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Special Libraries, April 1974

Special Libraries Association

special libraries

April 1974, vol. 65, no. 4

- ☐ Monitoring State Legislation
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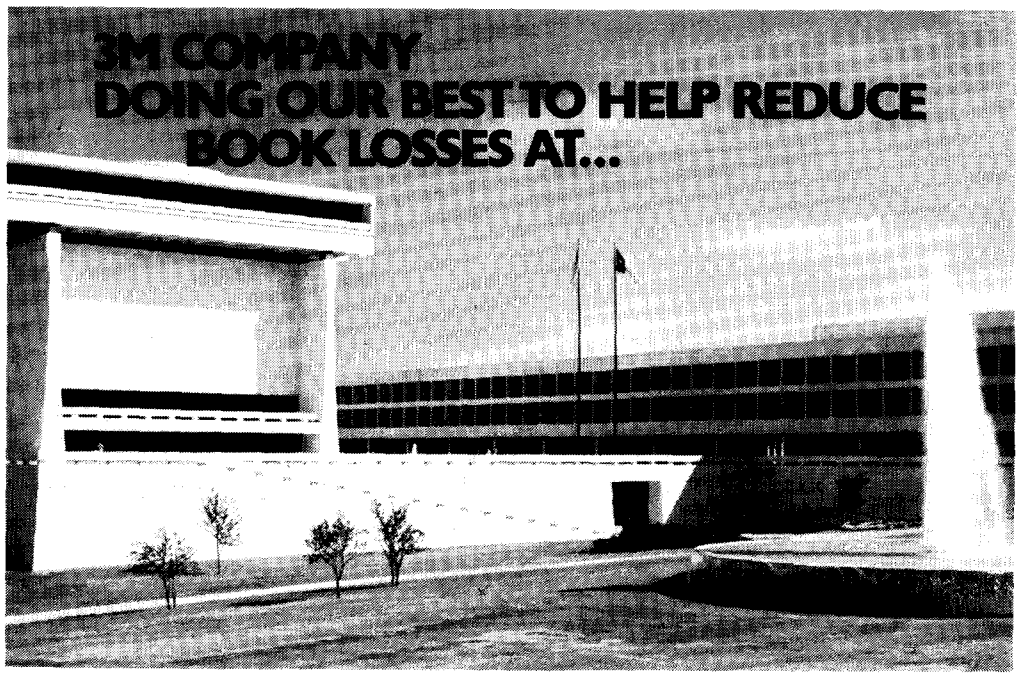

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Librarianship—A Disadvantaged Profession

The SLA Board of Directors and Advisory Council met in San Diego, Jan 31–Feb 2, 1974, to assimilate masses of reports and to act on them—while the Southern California sun shone brightly outside the hotel. One item among the many produced more than the usual amount of interest. This item had to do with the results of the 1973 SLA Salary Survey published in the Dec 1973 and Jan 1974 issues of *Special Libraries.*

There seems to be no other 1973 survey comparable to SLA's, but the ALA 1970 survey results were very close to the SLA survey results. What might not at first seem related is the latest Scientific Manpower Commission (SMC) Report compared with both the SLA and the ALA 1970 surveys. The SMC report surveyed 15 disciplines including anthropology, economics, linguistics, political science, psychology, sociology, and statistics as well as those disciplines more commonly considered "scientific": agricultural sciences, atmospheric & space sciences, biological sciences, chemistry, computer science, earth & marine sciences, mathematics and physics. Whereas the 1970 salaries for librarians (both male and female) were below those of the 15 other professions surveyed by SMC; most of the SLA 1973 reports are still below those in the 1970 SMC report for the other professions.

A further distressing discovery was uncovered in examination of the 1973 American Management Association Survey. More disturbing than the salaries reported in the AMA survey was the AMA definition of educational qualifications for a technical librarian: that the normal degree required is the B.S. in librarianship. Apparently AMA is blissfully unaware of the normal professional degree in the U.S. and Canada.

It probably ought not to have been a great surprise to discover that although the mean basic annual salary increased 19% over that reported in the 1970 survey, women's salaries remained at the same relative level (75%) of men's salaries as reported in 1970. Thus despite the heightened awareness of discrimination against women in employment, these same women have apparently made no essential progess in attaining equitable salaries. Although *some* women have progressed to important administrative levels, the majority seem to be left behind. Is this evidence of salary discrimination based on sex or do women, in general, perhaps not attempt to get out of the reference-desk or cataloger syndrome?

Most recently, in the Jan 1974 issue of *Reader's Digest,* an article suggested that for the student interested in progressing no further than high school, librarianship would provide a good career!

It is perhaps time to ponder on the problem of this widespread disparagement of the profession of librarianship. Occurrences such as those itemized above are not uncommon. It is apparent that there exists a considerable gap between the expectations of the practitioners and the dollar values determined by their employers and clients. Why? Lack of communication? Does management indeed even consider librarianship a valid profession? For that matter, are librarians themselves, and women librarians in particular, cognizant of these problems and inequities—and, more important, are they doing anything to correct them? One cannot expect increased respect by management, assignment of increased management responsibility and stature, and improved levels of remuneration without "selling" one's own capabilities and value to salary administrators in relation to other professions. This aspect is even more important in the small one- or two-person special library than in a larger library organization. It is unlikely that management will simply awaken one day with a sense of management's own shortcomings in recognizing the value of specialized library and information service. Solid facts and convincing arguments must be presented in a continuing effort to achieve parity for comparable responsibilities in librarianship as a profession (whether the incumbents are male or female).

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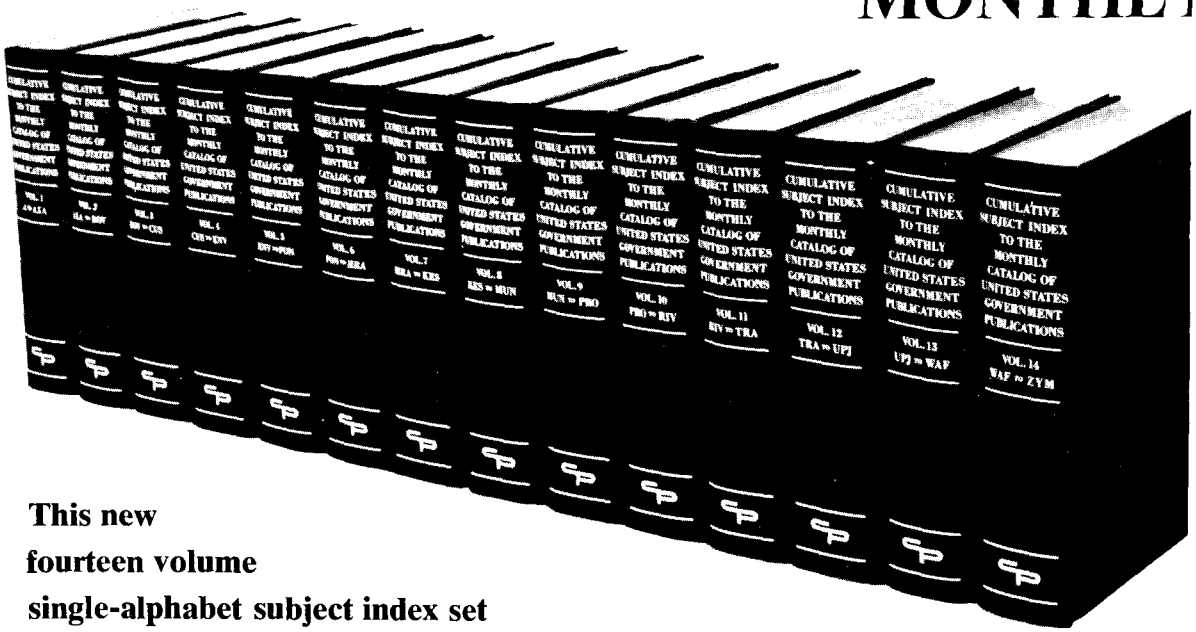

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Professor A.K. Oppenheim, *University of California at Berkeley*

As is evident from the modified title, with Volume 1 of ACTA ASTRONAUTICA we are opening a new page in the life of the Journal of our Academy. Unlike its predecessor, ASTRONAUTICA ACTA,* in principle it is a monthly publication, although, to begin with, we will have a number of double issues.

The purpose for this change in our Journal is to better enable it to serve adequately the extremely wide range of interest followed by the members of the Academy without losing its prestige as an archive periodical of high scientific value. In other words, we wish to assure authors of valuable papers that their contributions will not be buried among others completely irrelevant to their field of endeavor. We propose to accomplish this by grouping papers, when ever possible, into a set devoted to some special topic such as The Impact of Aerospace Technology on Studies of the Earth's Atmosphere – the major subject of the first issue (Vol. 1, No. 1/2, January/February 1974). In forthcoming issues we are planning to publish in the form of Proceedings papers presented at the Fourth International Colloquium on Gas Dynamics of Explosions and Radiative Systems (Vol. 1, No. 3/4, March/April 1974), selected papers presented at the Twenty-fourth International Astronautical Congress, and Proceedings of the Fifth International Symposium on Basic Environmental Problems of Man in Space. Each of these will, *de facto,* represent a set of articles on a special topic. Such collections will also be available separately in the form of hard cover books of extracts from ACTA, so that a reader or a library interested only in a given topic will be able to acquire the appropriate book without having to accumulate all the other issues of the Journal.

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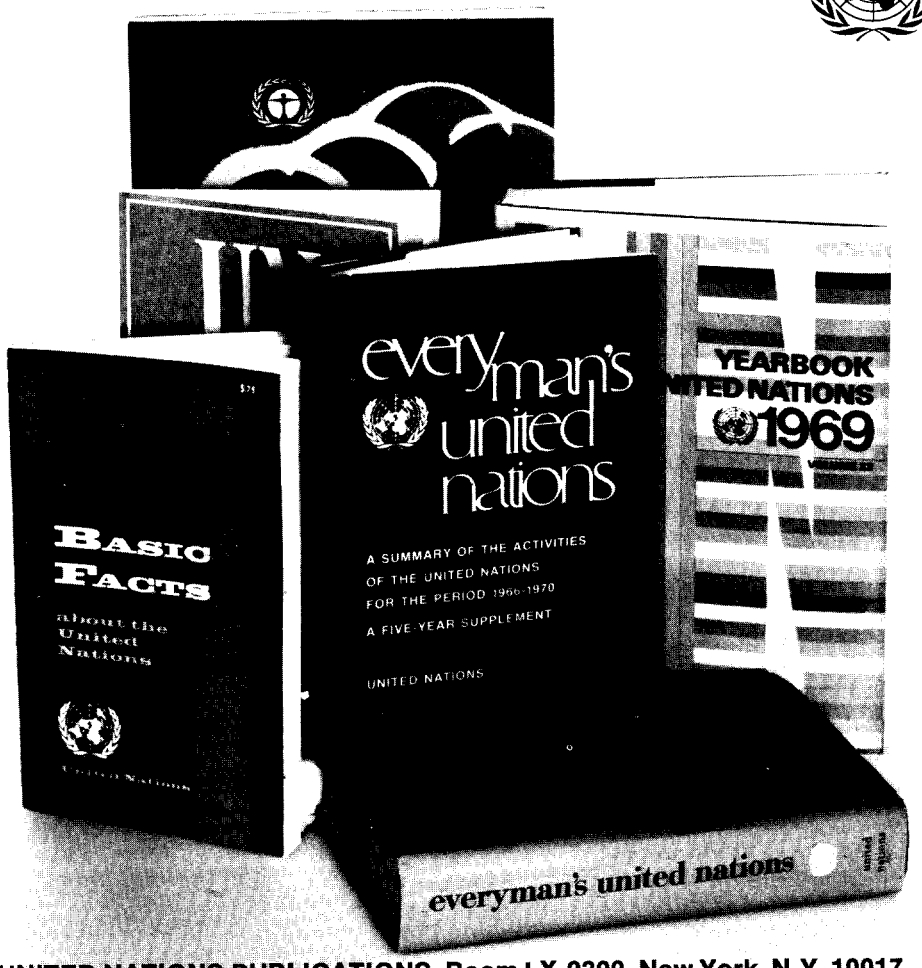

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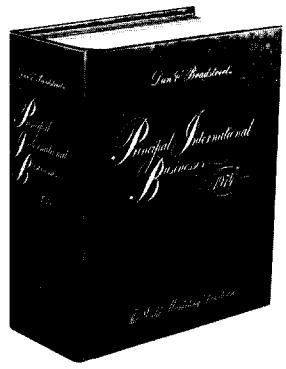

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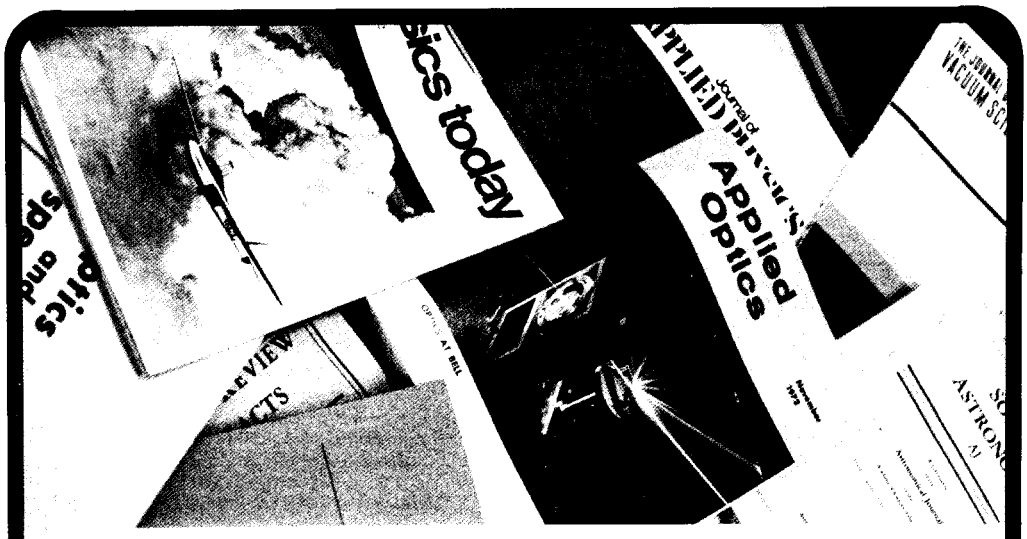

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■ The more diversified a company, the more sophisticated must be its approach to minimizing surprise and coping with change. Because state legislation moves much more rapidly than federal, a company may easily be taken by surprise. A well-researched product may be prevented from entering a market, or conversely, developing opportunities may be overlooked. This is a time for efficient use of political intelligence and continual reappraisal of corporate actions based on legislative compass readings. For this reason, a monitoring system has been established to screen state legislation by subject and to alert appropriate company managers. Details and problems are discussed.

"No man's life, liberty or property are safe while the legislature is in session."
1 Tucker 248, N.Y. Surr. 1866

THIS STATEMENT, made in 1866, would indicate that there was in those times a certain mistrust of state legislatures. Some of this mistrust—or perhaps "concern" is a better word—still exists today, especially on the part of business and industry. The degree of concern is reflected in the increasing number of companies which are developing systems for monitoring state legislation. The more diversified a company, the more sophisticated must be its approach to minimizing surprise and coping with change.

Because state legislation moves much more rapidly than federal, a company may easily be taken by surprise, and with devastating effect. A state bill can be introduced, passed by both houses of the legislature and signed by the governor within one week. Or, it may linger in committee for months and then emerge, amended, and perhaps completely different in form and content from what it was originally.

In evaluating the effects on industry of different types of environmental change—technological, economic, social, and political—it is evident that changes in the political environment, on federal, state, and local levels, are having a greater bearing than ever on the future of corporations. Changes in the political environment are dictating what products may be produced and by what process. They affect the customer, the distributor and manner of distribution, use of natural resources, labor, financial transactions, and the overall management of a company. Yet changes in the social and political environment seem almost inevitably to catch the average business manager unaware and unprepared.

With the signing of the Delaware Coastal Zone Act by Governor Peterson

in 1971, heavy manufacturing industry was prohibited from settling along the state's 115-mile coastline. The first state law of its kind, it specifically banned oil refineries, petrochemical complexes, and basic steel and paper mills. In addition, the act prohibited construction in the bay of marine terminals for the transshipment of liquid and solid bulk materials. The law's immediate effect was to block several hundred million dollars worth of planned projects.

New Jersey's Coastal Area Facility Review Act, effective Sep 19, 1973, regulates the type of construction permitted in the coastal zone, including industrial plants and nuclear power plants.

Bills such as these cause corporate site seekers to try to steer clear of new locations where costs are higher than at existing locations and environmental pressures greater, if not prohibitive. State and federal regulations are key factors in site selection and close tabs must be kept on shifts in political thinking both in Washington and at state capitals.

Anti-litter legislation, exemplified by Oregon's 1972 "Bottle Bill" (followed by the introduction of 376 similar bills in 47 states and Puerto Rico) is another example of state legislation having economic impact on manufacturer, distributor, and consumer. In an effort to deal with the problem of what to do with the can or bottle after the consumer has consumed its contents, Oregon's bottle bill attempted to force the use of reusable beverage containers. As a result, the retail cost of beverages has risen faster in Oregon than in neighboring states due to higher distribution costs; numerous jobs have been lost in the container industry, and at least one canner has been forced to close down. Since Vermont's beverage container deposit law went into effect this summer, similar hardships are claimed, especially by retailers who are losing business to out-of-state dealers. (Vermont's long, narrow shape makes it easy for beverage buyers to drive across the border to purchase beer and soft drinks at a lower price. And besides, only 20 percent of the bottles are being returned.) Governor Salmon has been quoted as saying that the law is poorly written and needs to be changed, since a 20 percent decrease in beverage sales means $500,000 to $600,000 in lost tax receipts . . . California, meanwhile, is considering similar legislation.

Minnesota H.B. 1821, enacted in May 1973, forbids introduction into the state of any new form of package or container without specific approval of the Minnesota Pollution Control Agency. For a company packaging a product to market in all 50 states, this law means delays, problems, and added expense.

These are only a few examples of state laws which have become part of the environment in which business must operate. In our company, we have a "product stewardship" program under which Dow tries to shield the environment from potential problems in making, marketing, and use of its products. It has been estimated that the program can add more than 25% to development costs.

About two years ago, in an attempt to provide an early warning system for monitoring newly introduced state legislation and preventing surprises at the state level, a state government relations function was established. The "surprises" just referred to meant legislative and regulatory trends and activities which could hamper a well-researched product program, impose unreasonable or conflicting restrictions on sales of an established product, or perhaps require labeling or packaging which differed from one state to another. Equally important, some state legislation is creating a variety of excellent business opportunities which may be overlooked by a company which is not alert to what is going on at the state level and is not ready to capitalize on this potential market.

All over the country, legislators have been responding to public pressure on such issues as consumer protection and preservation of the ecology with a wide range of restrictive and sometimes conflicting measures. However, even though legislation seems at times to be an "ambush alley" for industry, it is gradually creating a climate of opportunity for those companies with services to offer in

such areas as waste treatment, health maintenance, land reclamation, etc. And despite all the bills which threaten to tax, restrict or ban some products, there are others which promise opportunities for new products and services. It was therefore important that information on pertinent, newly introduced legislation, and related political intelligence be called promptly to the attention of the departments or divisions of the company which might be affected by the passage of that legislation.

Dow State Government Relations Information Network

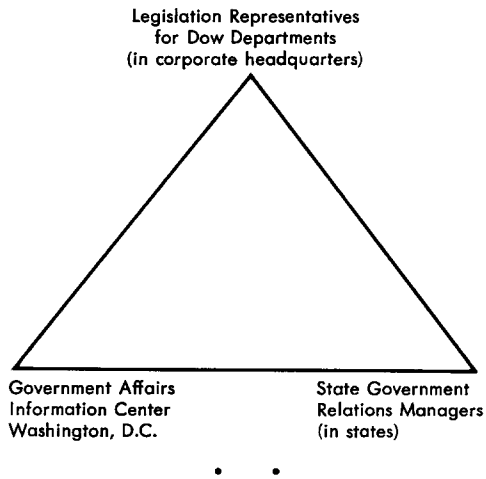
In the spring of 1973, one man in each product department was assigned by his department manager specific responsibility for tracking and evaluating legislative and regulatory activity likely to have impact on the business of that department.

Time is a critical factor in observing, reporting, appraising and acting on pending state legislation, especially toward the close of legislative sessions when bills can move very rapidly toward enactment. Notification of the introduction of pertinent legislation and copies of the bills are therefore forwarded by the Dow Government Affairs Information Center in Washington as quickly as possible to the Dow legislation representatives so that they will have time to discuss the implications with members of their departments and determine what the company position should be in regard to each particular bill and issue.

In assessing the possible impact of new legislation, it may be necessary to seek interpretation from several points of view, and more than one department in the company, in order to decide what the overall effect of the legislation might be. It sometimes happens that a bill which would have a damaging effect on one department may provide opportunities for another. In such a case, it is necessary for representatives of the concerned departments to decide jointly what the company position should be.

In evaluating pending legislation, it is important to consider the source. Is this

Figure 1. Dow State Government Relations Information Network



a "real" bill, or has it been introduced by some legislator merely to impress the home folks? What actually are the bill's chances for enactment? If it doesn't get through this year, will it, or others like it, be introduced again next year? What trends are developing and is there reason to believe they will continue?

Some librarians have asked whether the use of computer facilities was considered in setting up the system. Because of the tremendous volume of new bills introduced in the legislatures each year, a large percentage of which never will be enacted, the idea of using computer facilities was rejected. This is *"an early warning system"* to alert appropriate individuals to the introduction of new legislation of possible importance to the company. It is not an information retrieval system. Trying to index all the bills would not be a good investment of time and would only serve to slow down the alerting process and add to the expense. Furthermore, the bills which are enacted into law more often than not have been changed considerably from their original form.

For help in gathering background on a bill and for notification of hearings, or help in presenting testimony, the Dow legislation representative can call on the state government relations manager who covers the state where the bill originated.

Figure 2. Sources of Information on State Legislation

Associations and Bulletins Issued by Associations
- Chambers of commerce
- Trade and manufacturers associations
- Technical associations and professional societies

Legislatures: Reporting Services and Bulletins

Commercial Legislative Reporting Services
- Federal-State Reports, Inc., Arlington, Virginia
- Commerce Clearing House, Inc., New York
- Other

Consultants, Public Relations Firms and Legal Firms

Newspapers and Clipping Services

Periodicals

Company Employees; Customers; Friendly Competitors; Personal Contacts

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The state government relations manager may be acquainted with the legislator who introduced the bill and he may be in a position to suggest modifications, provide support, or work for the defeat of an undesirable measure. Whatever the outcome, our Government Affairs Information Center is kept informed, so that a record will be available.

Sources of Information on State Legislation

There are many information sources for state legislation, varying greatly in speed of reporting and reliability.*

Many associations, and especially those which are industry-oriented, keep close watch on legislation, and some of them issue bulletins summarizing selected bills which may affect their particular industry. Examples are the Society of the Plastics Industry, the National Agricultural Chemicals Association, The Manufacturing Chemists Association, The Soap and Detergent Association, The Chemical Specialties Manufacturers Association, the Pharmaceutical Manufacturers Association, and of course, chambers of commerce at all levels. Many state chambers of commerce follow state legislation closely, issue summaries of current bills, and help chamber members who are concerned about specific pieces of legislation. There is usually a serious time lag between the introduction of a bill and the time we read about it in an association bulletin; but the bulletins are useful tools for monitoring trends in state legislation and following the relationships between federal and state legislation and regulation.

Many state legislatures have reporting services which list new bills. When complete reporting of legislation for a particular state is desired, a state legislative reporting service may be the answer. However, because of the thousands of bills introduced during each legislative session, it is easy to be completely inundated by these services.

To avoid at least a portion of the flood, most companies and associations which follow legislation for a large number of states depend on a commercial legislative reporting service such as Federal-State Reports, or Commerce Clearing House, to report bills to them on a selective basis.

Subjects/Issues

Since the company markets over 1,100 products and services, our interests range over a wide variety of subjects and issues. Using a list of 20 broad subjects and issues, backed up by a more detailed key word list, the commercial service screens newly introduced legislation and refers the bills which would seem to fit our "interest profile."

There are also consultants, legal firms, and newspaper people who work the state capitals and who keep companies informed of current developments. For a company with a single plant in one state, hiring a lobbyist as a consultant or advisor may run around $5,000 annually. One large corporation, by comparison, spends as high as one and a half million dollars on intelligence gathering.

While legislatures are in session, some local newspapers include discussions of current legislation and its likelihood of passage. Clipping services can do an adequate job of collecting published news

* For a detailed list of associations and other organizations which are sources of information on state legislation, see Appendix.

Figure 3. Subjects/Issues

Agricultural Chemicals
Auto Products/Transportation Chemicals
Building Materials
Chemicals—All Aspects
Consumer Products/Consumer Protection
Distribution/Transportation
Drugs/Pharmaceuticals
Energy/Power Plants
Environment/Pollution (Air; Water; Solid Waste)
Hazardous Substances
Health Maintenance
Labeling
Land Use Management/Coastal Zone Management
Mine Wastes/Reclamation of Strip Mined Land
Packaging/Containers
Pension Plans
Plastics
Salt/Brines
Solvents
Vehicle Safety

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of the state capitals; however, time lag can be a serious problem.

Highlights of current state legislation in certain specialized subject areas such as packaging, solid waste, energy, environment, etc., are summarized in some of the trade publications. Information is available to those who recognize its importance.

As special librarians look at the future, I believe they will see new responsibilities developing for them in the handling of current legislative and political intelligence. As part of their responsibility to management, they must be alert to what is going on in legislatures and regulatory agencies all over the country, perhaps including this type of information in current awareness programs for the attention of management. The time has come for better use of political intelligence and for continual reappraisal of corporate actions based on legislative compass readings.

This is an opportunity for special librarians to play a real part where today's action is. The skills needed to gather, sift and pass along information needed for the high-speed management decisions required under the pressure of increasing legislative activity are valuable. The imagination with which you apply these skills will help determine how effective a company or organization will be in meeting the challenges of today's political environment.

APPENDIX

Organizations Which Are Sources of Information on State Legislation

STATE	ORGANIZATION	PUBLICATIONS
ALABAMA	Alabama State Chamber of Commerce	Legislative Report
ALASKA	Alaska State Chamber of Commerce	
	Alaska Legislative Affairs Agency	
ARIZONA	Arizona Association of Manufacturers	Focus
ARKANSAS	Arkansas Federation of Water and Air Users, Inc.	
	Arkansas State Chamber of Commerce	Arkansas Capitol Report
	Southern Arkansas Development Commission	
	Associated Industries of Arkansas, Inc.	
	State Energy Commission	Energy Forum
CALIFORNIA	California State Chamber of Commerce	Pacific Business Bulletin
	California Manufacturers' Association	
	Los Angeles Area Chamber of Commerce	Southern California Business
	Chemical Industry Council	
	California Council for Environmental Balance	
	Contra Costa County Taxpayers' Association	
	Bay Area Council	
COLORADO	Colorado Association of Commerce and Industry	Legislative Reports
	Colorado Agricultural Chemicals Association	Newsletter
	Rocky Mountain Oil and Gas Association	Legislative Reports
CONNECTICUT	Connecticut Business and Industry Association (CBIA)	Legislative Report
	Connecticut Public Expenditure Council	

STATE	ORGANIZATION	PUBLICATIONS
DELAWARE	Delaware State Chamber of Commerce	Legislative Reports
FLORIDA	Associated Industries of Florida	
GEORGIA	Georgia Chamber of Commerce	Legislative Action Affecting Your Business
	Georgia Business and Industry Association	Georgia Legislative Bulletin
	Dalton Chamber of Commerce	
	Gainesville Chamber of Commerce	
	Carpet and Rug Institute	
HAWAII	Hawaii Association of Industries	
IDAHO	Idaho Manufacturers' Association	
	Idaho State Chamber of Commerce	Summary of Legislation Weekly Report
	Rocky Mountain Oil & Gas Association	Legislative Reports
	Associated Industries of Idaho	Reports on Idaho Legislative Matters
ILLINOIS	Illinois Manufacturers' Association	Springfield Highlights (Weekly legislative action report).
	Illinois State Chamber of Commerce	Springfield Scene Special letters to members
	Chicago Association of Commerce and Industry	Legislative Comments
INDIANA	Indiana State Chamber of Commerce	Legislative Report Legislative Studies
	Indiana Manufacturers' Association	
	Indianapolis and Zionsville Chambers of Commerce	
IOWA	Iowa Manufacturers' Association	
	Iowa Legislative Bulletin Service	IMA Legislative Bulletin
	Iowa Legislative Service Bureau (sends copies of bills). (There is no Chamber in Iowa.)	
	Iowa Legislative Council	
KANSAS	Kansas State Chamber of Commerce	Various information bulletins. Kansas Business Kansas Business Report Legislative Service Bulletin
	Kansas City Chamber of Commerce	
	Kansas Association of Commerce & Industry	Bill Listings
KENTUCKY	Kentucky State Chamber of Commerce	
	Associated Industries of Kentucky	Action in Kentucky
LOUISIANA	Louisiana State Chamber of Commerce	
	Louisiana Manufacturers Association	Legislative Bulletin
	Louisiana Chemical Association	
	Public Affairs Research Council of Louisiana	
	Baton Rouge Chamber of Commerce	
	Plaquemine Chamber of Commerce	
	Louisiana Association of Tax Representatives	
MAINE	Maine State Chamber of Commerce	Legislative Report
MARYLAND	Metro-Baltimore Chamber of Commerce	
	Maryland State Chamber of Commerce	Legislative Report
MASSACHUSETTS	Associated Industries of Massachusetts	
	Greater Boston Chamber of Commerce	Legislative Report
MICHIGAN	Citizens Research Council of Michigan	Council Comments
	Michigan Manufacturers' Association	Letter from Lansing
	Michigan State Chamber of Commerce	
	(Michigan Gonwer News Service)	Michigan Report
	Michigan Chemical Council	
	Michigan Pesticide Association	
MINNESOTA	Minnesota State Chamber of Commerce	
	Minnesota Manufacturers Association	

STATE	ORGANIZATION	PUBLICATIONS
	Minnesota Association of Commerce & Industry Minneapolis Chamber of Commerce	
MISSISSIPPI	Mississippi Economic Council	Legislative Action (weekly summary)
	Mississippi Manufacturers Association	
MISSOURI	Associated Industries of Missouri	Bulletin Service, State Legislature
	Missouri Chamber of Commerce	Missouri Business
	Chemical Industry Council	
MONTANA	Montana State Chamber of Commerce	Reporting Service
	Rocky Mountain Oil & Gas Association	Legislative Reports
NEBRASKA	Rocky Mountain Oil and Gas Association	Legislative Reports
	Nebraska Association of Commerce and Industry	Weekly Legislative Service
	Nebraska Livestock Association	
NEVADA	Nevada Chamber of Commerce	Bulletins on activities of Nevada Legislative Session (bi-annually). Summary of Session
NEW HAMPSHIRE		
NEW JERSEY	State Chamber of Commerce	Legislative Reports
NEW MEXICO	New Mexico Oil and Gas Association	
	New Mexico Legislative Council Service	
	(There is no Chamber)	
NEW YORK	State Chamber of Commerce	Legislative Reports
	Associated Industries of New York	
NORTH CAROLINA	N.C. Citizens Council	Legislative Bulletin
	Inst. of Government, University of N. Carolina	Weekly Legislative Summary
	State of N.C. Dept. of Conservation and Development	
	(No Chamber)	
NORTH DAKOTA	North Dakota Petroleum Council	North Dakota Legislative Report
	North Dakota Oil and Gas Association	
	Greater North Dakota Association	Legislative Reporting Service
	North Dakota State Chamber of Commerce	
OHIO	Ohio Legislative Affairs Department	Bill Register
	Ohio Conservation Foundation	
	Ohio Manufacturers Association	OMA Bulletin
	Ohio Chamber of Commerce	Ohio Legislative Report
		Social Legislation—Developments & Trends
		Tax Supplements to Ohio Legislative Report
		News Bulletin
OKLAHOMA	Oklahoma State Chamber of Commerce	
OREGON	Association of Oregon Industries	Legislative Report (Bill Status Report)
	Western Environmental Trade Association	
	Oregon State Legislature Joint Committee on Legislative Administration, State Capitol, Salem	
	Oregon Forest Protection Association	
PENNSYLVANIA	Pennsylvania State Chamber of Commerce	
	Pennsylvania Manufacturers' Association	Legislative Reports
RHODE ISLAND	Greater Providence Chamber of Commerce	Legislative Report
	Rhode Island State Chamber of Commerce	Clipping Service
SOUTH CAROLINA	South Carolina State Chamber of Commerce	Legislative Flashes
	South Carolina Textile Manufacturers' Association	
	Anderson County Chamber of Commerce	

STATE	ORGANIZATION	PUBLICATIONS
SOUTH DAKOTA	Rocky Mountain Oil & Gas Association Greater South Dakota Association S. Dakota State Growers Association S. Dakota Fertilizer and Ag. Chem. Association	Legislative Reports
TENNESSEE	Tennessee Taxpayers Association	Analysis of Taxes and Spending
	Tennessee Manufacturers' Association	
TEXAS	South Texas Chamber of Commerce	Public Affairs Bulletin
	West Texas Chamber of Commerce East Texas Chamber of Commerce	Legislative Report East Texas Magazine
	Texas Chemical Council (Pollution Matters)	
	Texas Manufacturers' Association (Labor)	Executive Digest
UTAH	Rocky Mountain Oil & Gas Association Utah Manufacturers' Association Utah Feed Mfg. Dealers Association	Legislative Reports
VERMONT	Associated Industries of Vermont	Legislative Report Clipping Service
VIRGINIA	Virginia State Chamber of Commerce	"White Paper" Bulletin Capitol Square Intelligence Newsletters
	Virginia Manufacturers Association Williamsburg-James City County Chamber of Commerce	
WASHINGTON	Seattle Chamber of Commerce State of Washington House of Representatives	Status of House Bills Status of Senate Bills
	Association of Washington Business	
WEST VIRGINIA	West Virginia Chamber of Commerce West Virginia Farm Association	
WISCONSIN	Wisconsin State Chamber of Commerce Wisconsin Manufacturers Association Public Expenditure Survey of Wisconsin	Governmental Affairs Bulletin Legislative Digest
WYOMING	Rocky Mountain Oil & Gas Association Wyoming State Chamber of Commerce Wyoming Mining Association	Legislative Reports

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Jo Epstein is with the Government Affairs Department, Dow Chemical U.S.A., Washington, D.C.

Computer-Output Microfilm

Doris Bolef

Washington University School of Medicine Library, St. Louis, Mo. 63110

■ Computer output in microfilm or microfiche form (COM) rather than computer printout and conventional forms of reproduction is one possible way special librarians can reduce their costs, space needs, and time lags. COM is described along with the equipment needed, where to find it, and experiences of one special library. Possible savings are compared with additional reading and special reproduction equipment required as well as the advantages and disadvantages to be weighed in deciding on COM.

AS MACHINE READABLE data files become almost commonplace in special libraries, the potential of COM (Computer-Output Microfilm) for increasing services while decreasing costs is an option that librarians might well consider. Some advantages and disadvantages of COM are reviewed as they relate to libraries and where and how COM can be used to best advantage are suggested.

The computer has provided librarians with the means for handling the information avalanche because of its capacity to store and rearrange vast amounts of information and then print it out faster than the most expert typist. Until recently, these capabilities sufficed, but a bottleneck began to develop beyond the computer in the shape of the perforated, fan-folded sheets. These printouts require massive amounts of storage space, high reproduction costs and costly distribution charges. We have here an example of an advanced form of technology producing the printed page essentially unchanged since the printing of the Gutenberg Bible in 1456.

One solution is the on-line cathode ray tube screen or reactive typewriter giving us the exact information required, thus eliminating the need to examine pages and pages of printout. But on-line systems have the disadvantages of being expensive, depending upon the conditions at a given moment of the host computer, telephone lines, and the output terminal, and the requirement of an increasingly large computer storage unit on call for considerable periods of time.

Another solution, miniaturization, in batch mode, increases certain options available to the user. In miniaturization, the common printout reductions range from 20 times to 200 times. Since such reductions cannot be read with the naked eye, highpowered magnifying equipment must be used. The miniaturized output is on microfilm, and the process Computer Output Microfilm has become known by its acronym COM.

What Is COM?

COM is a process that transforms computer data onto microfilm. It uses specially designed pieces of equipment to achieve this. Some of these pieces are extensions of the computers themselves; others are specialized minicomputers with cathode ray tube screens and photographic equipment designed for this pur-

pose. It is with this latter group that many special libraries have had experience.

No attempt will be made in this paper to discuss the various kinds of equipment. This is outside its purview. Avedon, in his book, *Computer Output Microfilm (1),* describes three different types and then takes 121 pages of text to list the different kinds and specifications by manufacturer.

Industry, commerce, and government have found many uses for COM. With consolidations of companies into corporations and then into conglomerates, with the proliferation of city, state, and federal agencies, the need for up-to-date specifications, directives, registration lists, pricing, and manuals of organization and procedures can be quickly and inexpensively met for distribution in many copies. To date, the greatest successes of COM have been found where multiple copies of large computer files are printed and mailed to other locations. As three examples, the state of Illinois has reduced its automobile registration list from 17 printed volumes to 100 microfiche at a 50% cost savings. The state of Maryland produces its interstate vehicle tax records on COM roll film and claims to have paid for the cost of development and production in collected revenue. Sears Roebuck placed all its spare parts lists on microfiche for the Sears catalog stores. The journal, *COM,* abounds with examples of such successful applications. It must be remembered that the users of COM in many of these applications are not library patrons but paid employees who have the choice of either using microfilm or seeking other employment.

Use in Libraries

Somewhat belatedly, libraries using computers have begun to take a serious look at COM. The use most frequently made of microfiche is in the production of large quantities of bibliographic information from the computer tape for use at many locations.

The first reported large scale use of COM in the library environment was in 1966 when the Technical Information Center of Lockheed Missiles and Space Company reported a 16 mm COM cartridge catalog system *(2, 3).* This first successful application was followed by several other applications notably at Los Angeles County Public, Los Angeles City Public, Yale University, and the University of Cambridge libraries *(4).*

A recent announcement in *College and Research Libraries News* (June 1973) concerns one ambitious application of COM. The Louisiana Library Association has produced a new computer output microfiche union catalog containing locations for over one million volumes in 21 Louisiana libraries—19 academic, one public, and the state library. The catalog, called "Louisiana Numerical Register" (LNR), is regarded as a breakthrough in terms of rapid listings of massive holdings. Thanks to a lot of thoughtful negotiations and advance planning, one of the first effects of LNR was the reduction of ILL requests to the large libraries, spreading them among all the participants, an effect that libraries in other states may well ponder *(5).*

It will be interesting to follow LNR developments, to see what happens when it becomes time to update the catalog and what effects it has on library services, resources, and costs. As in most cooperative projects at this time, the technological problems present less of a challenge than the negotiating and communications problems. As described in this announcement, the Louisiana librarians have been singularly successful in this respect so that no library loses; every library gains something.

Before describing the experiences of one library, an analysis of its advantages and disadvantages deserves our attention.

Disadvantages

The necessity for additional equipment, the microfilm or microfiche reader, to read COM has already been mentioned. This equipment increases the costs. There is, however, an additional disadvantage; namely, the resistance of users to the use of microforms because of

Table 1.

A Microfiche copy @ $8.00
A Computer printout @ $10.00 (either first or second/third copy)
A Multilith printing @ $28.00
A Photoduplication
on one side only of paper @ $18.00
on both sides @ $33.00

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their inconvenience. Patrons will sometimes choose not to read a publication when told it is available in some sort of microform only. It is assumed that librarians are not quite as reluctant, but it would be a mistake not to take this reluctance into consideration. This resistance by both librarians and patrons is stronger than is usually reported by COM manufacturers and service bureaus.

In conjunction with an SDI program at WU School of Medicine Library, we produced a computer based index to the literature of health care research. Considerable interest in this index was evinced, and we decided to reproduce it. Because the cost of printing proved to be quite high, we included, in a brochure describing the index, the possible output formats with the following prices and asked in what form our patrons wanted the index (see Table 1).

Of the first 30 responses, only one person wanted microfiche even though the Medical Library and other departments in the Medical Center possess not only microfiche readers but also reader/printers capable of enlarging a frame to readable page-size and then printing it out.

Another disadvantage is the lack of standardization and the wide variation in reduction from original size. The disadvantage is not in the variation itself but in the need for different reading machines with different magnifications, an added expense which limits, therefore, the microfiche/microfilm that libraries can use. Our budgets are not limitless. Some microfilm/microfiche readers are equipped to handle several reductions but none for the complete range from 20× to 200× now in use. This lack of standardization renders some COM unusable to some libraries. Perhaps concerted action for standardization (or at least a decision on our part to produce COM at one specified reduction) is worth pursuing.

Figure 1. An Advantage of Microform

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Summing up the disadvantages of COM, it is fair to say that the most serious limiting factor to the potential use of COM is the acceptance of the medium of output by the library user.

Advantages

The savings in cost and in time, particularly for special libraries, are considerable. It is often the case that the time of the patron is valuable, and the information in which the library specializes is not easily acquired and must be kept up-to-date. Provided, of course, the information is already on computer tape or stored in a computer, COM can produce and update multiple copies of catalogs, indexes, or lists inexpensively, which the patron can consult wherever he wishes without making the physical journey to the library.

Further, the spacious and ornate buildings of some public libraries have no counterpart in special libraries and space requirements must often be carefully accounted for. In addition, office and laboratory space allocations are just as carefully accounted for, and the saving of storage space in a 4″ × 6″ card over sixty to several hundred pages of bulky printout should not be overlooked.

Let me point out still another advantage to COM. With the increasing interest in cooperation between libraries, the exchange of bibliographic holdings rec-

ords and catalogs takes on an added importance. A cheap, portable record that can be updated, that presents few storage problems and can be inexpensively distributed should not be overlooked. Union lists—merged bibliographic holdings which tend to become voluminous with revised editions and increasingly expensive to reproduce—can be assured a continued existence, thanks to COM.

The Equipment

The history of companies with COM facilities is like the history of other forms of technology. When the equipment became commercially feasible in the 1960s, there was a rush into the market by both computer hardware manufacturers and special COM service bureaus. Avedon, in his book *(1)*, listed 50 COM companies and a directory of 100 COM bureaus located in this country and in Canada. Many companies hoped to become the COM equivalent of IBM. There were more COM service bureaus established—both independent companies and departments of larger ones—than the market required. At the same time, more COM filmers were manufactured than the market could absorb, and the first ones left something to be desired.

Arthur Teplitz, in the *Annual Review of Information Science and Technology*, v.5, reviews COM technical developments as reported in the literature *(6)*. The developments are rapid and startling. The message is clear; we can expect to tailor COM to our specialized needs in newer and more sophisticated ways with less effort on our part, more quickly and at lower costs as time goes on.

There are several factors to be considered in selecting a COM service bureau. First, the company itself has to be investigated to ascertain that it has the resources to do the job and will not go out of business before the job is completed. No matter how euphoric the salesman, the company should be checked with the Better Business Bureau and with several customers. Payment should not be made until satisfactory microfilm/fiche is in hand and the computer tape returned.

Second, the data on the magnetic tape has to be reformatted in preparation for COM. Mini-computers or processors designed to reformat automatically are available in some COM service bureaus. If a service bureau does not possess such equipment, a special computer program will have to be written, and then the data on magnetic tape will have to be rerun, constituting an additional cost. Unless one has available the service of a computer and programmer support, preference might well be given to the COM service bureau that possesses this added facility.

Third, the company has to be willing and able to give you what you want. If, for example, you want 24 times reduction fiche with frames ordered from top to bottom, left to right, and the first word of each entry in "caps," don't believe the company that says it can't be done. All of your requirements, including the format of the data, the "headers," or the labels, and your deadlines, should be carefully spelled out before the work begins.

Fourth, samples of the company's work should be examined for quality control. The quality level acceptable to the library should be agreed upon before work begins. Since quality standards are difficult and time consuming to quantify, several acceptable samples could be the basis for a general agreement.

Costs

A comparison between COM and its two chief competitors, computer printout and printing, has to take into consideration a number of variables, such as the number of pages and number of copies to be reproduced, local rates for computer line printing, postal rates, distance material is to be sent, and rates for regular printing. The values for these variables presented on the next page are based on the experiences of a medical school library in a midwestern city which is attached to a university with its own computer on campus.

If a single copy of a computer printout is desired, COM is not cost competitive. A single page of computer printout at the facility used costs $0.003. On the other hand, a single frame, which is a roughly equivalent page, in microform costs us $0.167 for the first and $0.006 for each subsequent one. It should be borne in mind, however, that computer center directors do not welcome long printouts of hundreds of pages because it ties up the printer for long periods of time. In fact, very few computer center directors will permit the use of the printer for printouts much in excess of 1,000 pages except at special times and by special arrangement.

It is when multiple copies are required that COM begins to have a clear cost advantage over computer printout. Depending on line charges at your computer center and rates at the local COM service bureau, COM output becomes less expensive than computer printout in the ranges from 10 to 40 copies. The first copy of COM from the Medical Library costs about $10.00 per fiche. (This figure ranges considerably from institution to institution, from locality to locality.) Reproductions of this fiche cost about $0.30 each. Thus:

1 fiche (the master) costs	$10.00
next 9 copies cost	$ 2.70
10 copies cost	$12.70 or $1.27 per fiche
next 30 copies cost	$ 9.00
40 copies cost	$21.70 or $0.54 per fiche

If the master microfiche copy is saved, future reproduction costs of the fiche will be minimal—a boon when the number of copies required is not immediately apparent. If the exact number of copies of a computer printout required is not immediately apparent, the data must either be stored in the computer or placed on tapes or discs until such time as a decision is needed.

The 1970–1972 cumulation of the Washington University School of Medicine Library *Catalog of Books* is on 25 microfiche. Forty copies were reproduced. The weight is 1½ ounces per set. That same catalog of books produced on the computer would have been 1500 pages per copy and each fanfolded copy would have weighed 32 pounds. To drop and scatter 1,000 pages of fanfold is a nightmare. Thus, the addition of binders, ranging in price from $1.30 to $8.00, becomes a necessity. It should be pointed out that the printing of 40 copies of the catalog on the computer printer, if the computer center director would have allowed it, would have produced 60,000 pages or 1,280 pounds of paper, and that is "paper pollution." An analysis of other forms of reproduction for 40 copies would show they are not cost feasible in such small numbers.

The time element and the manhours also deserve to be considered. Let us suppose 15 copies of a 50 page index to technical reports is run off on the computer printer. Typically, the data would be printed 5 times on 3-ply paper. The printout would then be sent to a processing room where the carbon paper would be removed and the printout divided into 15 separate copies of the index. Someone would have to wrap and ship them either by U.S. mail or by commercial shipper. From 2 to 5 days later, depending on the way it is shipped, the printout is received. If it is to be used even occasionally, the printout would have to be enclosed in a binder and storage space set aside to house it.

Let us suppose this same index is produced on microfiche. The computer tape would be delivered to the COM service bureau. The bureau would then produce the master microfilm copy, make 15 copies and deliver them back to the library. There they would be inserted into 6" × 9" envelopes, addressed and mailed first class to 15 installations by the clerical staff. The difference in mailing or shipping costs is also considerable.

The Future

Additional technological developments in the next decade may change the picture of COM. Already we see a pattern of mergers developing between computer and printing firms so that the entire operation can be completed at one installation. Equipment with the capability of producing a photographic plate from a frame of microfiche/microfilm has been perfected, increasing our options.

In 1969–1970, the Washington University School of Medicine Library had the unfortunate experience of being among the first to try this new technology. In that year we produced our last printed *Catalog of Books*. In investigating the cost of normal printing, we found, to our horror, it had grown far beyond our budget. Printing from microfilm by a local COM service bureau, willing to explore the new technology, seemed to offer an economically viable alternative to traditional printing methods. The quality of the printing, however, turned out to be clearly unsatisfactory. There were a limited number of fonts available, and they were not sharp and clear. Since that time, significant advances in technology have been made. The quality is greatly improved in only 3 years. This micropublisher claims to be able to produce up to 500 copies of 250 pages at less than the costs of traditional printing. It appears that the library with something to publish now has another alternative to consider.

What, then, can we see as the place of COM in the library's future? As microfilm comes into common use—the federal government's massive micropublishing program almost assumes this—and as the technology of COM stabilizes and increases its options we can expect it to show an increasing advantage over computer printout and conventional printing in both speed and cost. On the other hand, COM will show increasing competition from on-line access to machine readable data bases via console printers and cathode ray tube screens.

Categories of information that we can expect will be candidates for COM are as follows.

▲ Library information, produced for the staff itself with numerous branch locations, that has to be reasonably current, such as newly acquired publications not yet cataloged, lists of missing items, materials ready for binding, prohibited borrowers and other forms of specialized information. These would be by-products of data bases.

▲ Library information produced for library patrons at remote locations. These include the now familiar catalogs of monographs, lists of serials, and we can expect to produce just sections or just updates of these catalogs and lists tailored to specialized requirements.

▲ Library information produced for more than one library for cooperative and networking activities. These include union lists of serials and their holdings, union and shared catalogs of monographs or distribution of multiple copies of catalogs among a number of libraries, union lists of technical reports or distribution of multiple copies.

Most of these uses have in common one or more of the following characteristics.

1. The importance of the data is such that it does not justify on-line computer access costs.
2. Multiple copies are needed.
3. There is a large quantity of data.
4. Library staff rather than patrons are primary users.
5. Patrons at remote locations rather than those in close physical proximity to the library are primary users.
6. The data has to be reasonably up to date but less than 100% current.
7. There are cooperative arrangements with other libraries, such as shared technical services and resources.

In the past, we have been content to handle our information on an individualistic basis. In the future, libraries and patrons will find computers linked to each other, as well as to those who supply them with information. Instead of the information avalanche constituting a threat to the future and viability of our libraries, COM is the medium that welcomes the use of information.

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Doris Bolef is assistant librarian for technical services, Washington University School of Medicine Library, St. Louis, Mo.

The Librarian and Career Planning

June F. Wyant

University of Oregon, Career Planning and Placement Center, Eugene, Ore. 97403

■ The college graduate's guide to a successful job search begins when, the question is asked, "How am I going to use this education?" The Career Information Center, in a planning program now in its second year, seeks to advise students on what they need to know about their own needs, as well as essential choices, before they enter the highly competitive job market. Successful career planning occurs when the student is informed of all the alternatives and options available while involved with an educational program that suits individual interests.

THE MASS OF MEN lead lives of quiet desperation. What is called resignation is confirmed desperation. . . . A stereotyped but unconscious despair is concealed even under what are called the games and amusements of mankind. There is no play in them, for this comes after work. But it is a characteristic of wisdom not to do desperate things" *(1)*. So wrote Thoreau one hundred twenty-five years ago. This quotation comes frequently to mind when the patrons of the Career Information Library at the University of Oregon ask, "Now that I've learned to be a student can you tell me how to use the information I have and turn it into a career?" Our service is designed to meet the needs of third term sophomores through graduate students; however, it includes retired military personnel and alumni desiring to make mid-life career changes. This last group includes women with a fifteen- to twenty-year-old degree that have a need to enter the world of work.

The Alternatives

The function of the library goes beyond library technical services of selection, acquisition, cataloging and control of career information. The collection emphasizes the numerous alternatives that are available and the limitations that exist for each patron based on age, education, experience and desired life style. The existence of equal opportunity employment and affirmative action does not destroy the reality of underemployed Doctoral and Master's level graduates. The loss of federal funding to libraries, for example, will cut into the statistics that 11,000 more librarians will be needed during the 1970s.

The patron of the Career Information Center must supply the most needed data, what skills have been acquired that would bring the most desirable career. The goal of the center is to suggest to each patron at least three alternatives for career search. We suggest each patron assess the life style, living and working

environment, and geographic location he prefers. Obviously these should be stated in general terms since these three personal commitments are the basis for the beginning of a strategy which will lead the individual to a successful career search.

Alternatives are based on the natural division of careers into the categories of Business and Industry, Communications, Education, Government, Health and Medicine and Related Fields, International, Science, Social Service, and Graduate and Professional Study. There are also the subdivisions of Alternative Life Styles, Environment, Minorities, and Women. There are countless job possibilities in these divisions. The patron of the center, through the use of available information, bases individual decisions on making an accurate appraisal of the situation, and keeping as many options as possible open to further exploration.

When the patron has the fundamental anxiety of not knowing what he wants to do, it is suggested that a vocational counselor is needed and the patron is assisted in securing an appointment with one. If the patron is troubled by the career decision-making process, it is suggested that he see the placement counselor in that particular area. The patron then becomes a client of that counselor and the librarian assists the counselor with any needed information from the center. This enables those needing and giving help to do so most efficiently. Career decision making is a self-directed activity which the librarian energizes by having information available and accessible from as many resources as possible.

One resource often overlooked is the faculty. The center has a faculty notebook compiled from the response to a one page questionnaire which asked three questions on career information. Those faculty indicating willingness to talk to students, not about teaching at a university, but about other career and occupational experiences are on file. It is suggested to the patron that he have two firm questions in mind when calling to make an appointment with the faculty. Much of career decision-making is knowing what you want to know more about. Curious faculty have in turn come to see what the Career Center is doing and have offered valuable information and assistance to the center.

Essential References

The basic reference book of the collection is the *Occupational Outlook Handbook (2).* This publication of the U.S. Dept. of Labor is printed every two years and describes eight hundred of the most commonly sought professional and nonprofessional positions currently listed with the Bureau. It is statistically oriented data. From this source the patron is directed to look at the career information brochures of all the professional organizations in the United States that have a current publication of this kind. The names and addresses of these organizations are available following each article in the *Occupational Outlook Handbook.* Gertrude Forrester's *Occupational Literature (3)* is also used as a primary source since it includes publication date and price of information as well as where to write for information not available at the center. Another valuable source of information is the *Occupational Thesaurus (4)* which relates the major interest of study to areas of employment. The first two volumes contain seventeen majors of the most common interest.

The Federal Government prints many publications on individual agencies, bureaus and departments, but the most valuable is the *Federal Career Directory for College Students (5).* There are also a number of regional directories. Approximately one out of every ten college graduates goes to work for the government where vertical movement but not always horizontal movement is possible. This means that a start is made at the level of GS-5 or GS-7 and advances from there, but not always from one department or agency to another. If, for example, the patron wants to work for the Department of Commerce as an accountant and would also like the option of international experience he should know

which agency would include this option. He should also be aware of the differing terminology used by government and by business and industry to describe the same position. Each new awareness makes the reading of positions-open descriptions a more accurate appraisal by the individual and eliminates applying for positions either not qualified for or undesired.

It is necessary for the librarian to read all the information as it comes into the center to facilitate the synthesis of pertinent data. The nuggets and kernels of information that the patron requires must be sifted from the public relations and recruitment broadsides published within the same brochures. It is unfortunate that a great deal of career information is written for the precollege level. The librarian's familiarity with all the material will enable the librarian to indicate to the patron the most efficient means to satisfy his needs.

One limitation to the accessibility of the collection is the limited hours the building is open, 8:00 AM to 5:00 PM weekdays. To overcome this problem patrons are offered a fourteen page bibliography of career information that is available in the University of Oregon Library and at the local public libraries. This is also an aid to small budgets in that the center does not duplicate material that is readily available from another source. The cooperation from other librarians has been most helpful and in turn our services have made it possible for them to refer patrons to us.

Career Planning

Historically, a collection of this information has been referred to as occupational or vocational information. When the individual has made some decision about the work environment, the life style, and the geographic location that he desires, the attitude of the collection is then of "career planning." It is gratifying to locate professional people who will discuss with interested students the nature of a career in a specific area of employment. The difficulty arises in the communication of change between the atmosphere of learning theory and the practice of that theory in the limitations of the world of work. That this change would be recognized as a part of the education of the individual is a concern of those working in career planning. Last year the "What in the World Does a Librarian Do?" poster was on my office door and many undergraduates made a point of asking me just that question. After delivering to them the thick packet of information on the varied experiences available to librarians, invariably I would hear something like, "I never knew it could be so interesting." My standard reply, "A lot of the interest depends on how much interest you bring with you to the position."

Information from campus recruiters and personnel directors indicated a high priority for well written résumés from prospective job seekers. The assumption that anyone can write a good résumé is not true. The center offers a once-a-week one-hour workshop limited to eight patrons on résumé and cover letter writing. If the patron wants information on résumés but not the workshop experience, handouts on four basic résumé styles (analytical, chronological, functional, and imaginative approaches) as well as sample cover letters are available. This information is combined with job search information in the Strategy Box. It is one small facet of the total services offered to patrons upon completion of career planning.

This article is presented in the hope of exciting a concern for the development of more career information centers. An information center develops as fast as the need for information develops. The center grows as more patrons seek more information. A recent survey conducted by Career Planning and Placement at the University of Oregon was unable to find more than a very few centers. There does not seem to exist an identifiable source of the location of career information centers. It is felt that the center makes a valuable contribution to the student, to prospective employers, and to the university community. The center is inter-

ested in communicating with other centers to exchange information concerning methods of operation.

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June F. Wyant is librarian for Career Planning and Placement, University of Oregon, Eugene.

The Scientist Versus Machine Search Services:

We Are the Missing Link

Joan M. Maier

Department of Commerce, National Oceanic and Atmospheric Administration, Boulder, Colo.

■ To take advantage of computerized data bases to improve their services to scientists without incurring prohibitive in-house expense, the librarians at the Boulder Laboratories have campaigned to increase awareness and utilization via personal interviews, seminars, surveys, and critiques. Data bases most studied were DDC, NASA, SIE, ASCA, and the University of Georgia. The conclusions: 1) The scientist needs continuous personal assistance by a librarian or information specialist in order to make effective use of data bases. 2) As local retailer, the librarian has an accordingly important role to play now and in the future, a role at present generally ignored.

THERE ARE two fundamental dilemmas facing librarians of research collections today, especially science librarians. One is the gut-level conviction that our researchers are doing insufficient literature searching; the other is that if they all really came for assistance on their searches to the library, it would be impossible to cope with the workload—at least not by present modes of operation.

Our library decided to investigate the scope of the first dilemma using three methods: an interview survey, a promotion of machine search services, and a case study of manual and computerized literature searches. On the basis of the information obtained, reference services have been modified to solve these dilemmas—at least partially. In essence the librarian has become the interlocutor between the scientist and the proliferating array of computerized data banks it might profit him to access.

The context in which these investigations took place is a federal laboratory serving 800 scientists and research assistants who are engaged in basic research on such subjects as earch sciences, meteorology, radio science telecommunications, lasers, and measurement devices.

In the winter of 1973 an interview survey of 104 scientists, picked at random, was conducted. Each interview lasted 45 minutes. As a result of this input, the author became acutely aware of five potential problems.

1. There is no documented requirement that a scientist perform a formal literature search as part of the request for funding for a project. The spectre of redundant research is ever present.

2. Most scientists have only a nodding familiarity with even the free machine literatures search services of the National Aeronautics and Space Administration (NASA) and Defense Documentation

Center (DDC) and are unacquainted with other data bases such as Geo-Ref., Selected Physics Information Notices (SPIN), National Technical Information Service (NTIS), Science Information Exchange (SIE), Co-Condensates, etc.

3. The idea of paying for information is almost totally foreign to the scientists at the NOAA Laboratories. Since early childhood they have used "free" public and school libraries. At Boulder Labs the library is paid for from overhead funds, a kind of taxing of each laboratory. Unless the scientist serves on the Joint Library Committee, he is blissfully unaware of what his project is really paying for library services.

4. There is no translation service at the laboratories. If a project team can afford to hire a translator for a particular publication, it is at liberty to do so. However, this is expensive.

5. Research is much more application-oriented and interdisciplinary these days, reflecting the shortage of funds and the strong competition for the research dollar.

The Information Problem

The library has not been able to convince management that mandatory documented literature searches are necessary even though this rule is common in private (profit-making) organizations. Neither has it been possible to obtain sufficient staff to offer literature searching as a regular service. In the interview survey, 68% indicated that they believed a literature search should be done but that they never had time to do one with any degree of thoroughness. Eleven percent confirmed that they did formal searches. Twenty-one percent stated that a search was not needed or not applicable to their work. The question of tackling references in foreign languages was particularly difficult. Most scientists admitted that they tended to ignore references in languages they could not handle because it was too time consuming or too expensive to follow through on such references.

The job of providing information is getting harder and harder. There is more information on more subjects in more languages than ever before. The user is not compelled to come to the library for help. In addition, there is insufficient staffing to do more for him, at least in the traditional sense.

This desperate frame of reference led the library into an exploration of computerized literature search services. The library offered to pay for six searches of SIE, NTIS, and Automatic Subject Citation Alert (ASCA) for the first six scientists who came forward. The reference staff monitored these six "guinea pigs." They submitted searches to NASA and DDC for them also since these services are free to government agencies and their contractors. The reactions of the users ranged from enthusiasm to disappointment.

Until all data bases meld and are served by one standard output device, the curse of proliferation must be dealt with. As part of the interview survey, scientists were urged to fill out search requests submitted via the library to NASA and DDC—particularly if they had never used a computer search before or even come into contact with anyone who had. About 79% of those interviewed had no previous experience. Another 14% indicated having done a DDC or NASA search; the remaining 7% did not want to try a search because it would not be useful to their work at that particular time. None were negative to the point of being antagonistic to the idea. In fact, 71% said they wanted to try a literature search and accepted an application form; 18% actually submitted requests.

Some of the juicier comments extracted from DDC and NASA evaluation sheets were:

Subject: "Heat Switches For Use in Cryogenic Temperature Ranges."
I would not have expected a large number of pertinent reports. The percentage of applicable reports would probably have been higher if I had specified more exactly what I meant by thermal valve and thermal switch.
Score: 3 citations related
52 not related
Ordered: 2

Subject: Acoustic Radiation from Turbulence
95% spurious citations
1 hour wasted
Did you cite all possible identification of the derived information? (Yes)

Subject: User Oriented Languages in Computer Processing
Demonstrates how narrowly the keyword approach must be defined in order to key the citation volume down to manageable limits
(also)
. . . in general, authors are too optimistic about the relevance and applicability of their works, as demonstrated by the keywords cited.

Lest the picture sound too bleak, consider the printout for "Travel Times and Amplitudes of Seismic Waves." The scientist indicated 40–80 hours of his time saved. Incidentally he went to Managua, Nicaragua, during this period. The idea of the computer chugging away for him while he was out in the field delighted him.

Sometimes the negative report is what the scientist wants. When only 10% of the references in the printout were pertinent to the search on "Signal of Interference Protection Ratios," this user expressed relief: "My thought that there are very few reports on my subject has been confirmed."

The NASA and DDC searches are batch mode, not interactive experiences; correspondingly, the degree of satisfaction is relatively low if it is left as a one-shot search. It is desirable to go back to the requester, thesauri in hand, to refine the initial search, preferably with a three-way telephone conversation with information specialists from NASA and DDC. In short, there was little satisfaction with the results of our promotion with NASA and DDC except that it did plant the seed of, "Let the computer do the looking through one set of data so that you can use the time looking where it can't." Turnaround time for NASA and DDC searches ranges from 11 to 22 days at our location.

On-Line Service

Although we do not consider this lag-time a severe drawback, it did seem desirable to investigate on-line search service. Thus, Lockheed demonstrated its "Dialog" System at our laboratories. This service accesses five data bases simultaneously using a Cathode Ray Tube (CRT) terminal and a Teletypewriter Exchange Service (TWX) terminal. There is both visual and paper tape output. The data bases that can be searched are Educational Resources Information Center (ERIC), Current Index to Scientific and Technical Literature (PANDEX), DDC, Nuclear Science Abstracts, and NTIS.

A CRT search is fascinating for a scientist. Some spent over an hour at the terminal and even came back and watched others. There is no doubt in my mind, were money no object, that the on-line search is the path to complete user satisfaction in accessing computer data bases. He can start his search with only one pertinent word or reference and come away confident that there is either nothing of relevance in the file or else he has obtained immediately what is relevant. The scientists' chief complaint was the lack of inclusion of certain data bases on certain subjects or categories of publications within the data bases available. As one scientist summed it up, "This was a limited search of one data file. The search was as good as it could be expected to be." He rated the citations turned up as 90% useful and stated that they would provide missing information needed to continue his work.

A researcher on "Infrasound" isolated 10 references and rated his search 100% satisfactory. He commented, "'Dialog' provided several obscure but important references for the field in which I am interested. I had believed myself sufficiently informed in the field that I did not expect to find new references. I would have had to spend many library hours to obtain equal coverage with no assurance of equal success. I was quite pleased with the search."

He goes on to say: "A particularly valuable feature of the search was the opportunity for direct interaction between the operator and myself. The features of calling up key words similar to the one initially requested and sampling several

Figure 1. Steps in Manual Search on "Undercover Electronic Communications"

Activity	Abstracts covered	Hours spent	Items found
Conference, defining project, studying subject lists	*Applied Science & Tech.* & *Crime & Delinquency Abstracts* (sample)	1	8
Scanning index & marking abstracts	*E & E Abstracts*, Jan 1973	3	33
Searching for Carnahan Conf. at DU & NOAA, borrowing, and/or copying microfiche	Card Cat., *Interdok, Proc. in Print*, etc.	2½	4
Subject approach	Books card cat., NOAA	½	1
Discussion with scientist	Machine searches and his suggestions	1	3
Marking abstracts, unindexed	*E & E Abstracts*, Jan 1973	1¼	14
Photocopying		¾	
Marking abstracts, unindexed	*E & E Abstracts*, 1972, pt. 2	8¼	58
Listing titles	*Applied Science & Tech.* 1972 (sample)	¾	1
Marking abstracts, indexed	*E & E Abstracts*, 1972, pt. 1	2¼	34
Photocopying		1	
		23¼	156

Figure 2. Indexes Used in Manual Search

Case	Years requested	Primary tool used	Years covered	Hours spent
Case A	2	*Bus. Per. Index*	1 1/6	1 1/4
Case B	3	*E & E Abstracts*	2 1/12	23 1/4
Case C	10	*Physics Abstracts*	6 1/12	29 1/4
Case D	10	*Metals Abstracts* Battelle biblio.	1 1/12 9 +	25 1/4
Case E	5 1/12	*E & E Abstracts*	5 1/2	12 1/2
Case F	10	*E & E Abstracts*	2 1/12	14 1/4
				105 3/4

abstracts in the list finally isolated, helped prevent loss of citations of interest as well as obtaining unwanted areas."

The Joint Library Committee, which is composed of one scientist from each of the 12 labs served, is considering a proposal from Lockheed which totals $30,000 for the "Dialog" System for one year. It is unlikely we will be able to afford the complete service as demonstrated unless we can enter into a compact with other local libraries for joint support of it. Lockheed is planning to add data bases as it gains customers, but first it needs customers. Using a TWX terminal instead of a CRT and using special telephone rates such as Wide Area Telecommunications Service (WATS) or after hours can reduce the cost of this service significantly without reducing its benefits.

Staff Projects

Two staff librarians, Olivia Opello and Lindsay Murdock, have compiled a chart called "Literature Searches Available in Science" as a teaching aid for the Literature Search Seminars held at the library twice per year. This chart, which has gone through three editions, was the subject of an article in *Special Libraries (1)*.

Another staff member, Margaret Bivans, completed a research paper in 1973 entitled "Prevention of Duplicate Scientific Research by Preliminary Literature

Figure 3. Manual Search Evaluation Form

To: _____

Re: Your project on _____

_____

The attached material (_____

_____)

was obtained for you by the NOAA library as a *result of:*

☐ Your suggestion
☐ NASA search
☐ DDC search
☐ Library search.

Please indicate its usefulness to you by checking one or more of the following:

☐ Had previously seen this.
☐ Useful as background information.
☐ Useful in planning procedure.
☐ May apply techniques to my problem.
☐ Causes an alteration in my plan.
☐ Duplicates my research making it unnecessary to continue my plans.
☐ Useless/cannot read language.
☐ Will get it translated.
☐ Not relevant.
☐ Other. Explain _____

_____

Please return this slip to—

Margaret Bivans
Library, R51

• •

Search." Miss Bivans did a case study with six scientists by contrasting her manual literature search services with batch mode computer searches. This investigation is one which most of us in scientific libraries wish we could do but simply do not have time to perform. It provides a recipe for obtaining information on the scientist's literature searching habits. It also outlines the extent to which the library can fill in gaps with computerized search services for little additional outlay of staff time. A revised version of this paper will appear in a forthcoming issue of *Special Libraries (2).* Free literature searches from DDC and NASA were requested and manual searches were done through the most appropriate indexing or abstracting journal for each of six cases of research in the Boulder Laboratories.

She discussed each request with the scientist after he had written it out in his own words. She obtained evaluations from the scientists to compare the results of DDC and NASA machine searches with manual searches done in the library, though these were done on different data bases. The scientists completed the evaluation forms supplied with the machine searches and a similar form on the manual search. They also evaluated individual papers retrieved as to their relevance and usefulness.

The steps in the manual search are outlined in Figure 1. Figure 2 indicates which printed indexes were used and the hours spent in the manual search. The evaluation form used for documents retrieved is Figure 3.

For the sake of brevity, I will report on only one of the original six cases. This particular one did not receive a high degree of satisfaction with either type of search; however, the topic challenged all strategies.

Case B. Undercover Electronic Communications

Scientist B is studying equipment techniques or methods used for undercover or surreptitious information gathering for a Department of Justice contract. He mentioned the *Proceedings of the Carnahan Conference on Electronic Crime Counter-measures* as a publication that had been recommended to him. As a pilot study to crystallize the literature search procedure and the amount of time needed, a search was made through *Electrical and Electronics Abstracts.* The index to the bound volumes of *Electrical and Electronics Abstracts* did not include the terms bugging, espionage, counter espionage, eavesdropping, law enforcement, listening devices, monitors, miniature, intelligence, military intelligence, electronic surveillance, police, secrecy, security, spies, surreptitious, surveillance, radio interception, or wiretapping. There was nothing relevant under the titles communication equipment, communication systems, nor transmitters. At first, abstracts dealing with secrecy devices, and voice privacy equipment such as scramblers, Voders, and Vocoders were marked but it was then learned that his contract did not include this aspect.

Figure 4. Evaluation of DCC Machine Searches

	BIB* #94587	WP† #T18144
5. Overall pertinency evaluation	Satis.	Unsatis.
6. If negative, was knowledge of the fact beneficial?		
Basis for evaluation	Difficult topic to define	No pertinent references
Application of information	Body worn trans-mitters	
7. Did you cite all identification? Other identifying info.		Yes
Desire another search?	No	No
8. Beneficial?	Yes	No
Savings	Appre-ciable	
Improved work performance		
Other		
9. Is this your first request?	Yes	Yes

*BIB—Bibliography. †WP—Work Progress.

The terminology was sufficiently obtuse or obscure on this topic to confound the computer. However, the sheer quantity of DDC citations (225) rendered its bibliography useful. The NASA search resulted in only two pertinent references out of a total of 712. All 150 of the manually searched citations were pertinent. Figures 4, 5 and a comparison of Figures 6 and 1 provide evaluations versus time and items retrieved. DDC and NASA standard evaluation forms were used to collect the data on the machine searches.

This scientist, who spends much time traveling, felt that the best information in this field is not in open literature or in classified literature, but in the minds of people dealing with undercover communications. Face-to-face contact with these people was proving more rewarding than reviewing the literature.

Conclusions from Case Studies

It is possible that previously done research is being duplicated in the Boulder Laboratories of the Department of Com-

Figure 5. Evaluations of NASA Machine Searches vs. Manual Searches Performed in NOAA Library

	NASA Search	Manual Search
A. Quality & quantity		
1. Were your requirements met?	Partly	Yes
2. Desired aspects missing?	Yes	No
3. Known documents missing?	Yes	No
4. Examples	Books, pop articles	
5. No. of citations	Satisfactory	
6. Received in time?	Yes	
B. Pertinence		
1. Precisely related	2, 17%	50, 33%
2. Generally pertinent		100, 67%
3. Not related at all	10, 83%	0, 0
C. New information		
1. Any valuable citations not known before?	No	Yes
2. What type?		Reports, per. articles
3. No. ordered	0	50
D. Impact of search		
1. Change of course of work		X
2. Provide info. needed to continue		
3. Confirm requirement for work		
4. Provide method for solving problem		X
5. Suggest alternative methods		X
6. Save dollars or man-hours		(b)
7. Other	(a)	

(a) NASA considered it only partially responsive. Very few documents in their files pertinent to subject.
(b) Provides some assurance that work of major significance has not been overlooked.

Figure 6. Machine Searches

Search	Working days after start of term	Working days after submission	No. of items
Request to DDC & NASA	7		
NASA search rec'd		11	12
DDC report bibliography rec'd		17	225
DDC work unit summary rec'd #TI8144		28	61

merce. However, the literature searches that were done in six cases of proposed research projects failed to find such duplication. The sample of six cases was probably too small to expect to find a duplication, though it was too large for the time allowed for the project. Perhaps if 100 literature searches could have been done, some duplication of previous or current research would have been found.

On the positive side, 11 of the 18 DDC report bibliographies and work unit summaries were rated as beneficial; four of the seven NASA searches and five of the six manual searches provided missing information needed to continue the work, while one other NASA and one other manual search suggest alternative methods which may be tried. Many of the articles were useful as background information and in planning procedure. For this reason it would be worthwhile if literature searches could be done on all new projects being started.

The manual searches were found to be very time consuming, the average time being nearly 22 hours. The time for obtaining the machine searches was 11 or 12 days for the NASA searches and an average of 17 working days for the DDC searches. The scientists evaluated the DDC searches from unsatisfactory to valuable. The percentage of precisely related references from the NASA searches was 5½%–54%; from the manual search 10%–62%.

Comparison of Machine Searches and Manual Searches

The question has been asked, "Do the scientists prefer the machine searches or the manual search?" This question can hardly be answered from this project. The machine searches obtained from DDC and NASA covered primarily technical report literature with some translations; the manual search covered primarily the periodical articles, conferences, and some books.

Both machine searches of the technical reports and manual search of the journal literature are necessary to cover the literature; one supplemented the other.

Machine searches covering journal literature could have been obtained, but in this project only the free machine searches were used. In one case the DDC searches were rated as unsatisfactory. This was apparently due to incomplete understanding of the question by the searcher. Telephone contact should have been made by the searcher with the requester to clarify the questions as was done in at least one case by NASA.

Translations

Very little literature in foreign languages was selected for obtaining copies of the articles. The scientists' antipathy to foreign literature was strongly apparent in the results of the interview survey, a weakness condoned by cost and difficulty. Many of the scientists do not feel at home with languages other than English and do not feel that they have time or money to get articles translated. This is where some of the valuable accounts of prior research may be hiding—in the Russian, Japanese, Hungarian, or Swedish literature. But the scientists steer away from such literature.

The evaluations turned in by the six scientists after they had reviewed the lists of titles and the abstracts furnished in the literature search do indicate that much of the information was relevant to

the question. It provided background information on the topic, appraised the scientist or other materials or methods of which he was not aware, provided information needed to continue the work, and suggested alternative methods.

It also suggests that the science librarian should serve as the literature specialist—interface—on a team engaged in scientific work.

Conclusions

What does all this mean to the busy budget-bedeviled librarian? If you are persuaded that your patron needs to be introduced to and assisted with computerized services, you are in for a big adventure. There is nothing that builds rapport faster between patron and librarian than working together over a search request to get the best out of the computer. By involving staff in this process, the library learns about the researcher's interests early, that is, before he is funded, not halfway through the project. Such an inside track feeds information to the acquisitions section in a timely way. The researcher is pleased to see the library collection reflecting his interests. Most important, the library has a chance to bring patron and whatever he wants together even if the library does not own the citations. Interlibrary loan can shine because it now has lead time and can place orders in a batch. And—it does not hurt for a librarian to be seen handing a researcher a computer printout either!

As a result of various experiences over several years with computerized literature searches, I am entering two recommendations in our FY75 budget. One is a request for a special matching fund to finance literature search fees. For instance, if SIE charges $50 and SIE is what the patron needs, then the library will split the cost 50/50. All of the reference librarians know how to counsel researchers now on these data files; however, next year one of them will be designated to diagnose and monitor the complete process from the submission of the first request to the filing of the final evaluation sheet. This librarian will reiterate any search that needs it and will make sure that the user receives or knows how to procure citations he actually selects from his printouts.

Considerable attention is being paid to "retailers" of computerized files such as the University of Georgia Computing Center. This Center will accept a subject profile for accessing a combination of files according to the user's specifications. The price varies, of course, according to the number of different files to be searched.

The idea of "retailing" a wide range of data bases using one computer and software system makes a great deal of economic sense especially when the research is as interdisciplinary as environmental impact. This is why NOAA is developing its own computerized search services—Oceanic and Atmospheric Scientific Information System (OASIS). The systems librarian at NOAA Headquarters in Rockville, Md., is in charge of the OASIS Project.

As evidence of rising interest in computerized literature searches three directories have been recently published: *Survey of Commercially Available Computer-Readable Bibliographic Data Bases* (ASIS $8.50), *Available Data Banks for Libraries and Information Services* (The LARC Association, $13.80), and *Selected Federal Computer-Based Information Systems* (Information Sources Press, $24.95).

These data files are proliferating rapidly; therefore, I would not recommend heavy reliance upon any directory. The Institute for Scientific Information has announced it will begin publishing a "Social Science Citation Index" patterned after the revolutionary *Science Citation Index* and its corollary computerized search services.

Three final points. First, cost is an excuse, not the fundamental cause for lack of use of computerized searches. Researchers budget for books and periodicals. Why not budget for that on-demand tailor-made publication called the computer printout? A researcher who is willing to pay $25 for a bibliography or reference book at a bookstore but is not

willing to pay for a customized literature search document created by a machine is troubled by culture lag. It is up to the librarian to educate the researcher to budget for this newer, faster mode of "publication."

Second, the degree of satisfaction with these searches is directly related to how early the user submits his request. If he queries at the inception of a project, that is, before he becomes familiar with the literature himself through traditional means, he is usually pleased with the machine search.

Third, the human interface between the user and the computer (if it is off-line) is essential. The librarian is that interface and, being that interface, can relate all information resources to his needs, not just the computerized ones.

Machine searches provide more opportunities than ever to work with a researcher as a team member, and to make a timely contribution to his project in a mode which is cost beneficial to all concerned.

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Joan M. Maier is chief of library services, National Oceanic and Atmospheric Administration Library, Boulder, Colo.

An Integrating Approach to Environmental Information

Marta L. Dosa

Syracuse University School of Library Science, Syracuse, N.Y. 13210

■ Society's involvement with environmental issues brings a challenge to educational institutions. Information specialists may look at the field as a model of other subjects where knowledge is scattered because of its cross-disciplinary nature, changing concepts and value judgments, and unorthodox communication patterns of user groups. In 1972 the Syracuse University School of Library Science introduced a seminar on "Information Problems in Environmental Studies." A prime behavioral objective was to increase students' sensitivity to human or managerial implications of modern complexity. The literature of environmental studies was envisioned as a two-dimensional approach, integrating a set of problem areas with a set of disciplines which bear on the field.

SOCIETY's intensifying involvement with issues and problems of the environment brings a challenge to educational institutions which cannot be disregarded by schools preparing information handling personnel for the future. An international intergovernmental group recently stated that in the past educational systems have depended on "information contained in static, archival form" supplied by libraries. They formulated the following mandate: "The dynamics of growth and obsolescence of human knowledge requires a more continuous process of education utilizing information systems better adapted to changing values, knowledge structures, and human needs" *(1,* p.47).

Today there are few fields which reflect the deep dislocations and conflicts in human perception of life, society, and the future with more force than the collective concern for the environment. Within the past decade some information specialists began to urge us to consider that data on human behavior and thinking might prove as valuable for the development of public policies as demographic and economic information. But almost invariably the underlying assumption has been that humanity is progressing toward a better future *(2).* Now that we are beginning to realize that policies of the past have led us to the current state of environmental pollution, we turn to technology assessment and a more realistic, even pessimistic, philosophy of policy planning. Are we really progressing toward a better future? What are our priorities? Where do our allegiances lie? Thus the concern for the future of the environment has taught us to doubt and gradually reassess not only prevalent practices but also current thinking. What experience could be a more forceful teacher of change?

Why Is Special Attention Necessary?

The numerous reasons why information specialists should make the current ecological concern and its complex needs for data a topic of special attention may be simplified into three prime considerations.

1. The field of ecological concern may be construed as a model of other emerging areas where information cuts across all disciplines and aspects of human activity, such as the study of minority groups, nonviolent studies, futurology, issues of individual privacy, consumerism, etc. Knowledge in each of these fields has been characterized by extreme fragmentation and scattering. These fields of study are at a stage where area studies had been 25–30 years ago. None of them shows the markings of an emerging independent discipline although several of them are being taught in separate academic programs. Only in environmental studies can one observe the beginnings of consolidation.

2. Environmental science is characteristic of areas of thought and knowledge where concepts and interpretations are in a turmoil, shifting and developing in response to new societal insights and value judgments.

3. Current and potential information user groups may be found in all professions and activities, but existing collections and other concentrations of environmental data are indeed few and hard to find. Consequently the field demands that one abandon conventional channels and explore person-to-person flow of information, "hidden collections" in research centers, offices, in files of industry, to find places and ways to obtain potentially useful data.

At these three different levels the evolving patterns, needs, and information transfer mechanisms of environmental affairs have an experimental and model-building role for education for library and information service. It can be demonstrated that students who are immersed in the problems and controversial, fumbling solutions of this field will be better equipped to cope with the information situation of other cross-disciplinary problems which confront the professions, policy makers, educators, and managers everywhere.

Planning Environmental Studies

In the planning stage for a course in the "Information Problems in Environmental Studies," the most difficult task is to arrive at a clear and adequate interpretation of the concept of "Environmental Studies." Terms such as "ecology" and "environmental science" are often used indiscriminately and with no attempt at even an approximation of a definition. The concept itself, as it permeates the mass media, the slogans of public speakers and statements of public policy planners is as elusive as the character of our complex society, whose every aspect may be brought into relationship with one or another ecological concern. Man's recent preoccupation with problems of pollution brought about so many changes in emphasis and the applications of terms that often original definitions can not be used to cover their new and many-faced meanings. Consider, for instance, ecology, animal ecology, forest ecology, etc. Today, when used in its expanded and popularized connotation, supplying the prefix to a host of newly coined words (eco-tactics, eco-catastrophe, eco-crisis, etc.), it implies the entire range of environment-related issues, whether scientific, technological, social, political, economic, or philosophical in nature.

Information services for people concerned with "ecology" or "environmental science" may be needed for at least two levels, depending on user's approach:

1. professional or research-oriented information activities, requiring precision in the identification and prompt retrieval of the right kind, form and quantity, followed by the production of the actual resource, rather than a mere reference to it; and

2. information services geared to the needs of a participating public. They call for empathy and skill in individualizing, coordinating or combining services for divergent interest groups.

Users in the first domain are often characterized by an objective approach and they are mainly interested in data. The information seeking of the general public, on the other hand, is quite often colored by romanticism and individual expectations. Around the current, highly dramatized and emotional involvement with environmental affairs a whole new, colorful imagery is developing, reflected in such phrases as "vanishing air," "endangered planet," "dying generations," "terracide," "mother earth," etc. It is perhaps not insignificant that new images are as frequently introduced by researchers as by writers and poets, and that drastic attitude changes are being urged by scientists as much as by the traditional representatives of ethics and morals. This romantic stanza of the field poses an interesting challenge to those who operate public information services. On one hand, knowledge about the effects of population growth, urbanization, technological progress, etc., has accumulated and it is there to be distributed to the layman. On the other, it is only a subtle line that divides the dissemination of subjective and persuasive information from propaganda (*1*, p.19).

For purposes of the suggested course of study the phrase "environmental studies" is accepted in its broadest sense, signifying information needs in the public as well as the research domains and implying a cross-disciplinary view. At the outset, seminar topics should reflect the theoretical, empirical, and emotional dimensions, but the spirit of the investigation must remain aloof to any romanticism and preserve strict objectivity. As an assumption underlying all projects and discussions information resources mean people, organizations, and materials.

Planning time may be short; but a brief preliminary overview can show that environment-related programs, courses and institutes are under way or in the planning stage in several other departments and professional schools of the university. In addition to the science departments where such courses have traditionally been offered, a number of other fields, including law, education, the schools of management and others may be seen to be grappling with the same objective: to reach out to issues that transcend the professions' ability to supply satisfactory solutions on an individual basis and require an orchestrated effort by many. To find solutions to mutual problems, each field will have to learn more about the motivations, beliefs, approaches and methodology of the others. A potential role of exploration and coordination awaits information specialists of the future if they think in terms of leadership.

The Environmental Studies Institute at Syracuse University was of particular importance to our planning. Its dedicated and highly cooperative staff helped our group to identify several environment-related programs. There was the potential of an "invisible college" on the campus. To involve its members—teachers and students—in a continuous exchange of experience and information was one of the long-range objectives of our seminar in the library school. We also turned to the community to gather data about ecology-oriented agencies, associations and citizens' groups. They, too, became components in our seminar's evolving information network of institutional and human resources, lying beyond the library's walls.

Goals and Objectives

The following educational objectives of the seminar were drafted cooperatively with students: 1) the identification of current and potential user groups and assessment of their behavior, 2) identification of producers and distributors of environmental information in published and unpublished forms, 3) study of new bibliographic control mechanisms and those in traditional disciplines which apply, and 4) examination of current and potential practices for the selection, organization and use of environmental information.

We had one primary concern which over-shadowed all other goals, namely to increase seminar members' sensitivity to what one author called "managing mod-

ern complexity" *(3)*. If we hope to build in our profession a readiness to cope with the psychological climate of the future, it is crucial that we become aware of and actively accept complexity. I am speaking of complexity which manifests itself in the constantly changing fabric of institutional and personal relationships, in the endlessly shifting rhythm of collective human aspirations, individual reactions and fallacies, and in the often unexplainable sequence of decisions made by other people that we encounter at every turn. Neither escapism into the preoccupation with technical detail nor a mere passive acceptance of this human and societal complexity will do. We, who will be responsible for the handling of increasingly complex, often redundant, ambiguous or contradictory information will have to learn to depend on human resources and human "switchboards," with as much ease as we have come to depend on technically sophisticated facilities. We will have to learn to understand human weaknesses and take into account human frustrations and the inability to communicate just as we have come to understand the weakness in our policies of collection building and library classification. To cope with the complexity of increasing participation and interaction of people at every phase of the information flow is going to be a harder test of the human-centered professions than the perfection of large systems and the building of data banks.

In the seminar described here, we endeavor to expose students to unusual ways of collecting data. Oftentimes they were sent on a search for the individual expertise which was represented by members of the community. They also explored the interrelationships of organizations. All this resulted in their experiencing complexity in a very real sense. The student, for instance, who chose as a topic the controversy over the industrial pollution of a local lake, found part of the information in the collections of an engineering consultant firm, a local college and in the private files of a dedicated citizen. She was referred by the past president of a community action group to another consultant firm, and in turn by this firm's librarian to the community relations office of a local industrial company. Here she found that the information offered to her was geared to appeasing the public. A chance hint directed her to the environmental engineering division of the same company, where her search ended successfully.

Table 1.

Identification of Problem Areas	Disciplinary and Professional Approaches
Air pollution	Agriculture
Conservation	Anthropology
Energy	Architecture
Food, Nutrition	Arts
Industrial pollution	Business and commerce
Land pollution	Economics
Marine pollution	Education
Noise pollution	Esthetics
Nuclear pollution	Forestry
Pesticides	Governments
Population growth	Human; behavioral; psychological aspects
Solid waste disposal	Law
Thermal pollution	Management
Urban environment	Medicine; psychiatry
Visual pollution	Military aspects
Water pollution (exclusive of marine pollution)	Planning
	Political science
	Science and technology
	Sociology (rural, suburban, urban aspects)

Suggested Topics

A substantial question still remains and plagues anybody who has contemplated the enormous body of literature which has grown out of the environmental concern: how to systematize it and render it more manageable. For purposes of the aforementioned seminar, the entire field was divided into two sets of topics, problem areas and disciplines bearing on these problems. Each discipline brings its own attitudes, methodology, solutions into the field. An integration of these two sets of topics provided us with a workable blueprint of the literature. The two sets were so designed as to permit maximum flexibility in the inclusion of additional topics, deletions and other constant changes. Some examples are in Table 1.

It should be emphasized that these categories do not represent an attempt at

classification, nor do they claim to be comprehensive. Their major value lies in the fact that they complement each other. The literature of the environment is usually classified by problem areas. The second list of categories represents user groups, each of them bringing variations in approach and professional frame of reference to their information seeking. The two taken together form an integrated approach to environmental information problems.

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Marta Dosa is associate professor at the School of Library Science, Syracuse University, Syracuse, N.Y.

Black-White Curriculum Content: SASS Library

Martha L. Stewart

Case Western Reserve University School of Applied Social Science Library, Cleveland, Ohio 44106

■ The experiences of expanding the black collection in a social science library are related. In addition, the methods used to expand and organize this special material are also recounted.

VERY EARLY in the process of developing and expressing concerns about black–white content in curriculum, and black–white relationships in classroom and field work, the special School of Applied Social Sciences (SASS)* committee working thereon expressed its concern that library resources reflect these interests and provide the enrichment for development along these lines.

The library already had a better than average collection of material reflecting the significance of the "black experience," but the faculty and the librarian were well aware of tremendous gaps. The charge from the faculty to the librarian was two-fold: 1) increase and broaden the book collection and the range of periodicals; 2) identify black authors in the catalog.

* SASS is the graduate school of social work at Case Western Reserve University, and the library, containing 8,000 volumes and an equal number of pamphlets or monographs, is one of four graduate professional school libraries at CWRU. In addition to serving its own faculty and students (approximately 350) it is used by other graduate students and faculty at the university.

Expansion

To increase and broaden a library collection in any given area requires considerable thought and judgment, the sort of judgment professional librarians are hopefully trained to use and develop, but which most often comes with experience and a "sixth" sense. The book budget sets the limits in one direction, space and the completeness of the collection in other curriculum-related areas in the other. How "adequate" the collection is to start with obviously becomes an important factor in determining both expenditure and space. It is also a factor in setting priorities, among books and between books and journals. At SASS, because size and physical arrangements of the school and of the library readily permit face-to-face communication and the librarian welcomes them, suggestions from faculty and students make valuable sources of knowledge about material which should be acquired. (This is not to say written suggestions are not received and used, but rather to emphasize the give and take which greatly helps in refining decisions and enriching the range of choice.) In SASS library we never underestimate the value of the person-to-person experience. The range of other resources for information about varieties of material available is only limited by the librarian's ingenuity, professional ability, and the number of days in the week. The professional tools usually employed by the librarian responsible for book selection are many and varied and continue to proliferate with terrible swiftness. The increased interest in, and

concern for books, journals, and pamphlets about and by black people has resulted in the tremendous expansion of material published and in a corresponding need for vigilance and discrimination in acquisitions.

Distribution

Once the material has been acquired, how is that fact made known to our faculty and students? At the request of our faculty two years ago, we identified and continue to identify, black authors and editors by a simple coding device. While this is contrary to orthodox professional library procedure, I feel that in a special library geared to the particular needs of the social work curriculum, at this point in time, it is an important and valuable tool. Our acquisitions list, which is issued several times during the school year and which is distributed to each faculty member and made available to every student, is one means of calling attention to all new material added during a specified period; this includes new periodicals as well as books and pamphlets.

Arrangement

Some faculty felt that black materials should be separated. The librarian's view was quite to the contrary. Inasmuch as the greatest portion of books relating to or written by blacks is naturally classified (we use the Dewey system) in the same area, the bulk of our black material is shelved in the same location. Of course, some of these books are, by their predominant character, classified and shelved accordingly in psychiatry, psychology, intergroup conflict or relations. The important thing here is that faculty and students have a clear and definite understanding of library procedures, library philosophy, and library usage. Many of them do not, and many prefer "instant service delivery" without going through the painful process of learning how to use library resources. There is more to readily finding black materials, minority resources, or any resources in a given field of interest than merely knowing how to use a card catalog. Faculty and students are alike hard-pressed for time, as is the librarian, but a judicious 45 minutes spent in learning the how and why of library usage will bring immense benefits in know-how, time saved, and increasing expertise about holdings in subjects of their special concern. It is just as unreasonable to walk into a social work library and expect to find all materials about the "black experience" in one spot as it is to walk into the waiting room of an out-patient clinic and expect everyone there to have identical needs. It is just as unreasonable to expect to find exactly what you want in the library by using only the card catalog as it is to expect to be able to practice social work knowing only crisis theory.

Conclusion

Working closely with our committee on racism, the librarian gained insights of value for ongoing selection, and the committee, in turn, became better acquainted with library practices and problems. Their input with regard to periodicals was particularly helpful, and we did not disregard the so-called "popular" journals. Exposure to a variety of periodicals by and about blacks, even when not specifically classroom assignments, enhances the educational experience for students and faculty alike in a more casual, but effective way, perhaps, than required readings from books in the same subject area.

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Martha L. Stewart is librarian at the School of Applied Social Science Library, Case Western Reserve University, Cleveland, Ohio.

Overseas Report

LADSIRLAC, SINTO, HERTIS and All That

Theodore P. Peck

University of Minnesota Libraries Reference Division, Minneapolis, Minn. 55455

■ An overview of some scientific–technical information programs in Great Britain is presented. The programs provided by the Liverpool City Library, the Sheffield City Library and Hatfield Polytechnic College Library are representative of the well organized information channels established in England for industry. Each of the institutions listed have developed unique techniques to fill technical information gaps for expanding industries.

THESE MYSTERIOUS sounding words are acronyms which all too modestly represent some fascinating industrial information programs in United Kingdom Libraries. Those librarians who have read in British library literature about Liverpool City Library's LADSIRLAC, Sheffield Public Library's SINTO, and Hatfield Polytechnic College's HERTIS are well aware that these examples of alphabetical shorthand stand for imagination and ingenuity applied to the practical information problems of British industry.

I had discovered that British technical librarians had documented their ideas and experiences in book and journal literature quite profusely. Their approach was practical and seemed to touch upon many of the problems which also are confronting librarians in American industry. In addition, their presentations were informative and original. A picture emerged from reviewing the library news from Great Britain. Many interesting programs of service for various types of user requirements exist. The involvement of large public and academic libraries in helping industry find information was demonstrated graphically by the Liverpool and Sheffield City Library systems and the new polytechnic institutions.

During a stay in the United Kingdom, I visited 23 information agencies in England, Scotland, and Wales. These included public, academic, and special library centers such as the National Lending Library, industrial research associations and library schools. The purpose in tapping such a wide range of organizations was the belief that all these participated directly and indirectly in the development of information service which industry could and did use.

In addition, many valuable details were obtained on methods of instruction in library use, organization of library services for specialized information needs, and on ways in which research in information science provides new access systems to information stores which have an immediate application in commerce and trade.

This paper has been distilled from the author's study. The three programs are representative for the entire situation and yet significant in their own way, too.

LADSIRLAC and SINTO, of the cities of Liverpool and Sheffield, respectively, exemplify the response of the British public library to local industrial information needs.

It is not by accident that two such dynamic information service programs developed in this area for this is the heavily industrialized midlands of England. Liverpool has long been an important port of entry because of its deep trench in the Mersey river. Sheffield has massive steel plants because of its proximity to the iron ore fields. The public library institutions of these cities organized innovative services to bridge information gaps, to effect technology transfer, and to meet the challenge offered them as educational organizations by the tremendous need for knowledge in the post war generation.

LADSIRLAC

This is one of the service programs of the Liverpool City Libraries. The plural is used here since there are three libraries in the system, the Brown Library, the Picton Library and the Hornby Library. They represent a fine collection of resource materials on many areas of knowledge. Of particular interest to industry are the Science Library (pure sciences), Technical Library (applied science collections) and the Commercial Library, which consists of extensive holdings of business and commercial materials. LADSIRLAC draws upon all these in its specialized information retrieval services.

Liverpool and District Scientific, Industrial and Research Library Advisory Council, or LADSIRLAC, was founded in 1955. It is not exclusively a library program, but rather a cooperative arrangement between the Liverpool City Council and the Liverpool City Libraries for aiding industrial development and growth.

Industry has also worked with LADSIRLAC on a reciprocal basis by financially supporting the project, by donations of resource materials to the libraries and assisting in the answering of inquiries. In return, Liverpool's industries receive from LADSIRLAC expert information service, details of new research developments, loans of publications from the Library's extensive collection, bibliographical lists and searches of the literature, translation assistance with non-English language materials, and specialized exhibits and instruction in use of scientific and technical literature.

Programs of LADSIRLAC

Research Information Assistance. One of the key services of LADSIRLAC is to help industry find the answers to those difficult questions which often are not easily found in literature, and require considerable searching, and even the dependence on specialists in the particular field of inquiry. Typical of the questions received from industry at the Liverpool City Libraries are these topics: cold forging Library, industrial research associarigs; defluorination of rock phosphates; direct mail—statistics, costs; economics of water softening; incentive schemes for process industries; power stations under construction in U.S.A.; recovery of silver from photographic film; reliability of solenoid valves; uses of super pure glass fibre in optical fields; vapour pressures of sugar solutions.

From these samples of the many inquiries processed by LADSIRLAC, it is clear that not only is industry concerned with finding solutions to problems arising from manufacturing processes or trade enterprises, but they are also continually seeking new ideas and input for enlargement possibilities. This kind of information service, the current awareness program, is another which LADSIRLAC is able to offer.

Current Awareness. This is carried on in several ways. First, by monthly bulletins and bibliographies which serve to apprise members of the new publications on the market, of revisions of standard literature and of the appearance of special material such as patents, standards, and technical reports which are often not widely announced. Second, this service attempts to up-date industry by combined lecture–exhibition programs. Top-

ics of particular interest to commerce and industry become the subjects of programs at the Liverpool City Libraries. Lecturers are chosen from those who have expertise in the field of concern such as "Hovercraft Transportation Systems," "Liverpool City Region's Economic Development," or "Metrication." The exhibition, to be combined with the lecture, makes use of the resource materials in the library. In addition, reading lists and brief subject bibliographic aids are drawn up for the occasion for use as further information backup to the lecture.

A third way in which industry is kept alert to new information is through the establishment of "use of literature courses." Chemical literature is a popular subject here and each year LADSIRLAC, in cooperation with the Liverpool Regional College of Technology, offers a three-day course on the use of chemical literature. Librarians, chemists, and faculty from various institutions of higher learning take part in these sessions.

The *Translations Advisory Service* is another facet of LADSIRLAC's industrial information programs and services. Frequently information needed by industry is available only in a foreign language and has to be translated. LADSIRLAC maintains a file of professional translators who not only have knowledge of foreign languages but have background in advertising, engineering, agriculture, pharmacy and other varied interests of industry. Use is also made of holdings of translations of the National Lending Library in York Spa and European Translations Center in Delft, Netherlands.

SINTO

Sheffield City Libraries is one of the larger public library systems in England. It is situated in a city long famous for steel production, and the library reflects this major concern in its collections, information services, and in its involvement in the community over the years. The department of Commerce, Science and Technology is the headquarters for SINTO (Sheffield Interchange Organization), one of a number of cooperative library organizations in Great Britain established to improve and extend service to patrons and users. Of these, SINTO is perhaps the oldest, its formation dating from 1932.

The primary advantage of such consortia formations as SINTO is in the pooling and sharing of many specialized media collections, professional and vocational specialties and interests, and to utilize the common desire for many diverse groups to work together for the continued development of information programs and services for the membership. Evidence of this can be seen in the structure of SINTO's membership which consists of over 61 organizations and agencies including the Sheffield Chamber of Commerce, public utilities, research associations, commercial and industrial firms. Each of the participants in SINTO is required to have a basic library collection and agrees to continue to build and develop its library services.

The contributions of SINTO to the furtherance of scientific and technical information exchange has been noteworthy. Over the years it has conducted research into the holdings of foreign patents in this country, has constantly pressed the Patent Office for improvements in its publication of annual lists, abridgments and the inclusion of subsidiary titles in patents, and was to a considerable extent responsible for persuading the Patent Office to produce on slips its World Index of Trade Names. It urged Aslib to produce a central Translations Index and provided its own index as a nucleus. Its headquarters, with members' help, has compiled an extensive index of steel specifications and also a location index of foreign standard specifications, and now acts as a steel information center. In cooperation with the Sheffield Education Authority, SINTO runs a 20-week course of "Training in Special Librarianship" at two-yearly intervals, and holds one-day training courses of subjects of special interest.

Department of Commerce, Science and Technology in the Sheffield City Librar-

ies. The library is the headquarters of the SINTO network which reaches out to industry connecting it to special resource materials, libraries, information agencies, national libraries, and bibliographic centers in Europe and on an international scale to America and the Commonwealth. Telephone and teletype links provide swift communications, but extensive use of mail is made for subscription to a variety of publications.

Steel Index. This is a unique service project of SINTO. It is an extensive register (over 35,000) of grades and trade names of steel maintained on cards.

Another valuable service function has been the preparation of *Research Bibliographies* in specialized areas of technology. Subjects covered in this series are, industrial chimneys, electrochemical machining, patent holdings in British public libraries, Yorkshire and Humberside (on industrial potential of this region).

These bibliographies gather together, conveniently for the user, citations from a wide variety of publications which otherwise would be time consuming to locate, and in some instances quite difficult to track down.

HERTIS

The Hertfordshire Technical Library and Information Service, familiarly referred to as HERTIS, is based at the Hatfield Polytechnic College in Hatfield, Hertfordshire.

The polytechnic college is a newer kind of educational institution in Great Britain and has the purpose of combining some higher level curricula with practical applications and training in industry. Students spend two years at the college with their time divided with work–study projects.

Hatfield is perhaps the most outstanding of these in its innovations in teaching and its well designed library-informational training courses which not only have been well received by students, but have proven beneficial in their courses.

Hatfield has also distinguished itself as a community institution by its services to industry in the county of Hertfordshire. The basis for this may be found in the enthusiasm for understanding and coping with industrial information problems on the part of the library staff and the officials of the institution. Of particular note is the well designed and creative public relations literature prepared by HERTIS which includes not only their brochures but the many publications prepared to transfer information to industry.

HERTIS research information assistance operates in a similar manner to other programs of this sort. First of all, there is a process of identification and classification of the information problem. The query may be simple or complex, but each question received has to be evaluated and an assessment made of the depth of its degree of difficulty.

Often the problem as presented is made up of a group of individual information requests which taken as a whole relates to one another. However, to the librarian they are each different, and will require varying amounts of search effort.

For example, the decision by a manufacturer to establish a new product line or to convert production methods to a new system are matters for which ready answers are not available. Instead, what is required is much gathering of details and consideration of their implications to the firm. Markets have to be outlined and sampled and costs estimated. HERTIS services requests of this nature as do many other technical information agencies. However, a unique feature at Hatfield Polytechnic is that industrial inquiries are used as teaching devices for students.

Under the guidance of HERTIS staff, certain types of information requests from industry become "live problems" for students attending the Hatfield institution. Since these students are preparing for careers as technicians in industry, opportunities to participate in information retrieval projects of this sort prove to be valuable training experiences.

HERTIS draws on county-wide resources in its research information services. There are 17 technical libraries with

large collections of technical books, journals and report literature. They also call upon the expertise of biologists, metallurgists and others with industrial, managerial and technical experience who have consented to participate in the programs.

Government research stations, research associations, development and trade associations information capabilities are also made use of by HERTIS staff.

Inquiries that cannot be satisfactorily completed by HERTIS personnel are redirected to community sources where specialized assistance can be brought to bear upon industries' questions. In these cases, it is evident that a situation has been encountered which is unusual or unique and no amount of searching in literature will produce an answer. In this type of problem, a new assessment of the problem needs to be brought about by the specialist and his recommendations implemented.

National Reprographic Center. In line with its down-to-earth approach to industrial information requirements, HERTIS has established a laboratory to study improved reprographic processes. This has been made possible by a grant from OSTI (Office of Scientific and Technical Information) of the British Government.

The National Reprographic Center covers such processes as document reproduction, microfilming, graphic arts, and offset. Familiarization courses are offered in each of these areas for office executives, secretaries, librarians, and sales representatives.

Seminars and advanced courses as a follow-up to the familiarization sessions are an additional offering at Hatfield Polytechnic College.

Conclusion

Technical Information Programs in Great Britain fill a practical need for a continuing flow of new knowledge for the country's expanding industry. The success of these efforts by librarians, information scientists and research personnel can be seen in the extent of the close working relationships of government, industry, and libraries. From the great national information centers, such as NLL to the smaller county public library cooperative schemes, there is evidence of well designed systems and interest in and understanding of public service to users.

Received for review Oct 18, 1973. Manuscript accepted for publication Dec 11, 1973. This study was made possible by a fellowship from the Council on Library Resources.

Theodore P. Peck is chief of Reference Services, University of Minnesota Libraries Reference Division, Minneapolis, Minn.

sla news

Actions of the Board and Council Jan 31–Feb 2, 1974

The SLA Board of Directors and Advisory Council held their Winter Meetings Jan 31–Feb 2, 1974, at the Royal Inn at the Wharf, San Diego, California.

Membership—SLA's membership at Dec 31, 1973, reached an all-time high of 8,343 members—an increase of more than 11% over the total at Dec 31, 1972.

Restructure of the Advisory Council—In 1969 a Special Committee on Association Structure was formed. In 1971, the Committee's preliminary suggestions regarding dividing the Advisory Council into two separate councils were approved in a straw vote of the Advisory Council. The Committee's full report was printed in *Special Libraries* 62(no.3): 153–157 (Mar 1971). Further related actions are reported in the following issues of *Special Libraries:* Apr 1972 (p.205), Jul 1972 (p.337), Jul 1973 (p.312), Dec 1973 (p.579). At its Oct 1973 meeting, the Board referred to the Chapters and Divisions for discussion the report of the Special Committee to study the Association-wide implications of a proposal to restructure the Advisory Council by replacing it with a Chapter Cabinet and a Division Cabinet. The Chapter officers and the Division officers met separately and each group recommended that the restructure proposal be accepted. Then meeting together as the Advisory Council, they also voted to approve the proposed restructure of the Advisory Council.

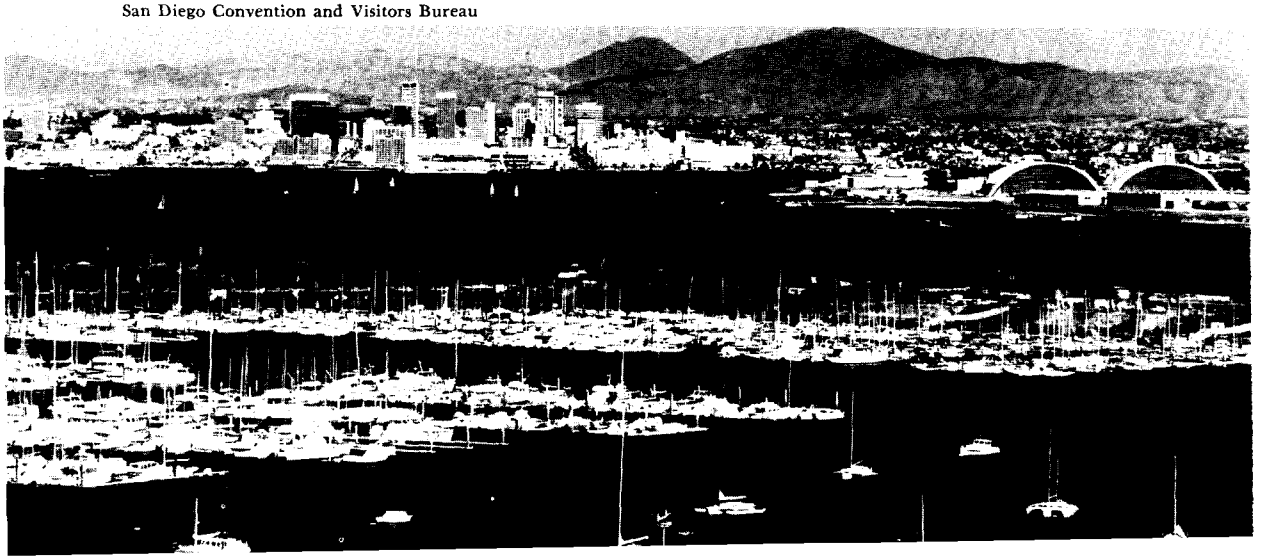
Bylaws Revision—The Bylaws Committee presented the proposed revision of the SLA Bylaws to the Board and Council. After discussion and comment by the Council, the Board approved the proposed revision of the Association Bylaws. The proposed revision of the Bylaws must now be voted on by the members at the Annual Business Meeting in June 1974 in Toronto, followed by a mail ballot of all members in the summer. Full details appear in the March 1974 issue of *Special Libraries.*

If the Bylaws revision is approved by the mail ballot, SLA's elections in spring 1975 for 1975/76 officers will operate under the new Bylaws. The Board therefore authorized the President to appoint a special committee to recommend a means of transition from the existing Bylaws to the revised Bylaws regarding Board membership and titles of officers.

SLA Salary Survey—Board and Council discussion regarding the results of the 1973 SLA Salary Survey deplored the fact that the average salary for women is still 75% of that for men (as it was in 1970). Several studies are being initiated to determine how the Association can influence the situation.

Employment Clearing House—In Oct 1973 the Board authorized Association staff to plan for reinstitution of a year-round employment service which would be available to all members, and which would operate within applicable statutory limitations. The Advisory

San Diego Convention and Visitors Bureau



Council recommended to the Board that the proposal be approved. The Board approved the proposal which appears elsewhere in this issue. It is expected that the service will commence in April.

Committee on Positive Action Program for Minority Groups—The Board approved the Committee's set of eight recommendations meant to affirm SLA's publicly stated position of positive action. The recommendations urged various units of the Association (Chapters, Education Committee, Nominating Committee, Student Relations Officer, etc.) to recruit minority group members for their various activities.

Research Committee—The Board authorized publication of the third in the SLA State-of-the-Art Review Series: *Continuing Education Needs of Librarians: A Research Review* by Dr. Lawrence A. Allen, dean, University of Kentucky Graduate Library School, Lexington, Ky. It is expected that publication will occur in Spring 1974.

The Committee reported that three of the four reviews approved by the Board in Jan 1973 are in preparation; an author is being sought for the fourth review.

The Board approved the topics for two more reviews in the series: "The Development of Special Libraries on the International Scene: The Arts and Humanities" and "Unionization, Librarians, and Special Librarianship."

Government Information Services Committee—The Board approved a statement addressed to James B. Rhoads, Archivist of the United States, expressing concern about the slowness with which the Superintendent of Documents library collection of government publications is being transferred to the National Archives. The statement had been approved by the Federal Documents Task Force of ALA/GODORT and by the ALA Council.

Future Meetings—Mrs. Joan Maier (National Oceanic & Atmospheric Administration, Boulder, Colo. 80302) was appointed Conference Chairman for SLA's 1976 Conference in Denver, Jun 6-10, 1976.

Student Groups—The Board authorized the establishment of a University of Michigan/SLA Student Group. Prof. Gwendolyn Cruzat is faculty advisor.

Committee on Committees—The Board approved the redefinition of the Conference Advisory Committee to reduce the membership of that Committee from 9 members to 5 members.

The Board approved the redefinition of the Planning Committee to reword that Committee's charge. These Committee redefinitions will appear in the Annual Directory issue (Sep 1974) of *Special Libraries.*

Committee on Telecommunications—As part of its charge to recommend new Association activities, the SLA Planning Committee recommended establishment of a standing Committee on Telecommunications. The Board referred the recommendation to the Committee on Committees for report in Jun 1974.

Operation of the SLA Employment Clearing House

1. The SLA Employment Clearing House will be operated by the Membership Department:
   1.1 At Annual Conferences as in the past
   1.2 By means of *Employment Opportunities* (issued periodically on a year-round basis).
2. Distribution of *Employment Opportunities*
   2.1 Initially *Employment Opportunities* will be a monthly listing of "Positions Open" and "Positions Wanted" to begin publication Apr 1, 1974. Depending on response, it may later be issued semi-monthly (beginning approx. Oct 1, 1974).
   2.2 Copies of *Employment Opportunities* will be:
      2.21 Distributed without charge to members of the Association only on receipt of a written request.
      2.22 Names and addresses of recipients of *Employment Opportunities* will be maintained for a period of six issues only. To continue to receive *Employment Op-*

portunities for a second period of six issues, a specific written request must be submitted.

2.23 Continuing distribution of *Employment Opportunities* will be to the Chapter Employment Committees, to the Association Employment Policy Committee and to the Association Board of Directors.

3. "Positions Open."

3.1 Listings of "Positions Open" will be accepted from employers in accordance with Association policies and within the guidelines established by the Board of Directors for advertisement of "Positions Open" in *Special Libraries.*

3.11 Advertisements that refer to race, color, creed, national origin, age, sex or any other form of discriminatory practice will not be accepted.

3.12 Positions with salaries less than $9,000 will be listed as "sub-professional."

3.13 A fee of $2.00 per line ($8.00 minimum) will be charged for each listing of each "Position Open." Such listing is limited to five lines (approx. 10 words per line) including name and address.

3.14 Since SLA is a not-for-profit organization, the fee charged to employers for "Positions Open" is intended to cover part of the costs of typing, printing, postage and list maintenance. (Sustaining Members, Patrons and Sponsors of the Association will receive a 50% discount.)

3.2 An employer has the ethical responsibility to reply to each candidate who answers his advertisement in *Employment Opportunities* and *Special Libraries.*

3.3 Each employer will be queried approximately four weeks after his listing is published to determine the response and whether or not the position has been filled.

4. "Positions Wanted"

4.1 Unemployed members or members who wish to change employment may request a listing in the "Positions Wanted" section of *Employment Opportunities.* Such listing is limited to five lines (approx. 10 words per line) including name and address or Box Number. Such listing is at "no charge" for SLA members. (This service is not available to nonmembers.)

4.2 Listings in "Positions Wanted" will be repeated for a period of six issues unless a request to discontinue is received. To extend the listing for a second period of six listings, a specific written request must be received.

4.3 Furthermore, employers who reply to prospective employees' "Positions Wanted" listings should provide a reasonable statement of the nature of the position available.

Report on the Seminar on the Networking Concept of the IRS-UNEP

Heidelberg, Dec 17–19, 1973

This Seminar was sponsored by the Institute of Urban and Regional Development, University of California and the Institut für Grundlagen der Planung, University of Stuttgart; co-sponsored by the United Nations Environment Programme and supported by the Federal Republic of Germany. I was invited to attend by the convener, Prof. Horst Rittel. There were approximately 40 participants from the United Nations and other international organizations, universities, developed and less developed countries (LDCs). Two were librarians, George Ember (associate librarian, National Research Council of Canada) and I. The sessions quickly revealed the differences which plague international meetings and the intellectual disputes common among information scientists. There was distrust of the developed country representatives by those of the LDCs; fraternal jealousy among international organizations; state-

ments on what conditions would be imposed before funds were granted; selfish budget restrictions; differences in concepts of the International Referral Service (IRS) ranging from complete computerization to postcard and telephone and from those who regarded the IRS as only a modest beginning to those who think it should instantly be all things to all people.

The Seminar was opened by His Excellency Ambassador Keith Johnson of Jamaica, former Chairman of the Preparatory Commission for the United Nations Conference on the Human Environment. The principal speaker was Peter Thacher of UNEP who described present workings of the pilot project and future plans for the IRS. Other speakers discussed a futuristic concept of the IRS; informative descriptions of various other systems such as the information systems of the Food and Agriculture Organization of the United Nations, UNESCO/UNISIST; the existing Environmental Law Information System and of the just starting Environmental-Planning-Information System of the Federal Republic of Germany; and the Environmental Management Institute of the University of Southern California. Special mention should be made of the presentation on LORBAS (Large Off-line Retrieval Text Base Access System) for this is either the answer to all information needs or a Rube Goldberg invention; it is certainly worth investigation.

I was asked to report on SLA activities and made the following points: the role of SLA in environmental information and the creation and activities of the Environmental Information Committee; that we take the attitude that the IRS is merely a first step in the information process and that it should not be separated from other activities, and specifically that the IRS should have a librarian on the staff, that the training of environmental information specialists mentioned so frequently in plans for the IRS should be placed in the library schools, and that a thesaurus, or at least a detailed keyword list, must be developed for input into the computer and for user inquiries, and that we support, initially at least, the use of microfiche for storage and transmission of information.

On the third day we hammered out a report to be forwarded to UNEP. That we achieved a consensus is rather remarkable considering the differences revealed during the discussions, and shows that there is a genuine desire to get on with the development of an environmental information program. The principal points are stated in paragraph 2 of the Preamble:

> "Within the context of the UNEP, the objectives were to obtain opinions, criticisms and concrete suggestions from potential partners of IRS. The discussions concerned the implementation of IRS as an aid to both national and international environmental management. The information exchange capabilities of IRS will hopefully enhance communication and cooperation among all nations."

The findings delineated the concept, functions and service options for the IRS, all of which I believe would meet with the approval of SLA.

As a follow-up a number of documents are to be completed. I was asked to prepare a statement for a proposed bibliography of library manuals which might be useful. I went a little further and included a short list of books and articles on library and information center instructional manuals and sent a few samples.

It is essential for SLA to continue to be represented in the building of any international environmental information system both to insure the success of the system and to keep the special expertise and abilities of librarians before planners and decision-makers.

Mary Anglemyer
Woodrow Wilson International Center
Washington, D.C. 20560

Errata

In the Nov 1973 issue of *Special Libraries* (p.540), there is an annotation in the PUBS section for *National Security Affairs: A Guide to Information Sources* (73–20). The author, Arthur D. Larson, is noted as having been a former director of the USIA. The publishers, Gale Research Co., state that Dr. Larson has never been affiliated with the USIA. He is a member of the faculty, University of Wisconsin-Parkside.

SCHOLARSHIP FUND

Donations Received Jan-Dec 1973

Name	*Amount*
H. W. Wilson Foundation	$ 4,000.00
Anonymous Trust Income	2,661.14
Southern California Chapter	1,342.00
San Francisco Bay Region Chapter	500.00
In Memory of Paul W. Riley (Business and Finance Division)	300.00
ICI	250.00
Pacific Northwest Chapter	200.00
In Memory of Deceased Division Members (Business and Finance Division)	100.00
E. I. du Pont de Nemours	100.00
In Memory of Logan Cowgill (Military Librarians Division)	100.00
In Memory of Genevieve Ford, Frances Poremba and Sam Iden (Metals/Materials Division)	100.00
Newspaper Division	100.00
In Memory of Logan Cowgill (Washington, D.C. Chapter)	100.00
Standard Oil Co. of California	$100.00
In Honor of Chapter Members Who Achieved National Recognition (Cleveland Chapter)	83.78
Heart of America Chapter	50.00
In Memory of I. Warheit (Mr. & Mrs. Gordon E. Randall)	50.00
In Memory of Janet Fogarty (Alberta Brown)	25.00
In Memory of Janet Fogarty (Michigan Chapter)	25.00
In Memory of Marguerite McLean (Pacific Northwest Chapter)	25.00
Total Other Contributions— Under $20.00	1,116.15
Total Contributions Jan-Dec 1973	**$11,328.07**

Subcommittee Approves White House Conference on Libraries

On Feb 20, 1974, the House education subcommittee with jurisdiction over federal library programs gave overwhelming bipartisan support to a bill to authorize a White House Conference on Libraries and Information Services in 1976.

Congressman John Brademas (D-Ind.) is chairman of the Select Subcommittee on Education and principal House sponsor of the bill.

At its meeting in Jun 1973, the SLA Board had endorsed the Conference as outlined in the Joint Resolution.

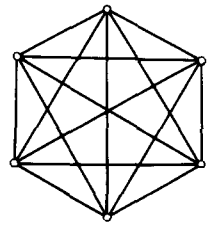
Williams & Wilkins

On Feb 20, 1974, Williams & Wilkins Co. filed an appeal to the Supreme Court in the suit for copyright infringement of Williams & Wilkins *vs.* the National Institutes of Health and the National Library of Medicine.

On Nov 27, 1973, the U.S. Court of Claims had reversed its opinion of Feb 16, 1972, and found the plaintiff (Williams & Wilkins) not entitled to recover and dismissed the petition.

CALL FOR PAPERS 1975

66th Annual Conference
Special Libraries Association



Chicago, Illinois
Palmer House
June 8–12, 1975

Theme: "Systems and Networks—A Synergistic Imperative"

The evolution of information interlibrary sharing into formalized systems and networks is proceeding rapidly. Special libraries have much to gain—and much to contribute. Many are already involved in discipline- or region-based arrangements. It is imperative that special librarians be fully aware of the movement and particpate in planning and management of the systems. By the principle of synergy, "the effect of two or more elements working together exceeds, by an unpredictable order of magnitude, the sum of their effects achieved separately." General sessions will review: the present status of special libraries in national and regional network planning; the imperative nature of cooperation, as related to user needs; the development by special libraries of mechanics necessary for cooperative system and network participation; and the identification of barriers, problems and solutions.

Contributed papers are solicited from SLA members, library school faculty and students, and others interested in making informative presentations to the Conference. Topics of presentations are *not* limited to the Conference theme—although theme-related papers are welcome. The content of papers must have substantial professional interest. All papers must be based on original research, development or on personal experience and must not have been previously presented to any national or international group or submitted to another publication. All papers will be considered for publication in *Special Libraries*.

Papers are selected on the basis of abstracts submitted. Final papers for oral presentation should be approximately 1,500 words in length. Those selected will be scheduled for presentation at contributed paper sessions. Other papers, where appropriate, will be forwarded to Division Program Chairmen for consideration.

Information and Instruction for Authors

1. Send the paper or title of the paper and names of the authors accompanied by an abstract no later than Aug 16, 1974 to:

William S. Budington
John Crerar Library
35 W. 33rd St.
Chicago, Ill. 60616

2. The abstract should not exceed 50 words. Please use the official abstract form which may be obtained from:

Special Libraries Association
Publications Secretary
235 Park Avenue South
New York, N.Y. 10003

In case of co-authorship, the name of the person expected to present the paper must be underlined. The name and the address of the institution or company sponsoring the paper should be given as well as the names and addresses of the current professional affiliations of the authors. The author should prepare the abstract carefully so that it will arouse interest in his paper and do justice to it. The abstract should set forth the purpose of the paper, important results, and conclusion. Please avoid historical summaries and generalities. The abstract will be reviewed by the Conference Program Committee to determine its interest to SLA members. Notification of acceptance will be given no later than Oct 18, 1974.

Full text of all papers must be received by Dec 16, 1974.

3. Special Libraries Association has first right to publish all papers presented at its meetings. All papers are reviewed before acceptance. Papers not accepted for publication in the journal will be released to the authors.

4. Diagrams and data to be presented visually should be made legible through the use of large letters, heavy lines, and limited data on each illustration. Lettering should be readable from 150 feet when projected. Projection equipment must be specified and requested when the abstract is submitted. An overhead projector is suggested.

5. No paper will be accepted unless an author expects to be present.

vistas

COMING EVENTS

May 2–3. National Information Retrieval Colloquium . . . Holiday Inn, Philadelphia, Pa. Theme: Managing Data Effectively. Write: NIRC, P.O. Box 15847, Philadelphia, Pa. 19103.

May 3–4. New England Technical Services Librarians and New England College Librarians . . . at University of Massachusetts Library, Amherst, Mass. Topic: Changing Aspects of the Library Profession. Information: Mrs. Pat Graves, University Library, University of Massachusetts, Amherst, Mass. 01002.

May 4. New York Chapter, SLA, seminar . . . Ballard School, New York, N.Y. Topics: United Nations Documentation and ERIC Documents. Write: Tessie Mantzoros, *Business Week,* 1221 Avenue of the Americas, New York, N.Y. 10020. (212) 997–3298.

May 6–10. National Computer Conference . . . at McCormick Place, Chicago, Ill. For information: AFIPS, 210 Summit Ave., Montvale, N.J. 07645.

May 7–10. 23d Annual Conference and Exposition of the National Microfilm Association . . . at John B. Hynes Veterans Auditorium, Boston. Theme: "Micromedia Horizons '74." For information: John B. Bidwell, 8728 Colesville Rd., Silver Spring, Md. 20910.

May 8. American Records Management Association, 3d Annual Records Management Seminar . . . Mercy College, Detroit, Mich. Contact: Rainer Naus, The Bendix Corp., Executive Center, Southfield, Mich. 48076.

May 9–11. Fourth Annual Conference on Library Orientation for Academic Libraries . . . at Eastern Michigan University. For information: Hannelore B. Rader, Eastern Michigan University, Ypsilanti, Mich. 48197.

May 13-15. Institute of Professional Librarians of Ontario, seminar . . . Wilfrid Laurier University, Waterloo, Ont., Canada. Theme: Labor Relations and the Librarian. Write: I.P.L.O. Office, 17 Inkerman St., Toronto, Ont. M4Y 1M5, Canada.

May 16–18. ASIS, 3d Mid-Year Meeting . . . at University of Pittsburgh, Johnstown Campus, Johnstown, Pa. Theme: "Information Potpourri—On-line information retrieval systems, and standardization activities as they affect libraries and information centers." Contact: Mary C. Berger, Ferro Corp. Library, 7500 East Pleasant Valley Rd., Independence, Ohio 44131 [tel. 216/641–8580, ext. 619]

May 17–18. Council on Library Technical Assistants, 3d Eastern Regional Workshop . . . at the Marriott Motor Hotel, Atlanta, Ga. Cosponsors: School of Library Service, Atlanta University and Division of Librarianship, Emory University. Theme: "The LTA: Catalyst for Change." For information: Howard Blanton, Holding Technical Institute, Rt. 10, Box 200, Raleigh, N.C. 27603.

May 21. American Records Management Association, Seminar . . . Houston, Texas. Program: "Understanding Records and Information Management, Basic/Advanced." Contact: Annette J. Blythe, Chanstat Service, Inc., P. O. Box 1411, Houston, Texas 77001.

May 21–24. International Symposium on Science Media . . . at Flagship Rochester Hotel, Rochester, N.Y. For information: American Science Film Association (ASFA), 7720 Wisconsin Ave., Bethesda, Md. 20014.

May 23. Computer Networks Symposium, Trends and Applications . . . Gaithersburg, Md. Sponsors: IEEE Computer Society Eastern Area Committee and its Washington, D.C. Chapter.

May 23–24. Advisory Group for Aerospace Research and Development, lecture series . . . in Ottawa, Ont., Canada. Sponsor: North Atlantic Treaty Organization. Contact: Mr. A. C. Jones, Director Defence Scientific Information Service, Defence Research Board, Department of National Defence, Ottawa K1A 0Z3, Canada.

May 23–24. Serials Data Bases Institute . . . in Quebec. Organized by the Association for Library Automation and Research Communications. Contact: LARC, P. O. Box 27235, Tempe, Ariz. 85282.

PUBS

(74–031) **Israeli Periodicals & Serials in English & Other European Languages: a Classified Bibliography.** Tronik, Ruth. Metuchen, N.J., Scarecrow, 1974. xiii,192p. $6.00 LC 73–14901 ISBN 0–8108–0682–7 CIP

1,100 entries arranged alphabetically within some 50 subject headings. Using the holdings of the Jewish National and University Library (Jerusalem) as its main source, the listings cover both Israeli and pre-statehood titles with full bibliographic information. Indexed.

(74–032) **Acquisition and Provision of Foreign Books by National and University Libraries in the United Kingdom: Papers of the Morecambe Conference 16 Apr 1972.** Bloomfield, B. C., comp. London, Mansell, 1972. xiii,217p. $7.50 LC 72–89234 ISBN 0–7201–0299–5

Librarians with extensive knowledge in non-European acquisitions relate their experiences. Conference was sponsored by the University, College and Research Section of the Library Association (U.K.).

(74–033) **Libraries and Information Centers in the Chicago Metropolitan Area.** Hamilton, Beth and Brown, Eva, eds. Hinsdale, Ill., Ill. Regional Libr. Council (125 Tower Dr.), 1973. 499p. Apply. LC 73–89540

Basic facts on 303 of the libraries in the six county area of metropolitan Chicago.

(74–034) **Picture Indexing for Local History Materials.** Gilbert, Karen D. Monroe, N.Y., Libr. Research Associates (Dunderberg Rd.), 1973. 36p. $2.70 LC 73–91411 ISBN 0–912526–12–2

Describes the system used at Newark (N.J.) Public Library.

(74–035) **A Documentary History of Arms Control and Disarmament.** Dupuy, Trevor and Hammerman, Gay, eds. Dunn Loring, Va., T. N. Dupuy Associates (in association with R. R. Bowker), 1973. xiv,629p. $26.50 LC 73–12790 ISBN 0–8352–0638–3 CIP

125 documents with individual commentary from 546 B.C. to 1973. Bibliography.

(74–036) **A Practical Approach to Your Special Library: Proceedings of a Seminar Held in Wellington on 14 and 15 August 1972.** Stephen-Smith, Helen, ed. Wellington, New Zealand Libr. Assn., Spec. Libr. Sect., 1973. (Occasional Paper No. 1) 60p. Apply.

(74–037) **Legal Reference Collections for Non-Law Libraries: A Survey of Holdings in the Academic Community.** Beal, S. W. Ann Arbor, Mich., Pierian Press, 1973. (Library Management Series, No. 2) ix,106p. Apply. LC 73–78315 ISBN 0–87650–047–5

(74–038) **The Concept of Main Entry as Represented in the Anglo-American Cataloguing Rules; A Critical Appraisal with Some Suggestions: Author Main Entry vs. Title Main Entry.** Hamdy, M. Nabil. Littleton, Colo., Libraries Unlimited, 1973. (Research Studies in Library Science, 10) 160p. $10.00 U.S. & Can. ($12.00 elsewhere) LC 73–75196 ISBN 0–87287–064–2

(74–039) **Handbook of National and International Library Associations, prelim. ed.** Fang, Josephine and Songe, Alice. Chicago, Amer. Libr. Assn., 1973. xxvi,326p. $8.50 LC 72–12413 ISBN 0–8389–3143–X CIP

Data include officers and dates of terms, staff members, languages, historical outline, finances, affiliations, publications and meetings.

(74–040) **Guide to Current British Journals, 2d ed.** Woodworth, David P., ed. London, The Libr. Assn., 1973. 2v. $37.50 set (v.1, $27.50; v.2, $15.00) ISBN 0–85365–356–9 (v.1) 0–85365–097–7 (v.2) (U.S. Order: Bowker)

Vol. 1 arranges 4,700 journals into the Universal Decimal Classification system with full bibliographic information. Vol. 2 is a directory of almost 3,000 British magazine publishers with addresses and lists of titles they publish.

(74–041) **Proceedings of the LARC Institute on Acquisitions Systems and Subsystems, May 1972.** Axford, H. William, ed. Tempe, Ariz., LARC Assn., 1973. 110p. Apply. ISBN 0–88257–084–6

Emphasizes the system currently in operation at Fla. Atlantic Univ., Fla. Intl. Univ. and Ariz. State Univ.

(74–042) **Health Organizations of the United States, Canada and Internationally: a Directory of Voluntary Associations, Professional Societies and Other Groups Concerned with Health and Related Fields.** 3d ed. Wasserman, Paul and Giesecke, Joan, eds. Washington, D.C., McGrath, 1974. v,249p. $24.00 LC 73–93251

Supersedes earlier edition published by Cornell Univ. in 1965. Listing 1,300 U.S. and Canadian national and other international organizations, this volume also has a classified subject index.

(74–043) **National Union Catalog: Reference and Related Services.** Washington, Libr. of Congress, 1973. 33p. Free (Libr. of Congress, Union Cat. Ref. Unit, Att: NUC:RRS, Washington, D.C. 20540)

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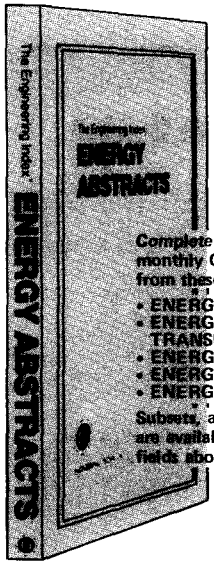

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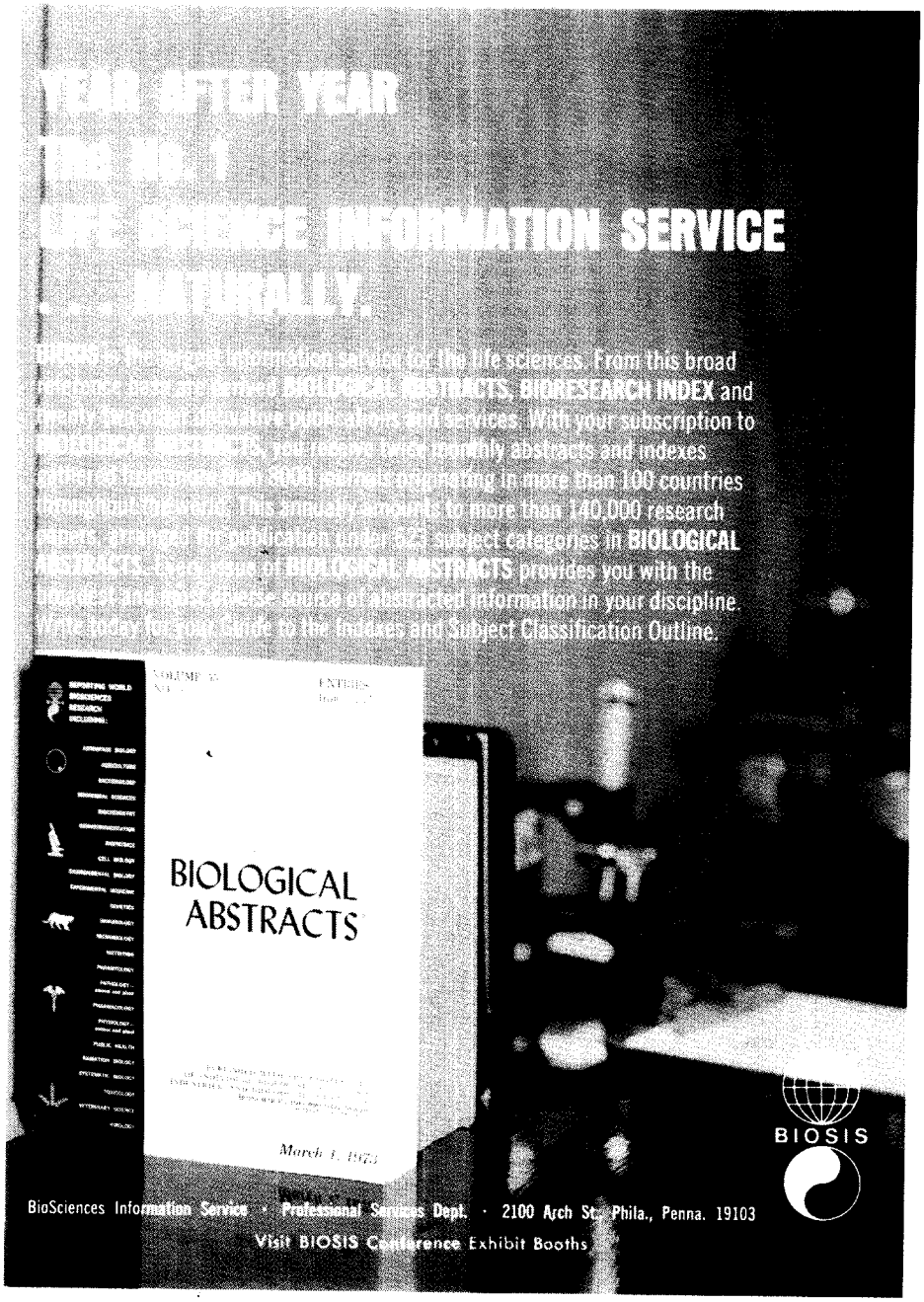
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