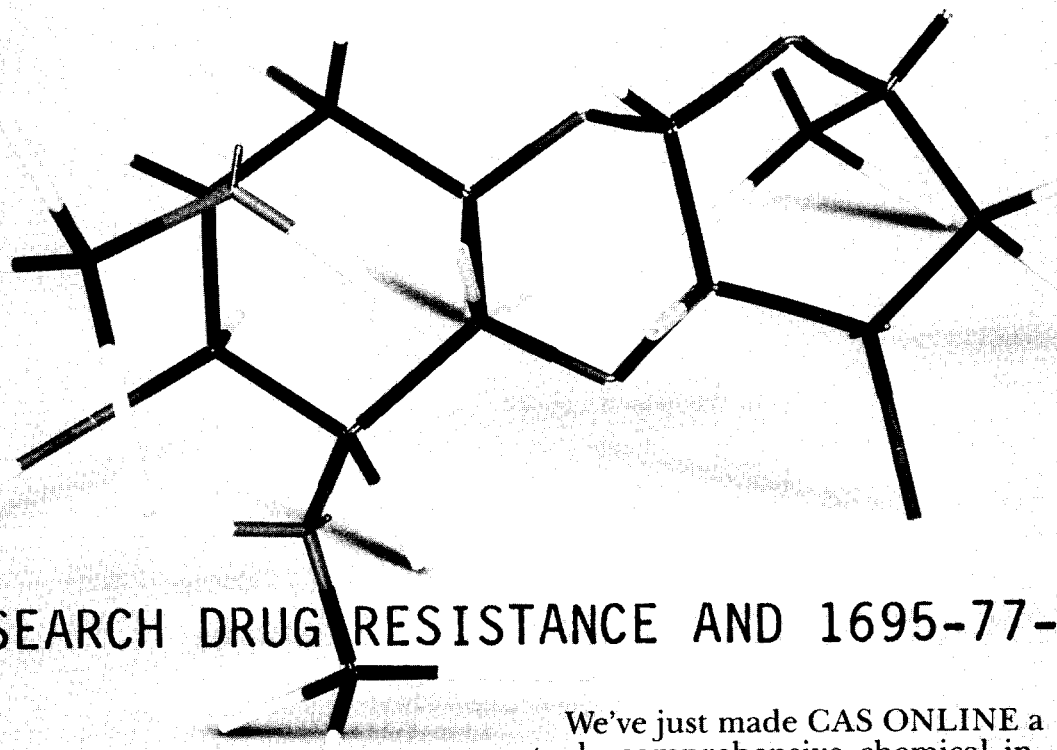

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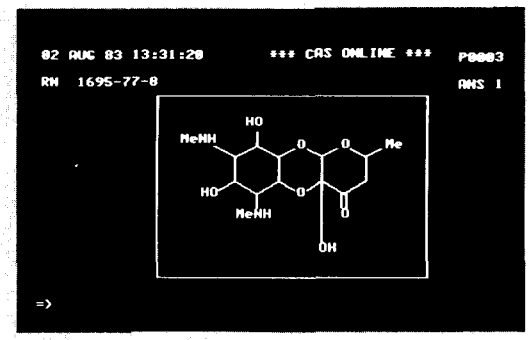

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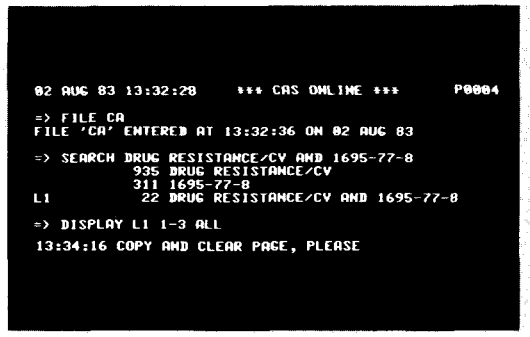

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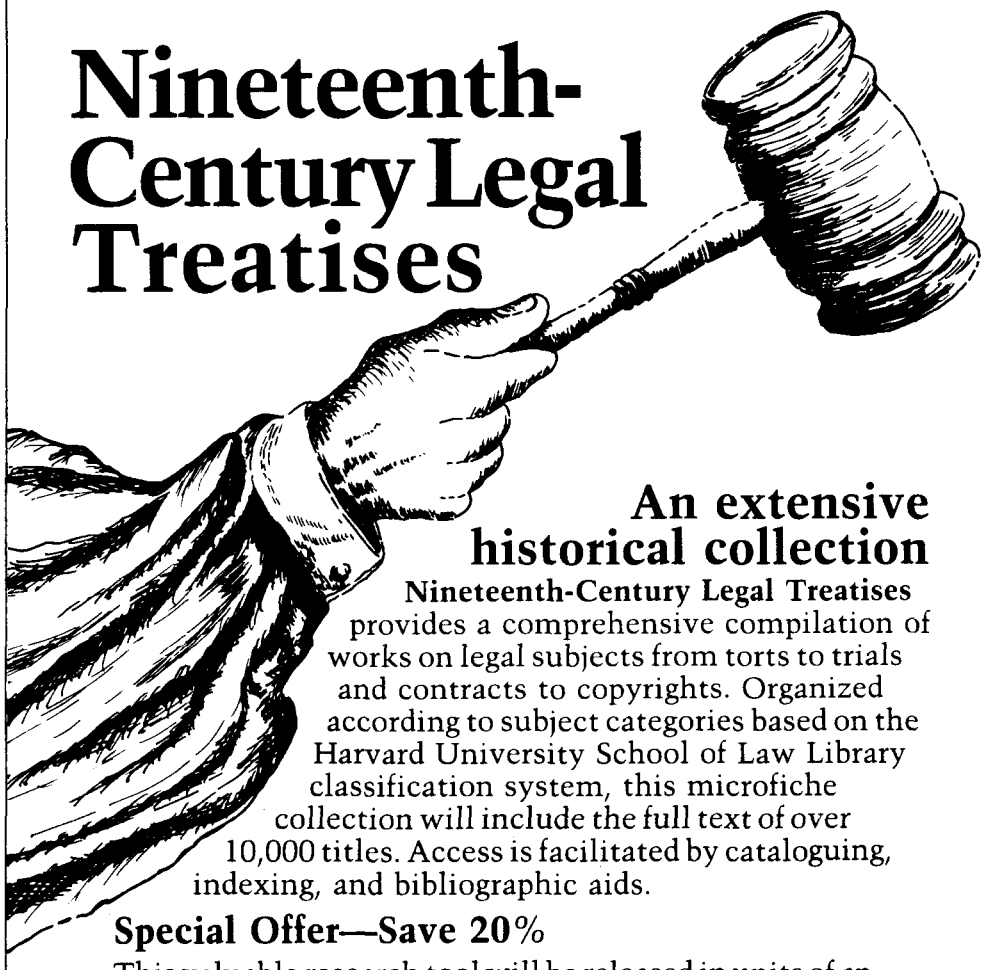

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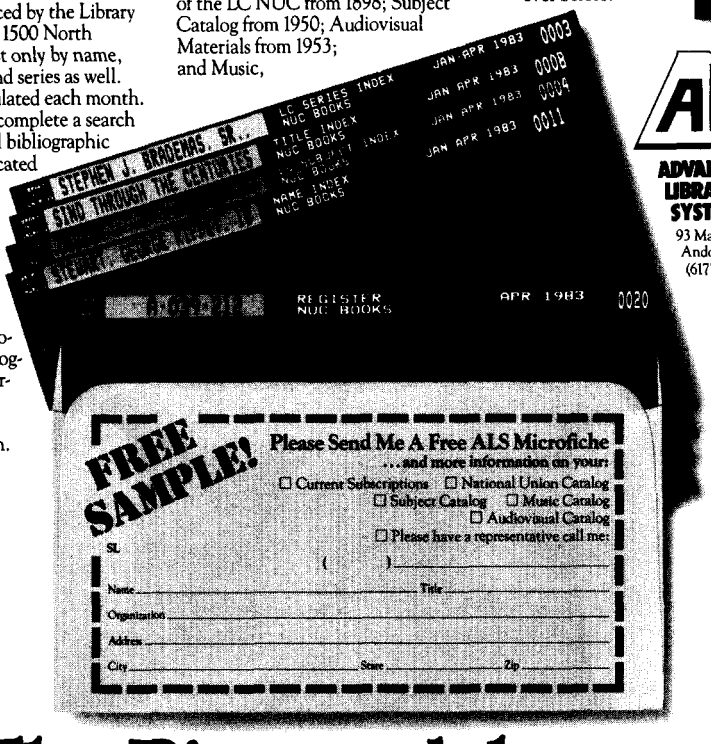

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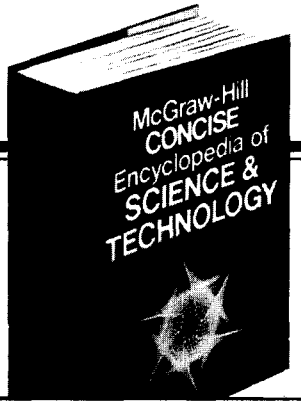

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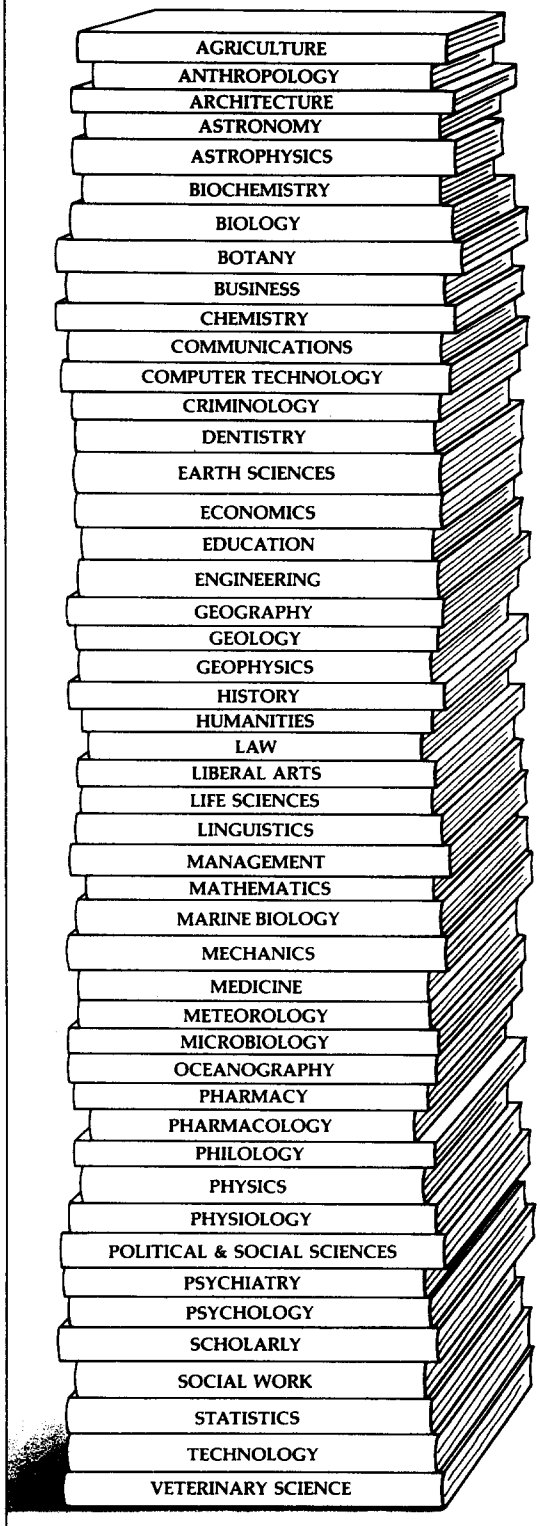

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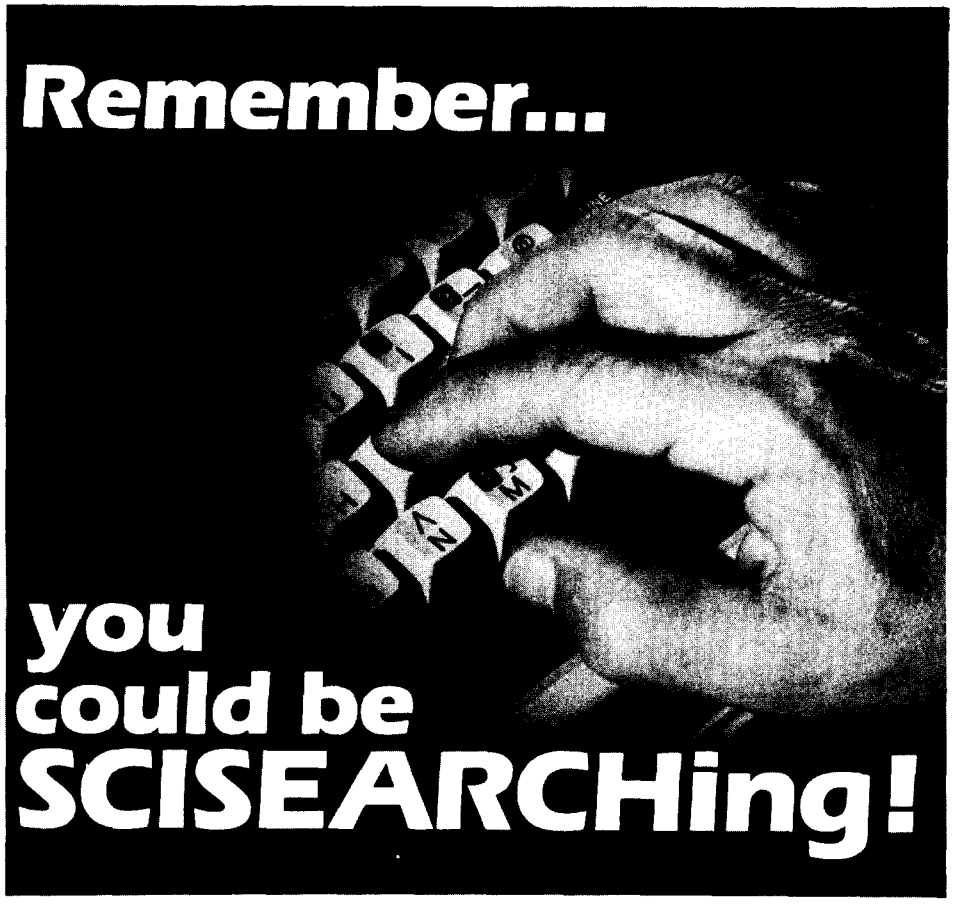

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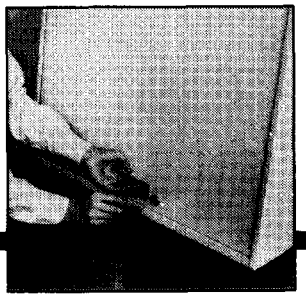

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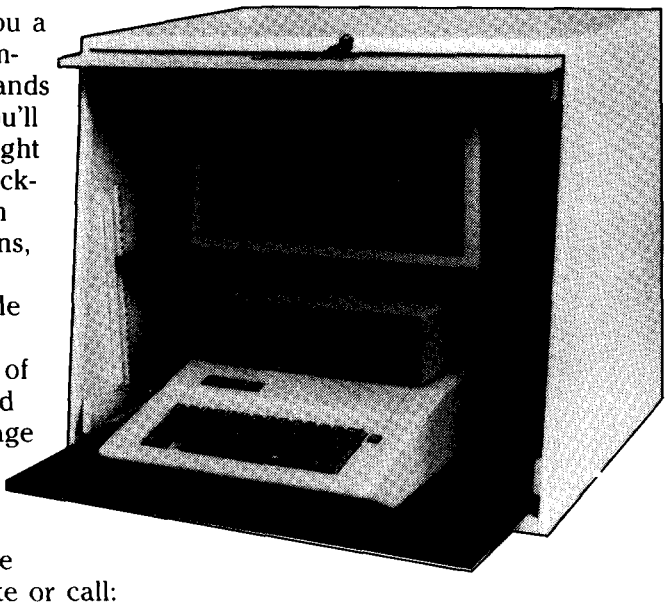

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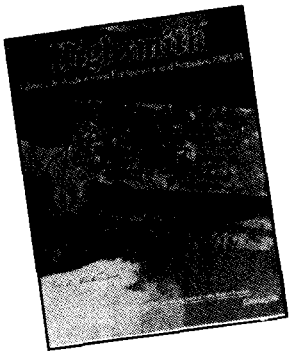

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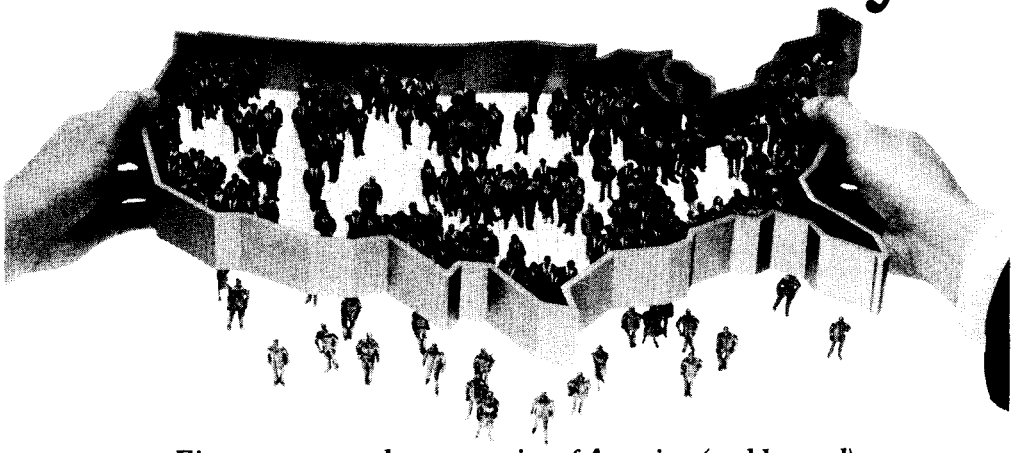

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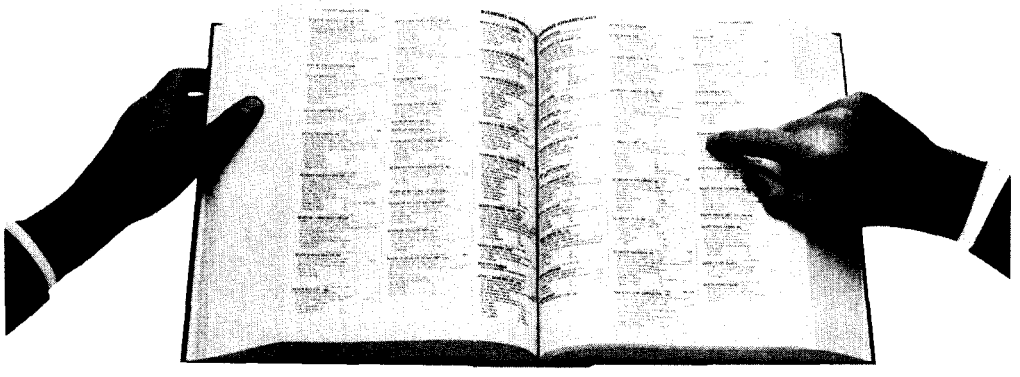

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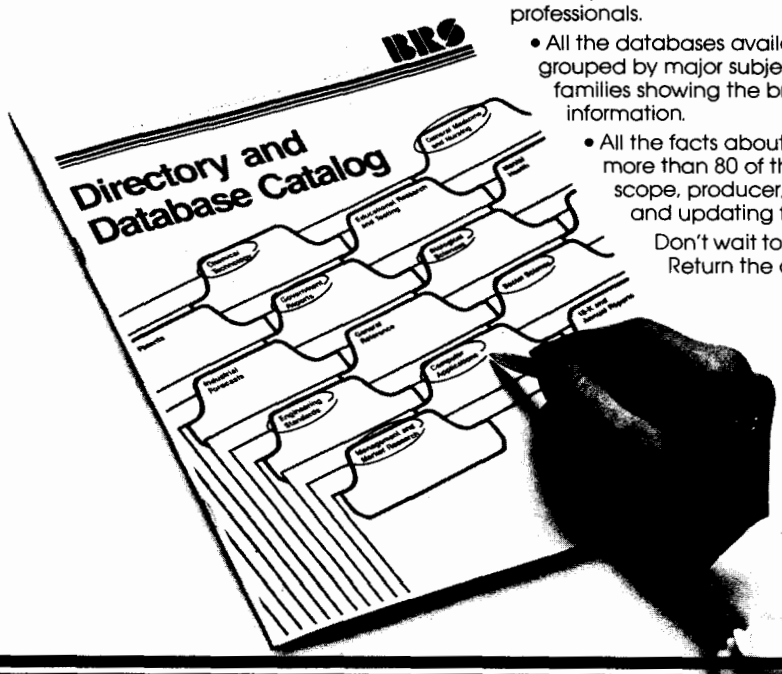

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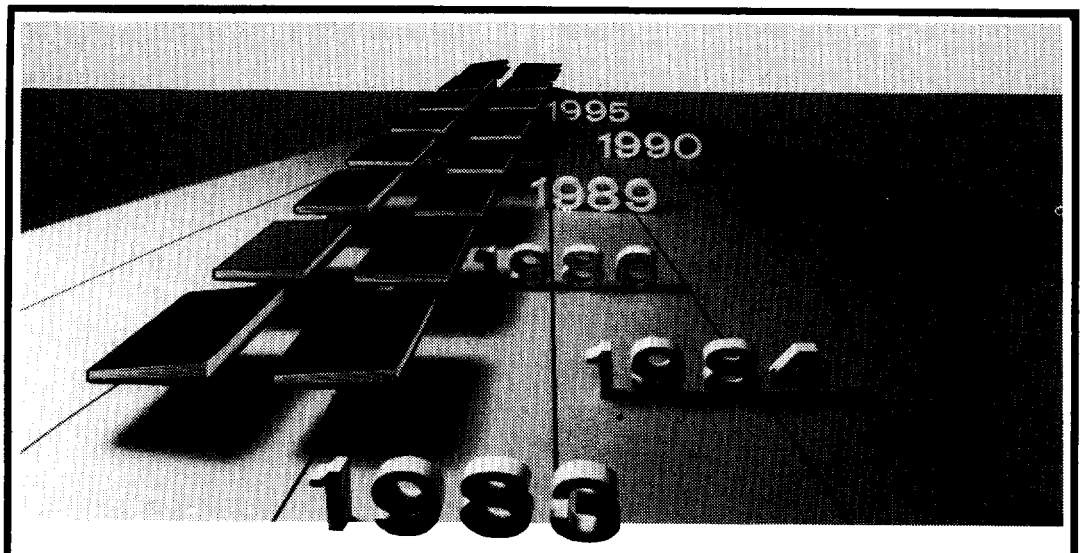

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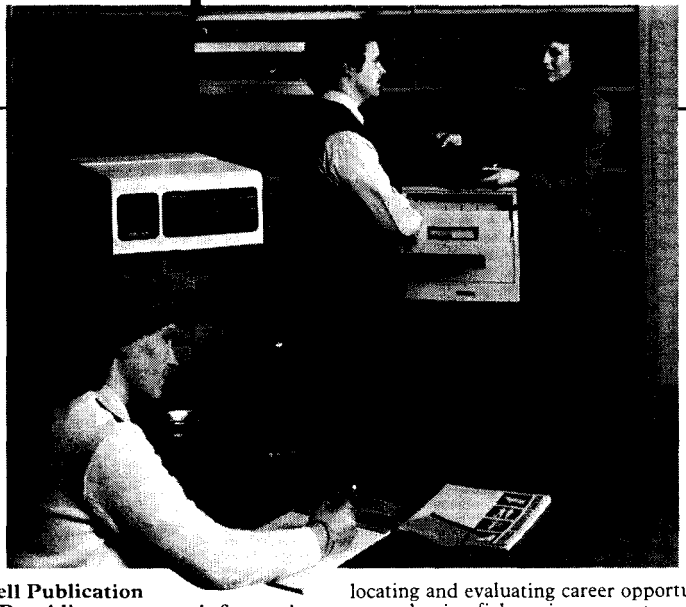

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Special Libraries and the Corporate Political Process

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WEBSTER DEFINES politics as the art or science of government and as the science dealing with the regulation and control of men living in society. Artemus Ward, a hero of the American Revolutionary War, was perhaps less given to sexist terminology and more within the mainstream of common perception when he observed, "I am not a politician, and my other habits are also good." Whatever the reasons, political adroitness is frequently equated with sneakiness if not outright dishonesty. Librarians, no less than other professionals, find discussions of political strategy disquieting or unpleasant. The literature is full of suggestions for improving the qualityof library service but it states little about the tactics needed to improve the appearance of quality library service.

This is not intended to suggest that quality and the appearance of high quality are contradictory. Ideally, virtue becomes its own reward, and there is no reason why the competent librarian and omnipotent administrator should not exist in an atmosphere of mutual respect and appreciation. Indeed, there are special libraries in which this occurs. However, the achievement of such a status by itself is certainly not automatic, probably not likely, and it cannot be left to chance.

Any complex organization, and certainly a corporation, is subject to political forces as long as the available resources and the assignable power are not adequate to fulfill the expectations and hopes of the participants, and this writer knows of no organizations in which this does occur. Individuals who speak piously of the hope for cooperation usually define the term as having others do things their way. If this seems cynical, it is a cynicism born of many years of experience in a variety of settings—corporate, governmental and academic. The nomenclature changes but the process remains the same.

Librarians are usually not participants in the corporate political arena but, like innocent bystanders at a bank holdup, they sometimes get shot in the process. Despite our frequently expressed paranoia, librarians do not have enemies in the corporate decision battles. They have no power base and, lacking this, they are

This paper is adapted from a talk presented at a meeting of the Petroleum and Energy Resources Division at the 1983 SLA Conference in New Orleans.

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not considered important enough to attract enemies. They are the victims who do not control and, largely, do not even understand.

Before we examine the corporate, political decision process and the way it affects libraries, it is important to understand why libraries are often taken for granted. Cuts in library service may be regretted but the organization may not consider them to be serious problems. The personnel department's assignment of corporate misfits to the library staff is usually considered preferable to an assignment to another department where it is thought they might really do some harm. There are a number of apparent reasons for such attitudes of which the following are but a sample.

1. Users do not know what good library service is and, therefore, are not in a position to know when they do not receive it. Despite his years as a special librarian and as a consultant, this writer is still amazed at the wide range of library services in organizations of similar size and orientation. No comparisons of library services are ever made by corporate management; if they were, management would probably be pleased to find that its library services are less expensive than other's, instead of feeling concern that the services may be inferior or inadequate. When new hires arrive with higher levels of expectation nurtured by a previous experience, they are quickly put into their place, sometimes directly by the librarian. "Unreasonable" requestors, unless they are vice presidents, are quickly forced into line by peer example, especially if they are new and insecure.

2. Users will accept bad service. They may patronize a weak librarian, and accept excuses or make allowances for problems to an extent which would be unthinkable if the service really mattered to them. Librarians pay a terrible price for such toleration, which is really a benign indifference.

3. One reason users exhibit toleration for poor service is that they have alternatives to using the library to solve their information needs. Studies carried out by a wide range of organizations, including the RAND Corporation and Auerbach Associates, discovered that corporate users prefer to consult their own files, visit down the hall, call a colleague across the country, and attend conferences to gather information rather than submit a request to the library. Many professional users have additional means of accessing information within the organization which allows them to circumvent the library. For example, they can purchase their own books and periodicals, subscribe to alerting and reprint services, or develop their own terminal access to databases. Some short-sighted libraries not only tolerate but encourage such independent behavior because it frees the library from work.

4. In a corporate environment, particularly one in which the ultimate purpose is the manufacture of products to be sold on the marketplace, information is not an end in itself but a means to an end. The importance of that means depends largely on the alternatives. Based on the tradition of the self-service library, which stresses the educational value of learning to use the system over the importance of finding the answer, much library service is poorly suited to the needs, preferences and priorities of the corporate information user. Herbert R. Brinberg clearly distinguishes between the information needs of researchers, engineers and managers (*1*). Basic researchers, he argues, are looking for quantities of relevant or potentially relevant materials which can serve as the springboard for their own analyses and conclusions. Time is clearly of less importance than the completeness and accuracy of the information. In contrast, engineers, as well as marketing and production managers, seek specific answers to specific questions and usually do so only at the last minute. For this reason, they care less where the answer is found, and paradoxically, whether it is correct. It is more important that the answer fits into the scenario which has been constructed to house it, be it a report with conclusions already written or a presentation already on viewgraphs. Finally, managers, according to Brinberg, need to know what

alternatives are available. Potential solutions for which there is neither time nor sufficient resources are not useful; they become particularly frustrating when it is suggested that unimplementable solutions are the only plausible solutions.

Owing to the preferences of their staffs and the academic experiences of their users, many corporate libraries treat all users as though they were basic researchers. While there is undoubtedly some basic research going on in corporations, it is probably a limited amount. Ladd and Lipseth suggest that little basic research occurs even in universities, and that most researchers are working on grants and contracts to find proofs for conclusions already reached (*2*). These are, at best, applied researchers whose real preference is not large quantities of materials but supporting documentation. If they do indeed continue to ask for large quantities, it may be that they do not realize the library is capable of supplying more specific material, or they may be convinced that this is what they are expected to do.

4. Provision of accurate information services will never come at the expense of time or cost schedules. Librarians must bear in mind that a report due on Monday morning will be delivered Monday morning, with or without library input; the user will simply proceed as if all available information has indeed been located.

5. Even the best of special libraries serve only a small portion of the corporate population. In an earlier article in *Special Libraries* (*3*), the author examined the usual reporting relationship for special libraries and argued that, in times of financial stress, neither reporting within the research and development department nor reporting within a large administrative services group provided an automatic safety net. Decisions which affect library support are usually made by corporate officials who are not instinctive library users. These include officers in production, marketing and accounting whose support, or lack of it, is based largely on their own personal reactions and experiences. Special libraries do not share one of the luxuries generally enjoyed by academic and public libraries—support by non-users. In a corporate environment there is a tendency to support what is used. While this does not imply a disdain for services which are not used, the political process and the overall shortage of available resources force such a conclusion. Matarazzo's study on the closing of corporate libraries (*4*) indicates a lack of broad corporate support. The libraries' users may have been supportive, but there just were not enough of them.

The Library's Role in Corporate Financial Calculations

The library, together with other general support services, is part of the overhead cost allocation, sometimes called an indirect cost allocation. The word allocation is important because overhead budgets are rarely viewed as dollar sums. Rather, they are percentages of "direct" and, by implication, more important numbers. Overhead may be computed as a percentage of sales income, of direct cost or of gross profit.

Corporate management and stockholders will resist pressures to increase overhead expenditures, because the accounting statement shows them as the difference between the hefty gross profit and the much skimpier net profit. If that net profit becomes a net loss, the pressures redouble. It does little good to argue that in times of poor sales research efforts should be redoubled, unless that research will lead to guaranteed profits. Sadly, the library can never offer such assurances.

The determination of overhead is a corporate decision, normally expressed in percentages; a 10% increase is certainly better than a 2% increase, and this in turn is preferable to a 5% reduction. The larger unit in which the library is housed is also a recipient and not a dispenser of this largesse or frugality, and is not in a position to help. The fundamental and simplistic assumption made by corporate management is that a 5% increase in overhead becomes a 5% increase for all affected units, including the library. That

assumption quickly disappears in the political process when it is argued that exceptions must be made and that certain units must be given larger increases or spared the effect of traumatic cuts. The movers and shakers in the corporate structure do not really care about such infighting, as long as the totals remain unchanged.

Library budgets benefit when the library has a champion in the corporate meeting, but that is rare, particularly if no real attempt has been made to insure administrative dependence on the library as an information resource. More frequently, the library budget is cut, sometimes even further than originally planned, because another project must be protected. Although it is a highly political process, it proceeds without rancor or recrimination toward the library. This phenomenon is perhaps better understood by public librarians who commonly face budget cuts to accommodate police salary increases or other public expenditures. Yet, the same principle holds true in corporations; during a budget crunch, only those who can promise fast results tend to have influence. It is also important to recognize that librarians are perceived to play certain roles within the organization. Some of these perceptions are based on stereotype and bias or on earlier experiences with librarians in corporations, universities or public libraries. Librarians will not be blamed or challenged if they match expectations, but they will not get much done, either. In contrast, any attempt to change set perceptions or stereotypes involves probable risk. Individuals must decide whether they are willing to face the risk of appearing to be "different" from what was expected.

Presumed Characteristics

These following characteristics are generalizations and undoubtedly unfair in some specific cases. Nevertheless, they tend to hold more often than not.

Librarians are expected to be neat and orderly and to be concerned more with rules than with results. They are informed about corporate plans and strategies infrequently because it is assumed librarians are not interested. For some, this is true. Every stereotype is unfair in the specific, but if there were not some kernel or recognition in either the present or the past, it would not persist.

Librarians are not considered to be risk takers or innovators. Risk takers start projects with the expectation that, if it is worth while, someone will help them continue it. They recognize the general management truth that in the absence of available funds there is always money for things which someone in authority really wants to do. With regard to innovation, Peter Drucker has stated that managers get credit only for two areas of accomplishment: innovation and marketing. Continuing to do the same satisfactory job may be safe, but it will earn no credit because it commits that greatest of corporate crimes—it is boring.

Innovation may require value ranking judgements and the elimination of some older projects to fund exciting new ones. More importantly, innovators recognize the second great management truth—that it is usually easier to get a lot of money than a little money, provided that the funds are used for a highly visible activity which will generate credit for the individual providing the funds. It may be possible to receive generous funding to start a competition evaluation report for corporate management, but the library will have a difficult time getting the small amount of money needed to hire a clerk to help reduce the cataloging backlog, because no one except the librarian cares.

3. Perhaps even worse than being insulted and ignored, librarians are patronized. This may be a result of historic bias toward women in professional positions. Librarians will not be taken seriously until they take themselves seriously and insist that they be treated as professionals. It is a serious risk, particularly for women, but one which ultimately must be faced if anything is to be accomplished. Such a risk also requires a willingness to make decisions and accept responsibility—indeed, the insistence that this happen.

The erosion of a political power base

is a subtle and insidious process. Matarazzo's studies (*4*) clearly indicate that some of the librarians who were fired and whose libraries were closed had no inkling of what was about to happen. The following situations may indicate trouble for a library which is not serving its constituency or attracting other potential users.

Situation A: Corporate administration is not served at all, or whole blocks of users (engineering, production, marketing, public relations, accounting, legal) are not served. Even if the facility is officially designated the R&D library, the key question concerns whether there are other libraries in the organization. If there are none, then the library must function as the corporate information center. If money is a concern, reasonable funding allocation mechanisms can be proposed. Even if these fail to produce immediate results, the library should attempt to reach nonusers and encourage them to become dependent on its services.

Situation B: The library's contact with users is defined by the interpretation of rules, most particularly the return of overdue material. This is not only a level of contact which most users will consider irritating and trivial, it is also a fight you cannot win, and it serves to confirm the stereotype that librarians are preoccupied with rules. If you are told the material is still being used and can not be spared, you are not going to get it back. It is better to establish a corporate policy under which unreturned library material will be repurchased and billed to the department which has the library's copy. The recalcitrant borrower will not care because the expense is trivial, and the accounting department can be convinced that it is a reasonable policy. It is essential that libraries maintain control over their purchased collections and not allow the materials to dissipate into individuals' offices as academic libraries have done. Books which remain in offices for two years are not being used; they are being maintained in an unauthorized branch library. The argument that the material is only of interest to that one person is erroneous because more and more activities are interdisciplinary. It is important to have current, up-to-date materials in the library, and not just in the catalog, to make the library a worthwhile place to visit and to instill in users confidence that useful information is available to them. If the shelves are already crowded, the library may need more, or it may be time to discard obsolete materials which are of interest to no one.

In a similar vein, if user departments must be charged for library services such as interlibrary loan and photocopying, it is preferable to allocate a portion of the library budget based not on actual use but on assumed use (i.e., the organization with 20% of the professionals gets charged 20% of the cost). This step encourages rather than discourages use and accountants will accept this kind of procedure as willingly as any other.

Situation C: New units have arisen within the organization to undertake activities which more properly are the function of the library. This situation is harmful to both the library and the organization. Newly created information centers, information evaluation centers or corporate alerting services, despite their grandiose names, rarely accomplish more than the competent corporate library. If they arise, it is an indication that a vacuum exists. The library should hasten to fill this vacuum by providing new services, even if funds have never been specifically allocated for this purpose.

Some library managers tolerate or even encourage other departments to purchase books, periodicals or online databases through an outside service in order to relieve the library of budgetary pressures. This policy is unwise because it erodes the library's uniqueness. One of the characteristics of a valued operation is that it provides services not available elsewhere. If the library does not have the funds necessary to pay for these services, but other departments obviously do, the wise manager will approach management with the following argument: If the company cannot allocate library funds for these expenditures, no other units in the organization should be able to afford them either . . . but since they apparently can,

available funds should be transferred to the library.

Situation D: The library's clerical support is understaffed. Almost all corporations tend to understaff their clerical functions, particularly in overhead areas. Furthermore, most organizations operate with headcount ceilings and consider it foolish to "waste" an authorized position on a clerk. For libraries this poses particular problems because clerical routine takes precedence over professional duties. Professional tasks only get done when there is enough time; in the absence of enough clerks, the professionals become clerks. It is an easy trap and one which serves to confirm management suspicions of the low level of library work. Some nonconfrontational alternatives may apply. When appropriate, the use of temporary workers or those supplied by staffing agencies, the contracting out of clerical functions and the use of computerization, all provide options.

Some options are by necessity confrontational; for example, bring the need for additional clerical assistance to management's attention, and then provide the foretold disaster if the request is not met. Such options are clearly not for everyone. The minimum staff for any library that is expected to operate professionally is two—one professional and one clerk. If the staffing level is one, that individual should probably be a clerk.

The problems and the solutions presented here are admittedly simplistic and, at best, approximations. Personnel management theory holds that nothing works all the time. It is hoped that individual librarians will find better strategies appropriate to their situations. In a corporate environment, as long as the political process involves people who are all different, theoretical approaches will work only as well as these individuals resemble their models. Management theory will never take the place of common sense.

Dispassionate and unemotional mechanisms must be developed in each library to evaluate the state of political safety or risk. This is not easy to do. Sometimes it requires the help of outsiders. If a problem or area of risk is uncovered, a strategy must be developed for dealing with it. Ignored management problems, like untended lawns, never get better. They only get worse.

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Quality Circles for Management Decisions

What's in It for Libraries?

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HAVE YOU EVER felt that your talents were not being fully utilized? As a manager, do you wonder whether you are making the best use of your staff? These two questions, often pondered by managers, have a possible solution in the consideration of quality circles (QC's) as a management decision and employee involvement tool. Organizational development theory holds that productivity and job satisfaction are influenced by three factors: 1) workers need to feel competent; 2) they need to feel that someone cares about them; and 3) they need to feel influence over their jobs and their working environment. Of these three elements, worker influence, or the lack of it, may have the most important consequence in work effectiveness.

Participation is one way in which people can exercise influence over their working environment. Quality circles (QC) are a form of participative decision making. They are not a prepackaged solution to every problem, but their implementation has merit and given the proper environment, they can succeed.

As an American industrial management aid, quality circles are a fast growing phenomena. They can improve productivity, provide better solutions to problems, improve the quality of working life, and most importantly, they can augment staff decision-making skills. Librarians, information managers and technical specialists need to explore techniques which improve productivity and help to develop workers. A quality circle approach is one such tool.

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The Quality Circle Concept

There is a good deal of healthy skepticism about the usefulness and applicability of quality circles in American working environments. Since we are borrowing this technology from the Japanese, can we make it work in the United States? If quality circles can make all the claimed improvements, why aren't we all using them? The answers are that many American organizations are using this tool, and the most important factor in QC success is adaptability.

Many of the procedures discussed here are directed at medium- or large-sized organizations. However, the lesson for libraries of all sizes is the same. Take from quality circles what fits, works, and contributes to positive results and discard the rest. The long-term benefit of a better trained, more skilled and confident employee is the greatest payoff.

The definition of quality circles is an evolving one, and most experts agree that this evolution provides the flexibility that American organizations need.

> A quality circle is a small group of employees from the same work area who meet regularly and voluntarily to identify, solve, and implement solutions to work-related problems. Members of the QC are usually trained in two kinds of techniques; problem solving methods and group processes. The circle leader is often a supervisor who is first trained by someone experienced in the QC process. The leader in turn trains the circle members. The circle works on one problem at a time and proposed solutions are presented to management for approval.

QC's not only identify many optimal solutions but, because of worker participation, enhance employee morale. The concept of ownership of both the problem and solution contribute significantly to positive results. In his introduction to *Quality Circles, Answers to 100 Frequently Asked Questions*, Donald Dewar suggests, "Think of quality circles not as a 'cure-all' but as a unique tool with which to generate an atmosphere in which people can solve their own problems" (*1*). Additionally, it encourages them to identify those problems and, in this way, to begin to function as good managers—no longer acting reactively, putting out fires, but rather learning to act proactively by searching for improvements. The Japanese success story speaks well for this approach.

Early circles were developed to tackle the problem of an untrained Japanese workforce which was a result of rapid industrial expansion in post-World War II Japan. Japan wished to improve product quality and to eliminate its image as a producer of "junk." As of September

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1981, there were more than 125,000 quality circles registered in Japan through their organizing body, the Union of Japanese Scientists and Engineers (JUSE). The Japanese readily attribute much of their industrial and economic progress to their quality control circles. The International Association of Quality Circles (IAQC), founded in 1978 with more than 30,000 members, provides an organized forum for promoting and discussing the QC concept.

American businessmen observed and monitored the growth of Japanese industry and the influx of its products into the American market. Although educators and businessmen studied the effects of quality circles in Japan, it was not until 1974, more than 25 years after their introduction in Japan, that they were tried in the United States. A unit of the Lockheed Missiles and Space Company in Sunnyvale, California, paved the way for the more than 2,500 U.S. firms now applying the quality circle concept.

Quality circles have been successful in industry where work output and profits can be measured. Generally speaking, libraries do not operate at a profit nor can their success always be quantitatively defined. However, quality is a concern and can be extended to quality of service, quality of information rendered, quality of individual performance, and to many other areas.

The Japanese view quality beyond conformance to a standard, or as workmanship. They accept and apply the concept that quality means users' satisfaction, or the product's fitness for use. This important notion in the improvement of information service delivery deserves consideration for both short- and long-term library goals.

Another significant quality idea is that other departments within an organization are considered the "customer." Every department is responsible for delivering only good quality products to the next group of users. Consider the connection between the acquisitions, circulation, cataloging, and reference departments for one book. Complicate this with current automation efforts and we see how problems can grow exponentially. Too frequently we view the next user not as a customer but as an enemy or policeman. Again, this concept can have significant impact on how we do business.

Establishing a Quality Circle

Participative management has been in vogue for several years, and QC's are an extension of this style. However, QC's go beyond the traditional participative methods, such as the suggestion system, because they allow workers to develop their potential and make changes in their working environment.

The process sounds simple, yet some circles fail. Sometimes this failure can be attributed to incorrect assumptions, poor planning or unrealistic expectations. Certainly a lack of commitment at any level of the organization can lead to the demise of an otherwise useful management tool.

Lack of commitment manifests itself in many ways. One hears such statements as, "Our management would never let us do that," "We don't have enough people for a circle," "A participative approach means I lose control/my role/meaning," "My output can't be measured," "Asking for help from my employees makes me look bad," and the list could go on. Whether one attempts to institute a QC program or decides to make use of some of the techniques, the important factor is to look at that one person and to make a commitment to developing his or her potential as a means of improving productivity. This is the key.

It is important to understand the basis for the decision to bring QC's into the work environment and to have a clear idea of what to expect from this newly formed group. This may mean backing up to a point where you identify your needs, wants and expectations. Someone from outside the organization may be brought in to help determine the best course of action. Those in an academic environment might turn to their business and management schools for help. In other environments, municipal or corporate human resources development departments can be called upon for support.

The consultant may recommend short- and long-term task forces, work teams, inter-group conflict resolution sessions or quality circles. The objective is to select the tool appropriate to the situation.

Many times a new solution must be created from existing ideas. An analogy can be drawn between building a bridge and selecting a problem-solving technique. All bridges do the same thing but there are many types of bridges, each tailored to a particular environment. All elements must be studied to make sure that the bridge is suited to the job it must do. The same applies to problem solving.

3. Do you have a large enough group from which to draw 6-10 volunteers to form a circle? Certain problem-solving techniques, such as brainstorming, work best under these circumstances.
4. Do you have a work environment which is stable, with no major upheavals or conflicts in the recent past and where there are no plans to move potential leaders in the near future?
5. QC's can be perceived as threatening to certain managers. Are you prepared to alleviate this fear?

As an American industrial management aid, quality circles are a fast growing phenomena. They can improve productivity, provide better solutions to problems, improve the quality of working life, and most importantly, they can augment staff decision-making skills. Librarians, information managers and technical specialists need to explore techniques which improve productivity and help to develop workers. A quality circle approach is one such tool.

Quality circles are not a panacea for our problems. However, should you determine that circles are one of the tools to help accomplish your goals, then several questions must be asked to determine if the climate is favorable for implementation. Some of these questions include:

1. Do you believe that if you build employees' abilities and talents and if you give them an opportunity to use their skills that other benefits (perhaps financial) will follow?
2. Are you truly receptive to suggestions and recommendations from subordinates, and are you willing to act quickly on the contributions of circle members?
6. Do you believe that a climate of respect should be established between QC's and the administration and that there is a mutual gain in circle implementation?

The Introduction Process

If you responded positively, the next step is to introduce the concept to the members of your organization. Obviously it is important to involve management and union leadership early in the process. There are many good articles that describe this introduction process. The implementation process in your library may begin by establishing an educational program about quality circles

for all library staff members. It is essential that employees and managers believe that their support and participation will benefit both themselves and the organization.

The formation of a steering committee may be necessary in large organizations to set policy and to formulate plans. This will allow progress while the "selling" process is still going on. A pilot circle will help you to judge the impact of QC's on your library. If this initial circle is successful, you may then decide to expand the program to two or more circles. It is important to remember that starting small and keeping participation voluntary are vital to a program's success.

Several of the problem-solving techniques used by circles are already used in some libraries. These include brainstorming, an activity not only useful for problem solving but also problem identification, and Pareto analysis. The latter is similar to the 80-20 rule where 80% of the problems, backlog, and so forth, are caused by 20% of the books, people and other influences. The cause and effect of various procedures may be studied. Data may be gathered and statistically treated to reveal problems. Employees can then learn to analyze these data to assess a given situation. Other techniques include situation and work flow analysis. An explanation of the use and value of these techniques appears in "Participative Problem Solving Techniques" by Swanson and Scherer (*2*).

Management Support

The first problem tackled by a circle should be relatively easy and an acceptable solution should be found in a reasonable time frame. It may even be helpful for management to suggest an area of interest or theme which can guide the circle's selection of an initial problem. The administration must try to accept the circle's first solution even if it is not exactly what was expected. This early rapport will have payoffs in the long term.

The commitment of resources can be a troublesome area but if circles are to succeed, appropriate resources must be allocated. QC's require time, at least an hour a week or every two weeks from each circle member. The overall QC concept should be given at least a 1-2 year trial period. Payoffs in terms of the development of people or improvement in the quality of working life do not come easily or quickly. QC's also require training.

Circle leaders need several days of training, and the learning process is ongoing for all involved in QC's. Sometimes circles members ask to be trained in other kinds of problem-solving techniques such as work simplification or time and motion studies. Management must be prepared to respond to this request. Training and time allotted require the administration's financial commitment.

Equally important is management's ability to accept influence from subordinates, and this is where many circle recommendations fail. It is a participative management technique because the decision making is shared. Some managers find this difficult. In addition, management must make certain that QC members have the opportunity to know, understand, and accept the goals and objectives of the organization in order to ensure synergistic solutions.

Benefits

"QC's offer the greatest potential contribution in situations characterized by the underutilization of resources and suboptimal performance," states Robert Wood in a working paper on quality circles (*3*). Are we utilizing our staff to the fullest? Often the answer is, no. In work situations, we look at someone or a group of people and say "This is what we need you to do," and that's all. We often don't consider their potential. The quality circles approach encourages managers to look at these same people and say, "How much can I expect from them," and give them the tools to do well and grow.

Jan Schroeder, Director of the Duluth Public Library has had circles in place

since December 1981 (*4*). She comments, "Libraries are the best sort of place for QC's because they have the right stuff in their people already." Her organization is proof that circles work better in an environment where participative approaches are already being used for decision making. Under her direction, voluntary task forces were being trained in problem-solving techniques as early as 1978, before circles were popular in the United States. The Duluth Public Library's experience with QC's has been positive, and Schroeder attributes this success to a number of factors: good people, a participative climate, and realistic planning and expectations.

Expectations and anticipated employee benefits are often what make or break a program. Ira Gregerman reports that the employees at Lockheed identified eleven benefits from their quality circle experience:

1. Helps to develop a team atmosphere.
2. Provides for an easy exchange of ideas in a small group rather than in a large meeting.
3. Helps inter-group cooperation and relationships.
4. Reduces problems because staff foresee them rather than wait for them to get out of hand.
5. Provides a better understanding of job requirements.
6. Gives a lift to the spirit and helps to improve self-confidence.
7. Helps to develop leadership.
8. Results in better communications between supervisors and workers.
9. Provides a means for bringing problems to light.
10. Provides an opportunity to interact with support groups.
11. Gives the opportunity for frank and open discussions through regularly scheduled meetings in rooms outside the regular work area.

There are other benefits; goal setting and feedback also improve. Employees enhance their own work environments by solving problems that relate directly to their everyday situations. Many Japanese companies use circles to improve communications between full and part-time workers. QC's can provide job security in some cases. For example at Westinghouse Electric, job security is assured to quality circle members who make useful productivity improvement recommendations.

Evaluation

Evaluation is an integral part of a quality circle program. An appraisal of a new QC program might take place 9–18 months after startup. At present, there are fewer white collar QC evaluation tools than are needed. How then does one measure better utilization of people? Jan Schroeder suggests that intangible benefits are as real and noticeable as tangibles, if you know where to look. One measure is employee turnover and absenteeism. If these have decreased, this can be a sign of success.

The Duluth Public Library Circles are required to keep minutes of each meeting and to write progress reports. These minutes are posted on the employee lounge bulletin board so that those outside the circle can see what progress is being made. Schroeder indicates that tangible results can be seen by reading over several months' minutes. The sense of well-being in her organization also indicates that the concept is working. In addition, employees gain a better understanding of what management faces when it tries to solve a problem. This understanding can foster better cooperation. If employees are part of the solution-finding process, implementation of changes and new ideas may fall into place more easily. Again, the idea of employee ownership of a problem provides a crucial link to the implementation process. Self-evaluation by a circle often leads to a sense of accomplishment. As a consequence, many members of the organization have the opportunity to grow and learn.

Shortcomings

Quality circles are not without their shortcomings. Groups which are improp-

erly trained or poorly led can become unproductive. This may lead to gripe sessions that accomplish nothing. An administration with unrealistic expectations may want to see immediate results. One complaint heard from circle members is that the process is too slow and that one hour a week is not enough time. Members of management may also feel threatened by the group's process and be uncooperative in implementing solutions. In addition, white collar problems can sometimes be difficult to identify. Unfortunately, there are not many good problem definition techniques for either white or blue collar operations.

Summary

In these times of tightening budgets and dwindling resources it is advisable to utilize all assets to their fullest. People are our greatest asset and quality circles are a means of involving employees in the decision-making process. Tapping this potential allows us to accomplish many goals at once, including staff development, problem identification, open communications and, in general, improving the quality of working life for employees.

It is important to understand some of the ground rules for implementation. The working environment should be studied and participative alternatives should be examined. If quality circles are chosen as the problem-solving route for an organization, a clear understanding of the goals and expectations will be necessary. Management must be prepared to make the appropriate financial and emotional commitments necessary for success and a realistic appraisal should accompany that commitment.

Conclusion

As the Duluth Public Library's experience has shown, quality circles can work in libraries. Not only does Duluth have circles for one department, such as reference or technical services, they also have one which cuts across department lines and includes the children's, adult services and circulation departments.

The subject matter of problems addressed has been diverse. Building security, CRT hazards, getting software updates for the circulation and online catalog systems, providing public typewriters and improving user-staff relationships are just a few. Another interesting point is that the Duluth library's circles have professionals and clerical staff working together to build a better library environment and to make group decisions.

Another related process, called participatory circles is similar to QC's but offers more to employees in terms of responsibility and acountability. Dr. Saul Pilnik of Human Systems, Inc., describes it as "psychological ownership" utilizing "peer pressure" to make it work. If quality circles don't go far enough for your application, look into Dr. Pilnicks' research.

When was the last time you asked people at all levels of your organization, how can we do business better? The challenge of asking, listening and participating is ours.

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A Small Revolution
Microcomputers in Libraries

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■ **This paper discusses the current microcomputer technologies available to libraries. Special attention has been paid to software applications. Library functions have been divided into four major classifications: 1) communications (online database searching), 2) word processing, 3) administration, and 4) database management systems. Specific examples of library applications are given.**

THE PAST few years have brought about amazing advances in microcomputer technology in libraries. In the March 1980 issue of the *Journal of Library Automation*, an article entitled "Use of Microcomputers in Libraries" by Allan C. Pratt, the current editor of *Small Computers in Libraries*, stated: "It is, at present, not possible to buy programs to perform library functions from outside sources. Therefore, the library will have to write its own software or have it custom written by a consultant/programmer."

The author went on to state: "Microcomputers described here are too small to be satisfactory as circulation control systems . . . there are no principal sources for current information on microcomputers in libraries."

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Fortunately, these comments no longer hold true today. New technological capabilities are unfolding with great rapidity, and libraries are taking full advantage of the benefits they offer.

The Recent Revolution

As late as 1982, library microcomputer products were almost unheard of. According to Chinese tradition, 1982 may have been the Year of the Dog, but according to the December 1982 issue of *Mini Micro Systems* it was also the Year of the Microcomputer. As Joseph Matthews of J. Matthews and Associates points out in a recent *Library Journal* article: "If any word sums up the automated library systems marketplace today, that word is change (*1*)."

Today there are over 75 microcomputer programs specifically written for library applications (*1, p. 550*). In its 1983-84 catalog, Gaylord Bros., Inc., a major vendor

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of library supplies, lists over 40 pages of library-related microcomputer software and supplies, whereas its 1981-1982 catalog contained nothing specially devoted to microcomputers. In addition, there are now more than ten journals devoted to the use of microcomputers in libraries. Regular articles in the library journal literature, such as *American Libraries'* column "Microcomputing," also abound.

Microcomputers are being used in every aspect of library operations, including cataloging. Formerly, the extensive size of catalog databases required the use of large and expensive mainframes; however, recent improvements in the memory capability of micros, as well as their compact size and affordable cost, have made their use in automating library functions feasible for most libraries.

Overview

As stated so aptly by J.H. Katayama in her discussion of microcomputer applications (*2*), "Special librarians are often faced with micro-budgets, insufficient staff and mini-collections but with macro demands for services, the microcomputer can play a significant role in alleviating many, but not all, of the problems."

Since most popular computer journals contain excellent articles on how to choose a suitable microcomputer, the emphasis here will be on affordable systems and software for libraries, including pointers on justifying the decision to purchase a microcomputer for the library or information center. A brief history of the development of microcomputers and how they differ from mainframes and minicomputers is offered to provide a proper perspective.

Mainframe Computer—This is a large system which generally is housed in a temperature-controlled room. A mainframe is a processor that can execute greater than one million instructions per second; however, smaller computers are rapidly reaching this speed. Mainframes are used for large volume data processing, intelligence gathering, scientific computing, research, defense, and so on. Their cost can run upwards from $100,000.

Minicomputer—Simply put, a minicomputer is a small computer, yet larger than a microcomputer. Minicomputers are used for data processing, time-sharing (20 to 60 users at a time), large communication networks, software development and large database management systems. They usually cost more than $20,000, and several can fit into a temperature-controlled room. Very often, minicomputers require professional programming.

Microcomputer—Also called a personal computer or a home computer (the terms are often used interchangeably), a microcomputer is used for small volume data processing, small database management systems, software development, low-cost computing, personal computing, and so on. Small but powerful, their cost ranges from $300 for some home computers to $20,000, for a larger microcomputer system; the typical microcomputer system costs about $4,000-$6,000. One or more microcomputers can occupy a desk or tabletop in an ordinary room or office. Microcomputers typically include software which is sufficient to permit the layman to gain productive use of the system simply by plugging it into the wall outlet.

Because of rapid developments in the technology, the distinctions among the different systems are becoming more difficult to define. Some microcomputers on the market are beginning to approach the computing capabilities of the larger mainframes. A generally accepted delineation seems to come from the price range, but that distinction is changing.

The Microcomputer Revolution

Personal computers are microcomputers which were first used mainly by hobbyists. The first personal computer was the Altair 8800, produced in 1975 by MITS, Inc., in Albuquerque, New Mexico, and sold in kit form for $400. About a year later, in 1976, the Apple system was developed. Since 1976, more than a dozen vendors have developed new models; other manufacturers include IBM, Atari, Hewlett Packard, Commo-

dore, and Digital Equipment Corporation.

Microcomputers made it possible for the individual library to automate on its own. A study conducted in late 1982 by CLASS (California Library Authority for Systems and Services) surveyed microcomputer use in libraries (*3*). It showed that out of 154 respondents, 70 had indicated their libraries owned a microcomputer and 9 more indicated they were planning to purchase one. The study also showed that the most popular choice of microcomputer is the Apple, with the TRS-80 following closely. Atari, IBM, Commodore, Aptos, Osborne, and Hewlett Packard were among the others.

According to the survey results, microcomputers are used in libraries for word processing, budgeting, online searching, serials control, circulation, electronic mail and cataloging. Most libraries reported the use of off-the-shelf software for various applications; Visicalc seemed to be preferred. Other commercial software packages used included Word Star, DB Master, CTI, Scripsit, Checkmate, dBASE II, PFS, Visifile, Overdue Writer, and Apple-Writer.

However, a recent *American Libraries* mini-poll of 350 New York area librarians shows that many librarians have not begun to introduce microcomputers into the library. Lack of funds is the most common reason given. Bewilderment over the many hardware and software options, has been holding back other libraries (*4*).

There are several points to be made in relation to this economic state. This author believes it is not possible for any special library today to effectively serve its clientele without the aid of online database searching of files such as Dialog or the New York Times Information Bank. A dumb terminal, which has the capability to search databases but lacks computing power, may cost around $2,000; it is now possible to buy a microcomputer, modem and printer for a little over that amount.

A micro system not only allows access to online databases but also provides storage for various lists such as periodical holdings. In addition, such a system has the capabilities to print holdings, keep track of circulation, create specialized databases and handle acquisitions. Some typewriters cost over $1,000—and they only type. By acquiring a micro, the library is acquiring a word processor, data management system, terminal, number cruncher and entertainment unit.

Confusion over the many hardware and software options available is a more difficult problem to resolve. First, librarians must define their needs; they should have a fairly clear idea of what functions they want a micro system to perform. Once librarians understand their needs, they should invest the time to read the literature and talk to vendors and users to find the system that is right for them.

Software

There are two types of software available: packaged or canned software, and custom-designed software. Packaged software is commercially available. It can be bought in a computer store or by mail order. It is prewritten, inexpensive and contains documentation. It is generally easy to use.

Custom software, on the other hand, is designed by a programmer for a special use. It is usually very expensive, but it is also specifically oriented toward the particular needs of an individual library.

Library Functions

Library functions can be divided into four different classes:

1) Communications (online database searching)
2) Word processing
3) Administrative
4) Database management systems

The Apple library is a good example of what can be done in a library with a microcomputer by novice computer users. None of us in the Apple library had any experience in using microcomputers. Even though we work at Apple, which employs many computer experts, we received little assistance in learning to use the machine and software. Yet, we have automated virtually every aspect of

the library by using off-the-shelf software, by reading manuals and by attending half-day classes on various software packages.

Communications

One of the library's best justifications for obtaining a microcomputer is that it can be used as a terminal to access online databases. In addition to accessing databases, a micro also has the capability of rapidly downloading information onto disks for editing and/or printing at a later time when the system is not connected to the database, thus saving money.

In order to use a microcomputer as a terminal, one must also have a modem and communication software to allow the micro to send and receive information over the phone line. Several good communication packages are available. The Apple library used an Apple /// with a Universal Data Systems modem and Access /// software. We also have an Apple II, a D.C. Hayes micromodem and Micro-Courier software.

Word Processing

The second library function for which microcomputrs are particularly well-suited is word processing. Word processing is simply using the computer as a typewriter. The computer has the added feature of being able to store files of information on one disk and to sort and update information without retyping the entire document. Periodical holdings lists, policy and procedure manuals, and any other kind of document that needs to be periodically updated are appropriate for word processing on a micro.

At Apple, we use a package called Apple Writer on our Apple II and Apple ///. We update and print our periodical holdings list, as well as our library newsletter, letters, memos and anything else that can be typewritten. The Graduate Library School at the University of Arizona College of Education uses an Intertec Superbrain with the word processing package called Wordstar. This word processing package is used to generate manuscripts, mailing labels, serial holdings lists, various directories, and a placement bulletin.

Catalog card printing is another word processing function; it can also be a type of database management system. Many packages are available on the market, several of which are listed below.

TRS-80 Computer Business Systems
1707 View Street
Myrtle Point, OR 97458
($125.)

EDUCOMP Library Processing Systems
919 Canadian Street
Venita, OK 74301
(Prints spine labels and book pockets.)

Apple Catalog Card Corporation of America
1300 East 115th Street
Burnsville, MN 55337
($595.)

(TELEMARC III program. Formats and prints catalog cards. Prints processing and spine labels.)

Commodore Pet Computer Library Card Master
2588 Inlake Ct.
Mississauga, Ontario
Canada
($100. Prints up to seven catalog cards from single keyboard input.)

Administrative Functions

A microcomputer is an excellent tool for relieving library staff from tedious tasks, such as generating monthly reports and tracking budgets. At the California State University Libraries at Northridge, the libraries' complex $3.5 million budget, as well as over 40 book funds, are managed by one 48K Apple II, plus one disk drive and Visicalc software. PFS:FILE, available from the Software

Publishing Corporation, is a simple and inexpensive database management program which allows the user to store information in a file and access it by many different parameters. At Apple, we use PFS to keep track of our acquisition orders. As an additional bonus, we can genrate a report at the end of each month to find out how much has been spent without having to touch a calculator or a piece of paper. Thus, a task which used to take hours is now completed in a matter of minutes.

PFS is also used to keep track of check requests sent to accounting and, in the same manner, to print reports on the actual money spent in any given time period. The library budget is handled on Visicalc, and we are currently experimenting with the use of Senior Analyst to print a monthly usage report by all of the different divisions at Apple.

Database Management Systems

A microcomputer proves its worth in database management systems whereby information can be entered into the computer, then sorted and manipulated to generate various reports. Until recently, this type of work could only be done on large mainframes. Microcomputers have made it possible for librarians to develop and maintain their own in-house databases without relying on MIS or software departments to program and enter their data. It has been said that the micro is the new democratizing instrument because it enables individual librarians to be the actual automators of their libraries.

Micros are very helpful in the areas already mentioned, i.e., word processing, online searching and statistical management; however, librarians have long been able to perform these functions without the assistance of microcomputers. What librarians could not do was to organize information in databases to be sorted as needed and designed specifically to fit their library's needs. A micro gives the librarian the opportunity to efficiently and quickly arrange and sort data—a task that was previously too cumbersome, costly, and time-consuming to even consider. Databases of library holdings, circulation statistics and special files are all made cost-effective, easy and possible through the use of a microcomputer.

The University of California Graduate School of Library and Information Science has developed a system called Reference Librarian Enhancement System (REFLES) using a TRS-80 dual disk drive with 48K RAM. REFLES was developed by Kathleen T. Bivins and Roger C. Palmer as a unique database for information difficult or impossible to find in print sources, such as a file of names, addresses and phone numbers of persons and organizations frequently consulted, or for the tidbits of information that librarians often keep in their heads.

Commercially available software packages for database management include packages such as DB Master by Stoneware Microcomputer, Inc. This software is excellent for file management because it allows the user to set up files using self-defined record lengths. It types, sorts and displays records according to many criteria. The Massachusetts Vocational Curriculum Resources Center uses DB Master to catalog its collection of 2,000 to 3,000 curriculum documents and to produce a printed catalog for distribution. The Scott Community College in Bettendorf, Iowa, uses DB Master for acquisitions to print order forms, division reports, book lists and reading lists of more than 500 titles. The Muscatine Community College uses DB Master to keep records and to produce paperwork for overdues. It also uses the package to print a Community Union List of Serials, to create a printed author/title index to short stories held in the college library and to serve as an acquisitions system.

Specific library database management systems include Librarian, by Professional Computer Systems, which allows one to store bibliographic abstracts of magazine articles, chapters of books, songs, videotape recording, computer program recipes, or any other indexable item for which an abstract is desirable. Up to 500 items may be stored per disk, and sorting may be continued on other disks. The cost of this software is $29.95.

Orchard Systems has developed a circulation management system which runs on an Apple II and tracks up to 600 items from the time of checkout to the time of return for $125. Software Exchange has produced a periodical cross-reference program for the TRS-80 which catalogs and classifies library magazines by individual article under subject, publisher, date, page and title, and it costs about $20.

A more sophisticated and expensive system is Star for in-house databases, sold by Cuadra Associates. This system is built around an Alpha Microcomputer which can support very large capacity disks and a number of terminals. Star provides the searching features associated with dialog and BRS type systems. Boolean operators, range searching, field delimiters, as well as the capability to enter new records, are available through this system. The cost is high—from around $23,000 to $50,000 for the software depending upon the number of simultaneous users and the disk storage capacity, and $10,000 to $20,000 for the equipment—but this system is quite powerful.

At Apple, a system called Card Catalog is used for catalog and circulation records. Using an Apple /// with a hard disk drive (necessary to give the computer added memory storage for a collection of over 300 books), we are able to print a catalog by author, title and subject; to keep track of money spent on purchases; to track the number of times a holding is checked out; to keep track of who has what; to print overdue notices; to print book cards and spine labels; and to run bibliographic searches of our collection using Boolean operators. The system is extremely simple to use, and it is commercially available from DTI Datatrek.

Other database management systems used at Apple include a serials management system for our more than 350 subscriptions. This system is set up using a Personal Filing System by Software Publishing Corporation. The cost of this software is around $125. All the information relevant to each journal is entered once. Issues are checked in when they are received with appropriate table of contents slips printed as required. Reports can be generated for journals not received within a specified time priod, and reports can be printed indicating which journals are acquired through a jobber, which are free and which are available through professional associations. Cost reports are also provided. These operations were designed by a library assistant with no previous computer experience and less than six months with the company.

At Apple, a database has been set up for the software library using Quick File, a database management program by Apple Computer on the Apple ///. Each record can contain 15 lines of information which can then be sorted and printed in any format desired.

Conclusion

Because of the large amounts of hardware and software available today, librarians must be cautious and informed shoppers. Joseph Matthews of J. Matthews and Associates offers the following suggestions to aid libraries shopping for a microcomputer system:

- Understand your needs and requirements; write them out and have them reviewed by various people in your department and company.
- Educate yourself. Read about microcomputers in other libraries; don't re-invent the wheel. Learn from others and visit other facilities that are using the hardware and software you are interested in acquiring.
- Review sales and promotional literature for competing products.
- Review software manuals, often available separately and well worth the money; sometimes you can purchase a demo.
- Consider the hardware only after the software decision has been made.

As stated in a recent issue of *Small Computers in Libraries*, successful use of a microcomputer in a library depends very much on the willingness of librarians to devote their time to learning to use a microcomputer (*5*). A high degree of interest is required in order to have the

patience to get through many of the poorly written manuals and to master some of the available programs.

Patrick Dewey, the creative and innovative librarian who instituted the Personal Computer Center at the Chicago Public Library, recalls that the greatest difficulty encountered at the Center was staff training, complicated by lack of staff time. After three years of using a micro, he had forgotten how long it had taken him to learn just how "natural, simple, and easy" it is to use. He emphasizes that time is the major component to mastering the use of a micro; without the dedicated commitment to make this time available, no real understanding can occur.

Despite their variety of uses, microcomputers also have some great limitations. Most notable is their limited storage capability for large circulation and cataloging systems. With the advent of hard disk drives, also called Winchester Disk Drives, storage problems are being solved. However, there is a definite degradation of response time in larger databases and time-sharing multi-user environments.

Manufacturers and advertisers want users to believe that all they have to do is to buy a system, take it home, plug it in and it will do everything they want it to do. This is not always the case. A microcomputer requires many hours of training before it can be used effectively. While many software packages are easy to use, there is an avalanche of information available. Librarians must be sufficiently informed to make intelligent decisions and not be dismayed if a microcomputer does not immediately solve all their problems.

As Stanislaw J. Lec, a Polish poet, expressed so aptly in *Unkempt Thoughts*: "Is it progress if a cannibal uses a fork?" (*6*). In the same light, is it progress if we feel we must use a microcomputer for every single library application, to the extent that we make more work for ourselves than is necessary? A microcomputer is not the answer for everything. Some things are better done manually, such as typing envelopes or file folder labels. However, if you are willing to invest the money and, most important, the time and effort to learn to use a microcomputer, your job will be a lot more exciting and pleasant.

Microcomputers can free you from some of the most tedious and boring aspects of our profession and open the way to a whole new world of information technology. Those who make the investment in education, training and equipment will be doing their organization and their professional career a great service.

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The Museum Library Revisited

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■ **The data derived from a study of randomly selected natural history and science museums and nature and science centers indicated that the libraries in those institutions were not funded to the same degree proportionately as the extra-exhibit educational programs, and that the staffing of the libraries was also less generous, less often full-time and less likely to be professional. The collections, services and use levels showed great variance; the libraries were not uniformly accorded a high status nor were they regarded as a vital facility in the museums. Implications for the profession are suggested.**

BOTH the museum and the library collect and transmit information. The library collection is comprised primarily of recorded messages; the museum collection emphasizes the artifacts, three-dimensional items, and realia which are generally termed "objects."

What, however, is the status and role of the library when it is a facility within the museum? While the question has not been an issue of moment in librarianship, the answer has implications for the manner in which, and the means by which, the museum fulfills some of its functions, particularly that of education. It also holds interest for both practitioners and educators in the field of special librarianship. An examination of *Library Literature*, however, indicated that the question received more attention in times past.

The Library in the Museum

The outlook was optimistic in May 1933 when *Special Libraries* published a number of articles devoted to museums. Minnie Taylor White, discussing the science museum library, noted its value to the museum staff and touched on the requisite "training, experience, and personality" of the librarian, offering the opinion that "no one who considers it a sacrilege to depart from the usual library practices should become a museum librarian" (*1*). White was John Cotton

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Dana's model of special librarianship! The worthy use of leisure, then a large issue, was addressed by Thomas Cowles who also stressed the importance of preparing the kind of library exhibit he felt justified the investment of leisure time (*2*). But by 1959 the climate had changed, and John Coolidge found that art museum libraries were so seldom used and so poorly funded that he recommended that the facilities become autonomous research centers or suffer fading into oblivion (*3*).

When resources were scarce, they were not devoted to print and non-print materials to the same extent as educational programming. In a sense, museums with fewer resources placed libraries in the class of non-necessities.

In 1976, despite intervening infusions of Great Society money and the influence of a museum accreditation program begun in 1970, the reported status of the museum library had not improved. Hull and Fearnley concluded from their "random sample of 856 historical, art, science, and other museum libraries" that the library was supported with neither money nor enthusiasm (*4*). Victor Danilov, after studying the libraries in the 37 institutions which were in 1976 members of the Association of Science-Technology Centers, came to the same conclusion: "Libraries are generally underfinanced, understaffed, and underutilized at science and technology museums" (*5*). Susan Jane Freiband, in a study of four large art museums and their libraries, also found that the parent institutions failed to exploit the potential resources of the library (*6*).

The role of the library in the museum has been variously described. Frank H. Sommer perceived the purpose of the library as supporting research (*7*). Nina J. Root broadened the library's basis of service to collecting, cataloging and disseminating the "information needed to support the work of curators, administrators, exhibition and education staff" (*8*). What Hull and Fearnley termed "the private orientation of museum libraries" (4, p. 297) may be perceived in Root's omission of museum members and the general public as service targets.

The Incidence of Museum Libraries

The occurrence of museum libraries has been a subject of statistical assessment in several studies of museums, studies which indicated that such statements as, "All museums have libraries," are far too generous (*9*). The study which is here in part reported, was directed at the universe of natural history and science museums and nature and science centers, a universe selected because of the possibilities for non-classroom science education and for its role in enhancing the level of the public's scientific literacy. Thus the statistical studies were largely confined to those which investigated the same types of museums.

In the 1969 Office of Education survey which served as the basis for eventual accreditation standards, Lola Erikson Rogers found the library to be the fifth most desirable facility within the museum and a "quality indicator" (*10*). Nearly 40% of the institutions in her survey reported a library. Because "library" was more closely defined in the Rogers study, it is not possible to compare the figures with the subsequent National Endowment for the Arts survey, which noted that 75% of that survey sample had libraries; the Rogers figures compared most nearly with the 38% of "adequate" libraries in the NEA survey (*11*). Of the science museums, Rogers found that 38% had libraries, while 45.5% of science and art museums, 37% of science and history museums, and 45.6% of science-art-history museums reported libaries under her definition (*10*, p. 101).

Danilov, in his previously cited survey of science museums, found that 32 (86%)

had libraries (*5*, p. 98). A study of museums in the southeastern United States which have science collections indicated that 85% of the museums had a library in some form, with 35% for staff use only (*12*). A survey of 106 nature centers showed that 80% had libraries but that the library was a separate facility with space devoted solely to library activities in only 20% of the cases (*13*). Melville Fuller reported that 66% of the 128 children's science and nature centers he studied reported a library (*14*).

The librarian in Level II and Level III libraries tended to be the invisible colleague; indeed, responses were received from two librarians whose directors had reported *no* library staff.

The variances in the occurrence of libraries under the stringencies of the Rogers definition and those reported under the general rubric of "library," suggested the necessity for a set of definitions to capture the range of museum library services observed empirically and described in the literature. Both in the literature and in the museum field, the term "librarian" designated "the person in charge of the library." Thus, after trial and error and field testing, the library services and administrative direction were combined in the following descriptors:

Level I: No collection, save for the personal books of staff members.

Level II: A collection of materials appropriate to the museum, gathered informally into one place for the benefit primarily of staff, with physical and psychological accessibility a desideratum.

Level III: A collection of materials, both print and non-print, appropriate to the museum, lodged in a room or location primarily devoted to library services; organized, described, and administered according to standard library practices; and regularly open for use under the direction of a person designated to be in charge and judged capable of necessary organization and administration.

Level IV: The criteria of Level III, with the addition that the person in charge shall have a master's degree from an American Library Association (ALA)-accredited program or the reasonable equivalent, such as the BLS or recent school librarian certification from a regionally accredited college or university.*

Methodology of the Present Study

Hull and Fearnley made the assumption that "the size and diversity of the [museum] library is a direct source and reflection of the vitality of the museum; an innovative, active museum—like any other innovative, active organization—needs information" (*4*, p. 289). In an indirect test of this assumption, the present study asked: Is some aspect of the museum's communication process enlarged in scope or enhanced in range and variety when the museum supports an organized, professional library? Specifically, the study investigated the co-occurrence of the number of various types of extra-exhibit educational programs and the organizational level (I-IV) of the museum library.

A universe of natural history and science museums and nature and science centers was determined from the standard directories on the basis of name, collections, and research area, with N=369. Survey questionnaires specific to each staff position were sent to the director, the educator, the librarian of each agency in the randomly-selected sample population of 160 museums. At least one usable response was received

* The equivalency, comparable to ALA membership criteria rather than accreditation standards, was warranted by the exigencies of the museum library situation.

Table 1. Usable Questionnaire Responses by Staff Positions.

Staff Position	Potential N (Est.)	Response N	Response %
Director	140	112	80%
Educator	138	117	85
Librarian	94	58	63

from 142 (89%) of the institutions. The responses were encoded for computer input and analyzed by means of the Statistical Analysis System (SAS).

It was possible to deduce from the response or responses received from an institution whether the nonresponding staff positions were vacant or nonexistent. In the case of the librarian, however, the task was more difficult because the position was often filled by a volunteer, was a shared position, or was filled by a person whose major responsibilities lay elsewhere. Table 1 summarizes the response data. It was also possible to determine from the questionnaire responses the library organizational level for all but two of the museums. (see Table 2).

The "non-library" (Level I) category, consisting of personal books belonging to staff members, was included to capture (and thus permit exclusion of) what may at times be reported in the literature as a "library." The informally organized library (Level II) was the type most often reported (46%) and was also the median category. Although the person "in charge" of the Level II library was usually a volunteer or education staff member, two facilities were headed by persons with librarianship education. Level II libraries also had budgets for materials and offered reading room, circulation and reference services in varying degrees. They were not, however, bibliographically organized.

Table 2. Library Organizational Levels.

Organizational Level	N	% of Sample (N = 140)
I	14	10%
II	64	46
III	37	26
IV	25	18
	140	100
Undetermined	2	
	142	

Since the two formally organized levels (III and IV) together almost equaled the frequency of Level II libraries, the museums in the sample were very nearly divided between the informal and formal library organizational levels. In contrast to Level II, Level III and IV libraries were bibliographically organized, with a person appointed to be in charge. In the Level IV library, that person was a professional librarian.

Taking a cue from Danilov, who deplored underfinancing, understaffing and underutilization, the results of the study pertaining to museum library budgets, personnel and use are next presented.

Museum Library Budgets

The library budgets, reported as exclusive of salaries, were not princely. It may be observed from Table 3 that the modal budget fell in category 1, or was under $499, while the median category (category 2) represented a budget range of $500 to $999. The "library budget" category was based on the report of the director, since more directors responded to the survey, and because 35% of the responding librarians were not able to furnish the library budget information. (The percentages reported in Table 3 differ slightly from the values in Table 2 because of missing budget data, and the fact that Level I libraries were not usually a

Table 3. Library Budget Categories and Library Organizational Levels.

Library Budget Category	Library Organizational Level I	II	III	IV	N	Danilov (N = 26)
1 (Under $499)	4	25	8	1	38 (46%)	19%
2 ($ 500– 999)	0	4	4	0	8 (10 $)	31%
3 (1,000– 1,499)	1	7	7	2	16 (19%)	11.5%
4 (1,500– 4,999)	0	3	3	5	9 (11%)	27%
5 (Over $5,000)	0	2	2	9	12 (14%)	11.5%
	5	41	20	17	83	
	(6%)	(49%)	(24%)	(20%)		

budgeted item.) The percentage of ASTC members' libraries appearing in each budget category is noted in Table 3 for purposes of comparing the Danilov study with the present survey.

Museums of the type sampled in this survey tended to be better funded than other museums, as Table 4 indicates. Thus, the $100,000-$499,999 range (category 3) was both the modal and median category for the sample, while for all museums it was category 1—the under-$49,999 range; and while more than a fourth of the sample museums fell in the top two categories—representing budgets of over $500,000—only 7% of all museums fell in that category. (The budget ranges were reduced in number from the American Association of Museums (AAM) statistical categories by collapsing several categories, particularly in the ranges of the smaller budgets.)

Museum budgets and museum library budgets correlated strongly: the Spearman rank-order correlation (r_s) was .71, significant (sig.) at .001, with N = 86. The museum budget, however, was correlated less strongly with the library organizational level: r_s = .47, sig. = .0001, N = 109. Apparently, the museums with greater resources provided proportionately more funding for the museums' libraries but those resources were not necessarily devoted to concomitant levels of library organization. Table 5 shows the observed (O) and statistically expectable (E) frequencies of library organizational levels associated with budget categories. In order to render the data amenable to statistical testing, budget categories 1 and 2, and 4 and 5, were collapsed.

Chi-square (X^2) is a non-parametric test, essentially the sum of ratios of difference between O and E: $(O-E)^2/E$. If the chi-square test is significant, the difference ratio which contributed most greatly to the summation may be determined by inspection of the calculations. In Table 5, the sources of greatest difference are indicated, thus: *. The coefficient of contingency (C), represents a correlation.

As the cells marked (*) in Table 5 indicate, more "non-libraries" and infor-

Table 4. Museum Budgets in Sample and in All Museums.

Budget Range Category	Study Sample N	% (N = 110)	All Museums* N	% (N = 4144)
1 (Under $49,999)	28	25	2563	62
2 ($ 50,000– 99,999)	14	13	491	12
3 (100,000–499,999)	37	34	783	19
4 (500,000–999,999)	13	12	143	3
5 (Over $1,000,000)	18	16	164	4
	110		4144	
Undetermined	32			
	142			

*Source: Kimche, Lee/American Museums: The Vital Statistics. *Museum News* 59:53–57 (Oct. 1980).

Table 5. Library Organizational Level and Museum Budget.

Museum Budget Category	Library Organization Level I & II O	(E)	III O	(E)	IV O	(E)	N
1 & 2	36*	(23)	4	(11)	1	(7)	41
3	17	(20)	15	(10)	5	(7)	37
4 & 5	14	(17)	4	(8)	13*	(6)	31
	67	(60)	23	(29)	19	(20)	109

*Different source.
$X^2 = 31.16$, df = 4, sig. > .001, C = .47, C(max) = .82.

mally organized collections were found in the under-$49,999 and $50,000-$99,999 ranges, while more professionally directed libraries than expected were found in the museums with budgets in excess of $500,000. Thus, the museums with the smallest financial base had an even lower level of library organization than might be expected; conversely, museums enjoying the largest range of resources sponsored a proportionately larger number of professionally directed libraries than statistically expectable.

The pattern of relationship of museum budget and library organizational level contrasted with that of budget and educational programming activity. The observed frequencies in four categories of programming activity were close to the expected values, save in the category representing the highest degree of educational programming activity. That category occurred in the lower budget categories significantly less often than expectable, and in the higher budget ranges, significantly more often. Thus in the case of extra-exhibit educational programming, financial resources and programming extent followed very nearly the same slope until the greatest extent of programming was reached, at which point the museums in the lowest budget ranges failed to increase programming to the extent expectable, while the other museums put resources into programming at a greater than expected rate.

In the case of the library, however, when resources were scarce, they were not devoted to print and non-print materials to the same extent as educational programming. In a sense, museums with fewer resources placed libraries in the class of non-necessities, if not luxuries. Once the higher level of financial resources was reached, the library received a proportionately larger amount of support. The collapse of budget categories 4 and 5 (to permit statistical testing) conceals the fact that 11 of the 13 instances of Level IV libraries occurred in the over-$1,000,000 category.

Museum libraries were not restricted to the museums' resource allotment for the acquisition of print and non-print materials. Gifts, however, did not figure largely; 61% of the responding librarians reported that gifts, whether as money donations or as the item, accounted for less than 10% of annual acquisitions; 27% reported that over 50% of annual acquisitions were gifts.

Gifts and exchanges notwithstanding, when 46% of museum libraries in a sample of relatively better-funded museums received a print and non-print budget of less than $499, Danilov's "underfunded" assessment is not far from the mark.

Museum Library Staff

As previously noted, the question of library staffing was more difficult to assess. The librarian in Level II and Level III libraries tended to be the invisible colleague; indeed, responses were received from two librarians whose directors had reported *no* library staff. None of the informal (Level II) libraries reported full-time library staff; and half of the part-

time persons were paid and half were volunteers. The internal evidence of the questionnaires indicated that a majority of the paid Level II staff wore other hats in the museum, usually as educator. One-third of Level II staff had backgrounds in science and one-third in librarianship; the remaining third had backgrounds in various fields, including education. Even allowing for missing responses, the staffing ratio of the Level II library was low: 64 Level II libraries in the sample yielded 17 staff positions of all types, a ratio of .265. Staffing in the formally organized libraries was higher: 37 Level III and 25 Level IV libraries yielded staff ratios of .70 and .96, respectively. The "informal" library was informal indeed; and it comprised 46% of the sample.

By definition, the distinction between the two formally organized levels was the training and educational preparation of the person in charge. Again, the internal evidence indicated that the part-time paid personnel in Level III libraries had other duties and functions in the museum. The full-time staff was 30% of the Level III total, and half were volunteers—a rather remarkable recruiting achievement in today's diminished volunteer pool. The largest number (42%) of library staff, however, was part-time and volunteer. In contrast, 71% of the professional librarians in the Level IV libraries were full-time, paid staff; 12% were part-time, paid; and 17%, part-time, and volunteers. Danilov's study indicated that 28% of the science libraries survey had "full-time professional personnel" (*5*, p. 99). Since many of the ASTC institutions were relatively new at the time of Danilov's survey, it is possible that the administration had not yet filled the librarian's staff position, an oversight in itself an indication of priorities.

The matter of priorities in staffing is evident when the library and education staffs are compared. None of the education department heads was a volunteer; 73% of all such persons served full-time. The total library staff for all terms of employment and duties ranged from one to 16, with a mean ($\overline{M}$) of 3.0 and a standard deviation (S.D.) of 3.1. The total education staff ranged from one to 130; $\overline{M}$ = 24, S.D. = 29.3. These data reflected the large numbers of docents (volunteer interpreters) in some museums. The largest library staffs, as might be expected, occurred in the Level IV libraries, where the mean was 3, while the mean number of library staff in Levels II and III was 1.

While the museum administrator may have regarded the librarian as unremarkable and unlistable, if not invisible, the two staff persons were kindred spirits when they ranked the goals and objectives of the museums as they perceived them. Three staff persons to whom survey questionnaires were sent were asked to make a rank-ordered selection of three goals from a list. The directors and librarians were evenly matched (33% and 32%) in a first choice of the goal of teaching science and natural history to the public through the display of appropriate objects and artifacts. The first and second choice of the educators was "To help the public enjoy science and the natural world." The goal of aiding enjoyment was the second-ranked choice of directors (23%) and librarians (34%). The directors and librarians appeared to be more didactically oriented than the educators; and there was no significant difference in this regard between librarians serving in libraries of different organizational levels.

While the educators' goals for the educational programming uniformly reflected their emphasis on enjoyment, the librarians' goals and objectives for the library were sharply divided at the point between Levels II and III and Level IV. Of the librarians in Levels II and III libraries, 59% saw the library as primarily a staff resource, while 59% of Level IV librarians perceived the library's mission more broadly in terms of supporting the mission and goals of the museum as a whole. The diferences may have been the result of the change in library personnel between the library levels: the educator serving in the library at Levels II and III would be more likely to identify the library with staff needs than the total range of museum services. In addition, as

will be shown subsequently, the Level IV library had a broader range of service and patronage—an encouragement to see the library in terms of the institution's mission.

Museum Library Services and Use

"Underutilization" is a frequent focus of library use and user studies, for the term implies a gap between the library's potential for service and the demand for those services by possible and actual patrons. By extension, it may also imply the value placed upon the library by those patrons.

The potential for service involves a number of variables. One variable, library staff, has been examined. The library's collections, its accessibility, the services offered and the persons whom the library will admit and serve were also factors in the service potential of the museum libraries surveyed.

The collections—such as were reported—varied greatly, as Table 6 indicates. Other than the quantum leap from the means of Levels II and III to those of Level IV, the dominant feature of the data in Table 6 is the extreme variance of both the book and periodical collections. When the data were sorted by library budget, as well as by library organizational level, the variances remained indicating that even within budget categories the library dollar was spent in different ways.

Other factors affected the size of the collections. The use of gifts and exchanges has been noted. The length of time the library had been in operation was another factor. The age of the library correlated with collection size to a high and statistically sigificant degree: $r = .80$, sig. = .001. The datum supported the observation that the Level IV library tended to be both older and better financed, although there were individual instances among the responses which indicated that a currently reduced level of support of the library did not reflect the long history of the collection.

Circulation of materials also varied considerably, ranging from none to 1,000 items weekly, with a mean of 38. Circulation was reported sparsely, save in the Level IV responses. In that group of libraries, the range was also none to 1,000, with a mean of 86, S.D. = 223.8, N = 19. Although none of these data was statistically testable, they indicated the great diversity of the museum library collections and a less than general availability of the materials on loan.

Collection use on a reading-room basis was a more widely available service. Staff access to the library was reported at virtually all organizational levels, although such access was often on a self-service basis. All Level IV libraries reported reading-room privileges were extended to museum members, junior members and the general public. All Level III libraries were open to both classes of members, and 95% were open to the public. The same percentage of Level II libraries opened doors to members, while 90% extended reading room privileges to the public by appointment or request; only four Level II libraries were open on a scheduled basis.

Formally organized libraries were defined as "regularly open"; scheduled hours of service conforming closely to the museum's hours were made a factor in a scaled score representing a general indicator of museum library accessibility.

Table 6. Library Organization and Mean Holdings of Books and Periodicals.

Library Organization	Books			Periodical Titles		
	$\bar{M}$	S.D.	N	$\bar{M}$	S.D.	N
II	1615	2453	15	57	71	13
III	2750	3363	13	88	194	12
IV	24133	41953	23	488	812	22

The other factors were physical accessibility—location relative to the public areas of the museum—and the number of different types of persons to whom the library was open for reading-room use. The general museum access indicator correlated moderately, but with statistical significance, to the library organizational level: $r_s = .32$, sig. = .002, N = 90. The correlation suggested that the formally organized library was somewhat more likely to be open on an extensive and scheduled basis and to persons other than museum staff.

The importance of scheduled service was emphasized by the fact that this factor correlated significantly with museum members' library use ($r_s = .67$, sig. = .001, N = 20), while there was no relationship between such use and library organizational level. It might be presumed that museum libraries which did not limit use to museum staff would make library use a privilege and perquisite of museum membership, and offer services to members which were not afforded to the general public. The range of services to members, however, related strongly to the services offered to the public: $r_s = .74$, sig. = .0001, N = 28. The library organizational level, moreover, was more closely related to the range of services offered the public than to the membership ($r_s = .59$, sig. = .0002, N = 35 *vs* $r_s = .38$, sig. = .04, N = 31). This implies that while members enjoyed a certain level of services in most libraries, the formally organized libraries extended services to the public, as well. When both the public and members were served, there was little distinction made between the types of patrons.

Library privileges were cited as a benefit of museum membership in brochures describing the museum's educational programs. Brochures were submitted by 57 (49%) of the educators responding to the questionnaire. While the brochures were distributed without statistically significant variance over the museums beyond the lowest budget category, and also over the library levels within those museums, mention of the library as a museum facility occurred in only 16 (28%) of the brochures. Fewer than half stressed the library as a membership privilege. As Table 7 indicates, the formally organized library was cited proportionately more often as a museum attraction. The preponderance of Level III citations over Level IV may once again be explained by the educator's more direct involvement in the library. A content analysis of membership and other informational brochures issued by the museum might yield different data.

Perceptions of Library Status and Value

The potential for service is one thing; the actual use of the library and the value placed upon it may be something else. The relationship of services available to museum members and the extent of members' use of the library was, for example, not statistically significant at the level (.05) set for the study; in the case of the educators, the same relationship was not only statistically insignificant, it was nonexistent.

The views of librarians and educators were not congruent with respect to the library. Sixty-five percent of the librarians reported a museum policy to direct calls for information about the subject

Table 7. Citations to Library Services in Education Brochures.

Library Organizational Level	Brochure Citations (N)	Percent of All Libraries
II	4	6%
III	9	24
IV	3	12
	16	

matter of the museum to the library for response. One educator (out of 105 who answered the question) cited the library as a "normal" referral. Ninety-three percent of the librarians felt that staff members brought questions and information needs to the library. Of the staff members, educators reported their library use as "considerable," a ranking of 4 on a 5-point scale. The perceptions of the value of the library were divergent: librarians felt that educators rated the library as "quite useful" (a rank 4); but the educators assigned a bare rank of "useful," or rank 3, resulting in a lack of statistical correlation between the data.

Not all responses were in disagreement: 81% of the librarians felt that the location of the library made it accessible to its users; 94% of the educators agreed. However, 18% of the educators listed "book talks and library programs" among the museum's educational offerings; while this was one of the least-frequently noted programs, the citation contrasted strangely with the 2% among the librarians who listed "book talks, other programs" as a library service.

Educators did not turn to the library as a resource of first choice in the process of developing extra-exhibit educational programs. At the point of the initial germination of an idea for a program, 96% drew upon their own experience and judgment, 78% upon the suggestions of education and science colleagues, 75% upon casual conversations, and only 30% upon the resources of the library. A few more educators who had access to Level III libraries consulted their collections at this point, but their numbers were not statistically significant. (Again, the variance was probably due to their closer association with the library at that organizational level.) Background research for educational programming took 56% to the library, and almost 50% of those responding reported consulting the library at least once a week for any purpose at all—a finding smewhat tempered by the fact that, for the same frequency value, 73% of the educators reported consulting the exhibits curator, and 60% consulted the head of research. The responses suggested that educators in science and natural history museums tended to rely upon information resources other than the library. In this respect, their information acquiring behavior was similar to that reported by Meadows for physicists and chemists; these professionals were found to consult the librarian or information officer last, and the library card-index second or third from last among 12 possible resource choices (*15*).

The museum profession's ostensible evaluation of the library's importance in the museum is indicated by its inclusion in the AAM accreditation standards (*16*). It was possible to determine the accreditation status of 128 of the 142 museums in the sample; of this subset, 30 (23%) were accredited. Accreditation did not appear to be related to the educational programming activity level of the museums: a point biserial correlation (r_{pbs}) between accredited and unaccredited museums when programming activity was the dependent variable yielded a nonsignificant value of .12. However, both the museum budget and library organizational level were related to accreditation, with C = .49 and C = .37, respectively.

As Table 8 indicates, the association between the museum's accreditation status and the library organizational level is largely explained by the much higher than expected frequency of Level IV libraries in accredited museums, and the much lower than expected frequency of the same level of library organization in the unaccredited museums. It is problematical, moreover, to assess the degree to which the library is weighed in the accreditation process when two accredited museums have "non-libraries" and one-third of the libraries are not bibliographically organized.

Summary and Conclusions

The data derived from this study of a random sample of 142 natural history and science museums, and nature and science centers, indicated that 90% of the museums in the sample had libraries, most frequently (46%) informally organized. Of the formally organized libraries, 25 (40% of the formal libraries and 18% of

Table 8. Library Organizational Level and Museum Accreditation.

Library Organization	Accredited O	(E)	Unaccredited O	(E)	N O	(E)
I	2	(3)	10	(10)	12	(13)
II	10	(14)	50	(45)	60	(59)
III	5	(8)	26	(25)	31	(33)
IV	13*	(5)	12*	(18)	25	(23)
	30		98		128	

*Difference source.
$X^2 = 17.99$, df = 3, sig. > .001.

the total sample) were headed by persons with training in Library Science.

Museums of the type sampled were better funded than museums of all types, yet the institutions' financial resources were not extravagantly dedicated to their libraries: 46% of the libraries in the sample received $499 or less; 56%, less than $1,000. Levels I and II (informal) libraries occurred with a statistically significant greater frequency in the small budget categories; conversely, Level IV (formally organized, professionally directed) libraries occurred with a statistically significant greater frequency in museums which had the largest budgets indicating that, when resources were relatively scarce, they were not devoted proportionately to the museum's library. Such fiscal apportionment contrasted with the resources devoted to extra-exhibit educational programming, for which funding was evenly distributed through the museum budget categories, and increased beyond the statistically expectable only in the instance of the largest budgets and greatest extent of programming.

The present study bore out the findings of Hull and Fearnley and Danilov regarding the straitened circumstances of the museum library, particularly in the smaller museums. Staffing stringencies were also found. Even the bibliographically organized libraries were, as a majority, not headed by professionally educated librarians. In facilities with part-time librarians who either fulfilled other offices in the museums or served in a volunteer capacity, the libraries were "understaffed." When the librarians were so forgettable as to be invisible, the libraries were worse than understaffed; they were unserved, unrecognized, and impotent as facilities and services within their museums. Staffing also was associated with anomalies, such as the sharp break between librarians in Levels II and III and those in Level IV, in the perception of the library's goals and objectives, and the congruency of the librarians' perceptions of the museums goals and objectives with the perceptions of the administrators, despite the educators' role in the libraries.

Understaffing took on other dimensions when library use and services were considered. "Underutilization" is in part a function of lack of staff, but it is also an aspect of a more pervasive deprecation of the role and function of the library. Hull and Fearnley postulated that an active and innovative museum would have an active and innovative library. With the variety and extent of extra-exhibit educational programming defined as an indicator of museum innovation and communicative energy, the present study found that the relationship between such programming and the library organizatinal level was but moderate, although statistically significant: $r_s = .28$, sig. = .005. As indicated by the educators' lack of dependence upon the library in the course of developing educational programs, museum staff members do not overuse their libraries.

The data derived from this study suggested that the museum library is not widely regarded as a vital facility or service within science and natural history museums and science and nature centers. Events in the environment tend to support such a conclusion: the Smithsonian Institution workshops for librarians were

cancelled for three consecutive years for lack of attendance and have now been dropped. Apparently, museum administrators do not invest resources in the continuing education of their librarians.*

Thus, while the recommendation made by Hull and Fearnley that "more professional librarians, either as staff or consultants, be brought into the field, that they be allocated budgets and be guaranteed the authority to administer their collections and dispense their budgets as they see fit in light of their professional training" (*4*, p. 297-298) has the ring of face validity, the reality is that administrative support for such projects is apt to be tempered both by lack of resources and lack of enthusiasm and support for libraries.

The message for librarianship is that museums are a mission field. For the practitioner, there are opportunities for professional involvement and vital service projects, particularly in bringing a collection from an informal state to one commanding the respect of the museum staff. For library educators, there is the challenge of preparing professionals who understand museum philosophy, know museum methods, and are able to work with museum administrators and staff in developing facilities and collections which will support the mission of the museum and enrich the lives of the people in the community it serves. Like religion, museum libraries may not have been so much tried and found wanting as not tried.

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* Art libraries and librarians have their own professional organization, the 1,100-member Art Libraries Society/North America (ARLIS/NA), which is twice the size of the Museums, Arts and Humanities Division (MAHD) of SLA, and which conducts extensive educational and publishing programs, thus serving as a professional resource for art museum librarians.

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Locating Elusive Science Information

Some Search Techniques

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■ **Contrary to widely held assumptions, a given body of scientific research results may be published in several places, not just one. The searcher who is unable to locate one source for the information may thus find the data in another. To do so, it is necessary to be familiar with the stages of the scientific publication cycle and the various parallel and sequential points at which the information may appear. That cycle and search techniques for locating such elusive science information are described.**

WHETHER searching for oneself or as a librarian for another, it can be frustrating when an urgently needed reference is unavailable in a library. After the stacks, circulation files and other sources fail to produce the item locally, the usual assumption is that the searcher must either give up or pursue the item in another library. But if it is the information contained in the article or report, and not the specific item that one wants so badly, then there are more ways to get that information than may at first appear.

The common understanding of science holds that each publication is unique, that each journal article, particularly, reports novel, original results. But in fact, individual publications in science are not so unique as might be assumed. It is in the nature of the scientific enterprise that a given set of results or ideas may be published in a number of slightly varied forms (*1, 2*). Therefore, if the information cannot be found in one form, it may be possible to find it in another. These different forms of the information tend to appear at recognizable stages in a publication cycle that is characteristic, with slight variations, throughout all of the social, biological and physical sciences (*1, Figure 3*).

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The techniques described herein are general principles which the searcher may choose to apply in the process of using either online or manual bibliographic sources. Despite the longstanding importance of effective search techniques for the provision of quality reference service, relatively little is written on general search techniques, apart from searching on specific online systems or databases (see issues of *Online, Online Review,* and *Database.*) The author's contributions to the literature include a discussion of suggested search tactics (*3*), and also a review of the literature on general search techniques through 1980 (*4*). Lynch, in her review, updated research on reference, including the question-answering process, to 1983 (*5*).

The Publication Cycle

A central fact of a scientist's life is that if he or she is to get credit for research done, the results must appear in print and must appear before anyone else's results are published. The esteem of one's peers, the promotion at work, or the Nobel Prize all come to the man or woman who is first in print with the new theorem, theory or results. One does not receive a Nobel Prize for being second to come up with the results—even if one misses being first by only a few weeks (*6*).

Whereas a scholar in the humanities might first publish the results of ten years of research in a book summing up the work, the scientist is more likely to publish as soon as each substudy of the research is complete. It is for this reason that journals are much more important in the sciences than in the humanities. In contrast to the lengthy processes involved in book publication, journal articles represent small chunks of information and journal issues are published frequently, thus accommodating the not infrequent cases when a few weeks do make the difference in determining who gets credit for being first (*6*, p. 66-90; *2*, p. 126-168). Some scientific publishing may be in preliminary form in order to lay claim to a research topic as one's own and to discourage competitors. (These pressures to complete work quickly and publish explain the urgency with which requests for information are often made of science librarians.)

The following discussion examines the several points in the cycle of scientific publishing at which a given body of research results may appear. Figure 1 summarizes the publishing sequence. Note that the steps in the sequence are approximate; some variation may occur in the order of appearance of various forms of the same research results.

Informal Presentations

The first discussion of the work on a research project may be in letters and phone calls between colleagues in the so-called "invisible college," i.e., that subgroup of scientists within a particular discipline who are working on the same problems (*7*). There may be a handful or a hundred or more worldwide in such a group. There is a good deal of useful information communicated this way, but at this stage the information is private and known only to a few.

Next, the work may be presented in a weekly seminar at the laboratory or academic department where the researcher is working. Presenting work to colleagues enables the scientist to get informed criticism and to detect any flaws in the reasoning or in the experimental design. Such presentations extend knowledge of the work to disciplinary colleagues outside the researcher's sub-specialty and also to other students, particularly graduate students, besides the ones directly involved in the project.

At this point, the results are still known only to a small circle. It is good to keep in mind, however, that someone who has heard of the work may ask a librarian for information on it, not realizing that it has not yet reached publication. Once this confusion has been cleared up, the solution is to put the client in touch with the researchers involved.

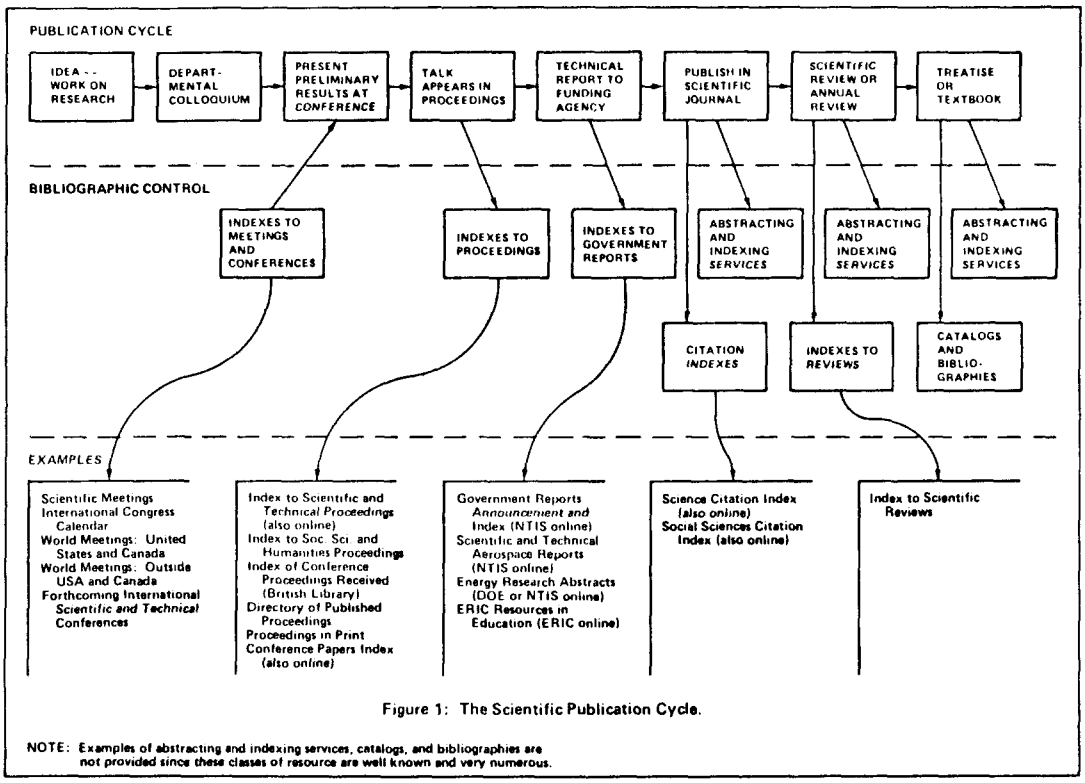

Figure 1: The Scientific Publication Cycle.

NOTE: Examples of abstracting and indexing services, catalogs, and bibliographies are not provided since these classes of resource are well known and very numerous.

Conference Presentations

The work may first appear in print when it is still in preliminary form. Early results are often presented at conferences and symposia and published in the proceedings of these meetings. To take full advantage of the proceedings literature, several points should be kept in mind:

1. Proceedings may be published at the time of the conference or several years later. Therefore, when searching for the published proceedings, it may be necessary to search anywhere from the year of the conference to three years after.

2. Often, not everything presented at a conference appears in the proceedings. Every professional society which sponsors a conference has its own rules, but it is commonly considered that some presentations are sufficiently substantial or important to warrant publication, while the less substantial ones do not. The searcher should keep in mind that even when a paper is known to have been given at a certain conference, it may not appear in the proceedings for that conference.

3. Sometimes, the substance of a paper presented at a conference is different from the version which appears in the proceedings. If the proceedings are published at the time of the conference, the articles had to be finished months beforehand in order to make publication deadlines. By the time the conference takes place, more results may be in and these may be included in the verbal presentation. On the other hand, if the proceedings are published after the conference, they may contain more results than were presented at the conference.

Because of the long lead times on journal publication (up to two years), it is even possible that results which appear in a 1984 journal article may predate the results which appear in a 1983 conference proceedings published in 1983. As noted earlier, time lag between the conference

and the appearance of the proceedings may be long or short. Similarly, depending on the time of publication of the proceedings, technical reports may appear before or after the proceedings.

Presentation at conferences is a flexible way for scientists to disseminate results to their colleagues. The work does not have to be in polished form, and it may be presented in more or less formal environments at the conference. Note that not all conference presentations are of preliminary results; a researcher may also summarize several years' work, parts of which have already been published as journal articles.

This flexibility in conference presentations produces the variability in the published proceedings. But once one understands these vagaries, it is possible to use proceedings effectively as a parallel or alternate way to find the desired information if a journal article on the research is unavailable.

Major sources that provide access to meetings and their proceedings are listed in Figure 1. The *Index to Scientific and Technical Proceedings*, the *Index to Social Sciences and Humanities Proceedings*, and *Conference Papers Index* index individual articles in each proceedings volume; the other sources index only whole conference volumes.

Be prepared to look for proceedings under various entry terms. The same proceedings may be referred to by a variety of names, e.g., the name of the individual conference, the conference year in the series, and so on. Some of the proceedings index by all the significant words in the proceedings titles and/or sponsoring society names. Note also the indexes to meetings and conferences, which may help to pinpoint when and where a conference was scheduled to take place.

Technical Report Literature

A legal requirement associated with U.S. federal research grants is that a report of the research be submitted to the granting agency at the end of the period of the grant. These technical reports are generally thorough and detailed descriptions of the research conducted and its results. Once submitted, the reports, if unclassified, are made publicly available for purchase in hard copy and microfiche. Report citations and abstracts appear in the Indexes to Government Reports listed in Figure 1.

Frequently, the scientist does not have time to convert the report into a (usually briefer) journal article before the end of the project. The information contained in the original report is generally more detailed and appears in the literature earlier than the same information condensed into a journal article.

Since most scientific research, especially in the physical and biological sciences, is done with federal support, one can reliably expect to find a federal technical report on it somewhere. Thus, in addition to published proceedings, technical reports are an important source for information that may otherwise only be known to exist in an unavailable journal article. Because of the thoroughness in reporting required by the federal government and, by contrast, the characteristic brevity of articles published in proceedings, one might do well to search for a technical report of a project first before going to the proceedings literature.

The best news of all is that many university and research libraries buy a large percentage of the microfiche versions of these reports. The low cost of fiche makes blanket ordering within certain subject fields economically feasible. Since fiche is generally non-circulating, technical reports are more certain to be immediately available than other sources. Additionally, copies of these reports can be ordered quickly from the National Technical Information Service. (See the sources listed in Figure 1 for ordering information.)

Journal Articles

The scientific journal article is the principal and best-known form of scientific publishing. Technical reports and proceedings volumes occupy a gray area in scientific publishing; appearance in

these sources helps to lay claim to research results and to discourage competitors, but a researcher does not have an indisputable claim on a given body of results until that work appears in a refereed journal.

To guard against false claims by overeager researchers and to insure the quality of work reported, editors of scientific journals use a system of referees wherein two or more experts in the same subspecialty as the author anonymously review the paper and determine whether it is good enough to publish. If the referees disagree, an additional referee may be brought in. Since this process may take many months, some scientific journals employ a two-tiered system of publishing. Brief reports may be published quickly on only the editor's say-so, or perhaps one reviewer's, while fuller final articles go through the full refereeing process.

Keep this in mind when trying to find a given, urgently needed journal article. If the article was published in a journal to which the library does not subscribe, it may have appeared in the "Brief Reports" section of the journal, while the full refereed study results may have appeared later in another journal—one, perhaps, that is owned by the library. Check abstracting and indexing services in the field for other articles by the same author; one of these articles may report the same results as those in the desired article. An article with a related title may, in fact, be the same study described in greater or less detail. It pays to know the editorial policy of journals in the field; knowing the kinds of articles various journals publish makes it easier to spot suitable articles in the abstracting and indexing services.

The need to publish to get professional credit often induces scientists to publish their work on a particular research project in piecemeal fashion, producing several or even dozens of articles out of one project. Frequently, in order to give everyone credit, authorship is assigned almost arbitrarily to the various project team members. For example, all five project team members may appear as authors on every published item, with the authors' names rotated into the initial authorship position. Succeeding articles may refer to and summarize the results of earlier articles. Therefore, if the library does not have the one article needed, try to find other articles, especially later ones, coming out of the same project. If the desired article is at least two or three years old, the *Science Citation Index* or the *Social Sciences Citation Index* are good places to search for succeeding articles—especially since the authorship may change.

One final point about journal publication. Research work may be described in popularized form at the same time or a short time after the publication of the original, highly abstruse scientific article. Though one's first response might be to think that a technical user would not want the simplified form of the material that would appear in a popular article, it should be kept in mind that popularizations exist as many levels of sophistication. Some articles are written for the practitioner who is not interested in all the details but who still can understand the work at a very sophisticated level. Other articles are written for the sophisticated reader outside the field.

A few years ago the French mathematician René Thom developed something called "Catastrophe Theory," which generated a great deal of interest in several fields, not just in mathematics. Relevant material quickly appeared in a range of journals, some obscure; the articles were written from a variety of perspectives and required a wide range of background knowledge. Locating these materials and digesting their content would be difficult for someone outside the field of mathematics who wanted to understand the theory. Because of the strong interest in the theory, *Scientific American* quickly published a survey article on the topic, giving a basic but sophisticated explanation of the theory and reviewing the work done in the various fields (*8*).

Abstracts

After reports and articles are published, abstracts of them appear in abstracting services. Under certain circumstances these abstracts can function as another source for the desired information. If the full article or report is unavailable, the requester may be able to decide whether it is really needed by reading the abstract. Frequently, the reference with a tempting title turns out to be irrelevant or redundant, and one can drop pursuit of it. Thus, the information need is, in effect, satisfied without having to see the item that was originally sought.

Scientific Reviews, Treatises, Textbooks

There exist other sources besides abstracts where at least some brief mention of the results of a project may be found. If a journal article is at least one year old, the information it contains may also be found in sources that appear later in the publication cycle.

The first place the material is likely to appear is in a scientific review or state-of-the-art paper. The scientific "review" is not identical to the kind of discussion and evaluation of a single item, usually a book, commonly associated with the term. Instead, the purpose of a scientific review (often used synonymously with "state-of-the-art") is to survey a segment or subspecialty of a field and to identify, evaluate, and synthesize the principal recent research results from many published sources in that subfield. Reviews are generally written by recognized experts in the given subfield.

Scientific reviews appear in series entitled "Annual Review of . . .," "Advances in . . .," and the like, as well as in some journals, particularly in those which have "reviews" as part of the title. Reviews may also appear in federal technical reports (sometimes the entire purpose of a grant is to produce a state-of-the-art report on some topic) and in festschriften, which are volumes containing articles written in honor of a famous person in a field. The *Index to Scientific Reviews*, listed in Figure 1, provides access to reviews throughout science. Reviews are indexed in most other abstracting and indexing services as well, but they are intermingled with articles and reports which are not reviews.

As still more time passes, the research may be written up in a comprehensive monograph known as a "treatise" and, ultimately, in textbooks. Scientific abstracting and indexing services vary in their coverage of books but many do index them.

Summary and Search Strategy Recommendations

The results from a research project may appear in many different forms: proceedings, technical reports, variant forms of journal articles, scientific reviews, treatises and textbooks. Each of these forms is under good bibliographic control and available through abstracting and indexing services. A search strategy for locating a needed reference in a library is as follows:

1. First, look for the item as originally requested.
2. If that item is not available, look for an abstract of it in an abstracting and indexing service. Examine the abstract (or show it to the requester) to see if the item is still wanted.
3. If the item is still wanted, or if you cannot find an abstract, look for the same material as presented in another form at another stage of the publication cycle. The fullest forms are going to be found in: a) a federal technical report; b) a proceedings article; c) a journal article, or variant journal articles on the same or related work.
4. Look for other brief mentions of the work at later stages of the publication cycle, especially in: a) scientific reviews and state-of-the-art reports; b) monographs, treatises and textbooks.

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Political Policy and Publishing in Washington

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DEAN Hayes has presented a careful analysis of the restrictive policies of the present Administration concerning the publishing of information, the distribution of that information on a cost-recovery basis either through the federal government or commercial channels, and, finally, the Administration's move to lower the standards for librarian and information specialist positions. Aspects of these problems daily confront documents librarians who serve a varied clientele in public, academic and special libraries. The first problem includes delay in publication, radically diminished content when a current title is compared to an earlier edition, and, in some instances, actual cancellation of long standing titles—particularly in the statistical area. The second problem is increased use of information exclusively in machine-readable data files which, when made publicly available, is done on a cost-recovery basis.

The first problem, failure to publish in a timely and coherent way and cancellation of primary titles, is exemplified by the publishing practices of the Census Bureau and the Labor Statistics Bureau. No example is better known than the tortuous path the data from the 1980 census of population is following as it makes its way into the public domain. Cumulated, comprehensive volumes of corrected statistics for the four main chapters which comprise the *Characteristics of the Population*, distributed as bound volumes since the beginnings of the constitutionally mandated census, evidently, are not to be issued in that form. The final material will be the separate paperbound chapters which, for earlier censuses, were only a preliminary publication of statistics requiring further correction. In many libraries the paperback chapters will not be bound because funds are not available in library budgets.

Compared to publication schedules for previous censuses, the main chapters, the subject reports, as well as the tract and block data are all seriously delayed. The

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Richard Leacy delivered this address during a panel presentation sponsored by the Business and Finance Division of the Advertising and Marketing Division at the SLA Annual Conference in 1983. Dean Hayes' presentation as Keynote speaker of the panel appeared in the October 1983 issue of *SL*; remarks by two other panelists, Melvin S. Day and Thomas Kleis, appeared in the January 1984 issue.

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Characteristics of the Population for the 1970 census was distributed in 1972 in final bound and corrected form. By mid-1983, only Chapter A, "Number of Inhabitants," and most of Chapter B, "*General Population Characteristics*," have been distributed for the 1980 census. The subject reports for the 1970 census were completely distributed by 1973. The subject reports for the 1980 census are tentatively scheduled for publication at the earliest in late 1983 and probably will not start appearing until 1984.

The tract reports for the 1970 census had been distributed by mid-1972. The corresponding material for the 1980 census, as of this writing, is in the process of being printed in paper copy although the material has not arrived in many libraries. Block data and maps for the 1970 census were issued in 1971 in papercopy. Block data and maps for the 1980 census are only now being issued. Both are available on microfiche only, which for maps is the least usable form. It will be almost time to take the 1990 census before all the material intended for print from the 1980 census is finally distributed.

There is another aspect to the public distribution of the 1980 census—the format of the information. Much of the census exists only in machine-readable data files. The Summary Tape Files, covering more than 50% of the released population and housing data, are the prime example. As a result of the 1970 census, it was evident to the Census Bureau that the amount of data exclusively in computerized files required a different national distribution system to make the material publicly available other than through the Depository Library Program administered by the U.S. Government Printing Office.

In the mid-1970s, the Bureau began the State Data Center Program through which Summary Tape Files for the specific state and other census products are offered to each of the states on a cooperative basis. Participation in the program is optional. Each governor may designate an agency of state government to be responsible for receiving and distributing materials. The state in turn is allowed to designate several libraries as affiliates in the program to receive, or have access to, Summary Tape File data, as well as certain publications such as the *Statistical Abstract of the United States.* Those libraries selected usually are members of the Depository Library System. Other affiliates may be designated such as regional or local planning agencies. There are no requirements from the Census Bureau as to how a state is to make the information available, and there is no financial support either to the state or the affiliate libraries from the federal government.

Georgia is putting its tape files online to allow the affiliate libraries access via local terminals with paper copy printout produced from the state computer. Some paper products from the Georgia Summary Tape File have been produced by the state and distributed to the affiliate libraries. Mississippi has produced microfiche containing the state's statistics and made distribution in that format. Some states have done nothing. Requests for out-of-state Summary Tape File statistics require going to a Data Center affiliate in that state. There is one alternative. One may send a blank tape to the Inter-University Consortium for Political and Social Research at Ann Arbor, Michigan, and obtain data on a cost-recovery basis.

Thus we have the 1980 decennial census of population—a severely flawed and uneven distribution system, the material itself often in the least usable format of the primary statistical measurement of the economic, social, and cultural characteristics of the population and its housing. Because of its electronic format, the majority of the information is distributed to few libraries in each state; out-of-state data are virtually unobtainable by the general public because of the complicated mechanics of its acquisition.

The reason for these difficulties is not poor work by the Census Bureau employees, who are in reality dedicated and skilled at their tasks, nor is it a lack of creativeness on their part in designing new and needed distribution systems.

The reason is a willful failure by the Administration to fund efficient and timely information distribution in all the formats in which the data are held. Other government agencies also provide statistics and related information considered to be the primary sources in their areas of responsibility, such as the Labor Statistics Bureau.

The Labor Statistics Bureau has had its statistical gathering functions and related publications programs radically reduced by this Administration. The *Handbook of Labor Statistics*, an annual title and a primary source in its area, has not been issued since the 1979 edition was distributed in 1980. The *Directory of National Unions and Employee Associations*, a biennial, has not been issued since the 1979 edition was distributed in 1980. The 1981 directory was ready to go to press when the copy was recalled and given to the Bureau of National Affairs which is marketing the material commercially.

BLS has cancelled five statistical series which, traditionally, have been primary sources of economic and labor force information. The labor turnover series was cancelled in 1981. This particular series was a cooperative effort between the Bureau and the various state departments of labor. As a result of the federal action, the states stopped gathering and printing their subseries of individual state and local area data.

The family budgets and retired couples budgets also have been cancelled. This series produced among other titles *A Guide to Living Costs*, issued in the autumn of each year, providing a detailed breakdown of gross budget, total consumption, expenditures for food, housing, home furnishings, clothing, personal care and medical costs. The figures were organized for lower, middle and upper income budgets for specific standard metropolitan statistical areas in all regions of the United States.

The wages and industrial relations program data, including all municipal government wage surveys, have been cancelled. The union wage scale studies for the building trades, grocery stores, printing trades, and local trucking have been cancelled. Finally, the data collection on work stoppages has been restricted to only those strikes involving 10,000 or more workers. Although such major national strikes are certainly of great importance, reliable statistics are also needed on strikes that affect a single region, state or city.

The Census Bureau and the Labor Statistics Bureau materials are two documented examples of primary information resources, used by business and industry and in classroom instruction, which are being erratically produced at best and terminated at worst because of information policy decisions of the present Administration.

With this evidence of publishing cutbacks in both the Census Bureau and the Labor Statistics Bureau, it is only reasonable to assume that identical policies are being pursued in every department and agency of the federal government, both in Washington and in government field offices throughout the country. Traditionally, one of the essential functions of government has been the gathering and publishing of information, particularly statistical information. The government is the only organization which has the physical capability to collect information nationwide, for major urban areas and isolated rural communities alike, and to compile that information into national aggregates or reporting it for small geographic areas, and, finally, making general distribution of the publication containing the figures. The libary community needs to begin the petition to the Congress and to the Administration to reverse the current policy on the printing and distribution of needed information.

The second problem, indicated at the start of this paper, is the increased use of information available exclusively in machine-readable data files. Paper copy and microfiche are included in the Depository Library Program; machine-readable data files are not. When Title 44 was last revised in 1962, few were aware of the technology of electronic information transfer that would so change society in

twenty years. From computer-aided design and computer-aided manufacturing for the production of goods, to interactive video instruction and remote information dissemination systems that will distribute electronically the resources of the classroom and the library to the home or the workplace, we suddenly are well-advanced into the establishment of an electronic society.

Agencies of the federal government in their own information dissemination programs have begun use of the new technology without benefit of an established national information policy. The National Technical Information Service markets machine-readable data files on a full-cost recovery basis covering virtually all subject areas.

Economics is divided into 7 groups:

1. Agricultural economics
2. Commerce—United States and foreign
3. Commercial finance and investments
4. Employment and wages
5. Finances—federal, state and local government
6. Housing and construction
7. Personal and business income, expenditures and wealth

Social Sciences are divided into 9 groups:

1. Demography and population
2. Education
3. Government administration—federal, state and local
4. Health Care
5. Health statistics
6. Law enforcement and criminal justice
7. Social Services
8. Transportation—air and surface
9. Vital statistics

Science and technology are divided into 11 groups:

1. Agriculture and food
2. Biological sciences
3. Chemistry
4. Communications
5. Computer, library and information sciences
6. Energy sources, generation and transmission
7. Environmental pollution and control
8. Natural resources, geology and hydrology
9. Medical sciences
10. Cartography
11. Transportation technology

The Library of Congress has awarded a contract to Integrated Controls, Inc., of Berkeley, California, to develop an optical/video disc storage system with soft display and on-demand print capability at remote locations. How the Congress, the primary constituent of LC, decides to employ that technology can have a significant impact on the way information is acquired by all segments of society.

The Bureau of the Census through the State Data Center Program with its affiliated libraries, the Labor Statistics Bureau through its commercially marketed computerized files of employment, earnings, and price statistics, and the Patent and Trademark Office through its Classification and Search Support Information System all have developed their own highly effective dissemination systems focused on unique constituencies, independent of the provisions of Title 44 of the United States Code establishing a depository library system for the purpose of making available to the American people the publications of their government without the barrier of cost.

All machine-readable data files, by nature of their format, are excluded from the U.S. Government Printing Office's distribution programs. As information technology develops, a proliferation of dissemination systems has begun for sales as well as for providing information to the particular constituencies of individual bureaus of government.

Each year the American taxpayer spends billions of dollars for research and development in applied science and technology. Publishing the results of that research is only a small fraction of the cost of the basic work. Unless that information is published and serves as a catalyst for further technological advance, the ex-

penditure on R&D work is nothing more than a full employment program for engineers, paid for by the American people without further benefit to the society.* It is of doubtful interest to the economic, scientific and cultural life of this nation to make available only that information which industry can sell at a profit, or to disseminate that information only to those able to meet its costs.

It may be an appropriate time now to commence the dialog concerning a national information policy, regardless of the format of the information, providing for free distribution and sales, administered by a single organization of government removed from the vagaries of party politics or the patronage demands of an incumbent administration. It is essential that this dialog, and the policy recommendations which come from it, begin with the people in their professional associations, in concerned businesses and industries, and among individual citizens who use the information produced by their government.

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Management in Special Libraries

A Case Study Approach

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■ **These two case studies are presented to demonstrate the use of case study techniques to investigate the theories and principles of special library management. The cases are based on real-life situations and the problems they describe are common to many special library environments.**

THE FOLLOWING case studies were developed to encourage the use of the case study method in solving special library management problems. The cases discussed are real-life situations for which there are no obvious right or wrong answers. It is hoped that they will serve as springboards to thought and discussion with colleagues about the issues, values, points of view and philosophy of special librarianship.

The questions which follow each study are offered as guides to thought and inquiry. Readers are encouraged to consider what additional information might be needed and what course of action they would take to resolve these problems.

Readers unfamiliar with the case study method are referred to *The Case Method in Library Education and In-Service Training* by Thomas Galvin (Scarecrow Press, 1973) and "The Use of Cases for Research," in *The Case Method at the Harvard Business School,* edited by Malcolm P. McNair (McGraw Hill, 1954).

These case studies are from a work-in-progress by the authors. Any correspondence concerning the case studies from librarians, library educators or students should be addressed to co-author Muriel Regan, Gossage Regan Associates, 15 W. 44th St., New York, NY 10036.

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Case Study I: Planning

The Calten Corporation

Calten Corporation is a Fortune 500 company which specializes in designing cargo aircraft. Located in Southern California, it employs over 1,000 persons. Calten has three separate library operations: a corporate library, a research and development library and a legal library. All three are under the supervision of the Vice President of Administrative Services.

Each library serves a special function and clientele within the company. Although there had been talk of naming a library director to head all three libraries in order to coordinate services, purchases, and so on, this proposal did not receive much endorsement, especially from the three head librarians. They seemed comfortable reporting to the Vice President and had no problems with this arrangement. Since all three libraries are located within Calten's one main building and the cooperation among them is congenial, there is no apparent rush to change this arrangement.

The R&D library provides several services for the corporation. It purchases all books needed by the R&D staff and by the library, it subscribes, routes and stores all periodicals used for R&D, and it provides current awareness services, and searching online. The research library is used by a variety of personnel within the corporation—ranging from engineers, mechanics, advertising and sales staff to computer experts in the fields of aerodynamics and aeronautics—with a hard core of approximately 100 users. The responsibilities of the library are to "assist all staff with any form of research in the field of aerospace, whether it be in the technical development of the product, the analysis of the marketability of the product, the selling or advertising of the product."

The director of the R&D Library, Barbara Barten, oversees a staff of 9 (see Chart A) and is responsible for all phases of the operation of the R&D Library. Barbara Barten was made director of the R&D Library five years ago, having been hired from the outside over persons already on staff. During these years, she has been successful in increasing the space, the collection and the staff. She has expanded the original staff of one professional and four clerical workers to four professionals and six clericals, and she has increased the collection from 30,000 books and 300 periodical titles to 40,000 titles and over 500 periodical titles. The budget has increased from $113,000 to $361,000 (see Chart B). Her staff includes:

Jessica Franks, Assistant Librarian, heads the technical service functions. She has been with Calten for over five years, starting as a clerk in the billing department. She was transferred to the library as a clerk and became interested in the library and its functions. Jessica eventually went to library school, earned her MLS and became Assistant Librarian/ Head of Technical Services. Her functions include the supervision of book and periodical acquisitions, processing and cataloging. She has three clerical assistants to help with these functions.

Chart A

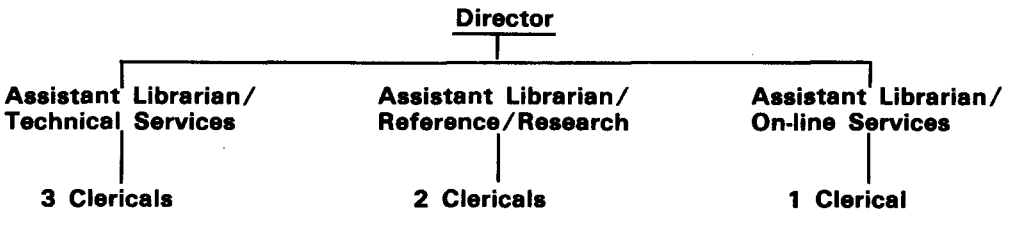

Chart B

Year 1			Year 5		
1 Professional	$25,000		1 Head librarian	$35,000	
4 Clerical at 12M	48,000		1 Professional	28,000	
			1 Professional	25,000	
			1 Professional	22,000	
			6 Clericals at 15M	90,000	
SALARIES:		73,000	SALARIES:		200,000
2,000 books at $15.00		30,000	2,000 books at 20.00		40,000
300 subscriptions at 18.00		5,400	500 subscriptions at 22.00		11,000
Misc/Disc Fund		5,000	Misc/disc fund		10,000
			Computer equipment & services		100,000
TOTAL:		$113,400	TOTAL:		$361,000

Margaret Sims, Assistant Librarian/Head of Reference and Research, has been with the library since its inception over 20 years ago. She is very "book-oriented" and believes that there is no question that cannot be answered by using the books in "her" collection. Rarely, she might consider using another library, but only rarely. She is strictly old-school and somewhat anti-machine. She concedes that some computer searches have been more productive than the index search but insists that these are exceptions and do not compensate for the difference in cost between the two services. She supervises two clerical assistants (both library school students) who help with literature searches, reference questions, compiling bibliographies and other professional tasks. She also supervises the shelving of books, filing of cards, and related clerical functions.

Robb Mann, Assistant Librarian/Online Services, is the most recent addition to the staff. When Calten Corporation gave the go-ahead to install online searching and related services two years ago, Robb was newly graduated from the nearby library school. Since his expertise was in the computer field, Robb came highly recommended for this position. He has one clerical assistant.

The aerospace industry has been affected seriously by the economic recession. The extent of the problem was revealed at a meeting of department heads from all units of Calten Corp. The company's chief executive officer announced that he has been instructed by the Board of Directors to mandate an immediate cut in expenditures, and the following guidelines are to be put into effect:

- All service areas (non-revenue producing) will be asked to cut their expenditure by one-third, effective immediately.
- Persons terminated because of less seniority will be compensated according to company policy and supervisory discretion.
- All budgets previously approved are no longer in effect and must be resubmitted within two weeks with the necessary one-third cuts made at the discretion of the department head.

As a departmental head Barbara Barten must now find a way to cut the staff budget by one-third and yet maintain an adequate level of services to the library's many users.

Questions to Consider

1) What are the options which Barbara Barten might consider for these cuts?
2) If she considers only staff reduction as an option, what are the possible alternatives, considerations, and ramifications of these staff cuts?
3) If she considers service cuts, which might be considered and still allow for maximum service?

4) If she only considers the purchase of books/periodicals as the place where the cuts should be made, what could be the consequences?
5) If she considers any combination of the above, what might the possibilities be, and what might be their consequences?
6) How would any of these reductions (in staff, services or purchases) affect the continued administration of the library in an effective manner?

Case Study II: Reporting

Giving Credit Where Credit Is Due

It was a few minutes after 5:00 p.m., and Mary Ryan, the librarian at the American Society for the Advancement of Women in Nontraditional Careers, sat back in her chair and breathed a sigh of relief. It had been another hectic day. The library was open to the general public and its subject specialty was much in demand. There was a constant crowd of users, chiefly women seeking information on nontraditional careers, advice on résumé writing and interviewing, or how to switch careers or return to work after years of being a housewife and mother.

Mary and her two nonprofessional library assistants fielded a steady stream of in-person, written and telephone inquiries from individuals, organizations, businesses and the media. In addition, they kept the library well-stocked with pertinent materials and created an organized and welcome atmosphere. Sometimes Mary felt it was too much for one librarian and two assistants to handle, but all three were dedicated to the work of the Society and cared greatly about the services they provided.

As she turned over the leaf of her desk calendar, Mary realized it was the middle of March, more than a month since her library's annual report had been due. She had compiled statistics on the number and types of users, questions answered and bibliographies supplied; she provided some interesting examples of the use of the library's resources, quoted from letters clients had written thanking the staff for its assistance, and included details of her various professional involvements such as speeches, participation in panel discussions, publications, conferences attended and those at which she had organized an exhibit of the Society's activities and publications, as well as the library association committees she had served on in the past year.

Both library assistants had been active in an educational film association during the past year. They had participated in the annual conference and had also served on a selection committee. These activities were included in the report, as was the library's success at securing grant funds to expand the audiovisual collection. All these facts and statistics were presented in what Mary thought was an attractive and interesting way, and she had been pleased with the results.

The Society's library was not an independent department but was combined with publications, research, public relations, files and archives into a department called Information Services. In past years, the Director of Information Services had asked the administrator of each unit of the department to prepare an annual report. An introduction and some other details concerning the department as a whole were written by the director. During the five years Mary had been with the Society, this had been the pattern. Each year Mary's input had been included with virtually no changes made to her report. Usually, the Director gave her a draft of the departmental annual report to look over, followed by a copy of the final report as submitted to the Vice President for Administration.

Mary now recalled that she had seen neither a draft nor the final version of this year's annual report. The Director of Information Services, with whom Mary had always had good though not particularly close relations, had apparently prepared the department's report without any further recourse to Mary. This puzzled her. She respected her department head, although she felt the Director was not as knowledgeable about the library's

activities or as interested in them as she might be.

It occurred to Mary that the files on the Information Services Department might include copies of annual reports. She leafed through the folder for the current year until she uncovered the document she was seeking. On the last page of the report she found the section headed "Library."

The statistical and narrative report of the library's activities for the past year, a ten-page summary as she remembered it, had been reduced to three paragraphs on one page. The number of visitors to the library was given, as was the number of reference questions answered and the number of books, periodicals, films and pamphlet drawers. That the library had had no staff changes during the year was mentioned, together with a bland statement that the library continued to function smoothly, as in the past. All mention of professional activities was summarized by the sentence, "staff continued to participate in various library and educational film association activities." Most discouraging of all, the library's role in obtaining the foundation grant was omitted from this section of the report.

Disbelieving her eyes, Mary quickly scanned the director's introduction at the beginning of the report. An account of the foundation grant appeared but it gave no credit to the library. Mary also discovered that the other units of the department had been accorded between two and four pages to account for their activities, whereas the library had received less than a page. Mary pushed the folder back into the file, angry at the unjustness of the report. She now realized why she had not been given a draft or a final copy.

1) To whom should Mary Ryan take the problem?
2) How can Mary Ryan explain her knowledge of what has happened?
3) What are the possible courses of action?
4) How does this particular problem relate to the library's broader problem of communication and public relations?
5) What other communication and public relations tools besides the departmental annual report could Mary Ryan be using?

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Union Listing Via OCLC's Serials Control Subsystem

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■ **By means of the Serials Control Subsystem available through OCLC, libraries can create online union lists of serials by attaching their own local data records to bibliographic records. A beneficial tool for this purpose is the CONSER project's ongoing national machine-readable database for serials. Problems in the selection of appropriate, accurate and authenticated records are discussed, with examples. Some prospects for the future are presented.**

RAPID STRIDES have been made in the automation of union listing of serials. It seems likely that online union lists and their off-line products may eventually replace the *Union List of Serials* and *New Serials Titles*. The major support for this development has been OCLC, in cooperation with the CONSER project, which has been called a de facto national serials database. At least one vendor, Faxon, also offers union listing of serials as an option to its customers (*1*).

The purpose of this paper is to describe the union listing capability of OCLC's Serials Control Subsystem and its relationship to CONSER, and to examine some of the advantages and shortcomings of this subsystem. In addition to using published sources, the author has drawn on his recent direct experience while working on Cleveland State University's contributions to the NEOMAL* union list.

CONSER Project

Although OCLC's online catalog and shared cataloging system began in 1971, member libraries were not allowed to enter serials records until 1974. Work on a serials check-in system was just beginning (*2*). Some libraries did, however, enter serials in the guise of monographic

* Northeast Ohio Major Academic Libraries: University of Akron, Case Western Reserve University, Cleveland State University, Kent State University, Northeastern Ohio Universities College of Medicine, Oberlin College, College of Wooster, Youngstown State University.

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cataloging in order to obtain printed catalog cards (*3*). The development of serials cataloging was advanced considerably in late 1974 when the Council on Library Resources selected OCLC as the facility for its CONSER (Conversion of Serials) project, a multi-library cooperative attempt to build a single, national machine-readable serials database. OCLC was chosen because it was, at that time, "the single computer facility that was capable of doing the work that could make itself available for the project. The fact that some original CONSER participants used the cooperative cataloging facility of OCLC was an incidental benefit to all parties" (*4*).

The Minnesota Union List of Serials (MULS) was chosen as the initial database because it was a large file of over 75,000 titles which had been entered in a MARC-like format. OCLC began to add these records to its database in July 1975 and, before the end of the year, had more than 73,000 MULS records and more than 18,000 MARC-S records (*4, p. 100*). By the middle of 1977, "about 206,000 serials records" had been entered (*5*). As of April 26, 1982, there were 520,470 serials records online (*6*).

Since one of the primary goals of the CONSER participants was to create the file as quickly as possible, they accepted available cataloging, even if it did not conform to AACR standards. This desire also led OCLC to add the bibliographically inadequate Pittsburgh Regional Library Consortium (PRLC) union list to its database—an action that has been widely criticized, especially in light of the lofty goals that the project has set for itself.

The CONSER project has defined its purpose as follows: "to enlarge and improve a core database of bibliographic information on serial titles available for use on the international, national, regional, and local level." Its objectives are:

1) To provide a reliable and authoritative serials database to meet the needs of library patrons . . . and the developing national and international bibliographic networks.

2) To assist the national libraries of both Canada and the United States in the establishment and maintenance of a machine-readable serials database.

3) To support local, regional, and union list serial activities.

4) To ensure the use of nationally and internationally accepted standards.

5) To identify deficiencies in the database such as subject, language, and retrospective coverage and to implement appropriate remedies (*7*).

Certain specific activities of the CONSER project will be discussed later in this paper in conjunction with union list formation.

Serials Control Subsystem

Around the same time that the serials records were being added, OCLC began experimenting with a Serials Control Subsystem which was tested by several libraries (*8*). Among the early participants were the libraries of Case Western Reserve, Cleveland State, Kent State, Ohio University, and the University of Akron. (*9*). This subsystem included a Local Data Record (LDR) and Check-in Capability.

The LDRs have the same OCLC control number as the complete serial bibliographic record but contain an institution's local holdings for a title. When the operator has selected a bibliographic record, she or he creates an LDR by requesting a workform (wf) to appear on the screen. This workform, a skeleton of the Local Data Record, consists of some or all of the following fixed fields derived from the bibliographic record: title, OCLC control number, ISSN (when available), CODEN (when available), frequency, regularity, holding library's symbol, reproduction code—all system-supplied; copy number, subscription status, and loan policy—supplied by the operator.

The variable fields (besides the availability of union listing) consist of call number (CLNO), location (LOCN), fund (FUND), remarks (RMKS), definition of subdivisions (DEFN), next expected issue

for check-in capability (NEXT), current holdings (CRHD), retrospective holdings (RTHD), claiming specifications (CLMS), and binding control instruction (BNDG). The last two functions are still not available automatically, but may be filled in by the library for its own information.

Once an institution has entered its record in this format, it is the LDR rather than the bibliographic record that will appear on the screen whenever an operator keys in the OCLC control number. However, the complete bibliographic record may be viewed by entering "bib" followed by the "display" and "send" commands. The Local Data Record may be returned to the screen by entering "ldr" followed by the same two commands.

In the fall of 1980, OCLC made available to its members a new feature of its serials control subsystem: online union listing capability. This feature was added in order to support the efforts of library groups involved in the creation of national, regional, and local serials union lists. As of February 1983, there were 34 serials Union List Groups in operation, representing about 1,600 individual libraries (*10*). OCLC claims the following advantages attained by libraries which use this capability:

1) a direct link to OCLC's bibliographic serials records, including CONSER records and nationally authenticated records of serials, is established;

2) resource sharing at the local, regional, state, and national levels can be improved;

3) holdings are (or should be) displayed uniformly according to the American National Standard Institute's (ANSI) national serial summary holding standard Z39.42–1980;

4) serials holdings can be easily maintained;

5) libraries may participate in as many union list groups as they desire. Data entry is required only once, yet the information will appear in the displays of all the union list groups to which an institution might belong. "An institution does not necessarily have to join a group with a subject orientation, e.g., a group of medical libraries or libraries with strong music collections" (*11*).

6) OCLC is in the process of developing off-line products for serials control such as union listings to be available on fiche, paper or magnetic tape (*12*).

Additional benefits which have been observed and reported by users questioned by OCLC include: immediate online access to records; the ease with which union list data may be updated and kept current; the fact that individual libraries (or their agents) are responsible for updating of their own records online; and the usefulness of these records for interlibrary loan (*13*).

Furthermore, anyone using the Serials Control Subsystem can have access to the summary holdings for a particular item reported by any of the union list groups. One does this by calling up a record, then entering the letters "ul" followed by a four-letter code for a union list group and the commands "display" and "send." (Illustrations of this format appear in the Appendix.)

Two new variable fields were added to the Local Data Records in order to provide for union listing: summary copy holdings (SCHD) containing summary holdings information for a single copy, and summary institution holdings (SIHD), showing summary holdings information for all copies of a serial at an entire institution (*3, p. 1*).

These fields are intended to present holdings on a summary (i.e., least specific) level of detail according to standards developed by the American National Standards Institute (ANSI Z39.42–1980). Briefly, the codes for SCHD and SIHD are as follows, preceded by their delimiters (for examples of Local Data Records, see Appendix 1):

‡a Three-character OCLC symbol for institution (SIHD only—system supplied)

‡d Date (system supplied in yymm format, where yy = last two digits of year, mm = digits of current month)

‡g Completeness code
- 0 information not supplied; or data element not applicable
- 1 complete holdings (95%–100%)
- 2 incomplete holdings (50%–94%)
- 3 sparse holdings (less than 50%)

‡e Acquisitions status code
- 0 information not supplied; or data element not applicable
- 4 currently received
- 5 not currently received

‡f Nonretention code
- ∅ permanently retained
- 0 information not supplied; or data element not applicable
- 6 retained for limited time; or only a few issues retained
- 7 received but not retained

‡n Local notes

‡v Enumeration, e.g., volumes

‡y Chronology, e.g., years (*3, p. 42*).

Only the information contained in SIHD appears in the summary holdings on the union list display. According to Robert Wittorf of OCLC, "institutions may record only institution-specific statements (composite statements) [i.e., SIHD], or institutions may enter both institution-specific and copy-specific statements," (*11, p. 91*). This may be a little misleading. When a Local Data Record already exists, the creation of an SCHD field will not add holdings to the union list display. However, when a new Local Data Record is made, the entering of an SCHD field will automatically create an SIHD field with the same information. The procedure was clarified at the OCLC Serials Control Advisory Committee meeting held in November 1982.*

* This information is based on the report of the meeting supplied by OHIONET's representative, George Lupone, Head of Serials at Cleveland State University Libraries.

Selection of Records for Union Listing

Preparation of a union list requires much background work before records can be entered online. There must be cooperation among the institutions involved to assure that uniform standards are maintained. Each individual library should also verify the accuracy of its own records, which is a time-consuming, manual process but one which is necessary before the benefits of automation can be enjoyed.

One of the most important tasks facing an institution is deciding to which bibliographic record it will attach its symbol. There are numerous instances of multiple records for a single title in the OCLC database, partly as a result of the decision to add the PRLC union list and the Florida Union List of Serials to the MULS and MARC-S records referred to earlier. Some 35,000 serials records were gained but at a cost of "corrupt[ing] the validity of OCLC's database, since, as a result, many cases occur in which there is more than a single record for the same bibliographic entity. Frequently there may be an MULS, a PRLC, an NLC and an LC record" (*9, p. 99*). OCLC suggests the following criteria for selecting records:

1) Only records entered in the serials format should be chosen.

2) Successive entry records should be chosen over latest entry. This conforms with AACR2 rule 21.2C: "If the title proper of a serial changes, make a separate main entry for each title." A successive entry record is signified by a "0" in the S/L ent section of the fixed fields, a latest entry by a "1." A successive entry record should have neither a former title statement (field 247) nor a former author in an issuing body's note (field 550), when the current issuing body is the main entry (field 1xx). For an example of a latest entry record, see Appendix 2. (All other examples used in this paper are successive entry.)

3) If, as is frequently the case, multiple successive entry records are found, one should be chosen according to the fol-

lowing order of preference:

(a) An authenticated record. (This will be discussed below.)

(b) The record that most closely adheres to AACR2 in choice and form of entry.

(c) The record with the most information (*3, p. 31*).

If in doubt, OCLC's advice is to "select the record with the greatest number of holding institutions. If two or more records have an equal number of holding institutions, choose the one with the lowest OCLC number" (*3, p. 32*).

The authentication of serials records may be defined as "certification that the data content and content designation of a record have been reviewed and that the record meets the standards and practices agreed upon by the CONSER participants" (*14*). Such records are indicated in the 042 field by the symbols for one or more of four institutions: the National Library of Canada (nlc) which is responsible for authenticating the bibliographic records of Canadian serials records; the Library of Congress (lc), which is responsible for all others; National Serials Data Program (nsdp) and International Serials Data System/Canada (isds/c), which are responsible for assigning key-titles (field 222) and ISSN (field 022).

Operating online in a special editing mode, CONSER participants are able to change bibliographic records already in the database, as well as to add new cataloging of their own. A surrogate copy of the title page is then sent to the Library of Congress or the National Library of Canada for authentication, which includes name, authority and subject work. Once this process is completed, a record is locked and cannot be changed or updated online by CONSER participants. Requests for changes must be sent to OCLC's Bibliographic Maintenance Section, which verifies and executes minor changes itself and forwards major change requests to either LC or NLC (*14, p. 109–111*). Since NSDP authenticates only the key-titles and ISSN, and not the bibliographic record, these are no longer locked and may be changed online by CONSER participants (*15*).

Although it can be a valuable service, the authentication program is not without serious problems. A study conducted in 1978 at the Iowa State University Library produced a report that was highly critical of both the quality of serials records in OCLC's database and the speed with which such essential information as title changes and cessations was reported (*16*). The author placed a good deal of the blame for the problems of accuracy and completeness on the policy of locking records, which he called "something of a contradiction. Since serials are characterized by their ongoing, changeable nature, 'locking' a record is a sure way to guarantee that before long it will be incorrect" (*16, p. 321*).

The database has improved over the last few years since this study was done, but even today it is fairly common to find authenticated records which contradict CONSER's stated goals of providing a reliable and authoritative serial database and of supporting local, regional and union list activities. As an example of a less than complete record, one may cite OCLC no. 1565841 for a well-known publication, the *Dalhousie Review* (see Appendix 3). Although authenticated, it lacks such information as citation notes (field 510), microform information (field 533) and even subject headings (field 650).

A change of title from *National Sculpture Review* (OCLC no. 1759504) to *Sculpture* (OCLC no. 6879531) illustrates another problem with authenticated records (see Appendix 4 a & b). The publication changed its title (unannounced, as is often the case) by adding the word "Sculpture" in large letters to the cover of the magazine, while still keeping the old title on the cover in smaller print. Thus, the change was either not noticed or not acknowledged by catalogers. The new record was not added until 1980, long after the change actually occurred. What is puzzling is that neither authenticated records reports the date and volume for this change in field 362. The change occurred with volume 22, number 1, in the spring of 1973, which seemed simple enough to spot; it is strange that

neither the CONSER participants nor the authenticating agencies were able to provide this information. This kind of occurrence has ramifications for union listing as well, since it does not provide a standard by which libraries can be sure which volumes go under which title.

A related problem may also be seen in the case of the *University of Denver Quarterly* (OCLC no. 1511133), which became the *Denver Quarterly* (OCLC no. 1566260). It is difficult to tell from these records (see Appendix 5 a & b) what the sequence of events was, but one may presume that three NEOMAL members, Akron, Case Western Reserve, and Kent (Appendix 5c) would not have entered their holdings as beginning with volume 1 in 1966 if they had known that the title of the entry was not used before volume 11, number 4, in 1977. Perhaps the records were changed after the holdings were entered, and either no notification was given of the change, or the notification was ignored.

OCLC recently instituted a mechanism for the online notification of changes in bibliographic serials records. By calling up OCLC no. 2500016, users can find the latest changes in various fields, and whether they have been verified by OCLC (*17*). An example of such a report is shown in Appendix 6. (The *National Sculpture Review / Sculpture* link was reported in this manner in November 1982.)

Besides the authentication of a preferred record, another method of dealing with duplicate records is through deletion of undesirable ones. CONSER participants notify OCLC, which then places a "DO NOT USE" note in field 043, along with a reference to a preferred OCLC number. Unfortunately, this appears on the bibliographic record only, not on the LDR, so that unless an institution frequently checks back on the bibliographic record, it may miss the note. OCLC eventually deletes the duplicate record from the database and creates a machine cross-reference to the preferred record, so that if the control number of the deleted record is entered, the retained record appears on the screen (*18*).

But OCLC does not always give such notification to member institutions. As a result, the library's records may be rendered inaccurate. An example of the consequences of such action can be seen in the case of the journal entitled *EDN* (OCLC no. 2623794, see Appendix 7), which in the past has also had the title *EDN/EEE* and *EDN with EEE,* having absorbed *EEE* (OCLC no. 2446587, not reproduced here) in 1971. There would be little question to anyone who examines the pieces themselves that *EDN/EEE* and *EDN with EEE* were the actual titles of this publication during the times specified in lines 15 and 16 of the EDN record (actually there should be a closing date in February 1974 for *EDN* with *EEE,* another deficiency with this record). Yet they are treated as mere "other title information" in the bibliographic record, which is a latest entry record in fact, if not in format. The problem for union listing is that a library that logically assumed a succession of title changes might list its holdings for *EDN* as beginning with volume 19 (1974), when its holdings may in fact include volumes 16–18 (1971–73) as well as the first parts of volume 19 under the title *EDN with EEE.*

OCLC no. 991542, *Earthquake Information Bulletin* (Appendix 8a) is an example of an inadequate record that has not been marked "DO NOT USE" even though an authenticated record (OCLC no. 2476881, see Appendix 8b) exists. As can be seen from the two union list displays (Appendix 8c), this, too, can create discrepancies unless proper communication is attained between the utility and its member institutions.*

Future Developments

The Serials Control Subsystem has still not reached its full potential, the considerable accomplishments achieved so far notwithstanding. Despite the drawbacks pointed out above, the union listing ca-

* The NEOMAL Serials Committee, for one, has complained to OCLC about this in a letter dated October 1982.

pability is a valuable, useful, and still improving feature, which will get better as the quality of the database improves. The Serials Advisory Committee has recommended a number of off-line products, including union lists in hard copy, microfiche and machine-readable tape on a semiannual basis. Other products under consideration include subject and ISSN indexes and statistical reports (*19*). These are not yet available, nor is the online Claiming Capability, which will also allow users to limit the Local Data Records retrieved to their own institution or to a specific union list group (*20*).

Another online possibility which would be of great value if implemented is a Master Serials Feature. This feature would give historical enumeration and chronology for publications that have undergone title changes. This could be achieved by making the linking fields (760-787) of the MARC record mandatory rather than optional (*19, p. 69*). Thus, one of the Chilton Company's typically confusing succession of title changes might be rendered clearer by the following type of display (hypothetically presented in Table 1, since not all the records have been authenticated):

Another possibility for the future is a link between the union list groups and the Interlibrary Loan Subsystem. Currently, only those institutions authorized for Serials Control may view detailed holdings. In the future, it may be possible for all ILL users to view local data records (*19, p. 69*).

Table 1. Sample Display with Linking Field

OCLC No.	Title	Volumes and Dates
5956455 (microfilm)	Team Owners Review	vol. 1–13 (1902–1914)
8123013	Transfer & Storage	vol. 14–18 (1915–1919)
8126964	Distribution & Warehousing	vol. 19–36, no. 7 (1920–July 1937)
8123052	D and W	vol. 36, no. 8–vol. 44, no. 7 (Aug. 1937–July 1945)
5400044	Distribution Age	vol. 44, no. 8–vol. 65, no. 11 (Aug. 1945–Nov. 1966)
5400054	Physical Distribution Manager	vol. 65, no. 12–vol. 66, no. 4 (Dec. 1966–Apr. 1967)
2116457	Distribution Manager	vol. 66, no. 5–vol. 68, no. 9 (May 1967–Aug. 1969)
4965211	Distribution Worldwide	vol. 68, no. 10–vol. 68, no. 12 (Sept.–Dec. 1969)
4930853	Chilton's Distribution Worldwide (1970)	vol. 69, no. 1–vol. 71, no. 9 (Jan. 1970–Sept. 1972)
4055767	Distribution Worldwide (1972)	vol. 71, no. 10–vol. 75, no. 12 (Oct. 1972–Dec. 1976)
3808350	Chilton's Distribution Worldwide (1977)	vol. 76–vol. 78, no. 9 (Jan. 1977–Sept. 1979)
5624510	Chilton's Distribution	vol. 78, no. 10–vol. 79, no. 8 (Oct. 1979–Aug. 1980)
6799181	Chilton's Distribution for Traffic and Transportation Decision Makers	vol. 79, no. 9 (Sept. 1980)

Conclusion

Since the beginning of OCLC's Serials Control Subsystem in 1974, rapid strides have been made. The ambitious goal of building a single machine-readable serials database with the cooperation of CONSER is now well on the way to implementation, with over a half-million records online as of April 1982.

While the considerable value to member libraries of having access to such extensive records is undisputed, the emphasis on speed in building the database has resulted in certain kinds of problems. One problem area is the appearance of multiple records for a single title (because of duplicate entries from various databases incorporated en masse into the Subsystem, and because of individual libraries' entries of duplicate records).

Another problem area is the incidence of errors in so-called authenticated records, which are difficult to correct once they are "locked." Other records which the author has personally examined are incomplete, or else contain misleading information about a given title due to title change (a recurring and vexing problem in the serials field). Furthermore, even where OCLC is informed of a title change or a duplicated record, communication of this information to member institutions may be lacking.

Nonetheless, the union listing via the Serials Control Subsystem is, overall, a remarkable bibliographic tool and record-keeping matrix, introducing sophisticated automation into a library's serials records. The principal problems in the system have been noted by users, so that one may hope that in time these will be resolved, or at least minimized.

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Appendix 1

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EDN.
ISSN: 0012-7515  CODEN: EDNSBM  OCLC no:  2623794  Frequn:  s  Regulr: x

  Hld lib: CSUU Copy:      Repr:   Subsc Stat: a Loan:

  1 LOCN     Current issues circulated to the Physics Dept.
  2 FUND     P.O. 9460867
  3 RMKS     Continues Electrical design news beginning with vol. 6, no. 3,
              (Mar. 1961).
              Absorbed EEE (#2446587) beginning with vol. 16, no. 10,
              (May15, 1971).
  4 DEFN     v vol.  p  no .
  5 RTHD     v 15  - v 27 p 13 y Feb. 20, 1970-June 23,1982 m [ v 16 p
1-9 y 1971; v 24 p 10 y May 20, 1979; v 26 p 18 y Sept. 16, 1981]
  6 SIHD     CSU d 8212 g 0 e 4 v 15- y 1970-



Deep-sea research.Part A:Oceanographic research papers.
ISSN: 0198-0149  CODEN: DRPPD5  OCLC no:  4764804  Frequn:  m  Regulr: r

  Hld lib: CSUU Copy:      Repr:   Subsc Stat: a Loan:

  1 FUND     P.O. 9460827
  2 RMKS     Continues Deep-sea research (#2981078) beginning with
              vol. 26, no. 1A (Jan. 1979).
  3 DEFN     v vol.  p  no.
  4 RTHD     v 26-28 p 1979-1981

  5 SIHD     CSU d 8211 g 0 e 4 v 26- y 1979-
```

Appendix 1—Two examples of Local Data Records of an abbreviated kind used at Cleveland State, where the Check-in function is not yet in use. The RTHD field shows in detail what volumes have been bound, while SIHD gives the information in summary form and shows that the periodicals are currently received. The figures after delimiter "m" in the first record show missing volumes and issues.

Appendix 2

```
 Screen 1 of 2
CSU - FOR OTHER HOLDINGS, ENTER dh DEPRESS DISPLAY RECD SEND
 OCLC: 1567586      Rec stat: c Entrd: 750824        Used: 821114
Type: a Bib lvl: s Govt pub:   Lang:  eng Source: d S/L ent: 1
 Repr:   Enc lvl:   Conf pub: 0 Ctry:  inu Ser tp: p Alphabt: a
 Indx: u Mod rec:   Phys med:   Cont: ^    Frequn: q Pub st:  c
 Desc:   Cum ind: u Titl pag: u ISDS:      Regulr: r Dates: 1921-9999
  1 010     sc77-1189
  2 040     MUL c MUL d OCL d COO d DLC d m.c.
  3 012     2
  4 022     0013-175X
  5 035     023703A b MULS a   PITT  NO.  2697000003
  6 042     lc
  7 090     L11 b .P57
  8 049     CSUU
  9 245 00  Educational horizons.
 10 247 00  Pi Lambda Theta journal f 1921-summer 1953
 11 260 01  [Bloomington, Ind., etc.] b Pi Lambda Theta.
 12 265     Pi Lambda Theta, 4101 East Third St., Box A850, Bloomington, Ind.,
47401
 13 300     v. b ill. c 26 cm.
 14 350     $8.00 (individual) a $10.00 (institution)
 15 362 0   v. 1-   1921-
```

Appendix 2—An example of a latest entry record. The digit "1" after S/L ent in the fixed fields and the appearance of a 247 tag in the variable fields indicate the type of entry. The record was authenticated (field 042) by Library of Congress at a time when latest entry records were perfectly acceptable.

Appendix 3

```
CSU - FOR OTHER HOLDINGS, ENTER dh DEPRESS DISPLAY RECD SEND
 OCLC: 1565841      Rec stat: c Entrd: 750824        Used: 830116
Type: a Bib lvl: s Govt pub:   Lang:  eng Source: d S/L ent: 0
 Repr:   Enc lvl:   Conf pub: 0 Ctry:  nsc Ser tp: p Alphabt: a
 Indx:   Mod rec:   Phys med:   Cont: ^    Frequn: q Pub st:  c
 Desc:   Cum ind: 0 Titl pag:   ISDS:    4 Regulr: r Dates: 1921-9999
  1 010     24-30546
  2 040     MUL c MUL d NLC
  3 022     0011-5827
  4 035     0210065 b MULS a   Ulp   No.  2437800000 a PITT NO.  2367300003
  5 042     nlc a isds/c
  6 055 01  PS8001
  7 049     CSUU
  8 222 00  Dalhousie review
  9 245 04  The Dalhousie review.
 10 260 00  Halifax, N. S., b Dalhousie University Press [etc.]
 11 300     v. c 24-26 cm.
 12 362 0   v. 1-   Apr. 1921-
```

Appendix 3—Record authenticated by National Library of Canada and ISDS Canada but lacking important elements of a complete record (see p. 12).

Appendix 4a

```
NO HOLDINGS IN CSU -  FOR HOLDINGS ENTER dh DEPRESS  DISPLAY RECD SEND

 OCLC: 1759404      Rec stat: c Entrd: 751101        Used: 830201

Type: a Bib lvl: s Govt pub:   Lang:  eng Source:   S/L ent: 0

 Repr:   Enc lvl: I Conf pub: 0 Ctry:  nyu Ser tp: p Alphabt: a

 Indx:   Mod rec:   Phys med:   Cont: ^    Frequn: q Pub st:  d

 Desc:   Cum ind: u Titl pag: u ISDS:    1 Regulr: r Dates: 1951-197u

  1 010      58-31323

  2 040      DLC c MUL d YUS d COO d NYG d NSD

  3 022 0    0028-0127

  4 035      0516767 b MULS a   Ulp   No.  5562000008 a PITT NO.  5526000001

  5 042      nsdp

  6 043      n-us---

  7 050 00   NB1 b .N29

  8 082      735.73

  9 049      CSUU

 10 210 0    Natl. sculpt. rev.

 11 222 00   National sculpture review

 12 245 00   National sculpture review.

 13 260 01   [New York, b National Sculpture Society]

 14 300      v. b ill., ports c 28 cm.

 15 362 0    v. 1-   Dec. 1951-

 16 650  0   Sculpture z United States.

 17 710 20   National Sculpture Society, New York.

 18 785 00    t Sculpture x 0272-6807

 19 936      Unknown a summer 1970
```

Appendix 4a—Field 362 (line 15) fails to give closing date of publication, as does the fixed field. It should be noted, however, that this record was authenticated by NSDP only for ISSN (field 022) and key-title (field 222).

Appendix 4b

```
NO HOLDINGS IN CSU -  FOR HOLDINGS ENTER dh DEPRESS  DISPLAY RECD SEND

 OCLC: 6879531      Rec stat: c Entrd: 801030        Used: 830201

Type: a Bib lvl: s Govt pub:   Lang:  eng Source:   S/L ent: 0

 Repr:   Enc lvl:   Conf pub: 0 Ctry:  nyu Ser tp: p Alphabt: a

 Indx: u Mod rec:   Phys med:   Cont: ^a   Frequn: q Pub st:  c

 Desc:   Cum ind: u Titl pag: u ISDS:    1 Regulr: r Dates: 19uu-9999

  1 010     80-648164

  2 040     DLC c DLC d NSD d DLC d NST

  3 012     ‡ b 3 1 1

  4 022 0   0272-6807 y 0028-0127

  5 042     lc a nsdp

  6 043     n-us---

  7 050 0   NB1 b .N29

  8 082     730/.5

  9 049     CSUU

 10 210 0   Sculpture

 11 222 00  Sculpture

 12 245 00  Sculpture.

 13 246 13  National sculpture review f <winter 1973/74-winter 1977/78>

 14 260 01  [New York, N.Y., b National Sculpture Society]

 15 300     v. b ill. c 30 cm.

 16 310     Quarterly

 17 710 20  National Sculpture Society (U.S.)

 18 780 00   t National sculpture review x 0028-0127 w (OCoLC)1759404

 19 850     DLC a WaU

 20 901      c Ser

 21 936     winter 1977/78
```

Appendix 4b—This record was authenticated by Library of Congress but reports no beginning date.

Appendix 5a

```
 Screen 1 of 2
CSU - FOR OTHER HOLDINGS, ENTER dh DEPRESS DISPLAY RECD SEND
 OCLC: 1566260      Rec stat: c Entrd: 750824        Used: 830202
Type: a Bib lvl: s Govt pub:   Lang:  eng Source: d S/L ent: 0
 Repr:   Enc lvl:   Conf pub: 0 Ctry:  cou Ser tp: p Alphabt: a
 Indx: u Mod rec:   Phys med:   Cont: ^    Frequn: q Pub st:  c
 Desc:   Cum ind: u Titl pag: u ISDS:    1 Regulr: r Dates: 1977-9999
  1 010     77-643197//r79
  2 040     MUL c MUL d NSD d DLC d NSD d DLC d m.c. d OCL d NSD d
NST
  3 012     2 c x k 1 1 1
  4 019     4183311
  5 022 0   0011-8869
  6 035     0216651 b MULS a   PITT  NO.  2464500003
  7 042     nsdp a lc
  8 050 0   AP2 b .U733
  9 082     051
 10 049     CSUU
 11 210 0   Denver q.
 12 222 04  The Denver quarterly
 13 245 00  Denver quarterly.
 14 260 01  [Denver] b University of Denver.
 15 265     Denver Quarterly, University of Denver, Denver, CO 80208
 16 300     v. c 24 cm.
 17 350     $8.00
 Screen 2 of 2
 18 362 0   v. 11, no. 4-   winter 1977-
 19 530     Available on microfilm from University Microfilms, Ann Arbor,
Mich.
 20 710 20  University of Denver. w cn
 21 780 00   t University of Denver quarterly w (OCoLC)1511133
 22 850     DLC a MH
 23 901      c Ser
```

Appendixes 5a, 5b and 5c—Union list display (5c) shows discrepancies that may arise when not everyone is aware of (or accepts) a title change. Cleveland State's and Youngstown State's holdings correctly reflect the title change which occurred with vol. 11, no. 4 (spring 1977) (cf. field 362 above).

Appendix 5b

```
CSU - FOR OTHER HOLDINGS, ENTER dh DEPRESS DISPLAY RECD SEND
 OCLC: 1511133      Rec stat: c Entrd: 750805        Used: B30202
Type: a Bib lvl: s Govt pub:   Lang:  eng Source:   S/L ent: 0
 Repr:   Enc lvl: 1 Conf pub: 0 Ctry:  cou Ser tp: p Alphabt: a
 Indx: u Mod rec: m Phys med:   Cont: ^    Frequn: q Pub st:  d
 Desc:   Cum ind: u Titl pag: u ISDS:      Regulr: r Dates: 1966-1976
  1 010     66-9939
  2 040     DLC c FUL d NSD d DLC d IUL d m.c. d OCL
  3 035     su78909000
  4 050 0   AP2 b .U733
  5 092     810
  6 049     CSUU
  7 110 20  University of Denver. w cn
  8 245 04  The University of Denver quarterly.
  9 246 16  Denver quarterly f spring 1966-
 10 260 00  [Denver]
 11 300     11 v. c 23 cm.
 12 362 0   v. 1-11, no. 3; spring 1966-autumn 1976.
 13 710 21  University of Denver. t Quarterly. w cn
 14 785 00   t Denver quarterly x 0011-8869 w (OCoLC)1566260
 15 936     Unknown a autumn 1976
```

Appendix 5c

```
NEOMAL UNION LIST OF SERIALS
Denver quarterly.
ISSN: 0011-8869  CODEN:          OCLC no:  1566260  Frequn:  q  Regulr: r
ITEMS MARKED + HAVE FULLER HOLDINGS. REQUEST LINE NO. TO VIEW THESE.
   1 +  AKR (8208,0,4) 1- 1966/1967-
   2    CSU (8212,0,5) 11-15 1977-1981
   3 +  CWR (8206,0,5) 1-8 1966-1974
   4 +  KSU (8204,0,4) 1- 1966/1967-
   5 +  YNG (8210,0,4) 11- 1977-
NEOMAL UNION LIST OF SERIALS
University of Denver.
The University of Denver quarterly.
ISSN:            CODEN:          OCLC no:  1511133  Frequn:  q  Regulr: r
ITEMS MARKED + HAVE FULLER HOLDINGS. REQUEST LINE NO. TO VIEW THESE.
   1    CSU (8212,0,5) 1-11 1966-1976
   2 +  WOO (8212,0,5) 5-7 1970-1973
   3 +  YNG (8210,0,5) 1-11 1966/1967-1976
```

Appendix 6

```
 Screen 1 of 3      ¶
UNION LIST CHANGE REPORTS. ⊦
ISSN:            CODEN:          OCLC no:  2500016  Frequn:      Regulr:       ⊦
 ¶
 ▸ Hld lib: OCLC Copy:       Repr:    Subsc Stat:    Loan:  ⊦
 ¶
 ▸ 1 RMKS      This record is being used to notify union list participants of⊦
changes in the online bibliographic information which will effect union list⊦
holdings. Most of this information will be for holdings which were input BEFORE⊦
a record changed.  Some of these holdings are no longer valid because of the⊦
subsequent change to the bibliographic record.  Users who discover this kind of⊦
change should report it to their Network designated institution(s). This record⊦
will be updated on a weekly basis -- please check the report on Monday so you⊦
will have the most recent information. Records will remain online for six weeks⊦
-- please try to make the necessary changes within this period.  Hard copy of⊦
these reports will be available from your Network Office and from OCLC. ¶

 Screen 2 of 3      ¶
 ▸ 2 RMKS      The following changes, dated 820120, are taken from the hard copy⊦
list (Union List Update #2) issued on that date.  These will be removed from⊦
this record on 821105. ¶
 ▸ 3 RMKS      #1332710 -- American behavioral scientist -- Change in 362 field⊦
-- OCL -- 820120 -- OCL ¶
 ▸ 4 RMKS      #1479580 see #1332710 -- American behavioral scientist -- "DO NOT⊦
USE" added in June, 1981 -- OCL -- 820120 -- OCL ¶
 ▸ 5 RMKS      #1553876 -- Change -- Change in 362 field. -- OCL -- 820120 --⊦
OCL ¶
 ▸ 6 RMKS      #2103060 see also #5816121 -- Congressional quarterly weekly⊦
report-- 362 field changed between Mar. & May 1981 -- OCL -- 820120 -- OCL ¶
 ▸ 7 RMKS      #2208020 see #1553876 -- Change -- "DO NOT USE" added after July,⊦
1981 -- OCL -- 820120 -- OCL ¶
 ▸ 8 RMKS      #2267483 -- Saturday evening post -- Change in 362 field -- OCL -⊦
- 820120 -- OCL ¶
 ▸ 9 RMKS      #2243568 -- Agricultural outlook -- Record upgraded betwen June⊦
and August 181 --OCL -- 820120 -- OCL ¶

 Screen 3 of 3      ¶
 ▸10 RMKS      #3816536 -- Canadian journal of research -- Change in 362 field -⊦
- OCL -- 820120 -- OCL ¶
 ▸11 RMKS      #4018955 see #2243568 -- Agricultural outlook -- "DO NOT USE"⊦
added between June and August 1981 -- OCL -- 820120 -- OCL ¶
 ▸12 RMKS      #2636052 see also #7447146 -- Monthly catalog -- Change in 362⊦
field -- OCL -- 820120 -- OCL ¶
 ▸13 RMKS      #5345258 -- Monthly labor review -- Change in 362 field -- OCL --⊦
820120 -- OCL ¶
 ▸14 RMKS      #5816121 -- CQ weekly report -- Change in 362 field -- OCL --⊦
820120 -- OCL ¶
 ▸15 RMKS      #6070439  see also #6083520 -- Publications of the Modern⊦
Language Association of America -- Change in 362 field - OCL -- 820120 -- OCL ¶
 ▸16 RMKS      #6083520 -- PMLA -- Change in 362 field -- OCL -- 820120 -- OCL ¶
 ▸17 RMKS      #7447146 -- Monthly catalog -- New record added 810526 -- OCL --⊦
820120 -- OCL ¶
 ▸18 DEFN       iv vol.  ip  no.  ¶
```

Appendix 7a

```
 Screen 1 of 2
CSU - FOR OTHER HOLDINGS, ENTER dh DEPRESS DISPLAY RECD SEND
 OCLC: 2623794      Rec stat: c Entrd: 761215        Used: 830121
Type: a Bib lvl: s Govt pub:   Lang:  eng Source: d S/L ent: 0
 Repr:   Enc lvl:   Conf pub: 0 Ctry:  mau Ser tp: p Alphabt: a
 Indx:   Mod rec:   Phys med:   Cont: ^    Frequn: s Pub st:  c
 Desc:   Cum ind: u Titl pag:   ISDS:    1 Regulr: x Dates: 1961-9999
  1 010     sc79-2560 z sn79-7295
  2 040     NSD c NSD d DLC d OCL
  3 012     2 b 3 e n k 1 m c
  4 019     2320250 a 2323779
  5 022 0   0012-7515
  6 030     EDNSBM
  7 035     074090 b USPS a 1352897 b MULS
  8 042     nsdp a lc
  9 049     CSUU
 10 210 0   EDN
 11 212 0   Electrical design news
 12 222 00  EDN
 13 245 00  EDN.
 14 246 03  EDN, Electrical design news f 1961-65
 15 246 03  EDN/EEE f May 15, 1971-Apr. 15, 1972
 16 246 03  EDN with EEE f May 1, 1972-
 17 260 00  [Boston, etc., b Cahners Pub. Co., etc.]
 18 300     v.

Screen 2 of 2
 19 310     22 no. a year
 20 362 0   v. 6, no. 3-    Mar. 1961-
 21 780 00   t Electrical design news x 0364-6637
 22 780 05   t EEE g May 15, 1971 w (OCoLC)2446587
 23 936     June 20, 1979
```

Appendix 7a—Lines 15 and 16 (field 246, repeated) amount to a field 247 in a latest entry record. The titles *EDN/EEE* and *EDN with EEE* were entered under OCLC no. 2324052 (fig. 7b, *infra*) but this record will eventually be deleted (cf. field 043).

Appendix 7b

```
 Screen 1 of 2
NO HOLDINGS IN CSU -  FOR HOLDINGS ENTER dh DEPRESS  DISPLAY RECD SEND
 OCLC: 2324052      Rec stat: c Entrd: 760721        Used: 821201
Type: a Bib lvl: s Govt pub:   Lang:  eng Source: d S/L ent: 0
 Repr:   Enc lvl: I Conf pub: 0 Ctry:  mau Ser tp: p Alphabt: a
 Indx: u Mod rec:   Phys med:   Cont: ^    Frequn: s Pub st:  d
 Desc:   Cum ind: u Titl pag: u ISDS:      Regulr: r Dates: 1971-1973
  1 010
  2 040      COO c COO d DLC d MUL d DLC d MUL
  3 043      DO NOT USE THIS RECORD FOR CATALOGUING   SEE   2623794
  4 090      TK7800 b .E12
  5 049      CSUU
  6 245 00   EDN/EEE.
  7 246 13   EDN with EEE
  8 260 00   Boston.
  9 300      3 v. b ill. c 28 cm.
 10 362 0    v. 16-18; May 15, 1971-1973.
 11 580      Formed by merger of EDN; electrical design news, and EEE; the
magazine of circuit design engineering, and continues the volume numbering of
the former.
 12 690  0   Electronics x Periodicals.
 13 780 14    t EDN; electrical design news

 Screen 2 of 2
 14 780 14    t EEE; the magazine of circuit design engineering
 15 785 00    t EDN
```

[Appendix 7b—no commentary]
Appendix 8a—Authenticated record for *Earthquake information bulletin.* OCLC no. 991542 (fig. 8b) is an early serials record. It also lacks a complete set of fixed field data. Note discrepancy in field 362 of the two records. Fig. 8c shows problems in union list.

Appendix 8a

```
CSU - FOR OTHER HOLDINGS, ENTER dh DEPRESS DISPLAY RECD SEND
 OCLC: 2476881      Rec stat: c Entrd: 761001        Used: 830116
Type: a Bib lvl: s Govt pub: f Lang:  eng Source:   S/L ent: 0
 Repr:   Enc lvl:   Conf pub: 0 Ctry:  vau Ser tp: p Alphabt: a
 Indx: u Mod rec: m Phys med:   Cont: ^    Frequn: b Pub st:  c
 Desc: a Cum ind: u Titl pag: u ISDS:    1 Regulr: r Dates: 1969-9999
  1 010     75-643673//r81
  2 040     DLC c DLC d NSD d DLC d OCL d NSD d m.c. d GPO
  3 012     3 b 3 e n
  4 022 0   0046-0931 z 0547-6291
  5 030     NEIBA
  6 035     1675260 b MULS
  7 042     lc a nsdp
  8 043     n-us---
  9 050 0   QE531 b .N32a
 10 074     191-A
 11 082     551.2/2/0973
 12 086 0   I 19.65:
 13 049     CSUU
 14 210 0   Earthquake inf. bull.
 15 222 00  Earthquake information bulletin
 16 245 00  Earthquake information bulletin / c United States Department of
the Interior, Geological Survey.
 17 260 01  Reston, Va. : b The Geological Survey ; a Washington, D.C. : b
For sale by the Supt. of Docs., U.S. G.P.O.,
 18 265     Supt. of Docs., U.S. Govt. Print. Off., Washington, D.C. 20402
 19 300        v. : b ill. ; c 24 cm.
 20 362 1   Began with Vol. 1, no. 1 (1969).
 21 500     Cover title.
 22 500     Description based on: Vol. 11, no. 1 (Jan.-Feb. 1979).
 23 510 0   GeoRef x 0197-7482
 24 510 0   Index to U.S. government periodicals x 0098-4604
 25 550 1   Vols. for 1969-May/June 1973 issued by the National Earthquake
Information Center; July/Aug. 1973-   by the Geological Survey.
 26 650  0  Earthquakes z United States x Periodicals.
 27 710 20  Geological Survey (U.S.)
 28 710 20  National Earthquake Information Center.
 29 901      c Ser
 30 936     Mar./Apr.-May/June 1974
```

Appendix 8b

```
 Screen 1 of 2
NO HOLDINGS IN CSU -  FOR HOLDINGS ENTER dh DEPRESS  DISPLAY RECD SEND
 OCLC: 991542        Rec stat: c Entrd: 740828        Used: 800730
Type: a Bib lvl: s Govt pub: f Lang:  eng Source: u S/L ent: _
 Repr:   Enc lvl: I Conf pub: _ Ctry:  ___ Ser tp: p Alphabt:
 Indx:   Mod rec: m Phys med:   Cont: _    Frequn: b Pub st:  c
 Desc:   Cum ind: _ Titl pag:   ISDS:      Regulr: r Dates: ____-____
  1 010
  2 040      c DRB d m.c. d OCL d GPO
  3 090     QE531 b .E2
  4 049     CSUU
  5 245 0   Earthquake information bulletin.
  6 260 00  Washington, b U.S. Govt. Print. Off.
  7 300     v. b illus., maps. c 20-28cm.
  8 362 0   v.1-              Mar.1967-
  9 550 1   Issued Mar.1967-July/Aug.1971 by U.S. National Earthquake
Information Center; Sept./Oct.1971-May/June 1973, by U.S. National Oceanic and
Atmospheric Administration. Environmental Research Laboratory; July/Aug.1973-
      by the United States. Geological Survey.
 10 650  0  Earthquakes z United States.
 11 710 20  Geological Survey (U.S.) w 1n
 12 710 20  National Earthquake Information Center. w cn
 13 710 10  United States. b National Oceanic and Atmospheric Administration.
Environmental Research Laboratory.
 14 871 19   j 710/2 a United States. b National Earthquake Information
Center.
```

Appendix 8c

```
   NEOMAL UNION LIST OF SERIALS
   Earthquake information bulletin.
   ISSN:            CODEN:         OCLC no:   991542  Frequn:  b  Regulr: r
   ITEMS MARKED + HAVE FULLER HOLDINGS. REQUEST LINE NO. TO VIEW THESE.

      1 +  KSU (BZ05,0,4) 2- 1970-
   NEOMAL UNION LIST OF SERIALS
   Earthquake information bulletin /
   ISSN: 0046-0931  CODEN: NEIBA   OCLC no:  2476881  Frequn:  b  Regulr: r
   ITEMS MARKED + HAVE FULLER HOLDINGS. REQUEST LINE NO. TO VIEW THESE.

      1 +  AKR (BZ01,0,4) 5- 1973-
      2    CSU (BZ12,0,4) 12- 1980-
```

Actions of the Board of Directors January 25-27, 1984

The SLA Board of Directors met at the Broadmoor Hotel, Colorado Springs, Colorado, January 25–27, 1984, during the Association's 1984 Winter Meeting. Meetings of the Chapter and Division Cabinets were also held at the Winter Meeting. Actions taken, as well as important reports heard by the Board, are summarized below.

Association Finances—At the opening Board session, SLA Treasurer, Muriel Regan, announced that SLA's unaudited 1983 financial statement shows a year-end surplus of $98,000 due, largely, to income generated through advertising in association publications, interest income, the education program, and the success of the Association's staff in reducing overall expenditures relating to annual conference costs and the production costs for SLA publications. The Treasurer reported that the accumulation of surplus income does not reflect any deminution of program services to members; rather it reflects staff effectiveness in decreasing and controlling costs and the significant contribution of non-dues income to SLA's sound fiscal position.

The Board voted to allocate the 1983 surplus income as follows: Computer Fund ($20,000); 1985 IFLA Conference ($5,000); and of the remaining $73,000, 70% was allocated to the Building Fund and 30% to the Reserve Fund.

The Executive Director, David Bender, reported that 12 chapters have met or surpassed the EBSCO Industries Challenge Grant Benefit for the Special Programs Fund. Chapters meet their goal when they contribute $5 per member to the fund; EBSCO Industries matches these donations with a $200 contribution for each chapter that meets the challenge.

The Executive Director also reported on the status of the Building Fund and the Building Search Program. He stated that the Building Fund, with approved transfers from 1983 surplus income, has approximately $170,000, which is $330,000 short of its stated goal of $500,000. The Building Fund Campaign is scheduled to run through June 1985.

New Computer System—The Board was brought up to date on the staff's progress in acquiring a new computer system for the Association. The Executive Director reported that the system which appeared most suitable for the Association's needs is an IBM System/36. A bid was submitted by IBM, and staff had entered into negotiations with IBM to reduce the bid to bring it below the $125,000 ceiling established by the Board in October 1983.

Membership Costs—The Executive Director reported that the annual cost to the Association for maintaining a single membership had increased during the period 1979–1983 from $7.12 to $21.03 over the dues amount collected from each member. This means that without a dues increase in the near future, the Association must continue to rely on income from annual conferences, continuing education courses, interest, and other non-dues sources to maintain the current level of membership services.

Legislation & Government Relations—A Legislation Program for 1984 was considered and adopted by the Board. It was prepared by the Government Relations Committee in consultation with the Executive Director. The ten points of the 1984 Legislative Program are:

1. Encourage enactment of legislation which advances library and information services in the public and private sectors.
2. Monitor library and information personnel standards which will have an impact on the development and delivery of library and information services.
3. Monitor developments in telecommun-

ications that are affecting the transmission of data used in education, research, and the provision of library/information services.

4. Monitor copyright legislation to ensure that libraries in the public and private sectors receive equitable treatment.
5. Encourage the enactment of legislation which will foster the uses of new information technologies.
6. Encourage the enactment of postal legislation which will allow the exchange of information in an efficient and cost effective manner.
7. Encourage the enactment of legislation which will foster international exchange of information, regardless of its format.
8. Seek a progarm whereby public documents and information are easily accessible and readily available to the special library community.
9. Encourage the collection of library statistics which reflect the needs of the special library community.
10. Support funding for library and library-related programs.

The Board received from legal counsel a refined version of the policy statement on library photocopying which had been prepared by the Copyright Law Implementation Committee and approved in principle by the Board at its 1983 Fall Meeting.

The Board approved a joint recommendation of the Government Relations Committee and the Government Information Services Committee that called for the Committee on Committees to be instructed to study a possible merger between the Government Information Services Committee and the Government Relations Committee, and that the new committee be called the Government Relations Committee. The Committee on Committees' report on this recommendation will be heard by the Board at its June 1984 Meeting.

The Executive Director reported at length on the Association's ongoing government relations activities and on the status of legislation which has implications for the library and information management communities.

Membership Directories—Concerns about the distribution of the Association's directory, *Who's Who in Special Libraries,* were expressed at Chapter Cabinet and joint Chapter/Division Cabinet meetings. The Board responded to these concerns by establishing a special committee to study the publication and distribution of *Who's Who in Special Libraries.* The special committee will report to the Board in June 1984.

During the joint session of the Chapter and Division Cabinets, the officers discussed a proposal to make Association production services available for individual chapter and division membership directories. The Board responded by approving a motion that the Association investigate offering production services for such directories on a cost recovery basis.

SLA Conference Reports—A resolution of the Western Michigan Chapter for more extensive and thorough coverage of annual conference programs in *Special Libraries* was discussed and approved at the joint meeting of the Chapter and Division Cabinets. The resolution called for comprehensive coverage of division meetings, cabinet meetings, symposia, and other scheduled conference sessions beginning with the 1986 annual conference.

In a related action, the Cabinets established a Joint Chapter and Division Committee to survey members of the Association to determine the demand for a report of the Association's annual conference, the feasibility of producing such a report and the appropriate format, e.g., a printed proceedings. This committee will report its recommendations at a joint meeting of the Chapter and Division Cabinets at the 1984 annual conference.

Electronic Mail—The use of electronic mail by Association units was another topic on the agenda of the joint Chapter and Division Cabinets meeting. The cabinets discussed electronic mail as a communications option for Chapter and Division officers and their boards and expressed the need for a compilation of information on the electronic mail options available to chapters and divisions who might wish to make their own arrangements for participation in an electronic mail system. It was announced that a committee has been established within the Information Technology Division to compile such information.

Leadership Training—Two modules of a leadership training program were presented at the Winter Meeting to division chairmen and chairmen-elect. These were the first two sessions of a four-module program planned by a special committee of the Division Cabinet. The Chapter Cabinet voted at the Winter Meeting to establish a similar leadership

training program for members of the Chapter Cabinet.

Education Activities—The Board took two actions that will result in expansion of the Association's Continuing Education Program. The first action authorizes the development of a winter educational meeting, the first of which will be held February 1–3, 1985, in Philadelphia following the 1985 Winter Meeting.

The second action establishes a new footing for SLA's Regional Continuing Education Program. Under the plan approved by the Board, chapters may contract with the Association for the following services for chapter-sponsored education programs: program consulting; speaker selection and negotiations; promotional assistance through direct mail, coverage in the *Specialist,* and press releases; assistance with local arrangements if requested; continuing education units and certificates; and transcripts program.

All registration money and payments will be handled by the chapter. The chapter assumes all risk, and 100% of the net income remains with the chapter.

The new regional CE plan also authorizes the SLA professional development section to develop a plan to conduct approximately fifteen CE programs throughout the United States and Canada, utilizing speakers under contract. The dates selected for course presentation will be checked with local chapters to be sure there is no conflict with scheduled chapter programs. The chapters will be asked to announce the program and to help with details and registration on the day of the program, for which they will receive 10% of the net income.

Long-Range Plan—The Long-Range Planning Committee presented a long-range plan to the Board of Directors. The Board discussed the plan at length, made some modifications, and finally adopted the plan in principle. Action plans for the long-range plan will be developed by the Long-Range Planning Committee, appropriate SLA committee chairmen, and the Association staff during the spring of 1984. These action plans will be considered by the Board during its meetings in June 1984.

The Board heard that the Chapter and Division Cabinets, meeting in joint session, established a support committee to develop an action plan for the Long-Range Plan priority concerned with chapter and division programming. This committee's report will also be due in June 1984.

Associaton Awards—The Awards Committee reported to the Board its selection of the following recipients for the Association's 1983 awards:

Hall of Fame: Mark Bear, William Buddington, Vivian Hewett, and Robert Krupp.

John Cotton Dana: Ellis Mount and David Rhydwen.

The Board voted to endorse the Award Committee's nomination of Dr. William O. Baker for Honorary Membership. Dr. Baker's nomination will be submitted to the membership for election at the Annual Business Meeting in June 1984.

The following recommendations of the Scholarship Committee and the Postive Action Program for Minority Groups Committee for the number and amount of SLA scholarships and minority stipend awards for the 1985/86 academic year were approved:

SLA Scholarships—up to two $5,000 awards

Minority Stipend Awards—up to two $3,300 awards.

Networking Activities—The Board received a plan of action from the Association's Networking Committee. The Committee made the following recommendations to the Board, all of which were approved: 1) that the information resources center at the Association Office receive the Networking Committee's existing collection of documents on networks in library cooperatives, and that it continue to maintain an historical and current collection on networking, with assistance from the Networking Committee; 2) that the Association establish a networking information hotline at the Association Office, operable during appropriate hours, which would enable members to obtain specific information about networks and networking. The Board also approved the Committee's recommendation for the Association staff's involvement, in cooperation with the Networking Committee, in periodic updates of the NCLIS/SLA Task Force's 1981 networking survey.

Interassociation Relations—The Board considered a request from the Association of American Publishers for SLA participation in the AAP Electronic Publishing Project. The Board appointed a special task force on elec-

tronic publishing to work with the AAP Electronic Publishing Project staff and authorized a contribution of $1,000 to enable SLA to become a stakeholder in the project. An additional amount, not to exceed $1,000, was approved to support the special task force.

The Board voted to accept an invitation from the World Future Society for SLA to become a cooperating organization in the Society's 5th General Assembly, "WorldView '84." This meeting will be held in Washington, D.C., June 10–14, 1984. The Board did not accept an invitation from the Fund for Free Expression for SLA participation in an ad hoc coalition designed to eliminate restrictions on the free movement of individuals, information and ideas across the American border.

Conferences and Meetings—The Board heard a report on the 1984 Annual Conference (New York) from Fred Roper, chairman of the Conference Program Committee. Judy Field, deputy chairman of the Conference Program Committee for the 1985 Annual Conference (Winnipeg), presented a preliminary report on planning for that conference. Throughout the Winter Meeting, there were ample opportunities for division officers to meet for discussion and coordination of their program plans for both conferences.

Revised guidelines for the conduct of SLA annual conferences were approved by the Board. Due to concern about the Associations's liability, transportation difficulties, and housing quality, the Board defeated a motion to instruct the Association staff to provide members with information on low-cost housing for annual conferences. As in the past, the staff will continue to provide a range of official conference hotels and prices on the conference registration forms.

Williamsburg, Virginia, was selected as the host city for the Association's 1988 Winter Meeting.

* * *

The next meetings of the SLA Board of Directors will be held in conjunction with the 1984 Annual Conference, June 9–14, in New York City.

ERRATUM

On page 43 of the January 1984 issue of *SL*, Gunnar Knutson, the author of the article "Use Study of Online Cataloging in a Special Library," is incorrectly identified as an assistant catalog librarian at the University of Chicago. The affiliation should have read: University of Illinois at Chicago.

The Time of the Parenthesis: Moving Toward the Future

Joseph M. Dagnese

This is the fourth and last of a series of papers helping to celebrate our Association's 75th Anniversary. All of the authors have penned serious contributions depicting various aspects of our past, the present, and our future. The Anniversary Committee hopes you have enjoyed them and benefited from them.

Robert G. Krupp, Chairman
75th Anniversary Committee

We are living in the time of the parenthesis; the time between eras. It is as though we have bracketed off the present from both the past and the future, for we are neither here nor there. . . . The time of the parenthesis is a time of change and questioning.
—*John Naisbitt, Megatrends* (*1*)

Librarianship as a Profession

In 1968, Bundy and Wasserman (*2*) authored a lengthy article entitled "Professionalism Reconsidered." Their conclusion was that librarianship fell far short of the professional model. They were not the first writers on the subject, nor have we heard the last of it. We are currently engrossed in debates over educational requirements, equivalencies for experience, name changes, and so on.

Several years ago a conference was held at Columbia University to discuss the two-year post-baccalaureate program as a requirement for the master's degree in librarianship. Only a few schools have the two-year program in place. In addition to the one-year / two-year programs, there are also available programs leading to a certificate of advanced study, joint master's degrees (e.g., librarianship and business), the doctor of arts and the doctor of philosophy. One would think that all is well with library education, given all these options at accredited graduate schools. Alas, this is not so.

Education versus Training

Two articles appeared in 1983 which state that there is plenty wrong with library education. Not surprisingly, each author presents different reasons why this is so. Michael Koenig (*3*) recommends changes in library school curricula based on the results of a survey of special librarians in industrial corporations. One recommendation is that "library schools need to revise their views about the

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function and scope of their core requirements" (*3, p. 189*). Another recommendation is that "library schools need to develop and emphasize courses in the areas of information science / information technology and management, including both classical business administration courses and information resource management" (*3, p. 190*).

Herbert White (*4*) addresses the question of defining basic competencies. He states: "It is clear to me that part of our difficulty comes from our failure to differentiate between education and training. . . . Part of the reason for continuing friction and misunderstanding between practitioners and educators is that we are talking about different values. You practitioners don't necessarily want us educators to educate your new hires, you want us to train them" (*4, p. 520*).

Koenig also argues that "library education must attempt to prepare students not only for the immediate job market but also for the largely unpredictable technological changes that will characterize their career environment" (*3, p. 193*). White, on the other hand, maintains that "We must begin to talk about the difference between education and training, between what is brought to the first job, what is learned on that first job, and what *must* be (not just *can* be) learned later through formal and informal job and educational experiences" (*4, p. 524*).

Koenig implies that library schools can (or should be able to) predict future changes and so prepare students. Education takes place at a fixed point in time whereas change is independent of time. What is not known at a certain time cannot be taught. It seems peevish to ask educators to do the impossible. White asks educators to determine how to establish a core curriculum that can be taught at that fixed point in time to educate students for their first job. It is necessary to then go on to determine how to provide additional education and training to match changing career needs.

The need for such clarification is brought home by the current attempts of the Office of Personnel Management to change the qualification standards for federal librarians and to lower the entry-level grades for librarians. The President of the ALA Federal Librarians Round Table pointed out that "the federal librarians . . . who won promotions without the MLS had earned other degrees or passed rigid equivalency exams. The proposed standards do not mention exams" (*5*).

Is on-the-job training the "equivalent" of a graduate education (or is it training)? When was the last time a nurse became a doctor or a legal clerk became a lawyer based on an equivalency exam? I agree with Herb White. Our future depends on settling this issue in favor of education as opposed to training. Unless we do, what minimum standards presently exist will be eroded to the point that library schools will become training programs poorly competing with vocational colleges or schools set up by corporations in the information business.

Is on-the-job training the equivalent of a graduate education? Our future depends on settling this issue in favor of education as opposed to training. Unless we do, what minimum standards presently exist will be eroded to the point that library schools will become training programs poorly competing with vocational colleges or schools set up by corporations in the information business.

If we have a claim to being a profession, it certainly must rest on a corpus of theory and research which underpins our practices. Without such, we are skilled technicians who are readily replaceable by others trained on the job, not educated in graduate school. We cannot have it both ways.

Post-master's degree continuing education courses are an appropriate vehicle for training in specialized areas or for updating basic skills. The question arises as to who should offer these courses. Library schools have attempted to fill this role in part; but the requirements of the university, academic calendar constraints, and frequently their locations have made it difficult to follow through. Professional associations offer all types of valuable CE courses. Vendors offer update courses on equipment changes and new services. We should not be shocked by Herb White's statement that he is pleased that vendors are providing training for online searching. This entire infrastructure is in place and is heavily used. This is the proper locus for adding or sharpening technical skills.

Name Change

The name of librarian is anathema to many of our colleagues. In a recent article in *Special Libraries,* Elizabeth Keeler suggested that we change our title from librarian to "almost anything else" (*6*). From time to time proposals have been put forth to change the name of Special Libraries Association because it is viewed as a liability, damaging to the perception of who we are and what we do. While I agree that the name of our association is often confusing to those outside the pale, it is not "Libraries" that is misunderstood, but rather "Special."

The argument to change our name to "almost anything else" is based on the idea that we are what we call ourselves. In many cases this is obviously true. If one has the credentials to call oneself a doctor or lawyer, one is most likely to be understood as practicing medicine or law. What does the title of information manager, specialist or scientist convey? What does the person bearing the title do? The stereotype we all deplore seems to be deeply entrenched among library practitioners and is kept alive by our own periodic flagellations. The title of librarian is an honorable one and is well understood by the public. We should not cast it off lightly.

Information Technology

To be sung to the tune of "Some Enchanted Evening:"

Maxi, mini, micro
Floppy, hard and video
Analog-digital pulses
Online and offline, too.
And some day you'll find
You're out of a job . . .

Those of us who were librarians in the 1960s well remember computer jocks (first generation) predicting the end of the book and libraries, urging us to get on board immediately or become irrelevant. Millions of dollars and thousands of man-years were spent chasing a dream for which there was no appropriate technology to handle the idiosyncracies of bibliographical requirements and, moreover, for which there was little acceptance by librarians. Information science was in its infancy, lurching toward something it did not understand.

Twenty years later, electronic jocks are still predicting the end of books and libraries, still urging us to join up. Information science is now in its teen age, full of self-assurance and hyped up. We have been told so often by manufacturers, vendors, futurists and anyone else who can get up on a platform or get into print that we are about to become obsolete that it has nearly become a self-fulfilling prophecy. We are supposed to want a computer for the same reason we want gleaming white teeth or a new sports car—because it is trendy, with-it and, most of all, because it is sexy.

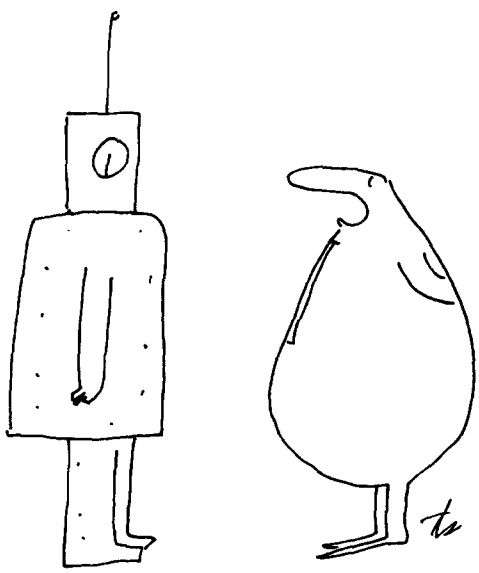
Don't get me wrong! I'm not a Luddite or a reactionary. After all, I do have an automobile, refrigerator, microwave oven, washing machine, dryer, calculator and countless other tools to make my life easier. But that's just the point—they are *tools* to be used to improve the quality of life. And so it is with computers and other electronic devices.

Complex mathematical calculations are now performed routinely and quickly on computers. A live performance of a ballet, a concert or a football game can be enjoyed in the comfort of our homes. If

you live in the right city, you may be able to take part in an interactive poll or quiz game, read an encyclopedia or call up the latest stock quotations on your home television and thereby enhance your life.

I am "for" technology. I know, however, that I am not alone in trying to predict exactly what technology means to librarianship. It seems clear that for at least the next 10 years librarians will be doing pretty much what they have always done: select, acquire, organize and preserve materials and provide the services which access and retrieve information. What we collect and the tools we use to aid us in these functions have changed and will continue to evolve. We have demonstrated that we can adapt to the use of computers and terminals in our daily work. We access bibliographic utilities, whether for cataloging, interlibrary loan, citations, full-text, numeric data, and so on. We use-in house computers for acquisitions, online cataloging, circulation, fund accounting and other functions. What's so obsolete about all of this?

F. W. Lancaster, a strong proponent of the paperless society, writes of the eventual demise of libraries: "The library, if it is willing to adapt, can play a significant role in facilitating a smooth transition from a print-on-paper society to an electronic society. Nevertheless, libraries, as we know them now, have a limited life expectancy. In the long term, they will become museums or archives, repositories of the records of the past, serving warehouse and delivery functions but offering little service" (*7*). Lancaster's time frame for this to happen is about 20 years hence.



"So, Wilburn, we've decided you need a rest from Business and Technology."

Lancaster is much more cheerful about the future of librarians. "It is my belief that professional information specialists will still be valuable in the age of electronics. Indeed, their value could be greatly enhanced as the community at large becomes increasingly conscious of the importance of access to information in all walks of life" (*7, p. 169*). He lists seven functions for which these specialists will be needed. It is interesting to note that all seven functions are currently in place in many special libraries and are becoming more common in academic and public libraries. One cannot help but wonder when Professor Lancaster last visited a "real" library.

I simply cannot agree with the sweeping scenario that Lancaster paints; the complexity of library services and user expectations argues too strongly against it. It is most probable that electronic publishing will become the standard for the creation and transmission of scientific and technical data in 10-20 years, but not all disciplines operate with the same immediacy constraints.

A good deal of knowledge is linear, existing in a continuum, building on the past. Certainly the traditional disciplines of the humanities are linear and require access to earlier materials. Electronic publishing, as the sole source of acquiring information in these areas, seems immensely remote. On the other hand, the prospect of on-demand publishing does seem feasible when the cost of the technology comes down to an affordable level.

The library's role as a repository of knowledge has always been one of the

reasons for its existence. This kind of activity is as much an essential part of the information age as the blips on a screen. It is inconceivable that all but the tiniest portion of the extant documents will be converted to some electronic medium. Librarians will still be greatly needed as preservers and conservers, as well as providers of service, access and interpretation. In the future, who will catalog and store the thousands upon thousands of tapes, discs and other forms of electronically generated and stored information? Someone will have to do it. Why not a librarian?

By the time SLA celebrates its 100th anniversary in 2009, perhaps all information centers in the private, for-profit sector will be fully automated and electronically driven. The new generation of librarians will be capable of dealing with all forms of stored data. Information will be information no matter who generates it. Our present distinctions among books, serials, document, reports, and so on, will be irrelevant because data files will not be publications in the way we know them. I believe this is the "non-library" Lancaster has in mind when he discusses the future.

Special libraries in the private, not-for-profit sector and in universities most likely will be a combination of print collections and electronic databases. This symbiotic relationship will continue for many generations. Librarians in this environment will have expertise in one segment or the other, working side by side to provide access to the total body of available knowledge for the needs of their users.

We must take a rational and wary approach to the promises made by technocrats and to the predictions of futurists. Panic in response to hype is not the answer. Technology will change the ways we acquire information, but that change will be gradual. The shakedown of manufacturers and vendors is beginning. Who will survive remains at best unclear. Standards for equipment and for information generation, storage and retrieval must eventually be agreed upon. The study of the socio-economic impact of technology has hardly begun. All of these factors indicate caution because the up-front costs to purchase systems is a major financial commitment. Caution is also a necessity because the social implications are not well understood and the acceptability of change lags behind the pace of technological innovation. The products of technology are tools. If these products enhance the way we do things or our lives, they will be adopted and used.

Information Policies and Politics

Two recent articles in *Special Libraries* (*8*, *9*) provide excellent summaries of the present state of government involvement in information policies and politics. There has been a drastic curtailment of publications from the Government Printing Office (GPO) and an attempt to close down 23 of its 26 stores. All this has been done in the name of reducing the costs of the GPO, as if it were meant to be a profit-making enterprise.

The Freedom of Information Act (1966) was enacted to provide citizens with access to the way our government works. The Reagan administration would make access more difficult by declaring that certain additional areas of information would not be open to the public for security reasons. At the same time, the current administration has issued an Executive Order classifying certain documents, supposedly because of their sensitivity to national security. Right along with all of this comes an Executive Order which, in essence, is a "gag" rule which would prevent thousands of government employees from writing about their experiences in government without prior clearance.

These dictates are attempts to control information lest some embarrassment to government arise. The concern for national security is, of course, valid, but it appears to be the whipping boy for other more devious designs.

George Orwell's *Nineteen Eighty-Four* was published in 1949, only 35 years ago. Many readers thought of it as science fiction, laughed off Big Brother, the two-way telescreens, newspeak and double-

think. They said it could never happen here. Well, the fateful year has come. We have not yet succumbed to Big Brother, even though many attempts have been made to control the flow of information and to fashion our thinking to conform to what an incumbent administration thinks is good for us. We have not yet succumbed, but constant vigilance is essential lest we awake some morning and find that Big Brother is truly in charge.

We must take a rational and wary approach to the promises made by technocrats and to the predictions of futurists. Panic in response to hype is not the answer. Technology will change the ways we acquire information, but that change will be gradual.

While the intrusion of government into the control of information is to be abhorred, we nevertheless are dependent upon that same government to legislate and monitor how information is transmitted. It will probably continue to be the role of government to build and launch missiles which place satellites in an orbit determined and regulated by a federal agency. The entire structure of telecommunications is likely to remain under the aegis of governmental agencies such as the FCC or its successors. Equally at stake is the question of individual and corporate privacy in an electronic world. How is privacy to be assured, and who will provide the legal framework to guarantee it?

Another important issue is the question of copyright. The present copyright law is based on the idea of authorship and adjudicates the rights of the author and those of the user. Copyright protects the specific expression of an author, that is, his wording to formulate an idea; however, the idea itself is not copyrighted. Others may reformulate the same idea and express it in other words or points of view.

Does the concept of authorship have any meaning in an electronic environment? Who "owns" the data accessible through online databases such as those provided by BRS, DIALOG and others? OCLC has copyrighted its database. Does my university "own" that portion of it which we originally input? That database can be downloaded into our computer, enhanced by various means and reformatted. Who then owns that portion of it? Questions concerning copyright based on authorship are getting more complex as our technology becomes more sophisticated. Intellectual property rights should be protected, but how this can be accomplished is certainly not clear at this time.

Information Economics

Donald King (*10*) provides a useful synopsis of the economic classification of private goods and public goods as applied to information. It can be argued that information fits into both classes of goods. A magazine or book purchased for personal use is like a private good. However, a book or journal located in a library can be considered a public good because of its wide availability to anyone who wants to use it. Thus information behaves differently under different conditions.

Prior to the establishment of public libraries, information primarily served as a private good because it was not widely available. Public access was largely limited to subscription libraries or universities. With the democratization of education in the 19th century came public libraries and the concept of information as a public good. The name of "free" public libraries was obviously a misnomer because they were supported by community taxes. A library card gave access to the materials usually without any direct cost to the user.

The concept of free access to information is being delimited by the assessment of direct costs for the technology used. As a result, a philosophical ten-

dency has developed to view information as private good. One of the first inroads on the concept of free access was the photocopy machine. The cost of copies is passed on to the user, perhaps on the assumption that he has created a private good and should, therefore, pay for it. Many libraries which offer online database searching charge a fee for this service.

The impact of technology on free access is just beginning to be felt. The argument of free versus fee may be moot in a relatively short time. Consider this scenario: A library subscribed to the print version of the *New York Times Index.* It pays a fixed price, for which each use has a cost close to zero. The management of the *Times* decides to discontinue furnishing print copy and makes the index available only online. The one-time cost is replaced by a variable cost for each time the index is used. Who pays for this service? Does the library absorb the costs in its budget, or does it pass them on to users?

The divestiture of AT&T will have significant impact on the costs of telecommunications for everyone, including libraries. A review of the implications of the divestiture, the proposed access charges and the proposed AT&T tariffs estimates that library data communication costs will go up about 60% in April 1984 unless the FCC and Congress revise certain decisions and proposals. Should this come about, how will the projected 60% increase be paid? Will this specific divestiture and all the pending decisions yet to be made concerning the future of telecommunications and associated costs move us farther along the path toward establishing the concept of information as a commodity, i.e., a private good?

We are all aware of the rising costs of library materials. The data show that from 1972 to 1982 the cost of U.S. serials rose by 238.6% and U.S. books by 135.5%. During that same period, many new serials appeared, and the publication rate of books increased substantially. Libraries were caught in the double bind of high inflation and greater output. They could only respond by purchasing fewer titles at greater costs, putting to rest finally the old ideology that each library should be able to supply the needs of its users.

To help ease this problem, greater use is being made of interlibrary loan. Heavy traffic in loaning materials has moved many libraries to institute fees for the borrowing library. In reaction to the fees, a substantial number of libraries are passing the charges on to the end users in their organizations. These actions serve to strengthen the concept of information as a commodity.

The question whether libraries in an electronic environment should be considered a public good and continue to receive support at public expense must be resolved. If the answer is affirmative, then some creative way of financing electronic equipment and document delivery will have to be found to provide cost-free or low-cost access to material available in this medium. If, on the other hand, we move closer to the concept of information as a commodity, how will our society respond to the information needs of those unable to pay?

Information Associations

We tend to group ourselves into organizations based on mutual interests. Furthermore, we usually identify most closely with the smallest subgroup that fits our needs. The American Library Association was the only game in town for many years. In 1909 Special Libraries Association was formed by a group of librarians who served business, industry and commerce. [See Williams and Zachert (*11*) for more details on the founding of SLA and its relationships to ALA.] Many other library associations now exist whose membership is based on a special subject interest, religious affiliation, type of library, and so forth.

SLA's charter members recognized this need and encouraged the formation of geographical chapters and subject/form divisions. These groups are the strength of SLA today. It is somewhat surprising that they have not exerted pressure to hold separate conferences, as several di-

visions of ALA have done in recent years. A number of SLA divisions are as large or larger than some entire independent library associations which do hold conferences. Although, I am certainly not advocating that this happen, I cannot help but wonder how much longer SLA can hold Association-wide annual conferences given the increasing costs of travel, meals, lodging, and registration. It is conceivable that in ten years time, teleconferencing via video technology will be widely available and offer an attractive alternative to travel. Yet, since we are basically tribal and love to come together to greet each other and perform rituals, this part of our humanity may never accede to technology. Who knows but that in 2009 we may hold our 100th anniversary conference in an orbiting space station.

Cooperative Activities

Although our tendency is to group in small units, there are encouraging signs that associations can and will cooperate in some areas. SLA, the Medical Library Association and the American Society for Information Science each offer continuing education courses. In the last several years, these three associations have jointly sponsored C.E. courses to the great benefit of their members. As mentioned earlier, database vendors often offer useful instruction in the use of computer technology; however, our associations are the appropriate mechanisms to provide more in-depth programs, especially ones aimed at comparative evaluation of databases, computers or other techniques which enhance performance following formal schooling.

While continuing education is an essential role for associations, perhaps even more crucial is the ability of these associations to respond to policies that the federal government may be considering. We must have a dynamic presence in Washington. The hearings on the copyright law revision first encouraged SLA to abandon its deliberate posture of nonintervention in political matters. The success of SLA's efforts and the attendant publicity opened the way for more involvement. Since that time, SLA has taken a stand on the National Periodicals Center, the National Library Act, the creation of an assistant secretariat for libraries in the Department of Education, the current attempts by OPM to lower the entry level for librarians in federal service, the closing of GPO bookstores and other government initiatives. We had a strong presence at the White House Conference on Library and Information Service. In addition, the National Commission on Libraries and Information Science and SLA established a joint Task Force on the Role of the Special Library in Nationwide Networks and Cooperative Programs.*

We must continue and strengthen this posture of involvement in the policies and politics of information. Present and future issues which will deal with the role of libraries and librarians in the nascent information society must be closely watched as they develop. We should find a way to form a political action committee to provide funds for lobbying efforts in Washington to enhance legislation favorable to our position.

The Beginning

There is no one future, but many futures. What they might be are dependent on the interaction of literally hundreds of forces, any one of which could change the outcome. I realize that I have forecast developments contrary to what some believe to be *the* future of our information society. So be it. Each of us is entitled to his own mistakes. Every predictor is doubly blessed: he has the assurance that he will be forgotten as soon as the next prediction is made and that the high acid content of our paper guarantees anonymity in a few years.

So, happy anniversary, SLA and many happy returns of the day. May the futures be yours.

*The NCLIS/SLA Task Force has summarized its findings in a special report scheduled for publication by SLA in 1984.

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Use a new SLA Anniversary Paperweight to secure your precious papers, your checks and bills, orders and directions, phone numbers, invitations, manuscripts, lists, maps, memos, clippings, floppy disks, review plans, budgets and blue prints.

Measuring 3½ inches in diameter, the crystal-like glass paperweight has a domed surface beneath which the words "75th Anniversary 1909-1984" appear on a clear background.

The commemorative paperweight is available from SLA headquarters for 15.00 dollars each for mail delivery (N.Y. residents add appropriate sales tax). Orders must be prepaid. Chapters may buy 15 or more for 12.00 dollars each if the order is prepaid. Make checks payable to Special Libraries Association.

Mail to: Special Libraries Association, Anniversary Paperweight
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SLA 75th Annual Conference
June 9–14, 1984, New York City
Information in the Electronic Revolution

The necessity of keeping up with the electronic revolution going on in our information world was the reason behind the choice of the theme for the 1984 New York Conference—"Information in the Electronic Revolution." This broad theme has given the program planners a great deal of leeway. Almost any area of the information field is now involved with the electronic explosion, and the result is a tempting menu of innovative and exciting programs in a city that abounds with opportunities.

Conference Speakers

BELL SHEEHY

Many exciting speakers have been lined up to address this year's General Sessions. Among them are Gail Sheehy, who will describe how "Pathfinders Are Made, Not Born" at General Session III, and Daniel Bell who will address General Session V: "The Information Era."

Gail Sheehy is the author of the best-seller, *Passages—Predictable Crises of Adult Life*. The theory that adult life proceeds by developmental stages has been widely accepted as fact. It has been published in 12 languages and was also the #1 best-seller in Germany and Australia.

In her companion book, *Pathfinders*, Ms. Sheehy sought out the true "pathfinders" among us—men and women who have discovered uncommon solutions to the predictable crises and unexpected accidents of adult life.

Ms. Sheehy is the author of six earlier books, as well as 50 articles for *New York* Magazine which she helped to launch. She has contributed to the *New York Times, Washington Post, Esquire, McCall's, Ladies Home Journal, Redbook, Rolling Stone, Cosmopolitan*, and *Ms.*

Daniel Bell, widely considered one of the leading scholarly analysts of social trends and now Henry Ford II Professor of Social Science at Harvard University, has written on aspects of social and cultural theory, the development of general education, and the importance of social prediction. He has been called a "pioneer" in the study of post-industrialism.

The author and editor of fourteen books, Daniel Bell is perhaps best known for two major works, *The Coming of Post-Industrial Society* and *The Cultural Contradictions of Capitalism*.

Visit the Exhibits

Like many others, the information profession has changed dramatically over the past ten years, and it probably will continue to change at an increasing rate in the future. To a large extent, these changes are due to the development of new products and services.

The product and service exhibits are an integral part of the SLA Conference. These exhibits will help you to look ahead and to see a bit of what the future may bring.

This year's Exhibit Hall will be the largest in the 75-year history of SLA. The Hall will contain over 250 booths and represent more than 200 organizations. It will be hard not to notice the international flavor in the Hall at least. Organizations will represent at least 7 countries. They include Great Britain, Japan, West Germany, Israel and Canada.

Special Exhibit Hall Events

Sunday, June 10—Mug Give-a-way
A specially designed 75th Anniversary coffee mug will be given to the first 1,000 full conference attendees to enter the Exhibit Hall.

Monday, June 11—Exhibit Hall Reception
3:00 p.m.-5:00 p.m. Free drinks for all attendees.

Tuesday, June 12—Breakfast in the Exhibit Hall
10:00 a.m.-11:00 a.m. Free coffee and pastries for all attendees.

Support These Exhibiting Companies They Help Support SLA

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Continuing Education

The course listing which follows features a number of courses new to SLA's Continuing Education Program including "Strategic Planning and Productive Supervision," "Effective Writing Skills," "Information Industry in Europe," "Cost Benefit Analysis for Librarians" and "Setting Career Goals and Development Patterns."

This year's program also introduces a course sequence in computer science: "Microcomputer Basics," "Use of Microcomputers in a Small Library," "How to Determine the Computer You Need," "Planning & Designing Databases: An Introduction," as well as "Planning & Designing Databases: A Clinic for Practitioners." This sequence offers you the opportunity to keep abreast of the latest technological advancements.

Division Related
CE 103 Newspaper Library Basics
CE 106 News Libraries & Automation
CE 120 Space Planning/Evaluation for Libraries & Business Information Centers

Management
CE 203 Management Communication in Special Libraries & Information Centers
CE 204 One-Person Library
CE 205 Marketing Management & Information Services
CE 206 Conquering the Challenge of Stress Management
CE 228 Managing in a Changing Environment
CE 229 Art of Delegation
CE 231 Strategic Planning
CE 251 Productive Supervision

Communication
CE 329 The Information Professional as Leader & Communicator
CE 331 Effective Writing Skills

Technology
CE 401 Microform Management
CE 428 Microcomputer Basics
CE 429 Use of Microcomputers in a Small Library
CE 430 How to Determine the Computer You Need
CE 477 Planning for New Technologies
CE 479 Planning & Designing Databases: An Introduction
CE 480 Planning & Designing Databases: A Clinic for Practitioners

Information Science
CE 503 Information Industry in Europe
CE 509 Cost Benefit Analysis for Librarians
CE 510 Survival of the Special Library: Caveats & Solutions
CE 517 Private Files Workshop
CE 520 Consultant/Broker/Entrepreneur: Managing the Business
CE 521 Setting Career Goals & Development Patterns

The Middle Management Institute

The Middle Management Institute Certificate Program is the second phase of SLA's Professional Development Program. MMI consists of 75 hours of instruction divided into five units:

- Management Skills
- Analytical Tools
- Human Resources
- Marketing & Public Relations
- Materials & Machines

Each unit will include 15 hours of classroom work spread out over 2½ days. Participants will earn 1.5 continuing education units for each completed institute program. A Middle Management Institute Certificate will be awarded to participants who complete all 5 programs within the allotted 24-month period. In addition to the programs offered at the conference, SLA has scheduled Middle Management Institutes to be held in various locations throughout the United States over the next two years.

The Institute programs featured at the Annual Conference this year will be held June 8-10, 1984. "Management Skills" will provide participants with an understanding of organizational theory and forms, including the role of the library information center. Identification of management styles, images as well as decision-making and problem-solving skills will enable students to understand and analyze behavior within an organization.

"Materials & Machines" will present an overview of the new technologies available to librarians and information professionals who assist in managing the flow of information within an organization. Discussion of systems, equipment and materials along with managerial principles and techniques will acquaint participants with a variety of practical tools.

For additional information, contact Ellen Gerber, Specialist, Professional Development (212/477-9250). Early enrollment is encouraged. Our "Marketing & Public Relations" program, which was held in New York, was so successful that registration closed early.

Management Cinema

All new SLA management films will be featured. Complete descriptions and times will be listed in the *Final Conference Program*. Be sure to join us and view:

"Brain Power"—Featuring John Houseman, this film points out how perception will effect your ability to innovate, be receptive to change and deal with personalities.

"The Unorganized Manager—Part 1: Damnation, Part 2: Salvation"—this newest John Cleese release shatters managers' preconceptions about organization. It shows them how to get organized and the secrets of organizing others!

"Successful Delegation"—an exciting approach to developing delegation skills. It demonstrates the necessity for managers to learn this skill through a step-by-step approach.

"Performance Appraisal: The Human Dynamics"—are supervisor-employee relations strained under the traditional methods of performance appraisal? A more open, interactive system for performance evaluation may enrich morale and job quality. This film shows how to begin.

"How Does A Computer Work?"—starring "Mork", this film cures computerphobia. "Mork" shows how hardware and software fit together to perform key functions.

"What Is A Computer Program?"—this film lifts the mystique that surrounds computer programming, explaining in plain English the functions of each "tool" within a program.

1984 SLA Silent Auction

This is an opportunity for you to buy products for well below selling price and to help the SLA Building Fund. Many of these products/services are high-cost items that may be obtained at considerable savings to you, so check your budgets and start planning now.

This auction will be held at the SLA Conference in New York. You don't have to be there to participate. Many of the exhibitors at the SLA Conference have donated products to be auctioned off in New York. A list of products donated as of March 1, 1984 appears on the following pages.

Attending the Conference

Stop by the donor's booth to inspect the product and register a bid. You may bid more than once. Each of these booths will be posting the current highest bid.

Not Attending the Conference

We will miss you; but you don't have to attend to participate. Advanced bids on these products will be accepted at the SLA Office. Send your name, address, and the product name, and tell us how much you would like to bid.

Bidding will be closed on Wednesday, June 13, 1984 at 12:00 p.m. Winners will be notified by mail. Winners must submit payment by July 30, 1984. If payment is not received, the next highest bidder will be declared the winner. All payments are to be made to the SLA Building Fund.

	Actual Selling Price	Minimum Bid
1. ASTM *The 1983 Annual Book of ASTM Standards* More than 6,700 standards published in 66 volumes. Contains specifications, test methods, classifications, definitions, and practices in areas of iron and steel products, construction, petroleum products, textiles, waters and environmental technology.	$2,540.00	$700.00
2. Birkhauser Boston, Inc. *Swiss Poster Book, 1900-1983* 9½ x 12½ ca. 300 pp. ca. 600 color reproductions. Review in 3 languages, English, French and Italian, of the history of Swiss posters, an art for the past 100 years, since the turn of the century. Beautiful reproductions, perfect coffee-table book.	59.95	25.00
3. Date Courier, Inc. *Search Inform User Guide,* 1983 ed. User guide for the ABI/INFORM business and management database. Includes the 8,000 term controlled vocabulary, a rotated term index, the complete classification code system, search tips, etc.	47.50	25.00
4. Disclosure *Microdisclosure* Microdisclosure searches for and retrieves information from the Disclosure II database of information on over 8,500 public companies using an IBM Personal Computer, including XT.	250.00	100.00
5.*EBSCO Subscription Services Two (2) Microcomputer Mobile Stations Model C2436 basic mobile station with 24" x 36" adjustable shelf, plus monitor shelf with let extensions and retaining bar, pedestal with trays, electrical assembly with six grounded outlets, and electrical assembly wire management tray. Shelves are heavy gauge steel. Legs are 1" diameter chrome-plated steel tubing; 4" diameter ball bearing swivel casters. Assembles in minutes. (Shipping charges will be paid by donor to U.S. destination.)	413.25 ea.	200.00 ea.

* Product will be awarded to the two highest bidders.

6. Environmental Law Institute *Environmental Law Reporter*—One Year's Subscription	$525.00	$200.00
Five-volume looseleaf service that describes, reports and comments on developments in environmental and natural resources law. Includes "News and Analysis," Litigation, Administrative Materials, Pending Literature, Statutes, Regulations and Indexes.		
7. Gossage-Regan Associates, Inc. One-Day Services of the Company's Two Principals—For Consultation or Library Services	500.00	150.00
Services of two experienced librarians/library consultants for whatever task needs doing in your library or information center, i.e., consultation on library center, i.e., consultation on library space, collection, personnel, etc., or one-day's cataloging, reference work, etc. (Travel expenses beyond N.Y. metropolitan area not included—consider as delivery costs.)		
8. Harfax Database Publishing *Harfax Industry Data Sources User Guide & Thesaurus*	50.00	25.00
User aid for Industry Data Sources database; conains scope notes; journals list; 8 controlled vocabularies; document delivery agents; index; glossary and sections on how to search IDS on 4 vendors' systems.		
9. J. A. Micropublishing, Inc. *Corporate & Industry Research Report Index (CIRR)*	662.50	300.00
Five free hours to Online Service to CIRR literature attached.		
10. OCLC (Online Computer Library Center, Inc.) *Collected Papers of Frederick Kilgour*		50.00
Two volumes: "The Early Years" and "The OCLC Years."		
11. Online, Inc. One-Year's Subscription to *Online & Database Magazines*	134.00	50.00
Winner will receive 6 issues of ONLINE and 4 issues of DATABASE beginning with the issue of the winner's choice.		
12. SAE, Inc. *SAE Cumulative Index,* 7th Edition	75.00	20.00
This book is the easiest, quickest, and most comprehensive method for locating every paper published through SAE between 1965 and 1983. Each paper is indexed by number, author, and more than 800 specific subject areas related to mobility technology. Contains over 1,300 pages.		
13. SLA Publications	100.00	50.00
Your choice of any SLA publications up to a total cost of $100.		
14. $200 Worth of SLA Professional Development Programs	200.00	100.00
This can be used for one or a combination of any SLA Professional Development Programs.		
15. Five Nights in a Conference Hotel During the 1985 SLA Annual Conference in Winnipeg	300.00	150.00
Actual cost is estimated; price will vary by hotel and actual prices will not be known until July 1984.		
16. Standard & Poor's Corporation One-Year Subscription to *The Outlook* Weekly advisory investment publication.	175.00	75.00

17. One-Year Subscription to *Industry Surveys*	$770.00	$200.00
Quarterly review of business, financial and marketing conditions for 60 U.S. industries.		
18. Warner-Eddison Associates, Inc.*		
Two (2) INMAGIC Data Management Packages	957.00 ea.	500.00 ea.
A new version of this well-known software package is now being released for use by IBM/PC's & XT's, DEC Rainbow 100+ and all other microcomputers which use the MS/DOS operating system. INMAGIC provides flexible, easy retrieval of text and has online tutorials capabilities. Information managers will find it useful for special libraries records and documents management, etc. Hard disks are strongly recommended for use in conjunction with this package.		
19. Dow Jones & Company, Inc.		
Dow Jones Investment Evaluator™ Software	149.00	75.00
Dow Jones Investment Evaluator software helps the personal investor organize, manage, track and evaluate securities holdings and print reports in a matter of minutes. The Investment Evaluator, compatible with several personal computers, includes a subscription and access to Dow Jones News/Retrieval for current valuations and a wide range of company/general information.		

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Enter my bid(s) on the following product(s):

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Remember to check the bid board at the SLA Conference. If you have been outbid you can bid again.

Information for Contributors

General Information

Special Libraries publishes material on new and developing areas of librarianship and information technology. Informative papers on the administration, organization and operation of special libraries and information centers and reports of research in librarianship, documentation, education, and information science and technology are appropriate contributions.

Contributions are solicited from both members and nonmembers. Papers are accepted with the understanding that they have not been published elsewhere. *Special Libraries* employs a reviewing procedure. When reviewers' comments have been received, authors will be notified of acceptance, rejection, or need for revision of their manuscripts. The review procedure will usually require a minimum of eight weeks.

Types of Contributions. Three types of original contributions are considered for publication: full-length articles, brief reports, and letters to the editor. New monographs and significant report publications relating specifically to library and information science are considered for critical review. Annotations of the periodical literature as well as annotations of new monographs and reports are published—especially those with particular pertinence for special libraries and information centers. Articles of special relevance may be reprinted occasionally from other publications.

Full-length articles may range in length from about 1,000 words to a maximum of 5,000 words (up to 20 pages of manuscript typed and double spaced). Reports will usually be less than 1,000 words in length (up to 4 pages of manuscript, typed and double spaced).

Instructions for Contributors

Manuscripts

Organize your material carefully, putting the significance of your paper or a statement of the problem first, and supporting details and arguments second. Make sure that the significance of your paper will be apparent to readers outside your immediate field of interest. Avoid overly specialized jargon. Readers will skip a paper which they do not understand.

Provide a title of one or two lines of up to 35 characters plus spaces per line. Write a brief author note, and include position title and address. In the author note, include information concerning meetings, symposia, etc., where the paper may have been presented orally. Submit recent glossy black-and-white photographs of the authors, if you wish.

Insert subheads at appropriate places in the text, averaging about one subhead for each two manuscript pages. Keep the subheads short (up to 35 characters plus spaces). Do not use more than one degree of subheads in an article. Provide a summary at the end of the article.

For each proposed paper, one original and three copies (in English only) should be mailed to the Editor, *Special Libraries,* 235 Park Avenue South, New York 10003. The manuscript should be mailed *flat* in an envelope of suitable size. Graphic materials should be submitted with appropriate cardboard backing or other stiffening materials.

Style. Follow a good general style manual. The University of Chicago Press *Manual of Style*, the style manual of the American Institute of Physics, along with the American National Standards Institute (ANSI) Standard Z39.16-1972, among others, are appropriate.

Format. All contributions should be typewritten on white bond paper on one side only, leaving 1.25 inches (or 3 cm) of space around all margins of standard, lettersize (8.5 in. × 11 in.) paper. Double spacing must be used throughout, including the title page, tables, legends, and references. The first page of the manuscript should carry both the first and last names of all authors, the institutions or organizations with which the authors were affiliated at the time the work was done (present affiliation, if different, should be noted in a footnote), and a notation as to which author should receive the galleys for proofreading. All succeeding pages should carry the number of the page in the upper right-hand corner.

Title. Begin the title with a word useful in indexing and information retrieval. The title should be as brief, specific, and descriptive as possible.

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For figures, the originals with three clearly legible reproductions (to be sent to reviewers) should accompany the manuscript. In the case of photographs, four glossy prints are required, preferably 8 in. × 10 in.

References and Notes. Number all references to the literature and notes in a single sequence in the order in which they are cited in the text. Cite all references and notes but do not insert reference numbers in titles or abstracts.

Accuracy and adequacy of the references are the responsibility of the author. Therefore, literature cited should be checked carefully with the original publications. References to personal letters, abstracts of oral reports, and other unedited material may be included. However, the author should secure approval, in writing, from anyone cited as a source of an unpublished work. Be sure to provide full details on how such material may be obtained by others.

References to periodicals should be in the order: authors, article title, unabbreviated journal name, volume number, issue number, inclusive pagination, and date of publication.

Smith, John and Virginia Dare. "Special Librarianship in Action." *Special Libraries 59* (no. 10): 1241–1243 (Dec 1968).

Smith, John J. "The Library of Tomorrow." In *Proceedings of the 34th Session, International Libraries Institute, city, year.* 2v. city, press, year published.

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.

References to books should be in the order: authors, title, city, publisher, year, pagination.

Brown, Able. *Information at Work.* New York, Abracadabra Press, 1909. 248p.

Andrei, M. et al. *The History of Athens.* The History of Ancient Greece, 10v. New York, Harwood Press, 1850.

Samples of references to other types of publications follow.

Chisholm. L. J. / "Units of Weights and Measure." National Bureau of Standards. Misc. Publ. 286. C13.10:286. 1967.

Whitney, Eli (to Assignee), U.S. patent number (date).

Editing. Manuscripts are edited primarily to improve the effectiveness of communication between the author and his readers. The most important goal is to eliminate ambiguities. In addition, improved sentence structure often permits the readers to absorb salient ideas more readily. If extensive editing is indicated by reviewers, with consequent possibility of altered meanings, manuscripts are returned to the author for correction and approval before type is set. Authors can make additional changes at this stage without incurring any printers' charges.

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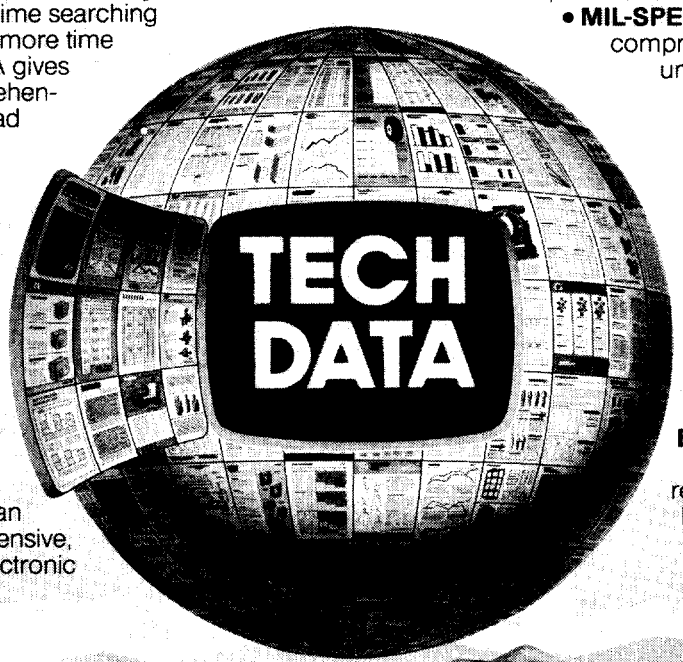

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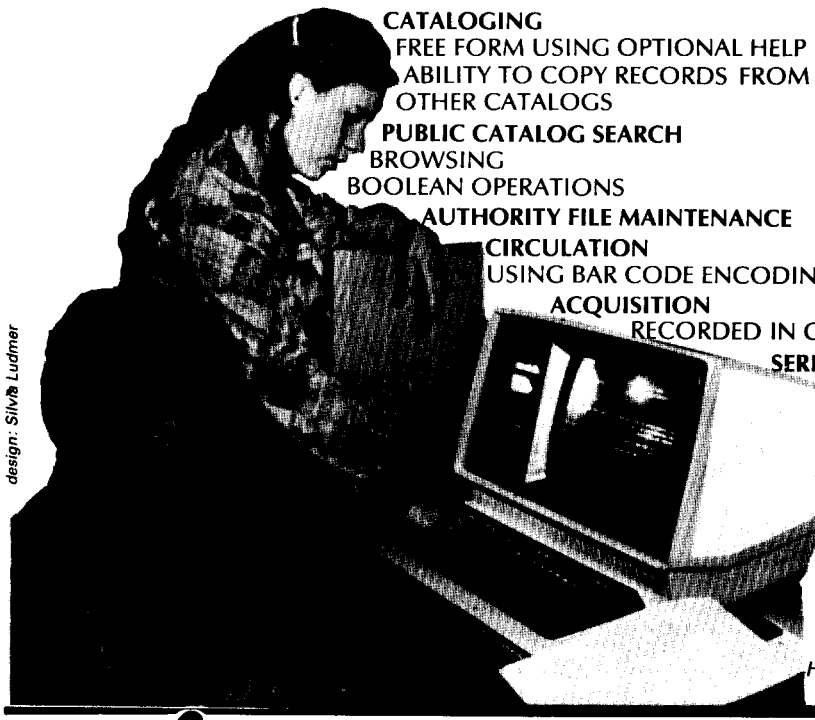

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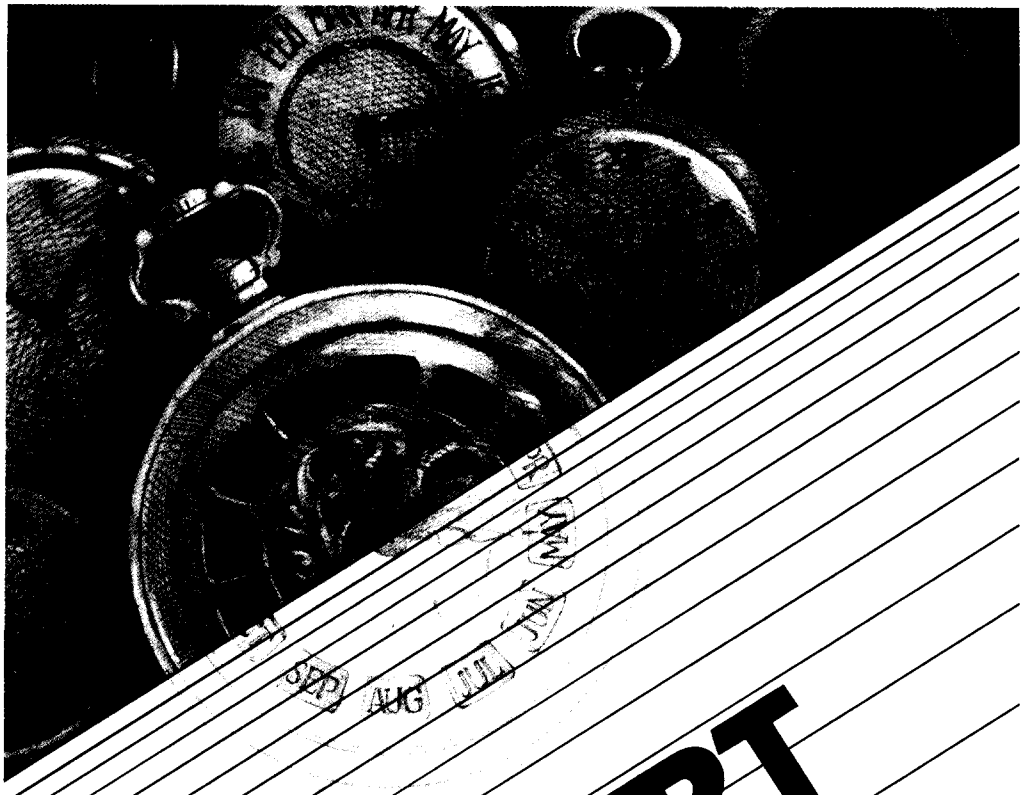

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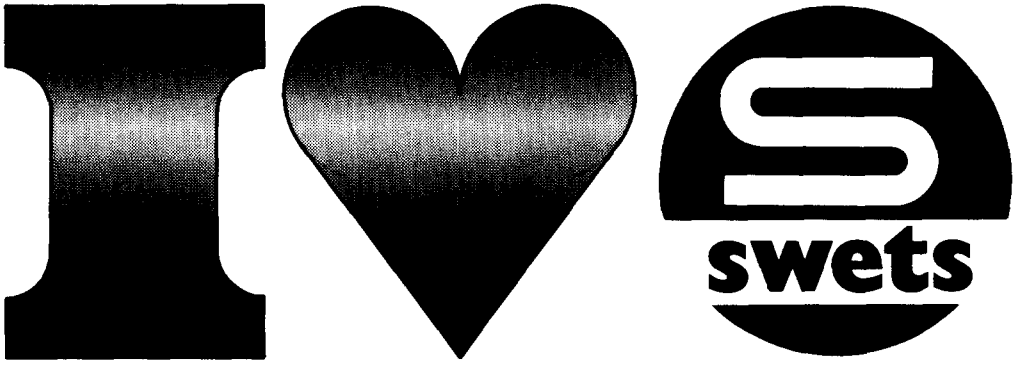

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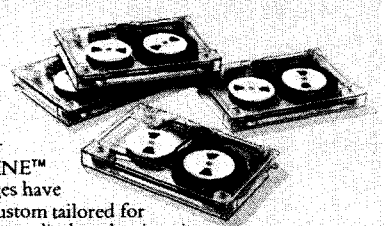

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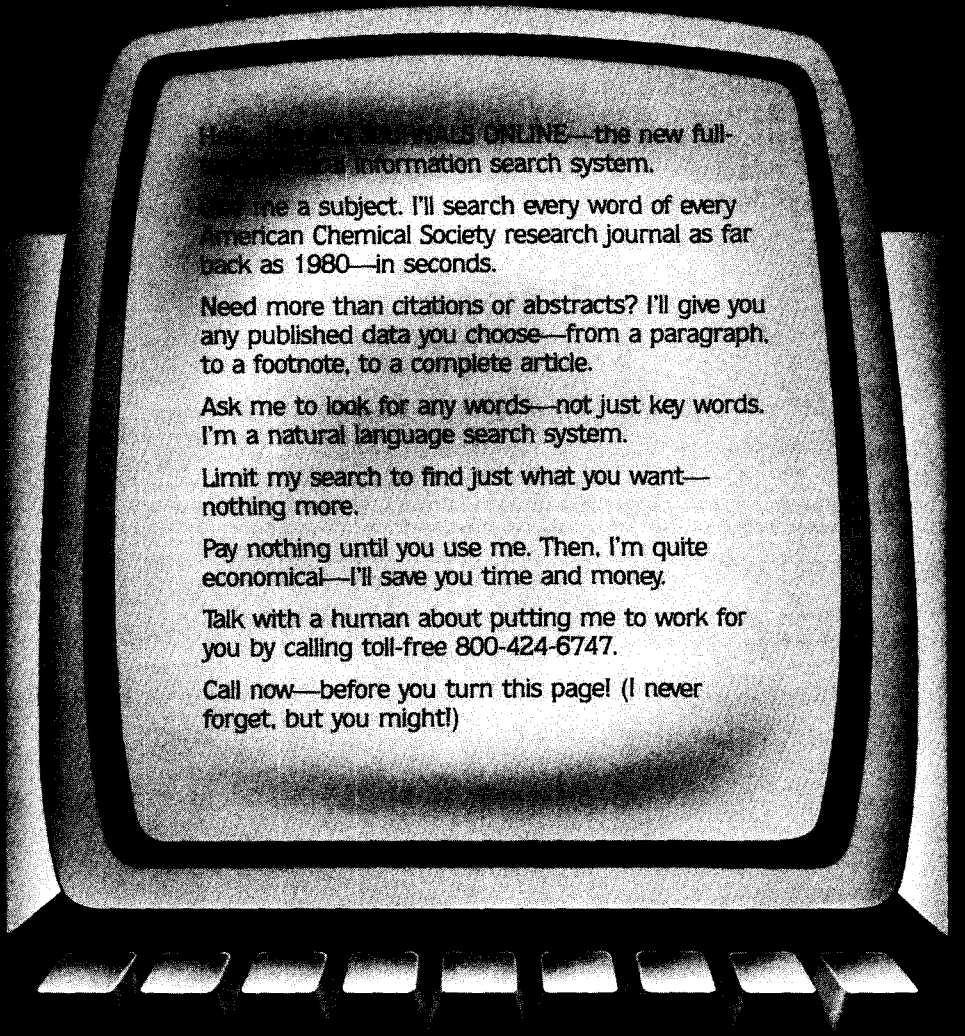

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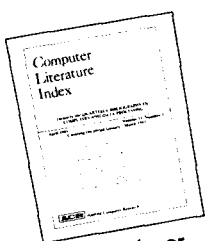

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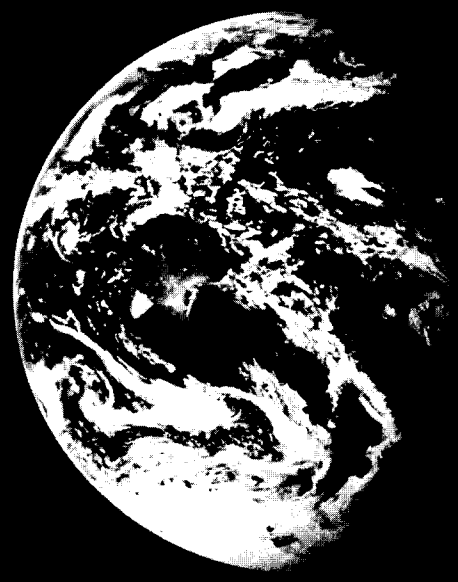

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