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December 1977, vol. 68, no. 12

- ☐ Bank Publications
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SPLBAN 68 (12) 425-494 (1977)
ISSN 0038-6723

Salary Survey Update



Essays of an Information Scientist will be enjoyed and made use of by:

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The essays collected in this book represent a significant portion of Garfield's prodigious writing efforts. Originally published in *Current Contents* under the title of "Current Comments," the first essay appeared in 1962 and the last in December of 1976. Each one contains Garfield's personal observations about some subject which has caught his sometimes nettlesome attention — from scientific research, librarianship and information science, to business, bureaucracy, politics, and friendship.

For anyone interested in tracing the course of scientific research or information retrieval during 1962-1976, these essays offer an unusually good insight from someone who was deeply involved. Essays on topics of interest can be located through an extensive subject index as well as by scanning the essay titles listed in chronological order in the table of contents. There is also a citation index which makes it possible to look up a particular or favorite author and see if any of the essays refer to his or her work — an excellent way to locate essays relevant to one's own interest.

Those directly involved in information science or information retrieval will enjoy these essays. But anyone who has ever been frustrated in trying to obtain needed information of any type (and that includes just about all of us) will also find *Essays of an Information Scientist* absorbing reading.

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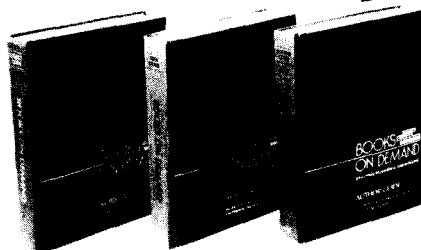
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Letters	6A		
Bank Letters, Bulletins, and Reviews	425	Mark Leggett	
Integrated Information Systems	430	Louis J. Zeh, Jr.	
Coverage of Marine Biology Citations	439	Annette Corth	
Library Applications of Computer Output Microfilm	447	Elaine S. Friedman	
The Map Interpretation File	455	Karl H. Proehl	
SLA News			
Salary Survey Update	461	Chapters & Divisions	463
SLA Award Nominations	462		
Special Libraries in Commerce and Industry	463	In Memoriam	466
Vistas			
Washington Letter	467	Coming Events	469
Have You Heard?	468	Reviews	470
Placement	479	Pubs	472
		Index to Advertisers	480
Annual Index	481		

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Assistant Editor: EVELYN SCHREIBER

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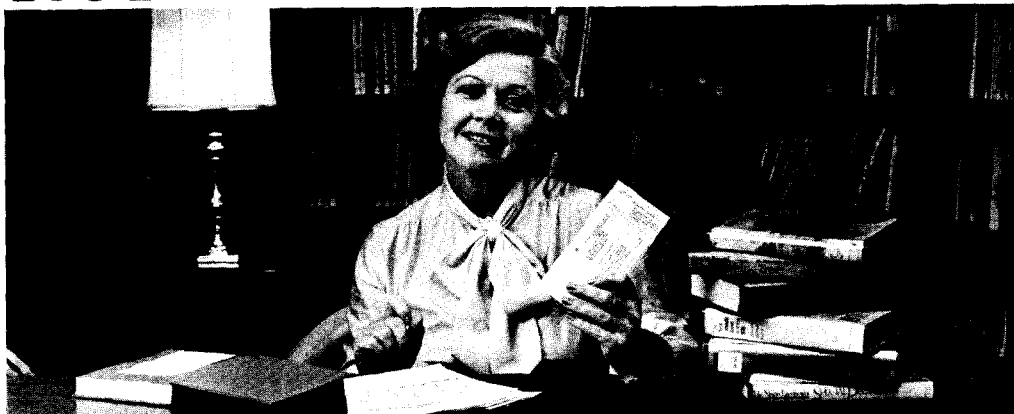
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LETTERS

Wrong Impressions

As coauthors of "On-Line Commands: A Quick Users Guide for Bibliographic Search Systems," we wish to correct impressions that may be left from Irvin Weiss's article, "Evaluation of ORBIT and DIALOG Using Six Data Bases" [*Special Libraries* 67 (no. 12):574-581 (Dec 1976)]. Many of the conclusions are presented without supporting data or are arrived at incorrectly. Some of Weiss's evaluation is based on an apparent misunderstanding of our Guide. He even went so far as to modify the Guide while indicating that it was, in fact, ours.

First of all, our Guide is not intended to be complete. Its purpose is to provide quick reference to only the basic features of the systems, not to act as a substitute for user manuals. Thus, Weiss's comparison of numbers of commands is based on incomplete data. Another area of some confusion is the comparison of the DIALOG Select and the ORBIT Find commands. The ORBIT Find command is used only as an override in special circumstances; in general, ORBIT requires no command at all for direct searching.

Other system aspects considered in the evaluation are based on inaccurate or out-of-date information (some of it out-of-date by the time of review, if not at the time of writing). For instance, SDC no longer has search windows; all data bases are now available for searching all day. Additionally, all of the terminals listed and many others can be used to access either system. A third criterion that requires clarification is that of file size. We suspect that the numbers given reflect file sizes on different dates.

We appreciate the attempt to provide the library community with useful data for evaluating newly emerging information tools. The difficulty, in at least the area of on-line information retrieval, is the fast pace at which changes are being made. New data bases are added monthly; both SDC and LIS have recently instituted cost reductions for bulk users; a new commercial service, BRS, has come into being; new highly sophisticated features are being added (left-hand truncation, statistical manipulation).

Because of the ever-changing system status and legitimate/recognized individual preferences, we recommend accessing several systems. Since one pays only for actual use, se-

lection of system and data base should reflect the requirements of each query and each user.

Barbara Lawrence
Exxon Research and Engineering Company
Linden, N.J. 07036

Barbara J. Prewitt
Rohm & Haas
Spring House, Pa. 19477

Reply

Most of the conclusions in the article, "Evaluation of ORBIT and DIALOG Using Six Data Bases," were predicated upon many hours spent on-line to both systems obtaining and confirming data.

The preliminary explanation regarding use of "On-Line Commands: A Quick Users Guide for Bibliographic Search Systems" in the article was certainly not intended to be derogatory. On the contrary, the Guide is, indeed, a convenient, easy-to-use, desk top tool for searching five on-line systems. I used it as a base from which to compare the utility of like, on-line commands and the key stroke effort that they require. Prior to performing these two tasks on-line, I correlated the substance of the Guide with user manuals. In this manner, I believed that I had sufficiently deviated from the content of the Guide by adding new data and functions for two systems.

Regarding the statement that other system aspects considered in the evaluation were based on inaccurate or out-of-date information, the data that were presented in the article were relevant and current at the time of submittal to *Special Libraries*.

Irvin Weiss
College of Library and
Information Services
University of Maryland
College Park, Md. 20742

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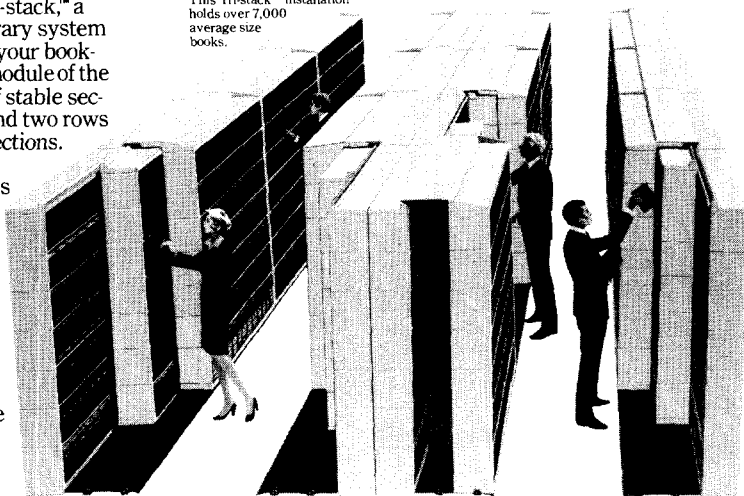
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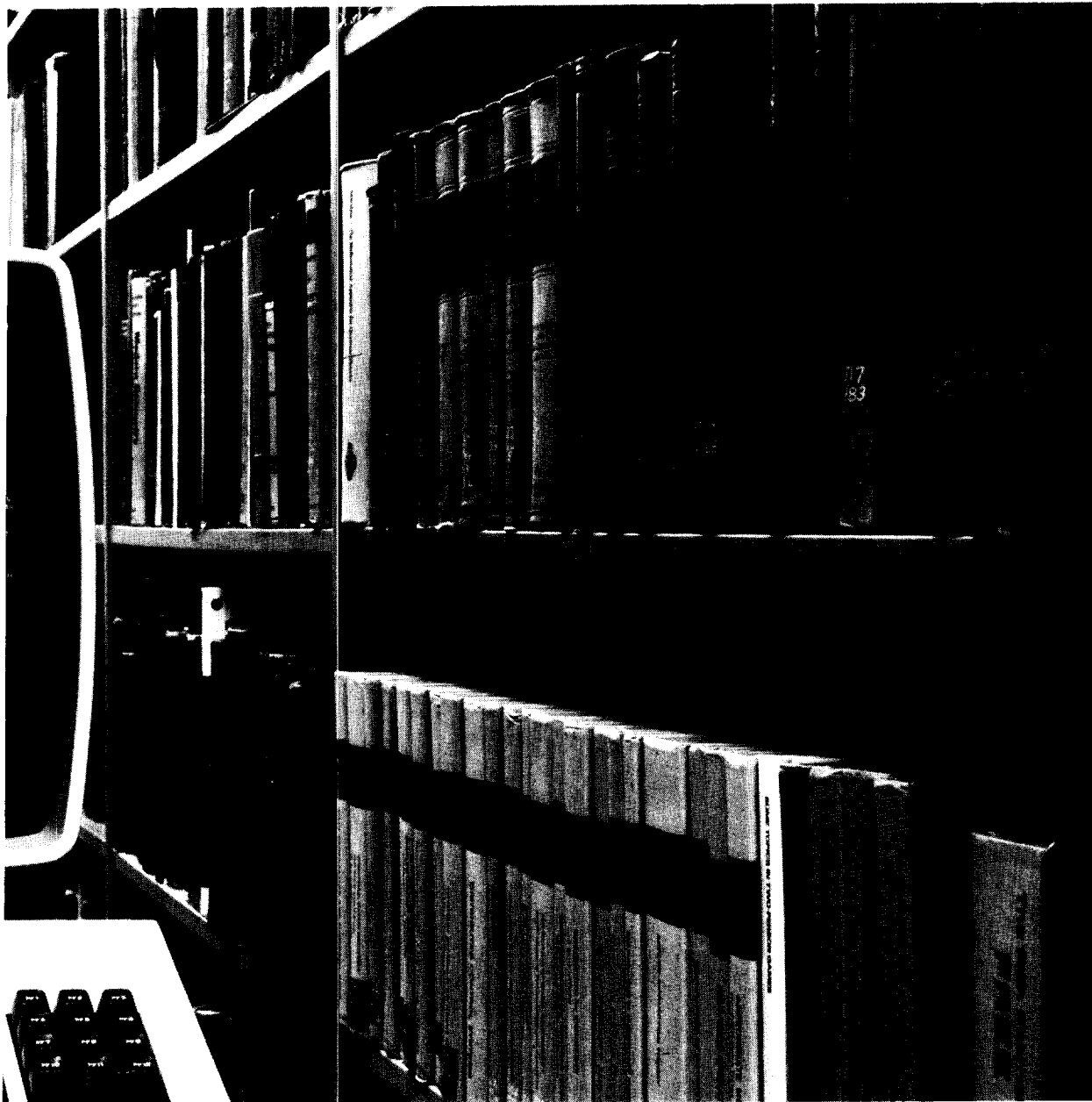
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The Directory has 5,869 entries for business firms, organizations, government agencies, and other institutions in which 7,946 SLA Members were then employed. Most of the organizations listed in the Directory are in the United States and Canada, although a few listings of organizations in other countries also appear.

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Bank Letters, Bulletins, and Reviews

Mark Leggett

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■ A number of commercial banks and all of the district banks of the Federal Reserve System publish a variety of titles dealing with facets of the economy. After a discussion of the origin of such publications, a profile of them is delineated. Among items examined are cost, frequency, format, content, and scope. Their

indexing is also covered. Implicit is the importance of bank publications for the interpretation of past economic events and, more importantly, for commentary on the future. Included is an extensive bibliography of bank publications and their indexes.

FOR MANY banks, the only activity remotely associated with publishing is the issuing of the regular, but not much sought after, monthly statement. Yet a number of the nation's commercial banks and all of the 12 district banks of the Federal Reserve System are engaged in vigorous publishing programs. Their top-notch analysts and economists are continually updating economic facts, trends, and forecasts, as well as rewriting economic history. And their timely findings—of interest to individuals and institutions in this country and abroad—appear in an array of high circulation letters, bulletins, and reviews.

Historical Background

New York's First National City Bank, now the Citibank, issued the initial bank publication in January 1904 (1). The *Monthly Letter* began as a four-page circular dealing primarily with government bonds. With the upheavals of World War I the letter broke away from its narrow focus and instead delved into discussions of general economic and financial affairs.

Still published, as the *Monthly Economic Letter*, the title has served as a forerunner for an ever growing number of bank communiques.

Today, commercial bank publications emanate primarily from the major money centers—Boston, New York, Philadelphia, Chicago, and San Francisco; similar titles are issued by the economic research centers of foreign banks as well. Strong efforts, however, abound in smaller locales, such as evidenced by the *Arizona Progress* published by the Valley National Bank of Arizona in Phoenix and *Economic Indicators*, a First Hawaiian Bank release. A bibliographical supplement to the January 1962 *Business & Finance Division Bulletin* of the Special Libraries Association listed some 46 domestic commercial bank letters and 24 titles published by the district banks of the Federal Reserve System.

Why are banks in the publishing business? "The Wide Impact of Bank Economic Letters," an article appearing almost 20 years ago in *Burroughs Clearing House*, stated that "most banks frankly

look upon the letters as a prestige-building promotional and public relations tool. The bigger banks, also, use their letters to cement relationships with correspondent banks" (1, p. 41). This rationale, certainly valid, still holds for today. Some titles, including *Barometer of Business*, *Business Comment*, *Business in Brief*, *Capital Report*, *Economic Indicators*, and the *Quarterly Summary of Pacific Northwest Industries*, unabashedly carry regular advertisements as to their bank's services.

Commercial Bank Titles Profile

Although advertising is a characteristic which few bank publications share, there are other areas in which they show distinct similarities. A variety of aspects, ranging from distribution methods to presentation formats, were scrutinized in recent issues of 26 commercial bank titles to formulate a profile.

In line with the titles serving as public relations tools, none of the commercial bank publications charge a subscription fee. *International Finance*, however, is made available only to customers and correspondents of the parent bank, Chase Manhattan, and not generally to libraries. Librarians will want to be mindful of the other costs, particularly in processing and storing, incurred in collecting these "free" titles.

The publications have changed markedly in frequency and in number of pages from the first four-page monthly letter issued almost 75 years ago. Although 12 of the 26 titles in the sample are monthlies, *Continental Comment* and *Financial Digest* appear weekly; four are published every two weeks; three come out every two months; four are released on a quarterly basis; and one, the highly successful *Forecast*, is issued annually. Bank letters today average about eight pages, exclusive of the lengthy 50 pages or more found in *Forecast*; the two weeklies are but two pages in length, as is the monthly *Business Review*.

A continuing appeal of bank publications is their succinct summation of highly complex economic data, a trait not often found in similar works. Ten of the 26

publications usually carry but one short essay; the others average between four and five. In addition, almost all include short news events bearing on the financial scene. A few run regular feature articles such as "Progress Report" in the *Arizona Progress*, authored by the bank's senior vice-president for investment and planning. Graphs and tabular material are the language of economists, and most of the 26 titles use them extensively in their presentations. *Business Conditions*, *U.S.A.*, and *Financial Digest* are almost exclusively made up of such matter with some interpretation. A number of the titles carry features, usually on monetary and economic indicators, utilizing graphs and tabular material; noteworthy are those found in *Arizona Progress*, *Business Briefs*, *Economic Comment*, *Economic Indicators*, *International Finance*, and *World Finance*. Only eight of the publications examined give credit to authors, almost all of them on the banks' research staffs where the publications usually originate. Also, rarely is any editorial staff identified.

Graphic elements used in the publications do not vary greatly. Typewritten copy is used in only four of the works and one-color ink in three of them. The others, perhaps reflecting more their public relations role, utilize set type and a variety of colored inks and papers. *Arizona Progress* particularly stands out for its integration of maps and line drawings; other titles showing excellence in graphic design are *Business Briefs*, *Business Comment*, *Business Conditions*, *U.S.A.*, *Economic Indicators*, and *Forecast*.

Scope

Topics of coverage run the economic gamut from spiraling inflation to chronic unemployment. Some articles, such as "Plastics Industry Bounces Back" in the December 1976 *Business in Brief*, concentrate on a specific industry. In addition to their excellence in summing up the economic pulse, bank publications are looked to heavily for their economic forecasting. In forecasting, banks not only provide a vital service to the business

community but lend credence to their own skills as money managers, as well. Although all of the titles engage in forecasting to some degree, *Business Comment*, *Business Review*, *Economic Comments*, *Economic Outlook*, *Forecast*, and *New England Report* place heavy emphasis upon it. *Forecast* even goes so far as to include a scoreboard of its efforts; it shows only a 0.6 variance in its forecasting as compared to the actual gross national product over the 1967-76 period. The overall excellence of *Forecast* has been lauded in the trade magazine *Banking* (2).

The scope of coverage varies among the group. Two, *International Finance* and *World Financial Markets*, speak primarily to the international economic situation. The majority concern themselves largely with the national economic sector. Only a few are particularly involved at the local, state, or regional level, the most prominent being *Business Bulletin*, *Business Review*, "Comments," *Forecast*, *Quarterly Summary of Pacific Northwest Industries*, *Arizona Progress*, and *Economic Indicators*. The latter two titles provide top quality economic profiles at the county level along with excellent coverage of state economic trends. Manufacturers National Bank of Detroit's *Business Briefs* has derived a Detroit area business activity index.

Indexing Tools

Until recently, the indexing of commercial bank publications was skimpy at best. *Business Periodicals Index* indexes the *Monthly Economic Letter*, seven titles are covered in the *Funk and Scott Index of Corporations and Industries*, and nine publications are included in *Predicasts*. With the recent publication of KTO Press's *Index to Bank Letters, Bulletins, and Reviews*, users have access to the data found in the publications of three Canadian and 28 American commercial banks, as well as those published by 10 district banks of the Federal Reserve System. In addition, it covers the *Federal Reserve Bulletin* and the International Monetary Fund's *I.M.F. Survey*. Begun in 1976, this bibliographical tool is

scheduled for quarterly publication with an annual cumulative hardbound edition; all publications indexed will be available annually from KTO Press on microfiche. A subject and author listing, the index is well cross-referenced. Charts, tables, and graphs are fully indexed; major and minor articles are noted.

Federal Reserve Titles Profile

Each of the 12 district banks of the Federal Reserve System publishes a commentary devoted to the nation's economy; a number of these provide coverage on district and international conditions, as well. These "state-of-the-economy" publications are usually but a part of the district bank's total publishing program. Available at no charge, five are published monthly, four quarterly, and three bimonthly. Unlike the publications of the commercial banks, the articles and publications tend to be lengthy and of a more academic nature. Also, authorship is usually given in the Federal Reserve System titles.

The indexing of the titles has been much more complete than that provided for the similar publications of the commercial banks. *Business Periodicals Index* covers the Federal Reserve Bank of New York's well-regarded *Quarterly Review*; the *Index to Free Periodicals* indexes the *Business Review* from the Federal Reserve Bank of Philadelphia and New York's *Quarterly Review*; three titles are included in both the *Journal of Economic Literature* and the *Index of Economic Articles in Journals and Collective Volumes*; *Predicasts* and the *Funk and Scott Index of Corporations and Industries* list four titles each; the *Public Affairs Information Service Bulletin* indexes five of the publications; 10 titles are covered in the *Index to Bank Letters, Bulletins, and Reviews*; and all of the 12 reviews are indexed for statistical data in the *American Statistical Index*. Moreover, there is a retrospective index, *Federal Reserve Bank Reviews: Selected Subjects, 1960-1972*, published by the Federal Reserve Bank of Philadelphia. This is updated by a quarterly cumulative index,

The Fed in Print, which appears in the same bank's *Business Review*.

Conclusion

Carefully researched and reasoned, bank publications provide significant data and interpretation on past economic events and, more importantly, on what is likely to happen in the days and years ahead. They certainly go far in extending the banking community's publishing effort beyond the monthly statement.

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Mark Leggett is business and industry librarian, Knoxville-Knox County Public Library, Knoxville, Tenn.

Integrated Information Systems

A New Perspective

Louis J. Zeh, Jr.

Access Corporation, Cincinnati, Ohio 45237

■ Every major organization today functions, however well or poorly, in proportion to its ability to store, retrieve, and disseminate information. Information is only as valuable as it is accessible. A brief overview of manual systems, computerized data based systems, and document based micrographic systems will be

given. The evolution of integrated systems utilizing minicomputers, micrographics, and automated retrieval is the key to solving many of today's mass records management problems. Examples of typical integrated systems now operational and the benefits derived from this approach will be covered.

AS WE all know, large collections of documents require detailed management if they are to be stored in a form compatible with fast, multi-entry point retrieval and, yet, retain a high degree of file integrity. This pertains as much to operational files such as criminal histories, intelligence documentation, and construction records for nuclear power plants as it does to library based reference collections.

Increasingly, the skills and technologies used by the librarian are required by the records manager who must cope with these files. Conversely, it seems evident that at least three innovations in records management concepts are directly applicable to any major document collection including those which are library based. These include the use of minicomputer based indexes to control the file, the use of updatable unit record microfilm as the primary storage medium, and the employment of automated storage and retrieval devices as the integrating linkage between the two.

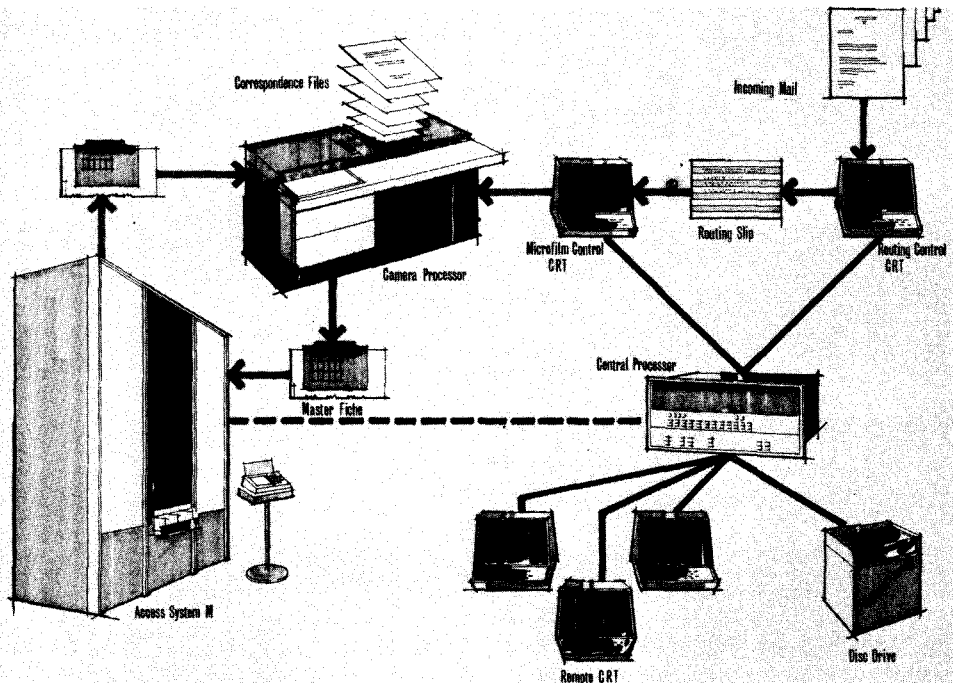
These are all concepts that have been around for a long time, but some of the components that enable us to truly meld them into one conceptually valid system are less than three years old. These components have existed in live, on-line situations for less than two years.

Updatable Microfiche

As one example, depicted here are the correspondence files of the Secretary of the Army (see Figure 1). Prior to conversion to updatable microfiche, these files were stored in their original paper form on shelves, in boxes, and in folders in power shelf files. When a document required cross-indexing, multiple copies of the document were made and stored under each index entry.

In this system a document can be a single page or it can be a 500-page bound report. One primary effect of the conversion has been to permit variable bulk and trim sizes to be managed on a common media form and to occupy common storage space in the retrieval device.

Figure 1. Correspondence Control System.



Now, in this regard, consider the efficiency of a well-packaged technical book. You can catalog and cross-reference the technical book broadly because, once found, its own table of contents, list of illustrations, and index will guide the user to his special area of interest.

The technical book is a recognized unit, usually focusing in-depth attention on a relatively narrow subject. Its subdivisions occupy fixed locations, and—in the terms of the records manager—its content enjoys absolute file integrity. A bound book also enjoys the primary characteristic of a document. A document is information frozen at a point in time. It is “proof” of something. As such, it is required to be beyond change.

You can copy a page from a book on an office duplicator or reproduce its words by typing or writing, or reduce the book to microfilm. Normally, the book is not considered to be machine-readable. Use of an optically scannable font by the printer might make this technically feasible, but items such as cost and user resistance impact its justification.

If we substitute “file folder” for “book,” we see that there is a true point of reference between the two. Both are unit records, both are compact, both contain multiple pages, and both focus on discrete subject areas. A well-ordered file folder—especially military—will have fixed locations for specific types of information and when committed to microfilm will preserve that order.

In one sense, of course, they differ. The file folder is required to accommodate the insertion of updates. These are positioned within the folder chronologically or in predetermined position by subject. In this sense, the folder is more like a loose leaf-reference service.

Multipage proposals, studies, and reports, bound or unbound, look even more like books than does the file folder. And, it should be noted that—exclusive of correspondence—these comprise the bulk of most documentation files.

Most large records collections, like the Secretary of the Army’s correspondence files, increasingly have been pressured by space constraints, bulk and handling problems, cross-indexing requirements, and a

harrassing need to comply with an ever increasing variety of federal regulations. These include everything from Occupational Safety and Health Administration rules concerning chemical compounds on through the privacy and freedom of information acts. Additionally, human inflation—the deteriorating output per worker year—has become a force helping shift even the most conservative records managers toward miniaturization and automation.

A few years ago an acronym—ADSTAR—was coined to describe this evolution. It stands for automated document storage and retrieval. In any ADSTAR system, certain conceptual conditions must exist if the system is to work.

Standardization

The most important of these is the idea of standardization. This is the key to compatibility between the various components in an automated system and the primary factor that makes the man-machine interface possible. To take a very simple example, the term “microfiche” specifically describes a film chip that is 4 inches high by 6 inches long, not a tab card or a scroll or a strip. A system designed to produce, reproduce, store, or read microfiche must be able to accommodate its dimensions. The images on a fiche are placed there at an agreed upon reduction ratio. A viewer, or reader-printer, must be constructed so as to restore the image to within a reasonable percentage of the original document size with acceptable clarity. If a reader is automated, it must have the XY coordinate ability to precisely locate the image.

While manual document systems have been primarily designed to store materials in their original form, storage space and the need to manipulate information have led the ADSTAR system designers to use various microforms to hold facsimiles of both full text and graphic information. A wide variety of methods and devices have been employed to exploit the availability of information, or conversely, to make recovery of full text unnecessary.

Microforms, of course, were originally conceived of as serving archival or security purposes. Only in the last 10 years have they really blossomed into a dynamic, active file storage medium for a wide variety of applications.

Filing System

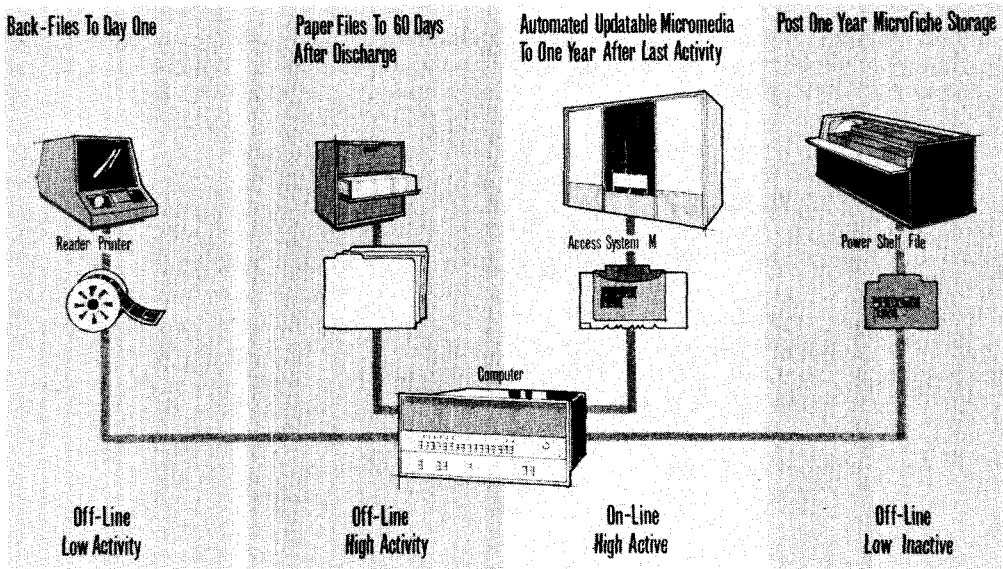
Another records concept of importance is that documents belong in a file. When the word “file” is used, it refers to the document collection itself, not just a listing in the computer sense. The closest actual computer comparison would be a fully organized disc. Even here, the concepts of the well-run manual file still prevail. For example, consider partitioning or subdividing a file so as to reach a portion of it quickly: the use of surrogates such as the soundex system for searching so as to conserve entry time and still locate a not-completely-identified item; the use of cross-indexing so as to conduct coordinate searching. Again, the concept of using coded numbers that are not merely serial, but have significance beyond themselves was, and is, common in library manual systems.

With the advantage of perfect hindsight, we can see that the first step toward fully automating a document collection was mechanization of both the index and the file folder. File folders were mostly kept in drawers. Now, here is another idea that is still with us today. Every system—no matter how automated—has a fixed capacity.

If the input is underestimated the drawer fills up; either it is stuffed so full that nothing can be retrieved or the contents are transferred. Alternatively, a way of periodically purging the drawer of old materials is invented. Both computer systems and ADSTAR systems have the same problem—when their fixed capacity is exceeded, purging must take place or more capacity must be found.

Mechanization was aimed at handling problems of bulk, weight, and distance, at replacing muscle and movement with machines. Essentially, all mechanized systems were designed to bring a drawer, or a cartridge, to an operator who then

Figure 2. Integrated Media System.



searched it manually just as with a file cabinet. In this situation, however, searching was more convenient and eliminated squat, stoop, and squint. Two companies manufactured filing systems designed to be built right into a new building upon construction just like the centralized plumbing or heating. Another sold a system having a chair on rails that carried the operator precisely to the proper bin. The operator was wired for telephone communications so that the critical information could be phoned immediately to the requester. Again, the emphasis was on operator ease and convenience, not really on improvements in content control.

Power files, elevator files, rotary files, and conveyor belts were all half steps toward automation. Another half step was taken when unit records were made machine-readable and could report their location or give an indication of their content. Holes in cards or paper tape, magnetic spots on cards or tape, magnetic pencils for marking—all played their roles.

Why store documents at all? This is the logical question. Why not digitalize everything? Maybe this will happen in 20

or 50 years, but right now, it costs too much. Putting an index, or abstracts, or directory reference materials on the computer makes a lot of sense, although holding even these in core or on disk gobbles up a lot of room. For the foreseeable future, full text and graphic materials seem apt to remain in document form. What will change is the advent of the document surrogate in a data base working with the document itself in a document base structure that is as automatically searchable as the data base.

Traditionally, automation has been equated with centralization, especially when identified totally with the computer. The author well remembers an IBM instructor pointing out that budgeting permitted decentralized decision making. But the computer was going to expand the reach of the chief executive officer and permit a recentralization, thus eliminating the need for a number of layers of middle management. The hierarchical structure discerned by Peter Drucker at General Motors was theoretically doomed. As we know, that has not yet happened. Like the digitalization of full text documents it remains a future thought. At the moment,

the emphasis is on distributed systems and intersystems communications, rather than on further centralization.

On the other hand, it should be noted that the preceding paragraphs have dealt with full text and graphic storage. The physical nature of many functions, e.g., accounting, inventory control, purchasing, has changed. The clerical functions in retailing are gradually being assumed by optical scanning and key data devices which communicate directly with a central memory.

To summarize what has been said:

- The future of document storage and retrieval systems will focus on managing full text and graphics in microform with control being exercised from a computer based index to the collection.

- Every device and every procedure has a technological and conceptual precedent—a family history.

- Every machine has a fixed operating envelope—a set of physical characteristics that determine its capacity to operate.

- Every machine is designed to operate with a limited range of media.

- Until such a time as a technical and cost revolution occurs in the manufacture of computer memories, large document based systems will be hybrid in order to enjoy the best of both data based and document based technologies.

- All automated systems rely heavily on manual systems for their concepts and operational philosophies.

Altogether there are no more than 20 ADSTAR systems actually commercially available in this country today. Some of the most promising, such as Transafile, Ampex Videofile, and Varian Adco, have fallen by the wayside. Of the remaining, one—the Mosler 410—has been off the market for a number of years and is now being reintroduced by the Infodetics Corporation of California; seven have not really achieved any significant distribution; and three are integral components of larger systems.

Automated Document Storage Systems

If we look at the CARD system, the MDS 380, Eastman Kodak's MIRACODE, and the Access System CCM, we

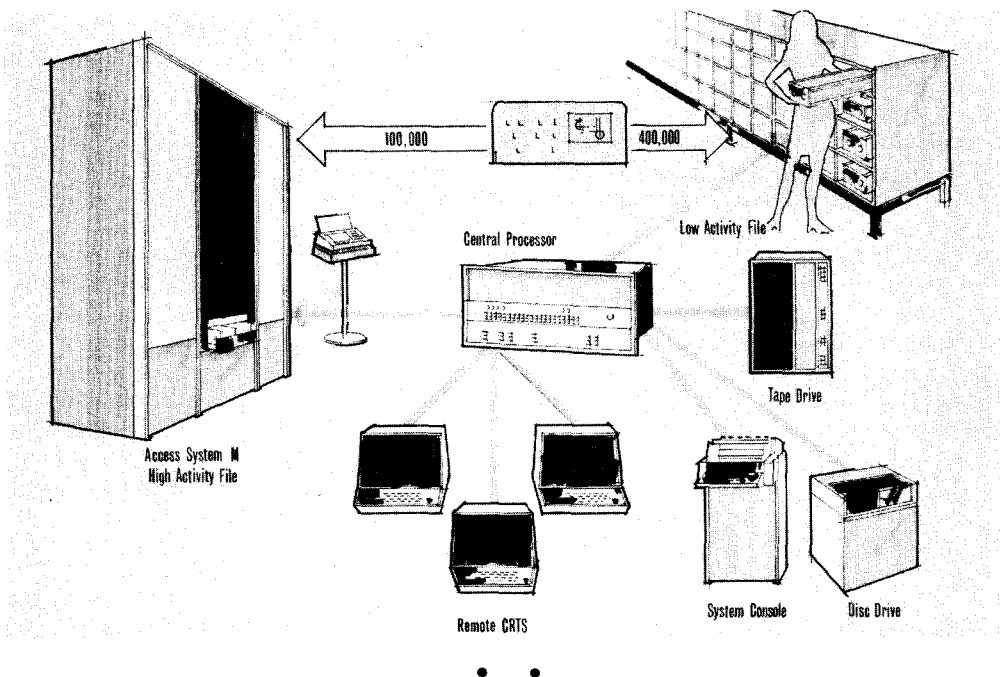
can get a good idea of what is currently being done to automate document storage. These systems respectively employ microfiche, strip film, roll film, and multimedia unit records. All four automated systems are computer compatible, but are also available as discrete units.

The CARD system was originally developed by Houston Fearless, with the first sale made to Eastern Airlines in 1967. It is now manufactured and marketed by Image Systems. The primary use of CARD has been for on-line airline customer enquiries and for signature verification in banks and fast lookup of directory type information. The computer compatible system is known as COMP/CARD. The storage media for CARD, which stands for compact automatic retrieval display, are 4 in. x 6 in. microfiche. As many as 750 fiche can be housed in carousel units.

While the CARD system uses a standard fiche that has had a code strip attached to it, the system 380 from Microform Data Systems utilizes a special "ultrastrip" that is 35 mm wide by six inches long. The ultrastrips are stored in a special cartridge. MDS was organized in 1969 and based its product on the Microvue System that was developed by the Republic Aviation Division of the Fairchild Hiller Corporation. Applications for the 380 include both "telephone directory" files and "correspondence" files.

The media employed in Eastman Kodak's MIRACODE System is 16 mm roll film stored in cartridges. MIRACODE is an acronym for Microfilm Information Retrieval Access Code. Every document, but not necessarily every page on the film, is assigned an identifying code field consisting of one or more code columns. Each column includes an arrangement of clear and opaque rectangles. In other words, the code is an optically scannable binary system. Unlike the MDS system, most MIRACODE cartridges are stored off-line and positioned by the operator when needed. The MIRACODE system has been widely used by law enforcement agencies, the military, and insurance companies for full page documentation.

Figure 3. Engineering Drawing Control System at General Electric, Philadelphia, Pa.



The Access System CCM can accommodate a variety of media ranging from standard 3 x 7 aperture cards and jackets on up through 5 x 8 carriers that can accommodate multiple microfiche. The carriers, or cards, are edge coded with alpha/numeric descriptors. The largest single computer compatible System M module can hold up to 160,000 aperture cards or 100,000 fiche. These can be found as single records or as groups of records.

To illustrate how a computer functions in conjunction with such a system, the engineering drawing system installed at the General Electric Switchgear Products Division plant in Philadelphia is considered here (see Figure 3).

Approximately 90,000 computer selected high activity drawings are kept in the storage modules in computer assigned cartridges, each having a capacity of 1,600 aperture cards. These are manipulated at high speed by an elevator transfer mechanism that delivers the appropriate cartridge to the search point in under nine seconds. The desired drawing or drawings are presented to the operator immediately upon the completion of code entry. Once

the drawing is removed, the cartridge returns automatically to its home crypt.

The inactive portion of the file is stored off-line for manual transfer to a computer controlled selector on request. A single computer disk, referencing the collection, can contain index entries for over 500,000 drawings. Drawing entry and retrieval from storage, revision level notation, user logs, and parts assembly pulls are all controlled directly by the computer. For example, a recent request to assemble a 5,000-drawing bid package was accomplished automatically in a matter of hours instead of the days previously required.

In contrast, the correspondence control system previously mentioned uses A. B. Dick/Scott updatable fiche as the storage medium. The fiche are stored in an Access System M and are completely under computer control, although—unlike the General Electric system—the computer is not directly integrated with the storage module. All routing, logging, and indexing functions have been taken over by the computer with control being exercised through a dynamic data base maintained on disc and searched by keywords. The

fiche are stored in specially constructed mylar envelopes pre-coded on one edge.

To reemphasize an earlier point, in a manual filing system, a document must be precisely positioned or it is lost. There is a real premium to be put on employee skill and dedication. In this system filing is random within cartridges. All refiling is accomplished randomly through use of the buffer. The memory is in the document itself, not in the machine or in the operator.

The computer gives the user the option of browsing the document collection without actually having to retrieve a document. He can query the collection from a remote location, and his search can be as broad or as narrow as he wishes. He is not restricted by the need to physically handle each document.

To summarize, a brief description has been given of four ADSTAR systems. All are capable of standing alone, or of working remotely with a computer generated index, or of being searched directly by a computer. All four of these storage units are being successfully employed to solve a variety of information handling problems.

Computer Indexing

The nature of computer indexing has not been discussed at length because each system depends on the computer to deliver to it a properly ordered search code. Whether that code is the result of an algorithm derived from an engineering drawing number or a code derived from a parameter search is urgent to the system but unimportant to the storage and retrieval module.

The nature of the stored media dictates an entire series of trade-offs. For example, roll film kept in cartridges and stored off-line means that an operator must find the cartridge and position it before the computer can complete its search function. Conversely, serial media generally can be filmed more quickly and less expensively than unit record media.

Updatable microfiche can be added to but complete control of image assignment is complicated in a large system and probably requires a computer to track it adequately.

Bulk storage of images on a high density film media is economical in terms of space and handling, but usually requires preparation by a third party to assure adequate quality.

In short, each system has its virtues and its faults. What the user must do is determine which system will provide the "best match" to his needs. The perfect match may not exist.

The computer maintained index permits the nondestructive manipulation of index data without file searching. In most large installations this can reduce file activity by as much as 40%. Reducing file activity cuts down radically on both misfiles and refiling time.

Reducing paper to unit record microforms permits economic storage, inexpensive duplication, and easy transportation, while, at the same time, increasing file integrity. In all of these systems, the master record only leaves the system for duplication or updating.

Automating the storage module reduces searching time, gets rid of refiling, and out-of-file problems and permits direct communication with the computer. The automated module is the integrating link that permits the degree of control needed to manage a large document collection.

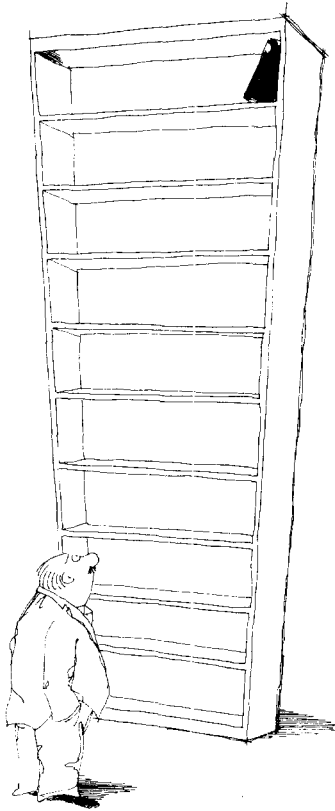
This is the key word, the primary element that ADSTAR systems bring to records management—control, the ability to manage the collection in detail without drastic increases in costs or staff.

Future Trends

What can we expect to happen to these systems in the short term future? Some trends do seem evident. The evolution toward miniaturization and automation will continue as librarians and records managers increasingly understand the advantages of the integrated document control system. And the three major components of the integrated system will find expanded usage in even those applications that do not employ the total systems concept.

Updatable microfiche has been available for over two years now and has found acceptance in a wide variety of applica-

Figure 4. Information is Only as Valuable as It is Accessible . . .



tions. Two new forms of updatable film are scheduled for entry into the market place within a year. Additionally, the holographic storage of digital information on film is close to becoming a reality. One company has announced a system to be ready at the end of the year. Another hopes to make its pilot installation at about the same time.

Five years ago there was intense interest in the development of microvideo systems that would permit the remote distribution of images from either aperture cards or microfiche. A number of companies—including the author's—built prototype systems only to find that the market was not prepared to buy systems in sufficient quantity to justify manufacture. In the case of Access Corporation, the break-even point occurred at 25 systems. Much work remains to be done

in order to assure distortion-free images, long-range transmission, and reasonable prices. At this moment, the author only knows of one system that is commercially available. It has one installation, sells for approximately \$350,000, and is limited to cable connections not exceeding 1,000 ft. A number of federally funded requests for bids for distributed systems are currently being sought. These are expected to foster a new interest in the automated transmission of microfilm images from a central file to a large user population.

Over the past 20 years, in excess of 100 automated storage and retrieval devices have been introduced. The 20 or so that have survived have done so because they were able to identify specific applications for their products. The universal device has yet to be built. In this regard, we may expect that ADSTAR systems will become increasingly sophisticated with elaborated usages for computer compatible circuitry and the incorporation of microprocessors to replace many mechanical components. Experiments with new search mechanisms continue, and we expect optical and electronic techniques to gradually replace the purely mechanical.

The fully automated system, of course, has always been the most attractive concept in document control. This is known as the closed loop system. While much progress has been made toward closing the loop, much work remains to be accomplished in terms of devising more effective interfaces. At the moment no electromechanical interface known operates without its share of downtime. Long range, the closed loop system will prevail. Short range, the operator will continue to give the system its flexibility.

Computer output microfilm should grow at a rate of about 20% per year. Its primary contribution to the document control field is currently seen in its ability to generate completely updated indexes on command. A number of large document collections currently use this method to generate their primary index. They receive the advantages of computer updating without the expense of maintaining it on-line.

Miniaturization and automation offer solutions to the immediate problems of document control and take us a long way toward the fully controlled systems envisioned by Vannevar Bush and Ralph Shaw 40 or more years ago. The computer index system, updatable film, and automated

document storage are not really future thoughts. They are here today and in use in hundreds of installations.

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**Louis J. Zeh, Jr., is marketing manager
for Access Corporation, Cincinnati, Ohio.**

Coverage of Marine Biology Citations

Annette Corth

Rutgers University, Library of Science & Medicine, Piscataway, N.J. 08854

■ References to publications on the subject of marine biology are provided by a number of abstracting services. The coverage, time lag, and inclusion criteria for such citations found in the 1975 volume of *Oceanic Abstracts* were investi-

gated with respect to those of *Biological Abstracts/Bioresearch Index*. Some factors to consider in deciding which of the two services to turn to for a given purpose are also discussed.

A STUDY was made of the comparative coverage of citations dealing with the subject of marine biology in *Oceanic Abstracts* (referred to as OA) and in *Biological Abstracts* (referred to as BA) and *Bioresearch Index* (referred to as BIOI) (1). The impetus for this study arose when Lockheed Information Systems announced that the OA data base would be made available by them for on-line computer searching. Already familiar with the breadth of coverage, varied and deep indexing, and flexibility of searching the BA/BIOI data base, the author wanted to determine what OA had to offer in the way of references to marine biology, a subject of great interest to many of the patrons of the Library of Science & Medicine at Rutgers University.

Both abstracting services claim to cover, in various formats, the serious literature of the subject at hand (2, p.ii; 3, p.xxvi). The two are compared here to see what their relative coverage really is. OA concentrates its citations on the biological aspects of the ocean in two sections of each issue, "Biology/Fisheries" (referred to as B/F) and "Desalination/Pollution/Coastal Resources" (referred to as D/P/C); the BA/BIOI citations on marine biology are dispersed throughout

each issue. The study therefore had to be approached by means of searching in the author indexes of BA/BIOI for the names of the authors of citations found in OA.

Methodology

The specific objectives of the study were to learn what percentage of the citations concerning marine biology in OA for a given span of time were also covered (indexed or abstracted) by BA/BIOI. Those found to be covered by the Biosis publications would then be analyzed for time lag between the publication date of the primary material in question and the issue date of the abstracting publication. The OA citations not covered by BA/BIOI would additionally be examined to determine their general format (journal article, technical report, monograph, or other); whether the publication was one normally scanned for selection by the publishers of BA/BIOI; and whether the subject matter seemed to be consistent with the concept of basic research.

The six 1975 issues of OA were used as the basis for the study. The number of references to marine biology appearing in the various issues of OA is shown in Table 1. Every item in the B/F sections was

Table 1. Number of Citations and Size of Sample Dealing with Biological Subjects Taken from Each 1975 Issue of *Oceanic Abstracts*.

		1975						Entire
		Feb	Apr	Jun	Aug	Oct	Dec	Year
Number of Citations in Issue Sections Dealing with Biology	B/F	298	346	408	340	298	254	1944
	D/P/C	64	77	60	51	56	44	352
	Total for Issue	362	423	468	391	354	298	2296
Size of Sample in Issue Sections	B/F	33	33	34	34	33	34	201
	D/P/C	7	7	6	6	7	6	39
	Total for Issue	40	40	40	40	40	40	240

considered suitable for inclusion in the study. In the D/P/C sections, however, only those citations which mentioned biological concepts or organisms in either their title or in their abstract were used in the study.

A sample of 40 citations was taken from each OA issue, yielding a total of 240 citations for the year. Since the entries in the OA issues appeared to be listed in random order, the citations for the sample were selected by dividing the total number of eligible citations (i.e., those dealing with biology) in each issue by 40 and then taking every *n*th item in that issue as grist for the study. (Total citations \div 40 = *n*.) Depending upon the relative number of citations in the B/F and in the D/P/C sections in each issue, 33 or 34 items were taken from the B/F section and seven or six, respectively, from the D/P/C section. If the selected citation was by an anonymous author, it was rejected and the citation immediately after it was chosen. If that, too, had no named author, the citation immediately preceding the initial anonymous item was used. The size, *n*, of the interval used to select citations for the study sample ranged from every seventh item to every 12th one, depending upon the number of biologically oriented abstracts appearing in each of the 1975 issues of OA.

Sample Work Card

As a working tool, a 3 in. \times 5 in. card was made out by hand in ink for each of the 240 selected citations. The card

Figure 1. Format of Sample Work Card Used in the Study.

PALACIO, FJ	OA Fe B/F 279
	BA 6-1-74 61315
On the double hectocotylization of octopods.	
NAUTILIS 87 (4) Oct 73 pg 99-102	

initially contained the last name and initials of the first author, the indication "OA," the OA issue date, the section of the issue, and the OA abstract number. Space was left under this information for the later addition of the identifying data for citations found in BA or BIOI. The card also contained the full title of the OA citation, where it was published, and the necessary collation information. Space was also left on the card to indicate whether a citation selected for the study sample and not subsequently found in either BA or BIOI was found in the *Biosis List of Serials—1975*. This list enumerates the serials regularly perused by the Biosis staff for selection of items to be abstracted or indexed in one of their publications. A sample work card is shown in Figure 1.

The cards proved to be a useful device in that they could easily be sorted as needed by author, by whether they were found in BA or BIOI, by publication date of the primary publication, and so forth.

Initially, the intention was to check the citations selected for the study sample against just the 1975 volumes of BA and BIOI; but since many of the citations in

Table 2. Number of Citations from *Oceanic Abstracts* Found in *Biological Abstracts/Bioresearch Index*.

Oceanic Abstracts Issue Date and Section	Biological Abstracts/Bioresearch Index Issue Dates						Total OA Citations Found in BA/BIOI	Percentage of OA Cita- tions Found in BA/BIOI
	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jan-Dec		
	1975	1975	1975	1974	1974	1973		
Feb B/F	0	1	1	10	8	1	21	63.6*
D/P/C	0	0	0	2	2	0	4	57.1*
Total	0	1	1	12	10	1	25	62.5*
Apr B/F	3	1	1	17	6	1	29	87.9
D/P/C	0	0	0	1	0	0	1	14.3
Total	3	1	1	18	6	1	30	75.0
Jun B/F	0	2	5	22	0	0	29	85.3
D/P/C	1	1	3	0	0	0	5	83.3
Total	1	3	8	22	0	0	34	85.0
Aug B/F	2	6	12	5	1	0	26	76.5
D/P/C	0	1	2	0	0	0	3	50.0
Total	2	7	14	5	1	0	29	72.5
Oct B/F	0	8	8	5	0	0	21	63.6
D/P/C	0	5	0	0	0	0	5	71.4
Total	0	13	8	5	0	0	26	65.0
Dec B/F	1	12	4	2	0	0	19	55.9
D/P/C	0	3	1	0	0	0	4	66.7
Total	1	15	5	2	0	0	23	57.5
Entire Year 1975								
B/F	6	30	31	61	15	2	145	72.1
D/P/C	1	10	6	3	2	0	22	56.4
Total	7	40	37	64	17	2	167	69.6

* 63.6% is 21/33; 57.1% is 4/7; and 62.5% is 25/40, i.e., 25 citations found out of a sample of 40.

OA had been published in years prior to 1975, it was decided to check all of the BA and BIOI author indexes from 1973 through the first six months of 1976.

The cards were arranged alphabetically by author's name and checked against the Biosis author indexes, one volume (and later, one issue) at a time. Whenever the same name and initials were found in a BA or BIOI author index, the corresponding number from the index was listed in pencil on the card. After checking all of the cards in the author index of a given volume, the abstracts or references in BA or BIOI were looked up to see whether they matched the citation in OA. The numbers of nonmatched items were erased from the cards as the items were looked up. If a match was made, the balance of the reference numbers ob-

tained from the BA or BIOI author index were erased and the following information was penciled in (to stand out from the original inked data) on the cards under the identifying information from OA: "BA" or "BIOI," issue date, and the abstract or reference number.

Table 2 shows the results of the search for the sample citations in the volumes and issues of BA/BIOI for the period January 1973 through June 1976, broken down by publication dates of both BA/BIOI and OA. The actual number of citations found as well as the percentages of the sample citations found for each time period are shown. Overall, 69.6% of the items selected for the study were located in BA or BIOI. The figures for the individual issues of OA range from 57.5% to 85.0%.

Time Lag Study

Table 3, on the other hand, is a summary of the lag in time between the date of publication of the primary item being cited and its appearance in OA and in BA/BIOL. This was broken down by the month in which the original citation was published. Some citations did not include a publication month and some merely mentioned a season of the year. It was decided

to assign the month of July to those items listed as "summer" and also to those items with no mention of a month. In the latter instance, the selection of July was to approximate the middle of the year. In one or two cases, the assignment of July produced meaningless results, and those cases were omitted from the time lag study. For items where "winter" was listed as the date of publication, January was assigned as the publication date for

Table 3. Time Lag for Primary Literature between Date of Original Publication and Date of Issue.

Publication Date of Primary Literature and Number of Items Found	Average Time Lag in Months before Cited in OA	Average Time Lag in Months before Cited in BA/BIOL	Difference: OA Minus BA/BIOL
Jul 1972* 1	31	16	15
Jul 1973* 10	Mean 20 Median 19 Range (19-25)	17 14 (4-33)	3 5
Oct 1973 8	Mean 17 Median 16 Range (16-18)	9 6 (4-28)	8 10
Nov 1973 4	Mean 16 Median 16 Range (15-17)	9 9 (6-11)	7 7
Dec 1973 12	Mean 15 Median 16 Range (14-18)	8 8 (3-13)	7 8
Jan 1974* 10	Mean 16 Median 15 Range (13-19)	9 8 (3-25)	7 7
Feb 1974 10	Mean 15 Median 14 Range (14-20)	8 7 (3-20)	7 7
Mar 1974 11	Mean 15 Median 15 Range (11-19)	7 8 (4-10)	8 7
Apr 1974 10	Mean 15 Median 14 Range (10-20)	6 6 (3-9)	9 8
May 1974 12	Mean 14 Median 13 Range (11-19)	6 7 (3-9)	8 6
Jun 1974 10	Mean 13 Median 13 Range (10-16)	7 7 (3-10)	6 6

*This includes items "assigned" to July or January. See text.

Publication Date of Primary Literature and Number of Items Found	Average Time Lag in Months before Cited in OA	Average Time Lag in Months before Cited in BA/BIOI	Difference: OA Minus BA/BIOI
Jul 1974* 18	Mean 12 Median 14 Range (9-17)	8 7 (3-20)	6 7
Aug 1974 3	Mean 11 Median 12 Range (8-12)	8 5 (3-16)	3 7
Sep 1974 2	Mean 12 Median 12 Range (9-15)	6 6 (5-6)	6 6
Oct 1974 1	8	15	-7
Nov 1974 1	9	6	3
Dec 1974 3	Mean 9 Median 10 Range (8-10)	8 8 (7-10)	1 2
Jan 1975 10	Mean 7 Median 7 Range (5-9)	6 6 (3-9)	1 1
Feb 1975 4	Mean 6 Median 6 Range (4-6)	5 5 (3-6)	1 1
Mar 1975 12	Mean 8 Median 9 Range (7-9)	6 5 (3-8)	2 4
Apr 1975 6	Mean 7 Median 8 Range (4-8)	4 5 (2-5)	3 3
May 1975 1	5	1	4
Jun 1975 3	Mean 5 Median 6 Range (4-6)	5 5	0 1
Jul 1975* 5	Mean 5 Median 5 Range (5-5)	4 5 (1-6)	1 0

the study. Only those citations which were located in either BA or BIOI were included in the time lag data.

For material published at the end of 1973 and in the early part of 1974, OA's time lag exceeded that of BA/BIOI by an average of seven to eight months. However, the difference between the two abstracting services in this regard dropped off sharply for the remaining time periods. Both abstracting services seemed to have

improved their time lag during the period covered by the study, but Biosis was almost always better than OA.

The average figures in the summaries of the time lag for each month were obtained by finding both the mean and the median for the individual time lags of all of the items selected in the sample. In each case, the figures were rounded off to the next whole number if the actual value was 0.5 or more.

Reasons for Citation Omissions

The most difficult part of the study was the attempt to ascertain the probable reason for the omission by BA/BIOI of the citations in the sample which were not covered by those abstracting services. Possible reasons considered included subject matter being out of scope or not considered to be on a research level; coverage by a Biosis publication later than June 1976; careless oversight on the part of this author or on the part of the Biosis staff (valid perhaps for one or two items, but certainly not for such a large percentage of the sample); lack of awareness of the existence of some of the omitted publications; or unavailability to Biosis of the omitted items for whatever reason.

Table 4 shows a breakdown of the omitted citations by format. In some cases, it was difficult to differentiate between a technical report series and a "normal" serial. The items identifiable as journals were checked (using various permutations of their titles) against the *Biosis List of Serials—1975*. Those found in the Biosis list are so noted in Table 5. Since Biosis is selective in its choice of items to be listed in BA or BIOI, mere inclusion of a title in the Biosis list is no guarantee that all of the items published in a given issue of that title will be deemed appropriate for indexing or abstracting.

The subject matter of some of the omitted citations seemed to fall on both sides of the criteria for inclusion in BA/BIOI—some items appeared to be on a research or innovative application level and others to be of a general nature or dealing with commercial matters. The presence of commercially oriented material in OA is perfectly valid, however, since OA does count the business community and governmental agencies among its users.

Unable to speak for Biosis, a list of the 79 OA items which had not been found in BA/BIOI from 1973 through June 1976 was sent to their head of the Literature Resources Department, Dr. D. A. Fisher. He was asked why Biosis had not included these items in their indexing. The reply was that one of the items had been indexed by BA in July of 1976, four were indeed

Table 4. Publication Format of Citations Not Found in *Biological Abstracts* or *BioResearch Index*.

Format	Number of Citations in Oceanic Abstracts Sample
Governmental Agency Report	4*
Journal	40
Miscellaneous	1
Monograph	1
Symposium Proceedings	7†
Technical Report (e.g., EPA, NASA, Sea Grant)	10
Thesis	1
University Department or Institute Report	9
	73

* One item was an annual, earlier editions of which were listed in *BioResearch Index*.

† Six of these items were from one symposium.

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covered by BA but there had been discrepancies in the names of the authors, and two items had been overlooked by this author in her searching of the BA author indexes. Regarding the name discrepancies. OA had misspelled the name of the first author in two of its abstracts and had anglicized the listings for an Indian and for a Spanish author in two other abstracts. (BA lists and alphabetizes non-English names as they would be in their native lands.) This gives one pause in choosing to use the simple device of tracing the names of authors in studies of this kind. However, two problem names out of the sample 240 does not seem unreasonable. The misspelling of names such as Cos for Cox and Sneed for Seed is, however, a more insidious pitfall.

It was decided to include the six items turned up by Dr. Fisher (i.e., the two the author overlooked and the four which were erroneously indexed) with the items found in the Biosis indexes. The item found in the July 1976 issue of BA was discarded since that was beyond the scope of the search. That is how the final number of 73 omitted items was arrived at.

Table 5. Journals in which Articles *Not* Found in *Biological Abstracts* or *Bioresearch Index* Appear.

Titles Included in <i>Biosis List of Serials—1975</i>	Number of Articles in Sample
Atoll Research Bulletin	1
Australian Fisheries	1
Botanica Marina	1
Fisken og Havet	4
Florida Marine Research Publications	1
International Journal of Environmental Studies	1
Journal of Environmental Quality	1
Japan. Far Seas Fisheries Research Laboratory Bulletin	1
Marine Biological Association of India. Journal	1
Marine Fisheries Review	4
Marine Pollution Bulletin	1
Mississippi Academy of Science. Journal	1
Nature	1
Nihon Suisan-Gakkai Shi	6
Oceanology*	3
Science et Peche	2
University of Michigan. Div. of Research & Development Administration. Research News	1
Universidade of Sao Paulo. Instituto Oceanografico. Boletim	1
Water Resources Bulletin	1

Titles Not Included in <i>Biosis List of Serials—1975</i>	Number of Articles in Sample
Fish Boat	2
Holland Shipbuilding	1
Information Bulletin on Planktology in Japan	1
Kagaku No Ryoiki	1
Pusan Susan Taehak Yon'gu Pogo	1
Society for Underwater Technology. Proceedings	1

* One item was listed in *Bioresearch Index* in its original Russian version; however, the English article was not indexed.

It was also requested from Dr. Fisher that Biosis send a written statement advising why the remaining non-found (omitted) items had not been indexed by them. The response from him and a member of his staff provided the following information: "... Articles not covered:

- 1) Journal issue never received or received in excess of two years after original publication date: 4 citations;
- 2) Journal not received during the period in question: 11 citations;
- 3) Articles not selected for reasons including too old for coverage, not bioscientific, did not fit coverage criteria at that time: 55 citations."

If one were to add the 11 items received later than the period in question (presumably of material destined for indexing) to those actually found in the BA/BIOI indexes, this would increase the potential coverage by Biosis of the OA citations from 69.6% to 74.2%.

One might assume that the items never received or received over two years later cannot be ascribed to any selection policy on the part of Biosis other than that of not ordinarily indexing material that is over two years old when it arrives. Most librarians, unfortunately, are cognizant of the phenomena of late arrival or non-receipt of issues of serials or government documents.

The citations judged out of scope of the study, however, are of more concern here since they essentially represent material not considered to fall within the Biosis coverage criteria—basic research or innovative application. There were 25 of these citations alone among those journals which Biosis usually does scan for indexing, to say nothing of 30 items in titles not covered by Biosis. It seems quite obvious why Biosis would not bother with some of the papers in this category, but many of the other items do seem from their titles to be scientific in nature. However, the Biosis people have said on many occasions that they must be selective in their coverage and simply cannot cover the entire world of biological literature.

Based on the present study, it would appear that there is an overlap of approximately three quarters in the

coverage of OA and BA/BIOI on the subject of marine biology and that Biosis has a somewhat better track record regarding time lag. OA's coverage is admittedly more catholic than that of Biosis in that OA includes more economic and practical aspects of the subject. In fact, if one were to exclude the nonscientific items from the total study, the Biosis score of "hits" would rise to over 80%.

Conclusions

Faced with a choice between the two indexing services for on-line searching, the author would prefer to use Biosis for the strictly research aspect of marine biology since it covers so much of the same scientific material as OA and its indexing is done in greater depth, affording more flexibility in searching. If just a more general coverage of the subject—both scientific and applied aspects—was wanted, OA would be the choice. Since the relative time lags seemed to approach each other toward the end of the 1975 OA issues, this could be discounted as a factor in making the decision.

OA seems to be more eclectic in its choice of format of publications to be indexed. OA took several of the items in the study from governmental indexing publications and included a goodly number of items from the report literature and governmental publications. On the other hand, the OA items found in BA/BIOI were all from the non-report literature—a few monographs and an overwhelming number of journal articles. This is another

possible factor to consider in deciding which file to search.

A big remaining question, however, is how would OA stand up against BA/BIOI's total coverage of marine biology if the study were reversed? It is suggested that a further investigation might be made, perhaps of all BA/BIOI 1975 citations posted to the various concept codes (possible eliminating tertiary postings) involved with marine life (Oceanography, Aquatic Ecology, etc.) for plants and for animals and then looking them up in OA for 1973 through June 1976. Hopefully the investigator on that side of the study will have funds to carry out the project on-line, since such a project would be extremely time consuming.

Literature Cited

1. *Oceanic Abstracts* is published by Data Courier, Inc., 620 S. Fifth St., Louisville, Ky. 40202. *Biological Abstracts* and *Bioresearch Index* are published by Biosciences Information Service of Biological Abstracts (Biosis), 2100 Arch St., Philadelphia, Pa. 19103.
2. Information on *Oceanic Abstracts*. *Oceanic Abstracts* (Aug 1975).
3. The Emerging Biological Information Resource. *Biological Abstracts* 51 (no. 1) (Jan 1, 1975).

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Annette Corth is biological sciences resource librarian, Library of Science and Medicine, Rutgers University, Piscataway, N.J.

Library Applications of Computer Output Microfilm

An Annotated Bibliography

Elaine S. Friedman

University of Michigan Library, Ann Arbor, Mich. 48103

■ Computer output can be generated on microfilm or microfiche. This bibliography lists and annotates recent books, articles, and reports that describe existing and potential library applications of this technology in North America.

AS LIBRARIANS automate their acquisitions, cataloging, circulation, and other bibliographic functions, they are recognizing the uses of COM, computer output microfilm or microfiche. The following bibliography describes recent materials which document library applications of COM.

While a sizable number of libraries are using COM technology to supplement or replace existing card catalogs, in-process files, circulation records, and serials lists—to name a few of the operational library applications of COM—the acronym is still unfamiliar to many librarians. The name aptly defines the process. Computer data is converted from machine-readable form to conventional alphanumeric characters. Depending on the needs of the user, the output is generated on microfilm or microfiche, rather than on paper. A COM recorder is used to produce the microform. It can function off-line, reading data from magnetic tapes, or on-line, working directly from the computer's memory. Any library which uses an automated system can utilize COM, either by incorporating a COM recorder into the system, or by contracting with a COM service bureau to produce the film or fiche from magnetic tapes.

The articles listed below reflect a thorough search of the literature. As a group, they document and evaluate the library applications of COM, considering its potential along with current uses. They trace the history of COM in libraries and discuss the advantages, disadvantages, benefits, and limitations of this technology. Specific examples of applications are described in detail, both by outside observers and by the librarians and programmers who implemented the systems.

Guidelines for Selection

While these topics are treated exhaustively, selectivity has been used to include only those documents which refer specifically to libraries. Those sources which explain the workings of COM technology and discuss its non-library uses are not listed. (For a more general treatment of COM, refer to: Avedon, Don M. / *Computer Output Microfilm*. 2d ed. Silver Spring, Md., National Microfilm Association, 1971. 279p.; Gildenberg, Robert F. / *Computer-Output-Microfilm Systems*. Los Angeles, Melville Publishing Co., 1974. 199p.; Gleaves, Edwin S. and James R. Veatch, Jr. / *Microformulation: A Selective Bibliography on Microforms, 1970-1975*. Nashville, Tenn., George Peabody College for Teachers, School of Library Science, 1975. 50p. ERIC document ED111408.)

Some of the articles cited below mention equipment used in specific COM systems and discuss the services provided by individual vendors. However, in focusing on the library applications of COM,

those articles have been omitted which were limited to a discussion of readers, film, recorders, service bureaus, and the like. (Readers may wish to consult the following sources for information of this sort: Hawken, William R. / *Evaluating Microfiche Readers: A Handbook for Librarians*. Washington, D.C., Council on Library Resources, 1975. 64p.; *International Microfilm Source Book*. New Rochelle, N.Y., Microfilm Publishing, Inc. Annual; Kober, S. Arnold / What to Look for in a COM Service Bureau. *Journal of Micrographics* 9 (no. 4): 187-190 (Mar 1976); National Micrographics Association / *Buyer's Guide to Micrographic Equipment, Products and Services*. Silver Spring, Md., National Micrographics Association. Annual; National Micrographics Association / *Guide to Micrographics Equipment*. 6th ed. Silver Spring, Md., National Micrographics Association, 1976. 3v.: User Equipments, Production Equipments, COM Recorders. Readers may also wish to utilize the National Micrographics Association Resource Center, a collection of materials on micrographics and COM. *The Micrographics Index*, edited by Rita Tatis and published by the NMA in 1974, is a guide to the collection.)

The bibliography is also limited to American and Canadian library applications of COM. While other countries, particularly Great Britain, Australia, and South Africa, are utilizing COM in their libraries, many of the articles documenting its applications are of limited use to North American librarians, since the costs, service bureaus, and equipment described are often quite different from those in this part of the world. Librarians considering the implementation of COM systems can contact or visit American and Canadian libraries already utilizing COM. Such contact is not as feasible between continents. (For an overview of COM developments in British libraries, see: G. G. Baker & Associates / *A Guide to COM in the United Kingdom*. 3d ed. Guildford, England, G. G. Baker & Associates, 1972. 96p.; Spencer, John R. / *An Appraisal of Computer Output Microfilm for Library Catalogues*. Hat-

field, Hertfordshire, England, National Reprographic Centre for Documentation, 1974. 168p.)

Finally, I have omitted short news items which frequently appear in journals. Supplying only minimal information, these items announce that a library is investigating or instituting a project which utilizes COM. Instead, emphasis has been placed on more detailed treatments; names of libraries using COM technology are readily available from the articles cited.

The annotations which follow are brief, and descriptive rather than critical. It is hoped that this bibliography will document the state of the art and that it may be useful to librarians considering the alternatives of computer output microfilm and microfiche. At the time of this writing, the Council on Library Resources is conducting an extensive study of current and potential library applications for COM. Readers may also wish to consult this information when it becomes available.

Entry numbers mentioned in the text of annotations refer to items cited elsewhere in this bibliography. When materials include bibliographical references or footnotes, the number of notes appears in parentheses at the end of the annotations.

1. Association of Research Libraries / *The Future of Card Catalogs; Report of a Program Sponsored by the Association of Research Libraries, January 18, 1975*. Washington, D.C., Association of Research Libraries, 1975. 67p.

Panel (Joseph Rosenthal, William Welsh, John Rather, Judith Corin) explains problems inherent in large catalogs and some possible solutions. In discussion that follows, Basil Stuart-Stubbs describes COM as the intermediate step between card catalogs and on-line catalogs of the future. In Appendix B, John Rather suggests book or microform catalogs as a possible backup to on-line access.

2. Becker, Joseph / Computer Output Microfilm (COM) for Libraries. *UNESCO Bulletin for Libraries* 28 (no. 5):242-244 (Sep-Oct 1974).

Traces the development of COM and explains the process. Lists advantages and disadvantages of COM catalogs and briefly describes applications at Lockheed Missiles and Space Company's Library, Los Angeles

Public Library, and Information Design, Inc. Also discusses use of COM for *Books in English*, a microform list of all English language MARC records cataloged by the Library of Congress and the *British National Bibliography*. (3 refs.)

3. Bierman, Kenneth John / *Automated Alternatives to Card Catalogs for Large Libraries: The Current State of Planning and Implementation*. Final Report of a Council on Library Resources Fellowship Project, Jun 1975. Washington, D.C., Council on Library Resources, 1975. 43p.

Documents results of telephone and personal interviews with librarians from libraries concerned and/or working with automated alternatives to card catalogs. Includes sections on large libraries (250,000 or more titles) and intermediate size libraries (under 250,000 titles). Discusses COM catalogs as one of the alternatives being considered or implemented. List of 36 references cites many in-house reports, some of which are included here, concerning the future of and alternatives to the card catalog in specific libraries. (36 refs.)

4. Bierman, Kenneth John / *Automated Alternatives to Card Catalogs: The Current State of Planning and Implementation*. *Journal of Library Automation* 8 (no. 4):277-298 (Dec 1975).

Publishes the results of the study cited in the previous entry, with only minor changes in the text. Slightly less detailed than the original report. (37 refs.)

5. Bierman, Kenneth John / *Automated Alternatives to the Card Catalog*. *Catholic Library World* 47 (no. 2):74-75 (Sep 1975).

Based on research cited in entry 3. Provides brief background outlining the reasons that libraries are exploring alternatives to card catalogs. Lists libraries using book and microimage catalogs and briefly describes these formats. Predicts that while most libraries will continue to rely on card catalogs through 1985, the interest in automated alternatives will grow and the majority of libraries will utilize microimage catalogs to supplement on-line catalogs in the future.

6. Bolef, Doris / *Computer-Output-Microfilm*. *Special Libraries* 65 (no. 4):169-175 (Apr 1974).

Explains the COM process, its potential for libraries, disadvantages, and advantages. Discusses equipment and costs, using the Washington University School of Medicine Library microfiche catalog as an example. (6 refs.)

7. Bolef, Doris / *Better than Expected*. (Letter) *Special Libraries* 66 (nos. 5-6):234 (May/Jun 1975).

Notes that cost savings for COM can be even greater than those reported by the article cited in the previous entry.

8. Butler, Brett / *Updating the Reference Book Through Microform Supplements*. *Microform Review* 3 (no. 1):30-33 (Jan 1974).

Describes COM's potential in the area of updating reference books. Cumulating COM fiche could be produced on a regular basis to supplement the book, and the purchaser would receive both the book and the most recent fiche at the time of purchase. Cost estimates are provided.

9. Butler, Brett and John Van Pelt / *Microphotocomposition—A New Publishing Resource*. *Journal of Micrographics* 6 (no. 1):7-13 (Sep-Oct 1972).

Outlines the development of the microphotocomposition facility which produces CARDSET, a catalog card subscription service that uses COM techniques to produce catalog cards for libraries. Prior to the development of microphotocomposition, COM devices were not able to handle all of the capabilities of photocomposition.

10. Canadian Union Catalogue Task Group / *The Canadian Union Catalogue Task Group: First Report and Interim Recommendations*. *National Library News Special Issue*: 3-12 (Jan 1974).

Among recommendations is the creation of an on-line union catalog, which would also be published as COM. Copies of the COM edition would then be sent to specified Canadian bibliographic centers and would be available for purchase by other libraries.

11. Carroll, C. Edward / *Microfilmed Catalogs, A More Efficient Way to Share Library Resources*. *Microform Review* 1 (no. 4):274-278 (Oct 1972).

Describes the filming of four campus library catalogs at the University of Missouri and the COM supplement produced at the Columbia campus. (2 refs.)

12. Chapman, Ronald F. / *Catalog Card Printing: Offset Press and Computer Output Microfilm at the University of Hawaii*. In *RLMS Micro-file: Current State of Catalog Card Reproduction*, Nitecki, Joseph Z. (comp.), Chicago, American Library Association, Resources and Technical Services Division, Re-

production of Library Materials Section, 1973. p. 39-50.

Explains and then analyzes advantages and disadvantages of the two card production methods used at the Hamilton Library of the University of Hawaii. The COM method utilizes COM cassettes of LC-MARC records and a microprinter. The printer produces cards from the information on the cassettes.

13. Clark, Alice S. / Subject Access to a Data Base of Library Holdings. *Journal of Library Automation* 7 (no. 4):267-274 (Dec 1974).

Traces Ohio State University Libraries' development of subject access to their automated shelf list. One method involved reproducing sections of the shelf list using COM processes. User reaction to paper versus COM output was also tested; paper was the preferred format. (3 refs.)

14. Corya, William L. and Gary C. Elvis / The Integration of Formats to Provide Catalog Access Services. In *Proceedings of the 4th Mid-year Meeting, American Society for Information Science, Portland, 1975*. Washington, D.C., American Society for Information Science, 1975. p. 96-104.

Discusses Purdue University Library's decision to implement a combination of on-line and COM formats in place of the traditional card catalog. COM would be used to provide subject access, with an on-line data base available for author-title searches. In explaining the decision to use the COM format, the authors describe Purdue's experience with their COM serials list, noting advantages of the format. (11 refs.)

15. DBPH Issues New Catalog. *Library of Congress Information Bulletin* 36 (no. 8):139 (Feb 25, 1977).

Describes *Reading Material for the Blind and Physically Handicapped*, a COM catalog including almost 10,000 titles of works in the LC Division for the Blind and Physically Handicapped collection.

16. Elrod, J. McRee / Is the Card Catalogue's Unquestioned Sway in North America Ending? *Journal of Academic Librarianship* 2 (no. 1):4-8 (Mar 1976).

Enumerates the problems of card catalogs (size, editorial condition, physical condition, preservation, staff considerations, subject revision, etc.) and offers possible solutions. Explains University of British Columbia Library's proposed pilot project, a COM catalog of new imprints, which would include basic

rather than complete bibliographic information for titles. (7 refs.)

17. Fischer, Mary L. / The Use of COM at Los Angeles Public Library. *Journal of Micrographics* 6 (no. 5):205-210 (May 1973).

Describes the Automated Library Technical Services Program (ALTS) and the use of COM to replace the large amounts of paper output generated by two of the ALTS systems, the Patron Registration/Interim Overdue System and the Order System. Outlines future plans to expand COM applications to include the Branch Union List, the Official Shelf List, the Central Library Serials Holdings Report, and the Branch Union List of Serials.

18. Folk, Clara A., Bill W. Campbell and Masse Bloomfield / A Microfilm Card Catalog at Work. *Special Libraries* 67 (no. 7):316-318 (Jul 1976).

Discusses the microfilming of the Hughes Aircraft Company Union Catalog and the production of a COM index to the Hughes internal technical documents, which are cataloged through an automated information retrieval system.

19. Freedman, Maurice J. / Automated Network Catalog Products and Services. *Journal of Library Automation* 9 (no. 2):145-155 (Jun 1976).

Describes catalog products and services available to libraries through participation in computer-based networks or other access to automated systems. Considers applications of COM, citing specific examples, along with other available products and services, such as on-line systems, book catalogs, and catalog cards. Also outlines advantages and disadvantages of COM. (11 refs.)

20. Gillham, Virginia and John B. Black / Administrative and Bibliographic Uses of COM (Computer Output Microfilm) in an Academic Library. Paper presented at the 7th Ontario Universities Computing Conference, Waterloo, Ontario, Jun 2-4, 1976. ERIC document ED127914.

Identifies several areas of COM library applications: in-process files, card catalogs, circulation and reserves systems, management information, and distribution of bibliographies. Cites examples from COM use at the University of Guelph McLaughlin Library. Notes problem areas as well as advantages of switching from paper to COM. (6 refs.)

21. Greene, Robert John / Faculty Acceptance and Use of a System Providing Re-

mote Bibliographic and Physical Access to an Academic Library. Ph.D. Dissertation, Florida State University, 1973. 190 p.

Explains Georgia Institute of Technology's LENDS (Library Extends Catalog Access and New Delivery System) which combines a delivery service with the distribution of the library's microfiche catalog and its COM supplements. Studies the effect of LENDS on faculty book circulation statistics and evaluates the use or nonuse of LENDS by faculty. Among conclusions are: circulation increased due to LENDS, use of LENDS was not necessarily determined by attitudes to microforms, distance of faculty offices was a significant variable in use of LENDS. (Annotation based on abstract in *Dissertation Abstracts International*.)

22. Greene, Robert John / LENDS: An Approach to the Centralization/Decentralization Dilemma. *College and Research Libraries* 36 (no. 3):201-207 (May 1975).

Presents summary of studies on acceptance and use of LENDS. Original research is cited in previous entry. (5 refs.)

23. Greene, Robert John / Microform Library Catalogs and the LENDS Microfiche Catalog. *Microform Review* 4(no. 1):30-34 (Jan 1975).

Cites and discusses examples of microform catalogs which are not COM. Describes COM's use in updating microform catalogs and outlines COM systems at various libraries (Lockheed, El Centro College, Tulane University, Georgia Institute of Technology). Examines Georgia's LENDS in the most detail, enumerating advantages, disadvantages, and use studies. (In his *Automated Alternatives to Card Catalogs for Large Libraries: The Current State of Planning and Implementation*, entry 3, Kenneth Bierman notes that the paragraphs in this article were printed in the wrong order: "There is a serious mix-up in the arrangement of the paragraphs. From the end of the second paragraph of the first column on page 32 skip to the end of the second column on that page and continue reading through the end of the third paragraph of the first column of page 33. Then go back to the third paragraph of the first column of page 32 and continue reading through the end of the article, skipping that section previously read" p. 35.) (16 refs.)

24. Horner, William C. / Use and Economics of Computer-Generated Microfiche Catalogs. *North Carolina Libraries* 33 (no. 4):31-33 (Winter 1975).

Outlines production and costs of the North Carolina State University Serials Catalog, a

COM catalog of approximately 30,000 entries and cross references. User acceptance is described as favorable for both staff and patrons. Article notes that NCSU also produces two other computerized catalogs, the Cooperating Raleigh Colleges History Union Catalog and the NCSU Working Collections Catalog.

25. Johnson, Ellen S. / Catalog Card Production at the University of Kansas Libraries. In *RLMS Micro-file: Current State of Catalog Card Reproduction*, Nitecki, Joseph Z. (comp.), Chicago, American Library Association, Resources and Technical Services Division, Reproduction of Library Materials Section, 1973. p. 91-105.

Explains card production systems at the University of Kansas Libraries, including the ID system, which involves the use of a microprinter to produce cards from COM cassettes of LC-MARC and CIP records.

26. Kozumplik, W. A. / Computer Produced Microfilm Library Catalog. *Sci-Tech News* 20 (no. 4):126 (Winter 1966).

Announces first operational COM library catalog at the Technical Information Center of Lockheed Missiles & Space Company. Catalog lists books and technical reports in more than one million entries; occupies 40 microfilm cartridges; saves approximately \$10,000 annually.

27. Kozumplik, W. A. / Computerized Microfilm Catalog. *Special Libraries* 57 (no. 7):524 (Sep 1966).

With only minor deletions, announcement provides same information as previous entry.

28. Kozumplik, W. A. and R. T. Lange / Computer-Produced Microfilm Library Catalog. *American Documentation* 18 (no. 2):67-80 (Apr 1967).

Describes in more detail the production and advantages of the Lockheed microfilm catalog, with samples reproduced from its six sections (source, title, author, contract number, subjects, report/call number).

29. Libraries Expand Use of COM Catalogs. *Advanced Technology/Libraries* 6 (no. 2):1-3 (Feb 1977).

Notes that the number of libraries switching to COM catalogs is growing at a fast rate and briefly describes catalogs at various libraries. According to a spot survey conducted by this newsletter, librarians like the catalogs and prefer roll film to microfiche.

30. LoPresti, Maryellen / An Automated Slide Classification System at Georgia

Tech. *Special Libraries* 64 (no. 11):509-513 (Nov 1973).

Discusses the use of the automated Santa Cruz Slide Classification System at the Georgia Tech Architecture Library. The author expects that cataloging data will be available as COM on microfiche.

31. Malinconico, S. Michael / The Display Medium and the Price of the Message. *Library Journal* 101 (no. 18):2144-2149 (Oct 15, 1976).

Explains the COM process, considering alphanumeric and graphic character sets available in COM, and provides detailed cost comparisons for COM and paper output. Notes other advantages of this medium, particularly its timeliness and the ease with which inexpensive cumulations can be made.

32. Martin, Susan K. / Mixed Media for a Serial System: Hardcopy, Microform, and CRT's. In *Proceedings of the 4th Mid-Year Meeting, American Society for Information Science, Portland, 1975*. Washington, D.C., American Society for Information Science, 1975. p. 111-118.

Describes the automated serials system at the General Library of the University of California at Berkeley. In Spring, 1974, the payment indexes were produced on COM fiche to replace paper versions. Other output formats used in conjunction with the serials system at Berkeley are also discussed. (6 refs.)

33. McGrath, William E. / [Letter] *College and Research Libraries* 34 (no. 4):307 (Jul 1973).

Refutes Robert C. Sullivan's opinion (see entry 50) that COM is not appropriate when a data base changes rapidly. McGrath includes unit costs for the Louisiana Numerical Register (LNR), a COM union catalog for 21 Louisiana libraries, to illustrate that COM is an economical alternative although the LNR is expanding quickly. The LNR lists LC card numbers and location symbols rather than bibliographic information. McGrath states that COM should be seen as a viable alternative for union catalogs and other listings of numerous short records.

34. McGrath, William E. and Sam Dyson / Regional Interlibrary Loan: An Old Idea; A New Tool and a New Dimension. *RQ* 13 (no. 4):293-298 (Summer 1974).

Emphasis is on evaluation of the LNR as an interlibrary loan tool, with discussion and statistics on its use and comments on its implications for union lists produced in the future. (9 refs.)

35. McGrath, William E. and Donald J. Simon / *LNR: Numerical Register of Books in Louisiana Libraries; Basic Documents, I*. Lafayette, La., Compiled for the Louisiana Library Association, 1972. 55p. ERIC document ED070470.

Includes grant proposals and documents which describe the planning and implementation of the LNR. (11 refs.)

36. McGrath, William E. and Donald J. Simon / *LNR: Numerical Register of Books in Louisiana Libraries; Basic Documents, II*. Lafayette, La., Compiled for the Louisiana Library Association, 1972. 67p. ERIC document ED070471.

Continues previous entry, containing a collection of technical documents pertaining to the LNR. Includes statistical analysis documents, keypunching instructions, flow charts, sample output, and source program listings and documentation. Of particular interest is the introduction to the first COM edition of the LNR. (1 ref.)

37. McGrath, William E. and Donald J. Simon / Regional Numerical Union Catalog on Computer Output Microfilm. *Journal of Library Automation* 5 (no. 4):217-229 (Dec 1972).

Describes the computer programs, data bank, and output of the LNR. Highlights statistical information now available from the register and discusses future plans to expand the list and produce additional cumulated versions on COM. (8 refs.)

38. Meyer, Richard W. and John F. Knapp / COM Catalog Based on OCLC Records. *Journal of Library Automation* 8 (no. 4):312-321 (Dec 1975).

Explains the production of the University of Texas at Dallas' COM catalog. UT-Dallas' OCLC archival tape is merged with its existing data base (created through arrangements with Blackwell North America prior to UT-Dallas' membership in OCLC). Divided into author, title, subject, and shelf list sections, the COM catalog is cumulated yearly and has biweekly cumulating supplements. The catalog also incorporates a subject authority control system. Samples of each section are reproduced. (4 refs.)

39. Michigan Public Libraries Converting to COM; Lower Costs a Major Factor. *Advanced Technology/Libraries* 5 (no. 1):1-2 (Jan 1976).

Briefly describes the COM catalog of the Raisin Valley System in Michigan.

40. Nozik, Barbara A. / *Alternative Physical Forms for Library Catalogs: Card, Book, Microform, On-Line*. Berkeley, University of California at Berkeley, 1974. 32 p.

Enumerates problems and other factors concerning card catalogs and these formats for catalogs, such as durability, staff needs, user orientation, updating and maintenance, space requirements, and access costs. (Not available for distribution through the University of California, but available on interlibrary loan from the General Library, University of California, Berkeley.)

41. Otten, Klaus W. / A Hypothesis: Microform Will Become the Major Medium for "New Information" in Reference Libraries. *Journal of Micrographics* 4 (no. 5):265-273 (Jul 1971).

Advantages and potentials of COM technology are among the arguments used to support this thesis. (3 refs.)

42. *ROM Newsletter*. Menlo Park, Calif., Information Design, Inc. Irregular.

This four-page newsletter, subtitled "a news report on COM applications for libraries," is published and distributed by Information Design, Inc., a firm which manufactures COM readers.

43. Roberts, Edward Graham and John P. Kennedy / The Georgia Tech Library's Microfiche Catalog. *Journal of Micrographics* 6 (no. 6):245-251 (Jul-Aug 1973).

Describes and evaluates Georgia Institute of Technology's microfiche catalog and the Library Extends Catalog Access and New Delivery System (LENDs). Outlines the production of the fiche catalog, created by filming the existing catalog and producing a cumulating bi-monthly COM supplement. (4 refs.)

44. Rogers, Kenneth A. and Earl C. Vogt / Cost Benefits of Computer Output Microfilm Library Catalogs. In *Proceedings of the 36th Annual Meeting, American Society for Information Science, Los Angeles, 1973*. Washington, D.C., American Society for Information Science and Westport, Conn., Greenwood Press, 1973. p. 199-200.

Briefly describes the Boeing Company Libraries microfiche catalog. Compares costs of COM and hard copy, and outlines benefits and advantages. (2 refs.)

45. Saffady, William / A Computer Output Microfilm Serials List for Patron Use. *Journal of Library Automation* 7 (no. 4):263-266 (Dec 1974).

Explains the conversion of the Union List of Serials in the Wayne State University Libraries from paper to COM. Notes that while COM applications have been geared for staff use, the format can be appropriate to patron use. Stresses the importance of careful selection of microformat and equipment and describes those selected at Wayne State. Based on the success of the COM Union List, concludes that COM in libraries need not be limited to staff uses. (7 refs.)

46. Schwarz, Philip / Computer Output Microfilm: Stout Uses a New Tool. *Wisconsin Library Bulletin* 72 (no. 3):125-126 (May-Jun 1976).

Describes the COM catalog at the University of Wisconsin-Stout Library, noting reasons why the COM format was chosen along with limitations of this technology. States that the library is also producing periodical holdings, a film catalog, a videotape catalog, and an index to Wisconsin public documents on COM.

47. Spaulding, Carl M. / New Uses of Microforms in the Library. In *Proceedings of the 22nd Annual Conference and Exposition, National Microfilm Association, Detroit, 1973*. Silver Spring, Md., National Microfilm Association, 1973. p. 11293-298.

Discusses library uses of microform technology. COM applications mentioned include *Books in English* and the Georgia Tech microfiche catalog.

48. Spaulding, Carl M. / A Primer on COM (Computer Output Microfilm), An Alternative to Computer Printout. *American Libraries* 7 (no. 7):468-469 (Jul-Aug 1976).

Provides background information and explanation of the COM process. Explains workings of a COM recorder and notes advantages and limitations of COM. Discusses library applications, including COM catalogs and the use of COM to produce the *Library of Congress Subject Headings* and the *Register of Additional Locations*.

49. Spigai, Frances G. / Computer Output Microfilm. *Advanced Technology/Libraries* 1 (no. 5):1-8 (May 1972).

Section on library applications describes COM catalogs, delinquent borrower lists, in-process files, serials catalogs, and circulation records. Among libraries cited are: Lockheed, Los Angeles Public, Hennepin County, Georgia Institute of Technology, University of North Carolina at Raleigh, University of Michigan at Saline, and University of Colorado. Also discusses the history and technology

of COM, service bureaus, and its advantages and limitations. (18 refs.)

50. Sullivan, Robert S. / Microfilm Developments Related to Acquisitions. *College and Research Libraries* 34 (no. 1):16-28 (Jan 1973).

Discussion of recent developments in micrographics from the viewpoint of the acquisitions librarian. Brief section on COM notes its growth in libraries, stating that to date its impact has been minimal and its use and acceptance may be slow and expensive. Mentions areas of successful library applications but suggests "cautious optimism" and "careful analysis" before accepting COM alternatives (p. 18). (50 refs.).

51. Texas Numeric Register to be Major Location Aid. *Texas Libraries* 35 (no. 1):7-9 (Spring 1973).

Announces plans for the Texas Numeric Register, a listing of holdings in selected Texas libraries to be produced as COM. Outlines potential uses as well as drawbacks.

52. Thomas, Sarah M. and Lester P. Needle / Environmental Library Systems. *Special Libraries* 66 (no. 7):293-300 (Jul 1975).

Twenty-eight U.S. Environmental Protection Agency libraries use computer support systems in the areas of journal and book holdings, journal check-in, circulation, document control, EPA reports, international exchange items, and subject collections. COM output is described as an integral part of all but the circulation system. (5 refs.).

53. Ungerleider, S. Lester / A study of COM Usability in the Technical Processing Area of the Yale University Library. *Journal of Micrographics* 7 (no. 2):81-89 (Nov-Dec 1973).

In deciding whether to convert the biweekly "In Process List" from paper to COM, several studies were conducted to determine the performance of: COM versus paper, two film and indexing methods, and three readers. The costs of COM as opposed to paper systems were also studied. Results show that COM is preferable to paper in terms of both cost and productivity.

54. University of British Columbia. Catalogue Project Task Group. Data Elements Subgroup / *Basic Bibliographic Data*. Vancouver, University of British Columbia, 1974. 53 p.

Lists and explains the data elements that should be included in record displays for the University of British Columbia Library COM catalog. Sample displays are provided. In-

cludes information on the machine-readable fields that are used to represent these data elements.

55. University of California, Los Angeles. Library. Working Group on Public Catalogs / *Subgroup B-Interim Report. State of the Art and Alternatives*. Los Angeles, University of California at Los Angeles, 1974. 68 p. ERIC document ED121324.

Final report, a working paper, of this subcommittee. Following a selective, annotated, bibliography, the report compares six catalog formats: card, book (photographically produced), book (printed by typesetting), book (computer produced), microform or video (including COM), on-line. Analyzes alternatives with regard to ease of use, costs, updating, maintenance, security, equipment and housing, feasibility, and other considerations.

56. University of California, Los Angeles. Library. Working Group on Public Catalogs / *Subgroup II-Interim Report. Long Term Goals—Alternatives*. Los Angeles, University of California at Los Angeles, 1975. 16 p. ERIC document ED125632.

Working paper of this subcommittee. Includes cost estimates of COM catalogs as well as other alternative catalog formats. Suggests a microform catalog as a possible interim development before establishing a full on-line system.

57. Wilson, Mark / Automated Indexing Project for Local Newspapers. *The University of Michigan Librarian* 8 (no. 14):1-3 (Jan 27, 1977).

Describes an automated newspaper indexing project at the University of Michigan Libraries that utilizes the COM format. Index terms for articles of three local newspapers are selected and tagged for computer input; the magnetic tape output that results is used to create the COM index.

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Elaine S. Friedman is catalog information librarian at the University of Michigan, Ann Arbor, Mich.

The Map Interpretation File

Karl H. Proehl

State University of New York at Stony Brook, Stony Brook, N.Y. 11794

■ There are numerous types of cartographic material housed in a map library—topographic, thematic, statistical, to name a few. Each type requires a different approach to its interpretation by the map user in order to obtain the necessary information. An important reference tool to have at hand is a collection of literature concerning cartographic interpretation. The collection functions as

a depository of select literature which includes books, serial articles, government documents, doctoral dissertations and masters' theses, professional papers, and pamphlets. A properly organized collection by means of a systematic arrangement would provide the map librarian with a workable file, and thus, an effective reference tool.

ONE OF the most important services rendered by the map librarian is to help patrons interpret maps and other types of cartographic material. Often this reference task can be dispensed with quickly. There are times, however, when a problem arises concerning cartographic interpretation which goes beyond the map librarian's ability. This may be due either to subject matter or to a specific type of cartographic material. An important reference tool to have immediately at hand is a well-defined systematic arrangement of literature on cartographic interpretation. The purpose of this paper is to initiate the idea for a map interpretation file. The file would function primarily as a depository of select literature which would include books, serial articles,

government documents, doctoral dissertations and masters' theses, professional papers, and pamphlets. The importance of the map interpretation file is to have readily available a collection of material in one location, ranging in readability from elementary to highly technical literature, for the purpose of establishing an interpretive reference tool for the cartographic materials housed in the map library.

The Literature Search

The initial stage in establishing a map interpretation file is to survey the relevant literature in the fields of cartography and geography; this can be followed up with numerous source materials in other disciplines since cartography cuts across most academic lines. A number of reference sources are available to provide the map librarian with an effective search.

Looking at retrospective and comprehensive bibliographies presents a foundation from which one can select a

Karl H. Proehl was map librarian, State University of New York at Stony Brook. He is now head map librarian, Pennsylvania State University, University Park, Pa.

great deal of material. The primary reference source to begin with is the *Bibliography of Cartography*. It is a comprehensive analytic index to the literature of cartography, providing an author-title-subject arrangement to books and journal articles relating to maps and the history of cartography. In recent years approximately 200 serials in the fields of cartography, geography, history, and library science have been searched and the pertinent literature cited (1, p. 28).

Another primary reference tool is the *Research Catalogue of the American Geographical Society* along with its serial publication, *Current Geographical Publications*. The *Research Catalogue* with its first 10-year supplement is the most comprehensive bibliography in the field of geography for the period covering 1923 to 1971. It contains bibliographical references to books, journal articles, professional papers, pamphlets, government publications, and maps. The arrangement was primarily regional with systematic subdivisions; the classification change made in the 10-year supplement, however, provides for greater emphasis on systematic rather than regional divisions.

The most comprehensive bibliography of U.S. government publications is the *Cumulative Subject Index to the Monthly Catalog of United States Government Publications, 1900-1971*, supplemented annually and monthly by the *Monthly Catalog*. This 15-volume cumulative index cites references from issuing agencies of the federal government having responsibility in mapping and charting. These governmental agencies, when considered together, publish a number of different types of maps, and they often issue interpretive publications concerning their cartographic materials.

The last important bibliography to note in this retrospective, comprehensive category is the *Comprehensive Dissertation Index, 1861-1972*. This multivolume bibliography lists "virtually all of the dissertations" accepted by American educational institutions. It is arranged in two parts: subject and author. Entries in the subject index have been grouped by disciplines. The subject arrangement is by

keyword indexing with keywords appearing alphabetically within each subject; under each keyword are listed all dissertations having that word in their titles (2, p. xi).

Current Citations

Current literature is cited in a number of indexing and abstracting publications, current awareness publications, and current bibliographies. The reference materials mentioned are more or less complementary sources of information. Some of these are current bibliographies: *Bibliographica Cartographica*; *Books in Print*, *Subject Guide to BIP*, *Forthcoming Books in Print*; *Monthly Catalog*; *United Nations Documents Index*. Indexing Publications: *Current Geographical Publications*; *Education Index*; *Index to Exchange Bibliographics* (3); *Index to U.S. Government Periodicals*; *PAIS Bulletin*; *Social Science Index*. Current Awareness Publications: *AAG Newsletter*; *GEOPUB Review of Geographical Literature*. Abstracting Publications: *American Statistical Index*; *Dissertation Abstracts International*; *GEO Abstracts G*; *Research in Education* (ERIC).

The most valuable of the aforementioned reference sources are *Bibliographica Cartographica* and *Current Geographical Publications*, due mainly to their degree of comprehensiveness. The *Bibliographica Cartographica* (formerly *Bibliotheca Cartographica*), a semiannual journal, is the most current international bibliography covering new publications relating to all aspects of the theory and practice of cartography (4, p. 471). References are classified under the following select headings: bibliography, documentation, general publications, history of cartography, topographic and landscape cartography, thematic mapping and cartograms, atlas cartography, use and application of maps, special purpose maps, relief mapping, block diagrams, and globes. Additions to the *Research Catalogue* are published in *Current Geographical Publications*. The September 1972 issue of this serial publication initiated a change in the classified arrangement, providing for

greater emphasis on systematic rather than regional divisions. This is consistent with the classification change made in the 10-year supplement to the *Research Catalogue* (5, p. 43). The topical arrangement and the multiple entries greatly enhance possibilities of locating potentially valuable literature regarding the cartographic interpretation discussion.

GEO Abstracts G: Remote Sensing and Cartography, and its predecessors (6), provide a systematic arrangement of abstracts of books, serials, and other published material concerning cartography and related subject matter. Analytical entries from chapters or sections of multiauthor collections add to the value of this abstracting publication. The coverage is international in scope, with informative abstracts of publications which may be of considerable importance but would otherwise have gone unnoticed.

Some publications by the government or issued as a consequence of government-sponsored research are indexed in the standard indexing and abstracting publications. The *Monthly Catalog*, however, is the basic indexing tool the map librarian has for obtaining information on U.S. government publications. An additional indexing publication is the *Index to U.S. Government Periodicals*, which is published on a quarterly basis by Infor-data International Inc. Also, a number of major issuing agencies—i.e., the Department of Agriculture, Geological Survey, and the Bureau of the Census—provide cumulative lists of their own publications on a quarterly/annual basis. Foreign government publications of considerable importance are usually cited in cartographical and geographical periodicals.

Much valuable information appears in doctoral dissertations and masters' theses which research various aspects of map reading, map analysis, and map skills. The *Dissertation Abstracts International* provides abstracts of dissertations which are available from Xerox University Microfilms. The annual supplements to the *Comprehensive Dissertation Index* include additional dissertations (but not in abstract form). Another Xerox University

Microfilms publication is *Master Abstracts*; it provides a very selective list of masters' theses in abstract form. One of the quarterly issues of *The Professional Geographer* cites recently completed geography dissertations and theses. Basic bibliographic information is included, and information regarding availability—through Xerox University Microfilms or interlibrary loan is provided.

Any bibliographic listing is subject to publishing delays. Most of the cited reference sources noted as "current," however, are arranged in a classified sequence and produce indexes and can therefore be used for retrospective searching. Although references to journal articles are most easily obtained by the use of these indexing and abstracting publications, the searcher has no real alternative but to examine the major periodicals as they are published in order to derive maximum benefit from the contents and to be fully aware of publishing activity in the fields of cartography and geography (5, p.57). The importance of the major periodicals lies in the following features: 1) articles covering all aspects of cartography and related subject matter ranging in readability from very elementary to highly technical literature; 2) reporting of new developments, conferences, symposia, and meetings; 3) bibliographical information relating to new publications, new editions, reprints, and citations of related literature published in other serials and bibliographies; 4) critical reviews of books and cartographic materials; 5) indexes and cumulative tables of contents for retrospective searching.

Literature Format

Literature concerning cartographic interpretation appears in a number of different formats; the physical form may be a multivolume publication, a serial article, a pamphlet, or a type of microform. The bulk of the proposed map interpretation file's collection will be in hard copy. The importance of mentioning format is to briefly indicate the potential value of published and unpublished material concerning the cartographic in-

terpretation discussion in microcopy format. The following will show the different types of material represented in microformat:

- The *Bibliography of Cartography* is on microfilm as well as in book format.

- A number of geographical journals are available on microfilm.

- The United States government publications are in microprint edition published by Readex Microprint Corporation. This microprint edition includes two sections: the depository publication section (1956–) and the nondepository publications section (1953–). The arrangement for each section is by the entry number under which each publication is listed in the *Monthly Catalog*. The United Nations documents are also in microprint (1946–) which can be accessed by entry number in the *United Nations Documents Index*.

- *Research in Education* (ERIC) provides a monthly abstracting journal which concerns “completed research, research-related reports and current research projects in the field of education.” A number of publications abstracted in this journal relate to maps, mapping, and map skills. These publications are in microfiche format and are deposited in a number of libraries. Information on obtaining a publication in hard copy is given along with the bibliographic citation.

- Doctoral dissertations and masters’ theses abstracted in the Xerox University Microfilms’ publications are available on microfilm as well as in book format.

The Map Interpretation File

Many books, serial articles, government publications, doctoral dissertations and masters’ theses, professional papers, and pamphlets are available providing potential value. An effective literature search should provide the map librarian with a substantial base of publications from which to establish a map interpretation file. It is intended as an ongoing project with updates, additions, and other

collection development practices in order to meet the needs of the map user in terms of cartographic interpretation. What follows is an example of possible procedures to adhere to in arranging the map interpretation file.

The vertical file is the most likely candidate to house the map interpretation file. The arrangement may cause a problem when the different types of formats are considered together. This is especially true of bulky books, flimsy pamphlets or journal articles, and because of the nature of microforms. One way to resolve this problem is to attempt some kind of uniformity within the file. Some suggestions are given here.

Provide each pamphlet and journal article with a file folder. Bibliographic information would be cited on the cover of the folder with the pamphlet or a xerox copy of the journal article enclosed.

Provision for books and other hard copy material can be handled in a number of ways: 1) photocopy select chapters or parts of chapters and enclose within a file folder with bibliographic information cited on the cover; 2) provide the necessary bibliographic information and location of publication on the folder’s cover with descriptive information (photocopy of the table of contents, table of maps and illustrations, prefatory and introductory pages) enclosed in the file folder; 3) place the publication in the file.

Provision for microforms can be handled as follows: 1) use a micro-reader printer to obtain a hard copy which will be enclosed in a file folder with the bibliographic information cited; 2) provide a file folder with bibliographic citation and location of the microform along with identification of type of format, and enclose descriptive information (abstract, table of contents, introductory pages) in the folder; 3) order a hard copy, if it is possible, when the publication is of considerable importance.

The file folder provides for a great deal of uniformity otherwise lacking. An added item would be the use of the hanging file folder which would allow for divisions and subdivisions to take place within the map interpretation file.

Classified Arrangement

An effective means of organizing the collection is through a classified arrangement. This arrangement allows for better accessing of literature than would an alphabetical scheme—it enables the map librarian to find related subject matter (i.e., map elements) close together. Needless to say, further development of the map interpretation file will facilitate additional divisions and subdivisions. The flexibility of a systematic arrangement is one of its greatest advantages. In cases where certain divisions become inundated with materials, subdivisions can be made in order to maintain an orderly arrangement without scattering the related materials. An example of a classified arrangement is shown:

- I. *Bibliographies*. This bibliography section presents an inventory of published material cited in existing bibliographies which relate to the cartographic interpretation discussion. Highly selective—possibly annotated—bibliographies intended to identify basic publications considered suitable for a first introduction to the subject will be included. A compilation of a select bibliography in a systematic arrangement, along the same lines as the map interpretation file, is intended to provide a broad spectrum of publications representative of the subject's literature as a whole and of all the possible topics and issues that interrelate with the subject of cartographic interpretation. A portion of related subject matter cited in this bibliography would not normally be included in the file, but the reader would be directed to publications adding to the interpretation discussion.
- II. *General Map Information*. This section would include introductory information concerning maps, mapping, map reading and interpretation, and cartography and its importance. Glossaries and other "encyclopedia" publications would be included.
- III. *Map Elements*. The positive and negative qualities of maps can best be understood by examining the elements: coordinate system provides for a frame of reference; map projection provides for a map's foundation in regard to a particular purpose; scale allows for the earth or part of it to be cartographically expressed on a map sheet in a manageable manner; symbols provide content; and marginal-type information enhances and qualifies what is symbolically shown on the map.
- IV. *Map Types*. This is the most important division in the map interpretation file. There are four classes of maps: topographic maps and their derivatives, special purpose maps, statistical maps, and atlas maps. These are subdivided by map types outlined below. Map information on each type would include definition and type of information provided, characteristics given, possible uses of the map, the handling of data, and the cartographical principles and techniques involved in producing the map.
 - A. *Topographic Maps*
 1. General Information
 2. Contour maps
 - B. *Special Purpose Maps*
 1. General Information
 2. Aeronautical charts
 3. Cadastral maps/plat books
 4. Census tract maps
 5. Geologic maps
 6. Historical maps
 7. Insurance (Sanborn) maps
 8. Land use maps
 9. Nautical charts/bathymetric charts
 10. Soil maps/soil surveys
 11. Vegetation maps
 12. Weather maps
 13. Zoning maps
 - C. *Thematic-Statistical Maps*
 1. General Information
 2. Cartograms
 3. Choropleth maps
 4. Computer mapping
 5. Flow maps
 6. Isoline maps
 - D. *Atlas Maps*
 1. General Information
 2. General maps
 3. Thematic-Qualitative maps
- V. *Subject*. This section involves the interpretation of subject matter (i.e. settlement patterns, boundary lines, place names, genealogy) on maps and charts.
- VI. *Instructional Literature*. This section will contain basic map reading materials for instructional purposes.

Conclusion

The map interpretation file is intended as an ongoing project for the purpose of meeting the needs of the map user as well as the map librarian in terms of cartographic interpretation. This collection can be limited to whatever map information the map librarian deems necessary. A properly organized collection by means of a systematic arrangement would provide the map librarian with a workable file, and thus, an effective reference tool.

The importance of the map interpretation file is to make readily available in one location a collection of materials which range in readability from very elementary to highly technical literature. Publications are more inviting to the library patron if the materials are immediately at hand. Another function of the file is that it serves as a ready-made reference tool when the map librarian prepares for a lecture on a particular subject concerning cartographic materials. In like manner, instructors in introductory courses in geography and geology can use the file when course units concern map reading and interpretation. These examples indicate the potential importance of the map interpretation file. It would seem likely

that its existence would provide additional examples of its potential value to the map librarian and the map user.

Literature Cited

1. *G. K. Hall & Company Catalog, 1973-1974*. Boston, G. K. Hall & Co., 1974.
2. *Comprehensive Dissertation Index, 1861-1972*. Ann Arbor, Mich., Xerox University Microfilms, 1973.
3. This is not a standard index. A large number of very valuable bibliographies in mimeographed form are published by the Council of Planning Librarians. A cumulative index is often forthcoming from the Council.
4. Locke, C. B. Muriel / *Modern Maps and Atlases*. London, Clive Bingley, 1969.
5. Brewer, J. Gordon / *The Literature of Geography*. London, Clive Bingley, 1973.
6. The predecessors of *Geo Abstracts G* are: *Geo Abstracts B* (1971-74), *Geographical Abstracts D* (1966-70), and *Geomorphological Abstracts* (1960-65).

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**Karl H. Proehl is head map librarian,
Pennsylvania State University, University
Park, Pa.**

SLA 1977 Salary Survey Update

Since 1967 Special Libraries Association has conducted in-depth Salary Surveys on a triennial basis. With a rapidly changing economy, it is apparent that annual salary information is needed. Because of the high cost of a survey of all members of the Association, a *sampling* survey has been designed for use in 1977 and in 1978. With appropriate sampling, we feel that annual adjustment factors can be determined in the years intervening before the next triennial survey in 1979.

The 1977 survey questionnaire was mailed to a sample of slightly more than 25% of the members as of Jul 25, 1977 (excluding Retired Members, Student Members, Honorary Members, and Sustaining Members).

Questionnaires Mailed	2,215
Questionnaires Returned	1,529 (69%)
Invalid Responses	38
Usable Responses	1,491 (67%)

The usable responses in 1977 were somewhat higher than those in 1976, that is, 67% as compared to 61%.

The changes in *means* and *medians* from

Apr 1, 1976, to Apr 1, 1977, are reported in Table 1. The changes are reported as changes in dollars and also as percentages. The results for the United States are reported for the nine Census Regions*; Canada is treated as a separate Census Region.

The overall median increased from \$15,000 in 1976 to \$16,000 in 1977 or an increase of 6.6%. The overall mean increased from \$16,300 in 1976 to \$17,200 in 1977 or an increase of 5.5%. It appears that the overall increase reported for 1976 to 1977 is approximately the same as the increase in the Consumer Price Index.

It appears to be appropriate to apply the factor, 6.6%, to each of the many subcategories reported in the 1976 Triennial Salary Survey. The ultimate proof of the validity of the 1977 sampling process must await the results of the 1978 sampling survey and the next total Salary Survey in 1979.

*See the 1976 Salary Survey for the states included in each Census Region [*Special Libraries* 67 (no. 12): 600 (Dec 1976)].

Table 1. 1977 Salaries by Census Region in Rank Order of Percent Change from 1976 to 1977.

Census Regions	Medians			Means		
	1976	% Increase or (Decrease)	1977	1976	% Increase or (Decrease)	1977
West South Central	\$16,900	12.4%	\$19,000	\$15,300	11.1%	\$17,000
East North Central	14,400	7.6%	15,500	15,700	6.4%	16,700
Canada	15,800	7.0%	16,900	16,600	7.8%	17,900
Middle Atlantic	15,500	6.5%	16,500	16,600	6.6%	17,700
Mountain States	17,500	6.3%	18,600	14,700	12.2%	16,500
South Atlantic	16,800	4.8%	17,600	18,200	2.2%	18,600
West North Central	17,200	4.7%	18,000	14,700	7.5%	15,800
Pacific Coast	15,200	4.6%	15,900	16,200	4.1%	16,900
New England	14,800	(2.7%)	14,400	15,300	2.0%	15,600
East South Central	14,900	(2.7%)	14,500	15,900	1.9%	16,200
Overall Survey	15,000	6.6%	16,000	16,300	5.5%	17,200

Employment Status

On Apr 1, 1977, there were 34 respondents unemployed and seeking employment; these 34 respondents represented 2.3% of the 1,486 valid responses to this question.

In the 12-month period between Apr 1, 1976, and Apr 1, 1977, there were 148 respondents who were unemployed for a portion or all of the period; these represented 10.9% of the 1,356 valid responses to this question. The average period of unemployment was 5 months. The number of persons who terminated employment on their own initiative was more than twice as great as the number who were terminated by their employer.

Attendance at Conferences

Two questions relating to Conference attendance were included in the 1977 survey; these questions have not been included in the triennial surveys.

Table 2. Conference Related Expenses Paid by Employer.

Fraction Paid	Respondents (% of Total)
All	47
Some	27
None	26

Table 3. Salary Payments for Time Spent at Conferences.

Payment	Respondents (% of Total)
Full Pay	84
Leave without Pay	3
Vacation	5
Other	8

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Erratum. A typographical error was made in reporting the figures in Table 2—Salary Distribution by Census Region in Rank Order of 1976 Mean Salaries [*Special Libraries* 67 (no. 12):600 (Dec 1976)]. The South Atlantic 75th percentile should read \$22,000, not \$2,000.

Nominations for 1978 SLA Awards

Nominations for 1978 SLA awards are due by Jan 5, 1978. Individuals, as well as Chapters and Divisions, may submit nominations. All nominations must be completely documented within the definitions of the purposes of the three awards. Forms and instructions for nominations have been distributed to all Chapters and Divisions. Additional forms are available from the Association's New York offices.

The SLA Professional Award. The highest recognition granted by this Association is awarded after consideration of all significant contributions made to librarianship and information science. The definition of the SLA Professional Award is:

"The SLA Professional Award is given to an individual or group, who may or may not hold membership in the Association, in recognition of a specific major achievement in, or a specific contribution to, the field of librarianship or information science, which advances the stated objectives of the Special Libraries Association. The timing of the Award shall follow as soon as practicable the recognized fruition of the contribution."

The SLA Hall of Fame. In documenting nominations, the following criteria for eligibility to the SLA Hall of Fame should be remembered:

"SLA Hall of Fame election is granted to a member or a former member of the Association following the close of an active professional career for an extended and sustained period of *distinguished service to the Association in all spheres of its activities* (Chapter,

Division, and Association levels). However, prolonged distinguished service within a Chapter or Division, which has contributed to the Association as a whole, may receive special consideration."

The basic purpose of the SLA Hall of Fame is to recognize those individuals who have made outstanding contributions to the growth and development of Special Libraries Association—as a whole—over a period of years.

The SLA Special Citation. The definition of the SLA Special Citation is as follows:

"The SLA Special Citation is an occasional recognition of a member or group of members or of an individual or group close to the Association in acknowledgment of outstanding service to or exceptional support and encouragement of special librarianship.

Mail completed forms to:

Miriam Tees, Chairman
SLA Awards Committee
The Royal Bank of Canada
P.O. Box 6001
Montreal, P.Q., Canada H3C 3A9

Survey of Special Libraries in Commerce and Industry

In September 1976, Special Libraries Association was awarded a contract with the National Center for Education Statistics (NCES) to conduct a survey of *Special Libraries in Commerce and Industry*. Under the terms of the SLA/NCES contract, the SLA staff, utilizing the Association's in-house computer, is collecting and analyzing data on special libraries identified as falling within the broad area of "commerce and industry."

Survey questionnaires were mailed by NCES in September 1977 to 7,688 special libraries in commerce and industry. The survey universe is based on the SLA roster of business addresses of Association members. By inter-comparison of the SLA roster with other published directories, SLA staff has developed a universe that also includes those special libraries in commerce and industry whose staff are not SLA members.

Librarians who received the questionnaire and have not yet completed and returned it to

NCES are urged to do so before the **Dec 31, 1977**, deadline. (Note: Because the questionnaire solicits data for the fiscal year ending in 1977, librarians who are employed in organizations with a fiscal year ending Dec 31 may complete and return the questionnaire up to but not later than Jan 31, 1978.)

NCES is a statistical agency in the Education Division of the U.S. Department of Health, Education and Welfare. The agency maintains an ongoing program of data collection, including library general information surveys (LIBGIS). NCES has sponsored statistical studies on public libraries, college and university libraries, and school libraries and media centers. The only NCES study of special libraries to date has been of special libraries in federal government agencies.

The SLA/NCES contract has recently been extended to Aug 30, 1978.

CHAPTERS & DIVISIONS

Alabama—The Chapter co-sponsored a two-day seminar in October on "The Copyright Law: Its Impact on Libraries and Librarians" with the Southern Appalachian Chapter, the Tennessee Library Association, and the Special Library Section of the Southeastern Library Association. Participating in the seminar were Nancy H. Lawrence, supervisory copyright examiner, Copyright Office; Dr. Frank E. McKenna, Executive Director, SLA; Mike Milom, attorney and instructor of copyright law, Vanderbilt Law School, Nashville.

The Chapter has published the *Directory of Special Libraries in Alabama, 1977*. It is available at \$5.00 per copy (make check payable to SLA/Alabama Chapter) from: Ann W. Logel, Directory Project, 4018 E. Crestview Dr., N.W., Huntsville, Ala. 35805.

Baltimore—At a September dinner meeting, members listened to a program on consulting services. The speakers were Ruth R. McCullough of the Westinghouse Defense and Space Center Library and Jane M. Parkhill of Enoch Pratt Free Library.

Cincinnati—The Sep 12 dinner business meeting was followed by a lecture/tour through the

first licensed public television station in the U.S., WCET.

Cleveland—The group heard Lois Brock, coordinator of a trademark project sponsored by SLA's Chemistry Division, discuss the project at a Sep 15 dinner business meeting.

Connecticut Valley—Following a dinner meeting on Sep 15, members toured Connecticut General Life Insurance Company's Corporate Library and Law Library.

At an Oct 18 program entitled "Preservation of Library Materials," members viewed a slide presentation by Philip Cronenwett, curator of special collections at the Jones Library, Inc., Amherst, Mass.

Hudson Valley—Mark Bayer of Lockheed Information Systems Programs conducted a problem solving session on search strategy at an Oct 5 meeting.

Illinois—The speaker at the Sep 20 meeting was Mike Simon, senior trade specialist, U.S. Department of Commerce. He spoke on "The Census and What You Can Get out of it."

Indiana—The Chapter met at the Indianapolis Children's Museum on Oct 18 for a discussion of the Indiana Library Community.

A tour of the INCOLSA Processing Center in Crawfordsville was conducted following a Nov 15 dinner meeting.

Kentucky—The Chapter's fund raising committee has printed a cookbook which is a compilation of members' favorite holiday menus and recipes. In addition, the committee has produced boxed collections of rocks from Kentucky to offer for sale as interesting gifts, along with the cookbook.

The theme of the Chapter's fall meeting, held in November at the Galt House in Louisville, was "Communication." Members heard speakers from the *Courier-Journal* and WHAS-TV.

Michigan—Following a Sep 19 dinner meeting, the group toured Gale Research Company, with Fred Ruffner of Gale as tour guide.

Mid-Missouri—On Oct 19, members visited the Western Historical Manuscripts Collection at the University of Missouri-Columbia, as guests of Nancy Prewitt.

Minnesota—"Guidelines for Collection Development" was the topic under consideration at a Sep 20 joint dinner meeting with the local ASIS chapter. Guest speaker was Marcia Pankake, assistant professor, University of Minnesota.

Montreal—The Chapter has published a new edition of the *Directory of Special Libraries in the Montreal Area*, covering more than 240 libraries and documentation centers. Prepaid orders for \$10.00, made out to the Montreal Chapter, SLA, should be sent to: Sharon Segall, Science and Engineering Library, Sir George Williams Campus, Concordia University, 1455 de Maisonneuve Blvd. W., Montreal, Quebec, Canada H3G 1M8.

New Jersey—"All You Need to Know About Domestic and International Business" was the subject of a Sep 20 talk by James Hilbert and Robert Kistler from the local district office of the Department of Commerce in Newark.

At a meeting in Bridgewater on Oct 19, members heard R. V. Cuddihy, Sandoz Pharmaceutical, Inc., speak on "Building the Image of the Library in the Corporation."

New York—Morris Gelfand, president of New York Metropolitan Reference and Research

Library Agency, addressed members on the subject of "METRO and the Special Librarian" on Sep 29.

The Chapter sponsored a mini-institute on "Management Problems for Special Libraries" in October. Everett Brenner, of the American Petroleum Institute and a faculty member of Pratt Institute, served as director of the program.

North Carolina—The group gathered for a dinner meeting in Greensboro on Sep 21. Dr. William J. Bennett spoke about plans for the National Humanities Center, of which he is executive officer.

Oklahoma—On Oct 7 members met at the Oklahoma Department of Libraries in Oklahoma City to hear a speaker from Battelle Laboratory's Information System Section discuss library networks and the special library.

The topic at November's meeting held at Kerr Laboratory, Ada, was "Environment Information Sources."

Pittsburgh—At a dinner meeting on Sep 14, Richard Beasley, president of People Dynamics, Inc., spoke on "Putting People Into Motion."

The Chapter hosted a reception for Library School students and other prospective members on Oct 11 at the University of Pittsburgh Graduate School of Library and Information Sciences.

Princeton-Trenton—Architect Harlow Pearson of the Princeton architectural firm of Collins, Uhl, Hoisington and Anderson spoke on "The Design and Renovation of Libraries" at an Oct 3 gathering.

SLA President-Elect Vivian Hewitt addressed the group at a meeting on Nov 15.

Rio Grande—Preceding the Sep 15 business meeting, held in conjunction with the annual Arizona State Library Convention, members toured the State Library and Roswell Bookbinding Company in Phoenix.

The Downtown Tucson Special Librarians' Monthly Luncheon Club has expanded rapidly since its first meeting in March, and now over 50 libraries are represented. Future plans include the preparation of a directory of special libraries in the Tucson area.

Sierra Nevada—"Small Presses Become Acquainted with Their World" was the topic of a panel presentation on Sep 14. Panelists were Alfred Maupin, materials collection specialist,

Sacramento Public Library; Sidney Berger, assistant professor of English, University of California, Davis; and Len Fulton, editor, *Small Press Review*, Paradise, Calif.

The Chapter sponsored a "brown bag lunch" on Oct 20, and plans to hold one every other month.

A joint meeting with the San Francisco Bay Region Chapter was held Nov 17. The topic of the evening was "Certification for Librarians."

South Atlantic—The Chapter co-sponsored, with the Special Libraries Section of the Georgia Library Association, a luncheon meeting at Jekyll Island on Oct 21. Guest speaker was SLA President Shirley Echelman, assistant vice-president of the Chemical Bank of New York.

Southern California—Featured speaker at a Sep 15 dinner meeting in Santa Monica was publishers' attorney Lionel S. Sobel. His speech was entitled "Copyright or Copywong?"

Texas—A two-day Chapter meeting held in Dallas in October focused on "The Use of Minicomputers in Libraries." Fred Ruecking of Rice University gave an overview of minicomputers and their potential library uses; Maurice Leatherbury of the Houston Academy of Medicine discussed the academy's new circulation system; a demonstration of the recently installed Dallas County Community College District Automated Information Resources System was given by Paul Dumont of the college Technical Services Center.

Toronto—On Sep 22 the group toured various libraries located in three buildings: the Toronto-Dominion Centre, Royal Bank Plaza, and Commerce Court.

The Oct 20 meeting held at the University of Toronto included a panel discussion on copyright.

Washington, D.C.—On Sep 14 the Chapter sponsored a "Professional Day" at the U.S. Department of Labor Library. Robert W. Gibson, Jr., head of General Motors Corporation Technical Center Research Laboratories Library, delivered a speech on "What is the Role of the Special Librarian?"

Washington, D.C., Documentation Group—On Sep 29 a gathering assembled for a panel discussion on the proposed name change for the Documentation Division and Documentation Group. Panelists were Matthew Velucci, Ruth Smith, and Margot Ritchie.

Washington, D.C., Geography & Map Group—The Group met on Sep 12 at the Alexandria Library for a slide presentation on Landsat Mapping by Wolf Drewes of the World Bank.

A tour was taken of the Naval Observatory and its library on Oct 20.

Washington, D.C., Military Librarians Group—Dr. Forrest C. Pogue, director of the Dwight D. Eisenhower Institute for Historical Research, Smithsonian Institution, and biographer of Gen. George C. Marshall, addressed the Group on Sep 21. His speech was entitled "History While It's Hot."

On Nov 16 members gathered for a dinner meeting with featured speaker Herman Miles of the Defense Documentation Center.

Washington, D.C., Social Sciences Group—A panel presentation on "Women in Management" was the focus of a luncheon meeting on Oct 13.

Chapter Visits Scheduled

Throughout the year SLA President Shirley Echelman and President-Elect Vivian Hewitt will visit a number of Chapters. Their schedules for 1978 are listed below.

Shirley Echelman

New Jersey	Dec 7
Indiana	Apr 13

San Francisco Bay Region	Apr 18 or 19
Toronto	May 18

Vivian Hewitt

St. Louis Metropolitan Area	Feb 15
Mid-Missouri	Feb 16
Texas	Apr 20-22
New York	May 16

Elizabeth Homer Morton

Elizabeth Homer Morton, first executive director of the Canadian Library Association, died July 6 in Ottawa in her seventy-fifth year. In 1969 Miss Morton was elected an honorary member of Special Libraries Association.

The years between 1946 and 1968, when she was its director, were years of great accomplishment for CLA. Vigorous lobbying by the association led to the establishment of the National Library of Canada; the *Canadian Library Journal* and *Feliciter* began publication (she edited both); a major program to microfilm Canadian newspapers of historical importance was launched (she directed it); the *Canadian Periodical Index* was taken over and flourished. A small but steady stream of publications appeared with the CLA imprint. The CLA publishing program was, however, only the most visible part of CLA's constant support of the highest professional standards, of superior library service, of superior library education. This support was the most characteristic feature of that period of the association's life. The astonishing thing was how all this was accomplished with an absolute minimum of paid staff and expenditure of funds. The secret lay in the director. The most remarkable characteristic of this most remarkable woman was not only that she herself acted so vigorously and effectively to promote libraries and librarianship in Canada, but that she inspired, encouraged, and persuaded so many others to contribute their energies to the same cause.

Elizabeth Morton was indefatigable. Working incredible hours, perhaps preparing a brief for a royal commission in the morning, or putting the final touches on the plans for an annual conference, editing copy against a deadline in the afternoon, dictating letters late into the evening, always available to staff who needed advice, ready to talk to an association member on the phone, or to one of the many visitors who arrived at the modest and cramped offices of the association in Ottawa. She was meticulous in deferring to the wishes of the association's executive board, immensely loyal, but immensely skillful in pointing the association in directions which, in her instinctive wisdom, she knew were the right ones.

When she retired in 1968, a gala dinner was held, to which some 250 friends and colleagues from all parts of the country came to honor her. It was a memorable and moving occasion as speaker after



MORTON

speaker praised her with warmth, gratitude, and affection. One of them said, and seemed to sum it up, "I cannot imagine our profession without the CLA/ACB and without Elizabeth at the centre of it, doing all the things she does—for we have never known it otherwise. We have taken her for granted, and counted on her encouragement and advice; now that she is retiring I hope she will advise us how to manage without her."

Elizabeth Morton did not, of course, have any intention of retiring from the library scene in 1968. She went on to earn another library degree. She received two honorary degrees, as well as the prestigious Order of Canada. She set up a library consulting service, advising libraries, conducting library surveys, writing. Until shortly before her death she was working on the book which was to have been an expansion of her University of Chicago thesis, *Libraries in the Life of the Canadian Nation*.

Those of us who had the privilege of working for the Canadian Library Association under Elizabeth Morton remember her above all as a warm, wise, and tolerant friend, with a rather wicked sense of humour; we remember her as an extraordinarily kind and patient boss, who inspired great devotion in all of us. She expected, and got, prodigies of work from us, but we did not take ourselves too seriously, and no day was so long or so full of problems that we did not find something to laugh about.

Elizabeth Morton was a distinguished Canadian librarian who was well known and respected beyond the borders of Canada. American colleagues will feel her loss as we do.

Marion C. Wilson

WASHINGTON LETTER

Age Discrimination

Library employers and older workers should know that mandatory retirement at age 65 may soon be a thing of the past, if Congress proceeds as expected to amend the Age Discrimination in Employment Act of 1967. This Act prohibits discrimination because of age in such matters as hiring, job retention and compensation, and it generally covers persons between the ages of 40 and 64. The amendments now under consideration (HR 5383, S. 1984) would extend the upper age limit to 69.

As now constituted, the Senate bill would exempt certain teachers and professors, a provision not included in the House bill. The House, however, voted to remove the age limit altogether on certain categories of federal workers, a provision not included in the Senate bill. It is not yet clear how these and other differences will be reconciled.

Library Legislation

In September, Congress passed a five-year extension of the Library Services and Construction Act (S. 602) and the measure is awaiting President Carter's signature as this issue goes to press. The new LSCA amendments will target additional funds to urban public libraries, provided overall appropriations are sufficient. Special libraries are eligible for funding under Title III of LSCA which is designed to promote cooperative efforts among all types of libraries. For fiscal year 1978, about \$3.4 million will be available for LSCA Title III projects which are administered by the state library agencies. Special librarians should work at the state level to make sure they are getting their fair share of LSCA Title III funds.

Wending its way very slowly through Congress is a bill which would make certain law school libraries U.S. Government Printing Office depository libraries. Rep. Lucien Nedzi (D-Mich.) is the primary sponsor of the law school depository bill in the House, and his measure was reported from the House Administration Committee on September 30 (HR 8358, HR 95-650). Floor action on this measure may occur before this session of Congress adjourns, but much work remains to

be done in the Senate before the measure becomes law. The American Association of Law Libraries has been working on this legislation for a long time now, and hopes to see action in the Senate during 1978. The Nedzi bill will survive until the close of the 1978 congressional session, but if the Senate has not acted by then, it will die and a new measure will have to be introduced in 1979. To avoid this, all efforts should be concentrated on encouraging the Senate to hold hearings on the bill early next year.

For the first time this year, Congress voted to make \$5 million available to assist major research libraries. The provision of research library assistance is authorized by a new Part C added last year to Title II of the Higher Education Act. The program is to be administered by the Office of Libraries and Learning Resources, U.S. Office of Education. Questions about it should be directed to that office, 7th and D Streets, S.W., Washington, D.C. 20202.

Museum libraries should be on the lookout for grants and other assistance that are likely to be forthcoming from the new Institute of Museum Services, U.S. Department of Health, Education, and Welfare, South Portal Building, 200 Independence Avenue, S.W., Washington, D.C. 20201 [tel. (202) 245-9855]. Congress gave the Institute \$100,000 last spring and another \$4 million should be available in fiscal year 1978 to start this new grant program rolling. One possible hitch: these funds are included in the Labor-HEW appropriations bill that has to date been held hostage by the pro- and anti-abortion groups. If Congress cannot settle the abortion issue, it may pass a temporary funding bill instead. In such circumstances there would be no funds for the new museum program, or for the new research library program mentioned above, because temporary money bills fund only ongoing programs and no new ones.

Copyright Warning

The Copyright Office is directed by statute to write a "warning" which libraries will be required to 1) print on local order forms filled out by patrons to request a photocopy, and 2) display prominently at the place where such orders are taken. The Copyright Office estimates that it may have the text of this warning in final form by mid-October. When ready, it

will be published in the *Federal Register*. A Draft of the Warning appeared in the Aug 17, 1977, *Federal Register*, pp. 41437-38, for comments by interested parties. The CNLA Copyright Committee wrote to the Copyright Office

in response to the Draft. The CNLA Copyright Committee (of which SLA is a member) had submitted recommended wording to the Copyright Office in May 1977.

Sara Case

HAVE YOU HEARD?

NCLIS Grants to States Awarded

The first installment of a series of grants has been awarded to the 43 states and territories which have already submitted to the National Commission on Libraries and Information Science their notification of intent to hold a pre-White House Conference on Library and Information Services. Each state or territory holding a conference will receive a basic grant of \$10,000 and an additional amount equal to 1/4 of the balance of the "basic standard conference budget" (determined by population).

International Copyright

The Copyright Office has recently put out a new circular containing the texts of the four international copyright conventions to which the U.S. is a party: Buenos Aires Convention of 1910, Convention for the Protection of Producers of Phonograms Against Unauthorized Duplication—Geneva 1971, Universal Copyright Convention (UCC)—Geneva 1952, and UCC—Paris 1971. It is called *Circular 38c International Copyright Conventions*, and is available free from the Copyright Office, Library of Congress, Washington, D.C. 20559. A brief explanation of these conventions and a list of member countries are provided in complementary free circulars 38 and 38a, titled respectively, *International Copyright Protection* and *International Copyright Relations of the United States*.

On-Line Journal

Learned Information Oxford and New York is the publisher of an international quarterly journal, *On-Line Review*, out since March. The journal covers on-line news and developments around the world, as well as presenting up-to-date articles aimed at a varied, interdisciplinary audience. Write: Learned Information, 200 W. 57 St., Suite 1210, New York, N.Y. 10019.

Black Art Quarterly

Black Art is an international quarterly which first appeared in the fall of 1976. Each issue in-

cludes both color and black and white plates. Val Spaulding is editor-in-chief. A one-year subscription costs \$10.00 (\$7.50 for students). Write: *Black Art*, 137-55 Southgate St., Jamaica, N.Y. 11413.

ANSI Converts to Centrex System

American National Standards Institute has converted to a direct in-dialing (Centrex) telephone system. The new system enables callers to reach ANSI staff members without delay. A directory is available from ANSI listing direct-dial phone numbers for key personnel and containing a subject index to principal ANSI programs and activities. ANSI's general phone number has been changed to (212) 354-3300.

New SPEC Kit

The Systems and Procedures Exchange Center of the Association of Research Libraries has issued *SPEC Flyer and Kit No. 32* on Preparation and Presentation of the Library Budget. It contains 15 documents totaling 150 pages. SPEC kits are packages of documentation organized around management topics of wide interest. The cost to ARL members and SPEC subscribers is \$7.50 for each kit; \$15.00 to others. Information is available from Maxine Sitts, SPEC Coordinator, Office of University Library Management Studies, Association of Research Libraries, 1527 New Hampshire Ave., N.W., Washington, D.C. 20036.

Scholarship Fund

In honor of Rose Vormelker, who was recognized for "her many years of distinguished service to libraries and library education" at the alumni banquet of the Kent State University School of Library Science in October, a scholarship fund has been established. It will be awarded annually to the Kent State student who, in the judgment of the faculty, shows most promise for special library work. Funds for the scholarship are presently being solicited.

Awards Nomination Deadline

The Government Documents Round Table of the American Library Association has set Jan 15, 1978, as the deadline for submission of nominations for the two 1978 GODORT awards. The James Bennett Childs Award is a tribute to a librarian for distinguished contribution to the documents world. The CIS/GODORT/ALA "Documents to the People" Award is to honor an individual and/or library, institution, organization, or other appropriate noncommercial group that has most effectively encouraged the use of federal documents in support of library services. For further information, contact GODORT Awards Committee Chairperson Jaia Heymann, Drew University Library, Madison, N.J. 07940.

Union List of Serials

The 4th edition of the Intermountain Union List of Serials is available for purchase. The entire list, produced for distribution on micro-

fiche only, contains more than 51,000 entries with holdings identified from 129 collections throughout Arizona and Nevada. An updating service is being initiated for 1978 to provide subscribing libraries with replacement microfiche during 1978. The microfiche 4th edition costs \$50.00; the 1978 updating services subscription also costs \$50.00. Orders should be sent to: IMULS—UNLV Library, University of Nevada, Las Vegas, 4505 Maryland Parkway, Las Vegas, Nevada 89154.

University of Chicago Scholarship

The University of Chicago Graduate Library School will offer scholarships and fellowships for the academic year 1978-79, of varying amounts, for study leading to the MA degree, the PhD degree, and to the Certificate of Advanced Study. Apply before Feb 1, 1978, to the Dean of Students, Graduate Library School, University of Chicago, 1100 E. 57 St., Chicago, Ill. 60637.

COMING EVENTS

Dec 2. Elizabeth Ferguson Seminar . . . YWCA, New York. Sponsors: New York Chapter, SLA and YWCA, City of New York. Topic: A Wealth of Information: A Description of Federal Reserve Publications and Where to Find Them. Fee: \$6. Contact: Tessie Mantzoros, Business Week Library, 1221 Avenue of the Americas, New York, N.Y. 10020.

Dec 2. New Copyright Law, Workshop . . . University of Pittsburgh, Pittsburgh, Pa. Sponsors: Pennsylvania Library Association; Pittsburgh Chapter, SLA; Pittsburgh Chapter, ASIS; Graduate School of Library and Information Sciences, University of Pittsburgh. Fee: \$25. Contact: Dr. William Nasri, GSLIS, University of Pittsburgh, Pittsburgh, Pa. 15260.

Dec 13-15. First International On-Line Information Meeting . . . Tara Hotel, London, England. Sponsor: *On-Line Review*. Write: Organising Secretary, *On-Line Review*, Woodside, Hinksey Hill, Oxford OX1 5BP, England.

Dec 15. Computer Networks, Symposium . . . National Bureau of Standards (NBS), Gaithersburg, Md. Sponsors: Institute of Electrical and Electronics Engineers' Technical Committee on Computer Communications and NBS

Institute for Computer Sciences and Technology. Contact: Helen M. Wood, NBS, Technology B-212, Washington, D.C. 20234.

Jan 20-25. Art Libraries Society of North America, 6th Annual Conference . . . Barbizon Plaza Hotel, New York. Write: ARLIS/NA, P.O. Box 3692, Glendale, Calif. 91201.

Jan 22-28. ALA Midwinter Meeting . . . Palmer House, Chicago, Ill.

Feb 1-3. SLA Winter Meeting . . . Indianapolis Hilton, Indianapolis, Ind.

Feb 9-March 16. Simple Case Bindings, Course . . . YWCA, New York. Sponsors: New York Chapter, SLA and YWCA, City of New York. Hours: Thursdays, 6-8 p.m. Fee: \$40. Contact: Tessie Mantzoros, Business Week Library, 1221 Avenue of the Americas, New York, N.Y. 10020.

Feb 21-23. Computer Science Conference . . . Detroit Plaza Hotel, Detroit, Mich. Sponsors: Association for Computing Machinery and Computer Science Departments of many universities.

Feb 26-Mar 3. Effective Use of OCLC, Workshop . . . Kent State University Libraries, Kent, Ohio. Fee: \$325 (covers all sessions, materials, and accommodations). Contact: Anne Marie Allison, Kent State University Libraries, Kent, Ohio 44242.

REVIEWS

Farewell to Alexandria; Solutions to Space, Growth and Performance Problems of Libraries, Daniel Gore, ed. Westport, Conn., Greenwood Press, 1976. 180 p. \$12.50.

I found *Farewell to Alexandria* stimulating because I disagree with the analysis of the authors. The book is a compilation of papers given at a conference. The title of this book, in a paraphrasing, means that libraries can no longer purchase and keep every book ever published, Alexandria being a library that was able to obtain and retain every book written in ancient times.

According to Gore, "Enormous outlays of capital funds for new library building construction, amounting to several billion dollars over the last ten years, did not solve the space problems of libraries." Also, the book gives statistics for the period 1967-1974, which show that there were 165,800,000 net additions to the collections, and net addition of building capacity allowed for the storage of 162,103,000 volumes, creating a space deficit of 3,697,000 volumes.

In my opinion, there is only one solution to the problem of space in the library. That problem can only be solved by microforms. There is a role that hard copy has to play in the library and there is a role that microform has to play.

It should be noted, and the Gore book provides some curves, which say that "75 percent of the circulation came from about 15 percent of the stack holdings." However, there are no quotes from articles which show that the use of periodicals declines dramatically with time, as shown in Ching-Chin Chen's "The Use Patterns of Physics Journals in a Large Academic Research Library" [*Journal of ASIS*, 23 (no. 4):254-270 (Jul/Aug 1972)]. To paraphrase material from Gore's book, most of the collection stored in academic libraries isn't used, and those items which are used most often are the most current ones.

It doesn't take much in the way of logic to deduce that the universities and colleges should keep the current books and journals in hard copy and the older materials in microforms. As Gore puts it, adding more space and purchasing hard copy items has failed and the "other solution that has been tried, and also proved a failure, is miniaturization, through microfilming or computer storage or any other techniques. While certain results are achieved by those measures—for example, vast and probably useless expansion of total resources . . . they contribute nothing to the

solution of the physical growth problem." I question this statement. I do not feel that microforms have been given a reasonable chance of success in the academic library. There are no references to B. W. Campbell's article, "A Successful Microfiche Program" [*Special Libraries* 62(no.3):136-142 (Mar 1971)]. There are places where microforms have alleviated the space problem for some libraries. I do not think the university libraries have really understood the usefulness of the microforms nor have given microforms a decent trial.

The major reason why microforms have failed can be pinned on the failure of librarians to cooperate in designing an effective program. In an article I wrote, "Reaching for the Stars; Goals for the Library Profession" [*Special Libraries* 62(no. 6):265-267 (Jul/Aug 1971)], I discuss what it will take to make a microform program work. Some of the points of my program were: 1) provide an organization with authority and responsibility and funds to implement the plan; 2) standardize our indexing publications to make the microforms easy to store and use; 3) standardize the equipment and the reduction ratio; and 4) find the leadership needed to initiate and maintain the program. The leadership should rest in an organization of the large academic libraries such as the Association of Research Libraries.

I see the space problem solved only through microforms. There were two papers emphasizing the use of microforms on a large scale which I knew about, and I looked for them in Gore's book but I did not find any references to them. One of them was my own paper, cited in the previous paragraph. In my paper, I suggest that it would be possible to microfilm the entire contents of a library consisting of 10 million volumes of 300 pages in each volume for a price of \$75 million (1971 dollars). The \$75 million would be the price for the first copy. Each additional copy would cost either \$20 million or \$3 million depending on the way the duplication was handled. Thus, for a cost of about \$3 billion, we could produce 10 billion books which would be the equivalent of a thousand libraries housing 10 million books each. If a single copy of the 10 million-book collection were produced in ultrafiche, it would take up the space of one good sized room with an area of about 300 square feet.

David Hays, in his report entitled "A Billion Books for Education in America and the World: A Proposal," (Santa Monica, Calif., Rand Corp., 1968; Rand Memorandum RM-

5574-RC), suggested a slightly different program. He states that "libraries of a million volumes each can be installed in a thousand places, and a million projector readers provided for a cost of \$581 million—including maintenance for a decade and the addition of 100,000 titles per year for ten years." The dollar amount is in 1967 dollars. He also suggested that "a library of a million volumes can be stored in a 4 by 6 by 2 foot cabinet."

There is really no statement in either the Hays report or my paper which says that current materials should be procured in microform. I believe both Hays and I are saying that it is economical to provide for the little used material in microform—microform in this case would be ultrafiche with reductions of the order of 200 to 1.

The solution which I think Gore tried to produce was one which featured either weeding or centralized storage. Weeding, in my estimation, is a poor solution. However, Gore does not feel that additional buildings are the answer to the space problem. Nor will the answer be found in purchasing everything that is being published.

I can see ultrafiche as the only reasonable answer to a rather severe problem. But it takes

leadership, standardization, commitment of funds and a will to solve the problem. The heads of American university and college libraries have decided, by their individual actions, that the only way to solve the space problem is to reduce their collections either by weeding or centralized storage, or to build more buildings.

Although very little space would be required to house an ultrafiche collection of little used materials, there is no contribution in the Gore book voicing any such solution. The problem is not going to go away. The ultrafiche solution could make every large American library into a true representation of the Alexandria type library.

I do think that anyone concerned about what librarians can do to solve the space problem will find this book interesting. I believe it is directed more to the heads of large libraries than to the rank and file. Those people who make the decisions should read this book. However, Gore's book does not mention microform as an alternative solution, which I feel is a great flaw in this book.

**Masse Bloomfield
Hughes Aircraft Company
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PUBS

(77-100) **Canadian Library Directory, 2, University, College and Special Libraries.** Ottawa, National Library of Canada, 1976. 269p. \$5.00 (\$6.00 outside Canada). ISSN 0319-6372 ISBN 0-660-00668-5

Directory compiled from data collected during 1975. Available from: Publishing Centre, Supply and Services Canada, 270 Albert St., Ottawa K1A 0S9. Catalogue No. SN3/31/1977-2.

(77-101) **A Century of Service: Librarianship in the United States and Canada.** Jackson, Sidney L., Eleanor B. Herling and E. J. Josey, eds. Chicago, American Library Assn., 1976. 354p. \$25.00. LC 76-41815 ISBN 0-8389-0220-0

Collection of essays concerning the state-of-the-art over the past 100 years.

(77-102) **The Foundation Center Source Book Profiles.** New York, The Foundation Center, 1977. \$150.00 per annual subscription. LC 77-79015 ISBN 0-87954-013-3

Subscribers receive profiles on over 40 foundations each month in looseleaf format. Analysis of each foundation's grants by subject area, grant type, and recipient type. Order from: The Foundation Center, 888 7th Ave., New York, N.Y. 10019.

(77-103) **Sourcebook on Health Sciences Librarianship.** Chen, Ching-chih. Metuchen, N.J., Scarecrow, 1977. 307p. LC 76-30263 ISBN 0-8108-1005-0

Part 1 is a study of the articles and citations in the *Bulletin of the Medical Library Association* from 1966 through 1975. Part 2 is a citation bibliography.

(77-104) **Directory of Special Libraries and Information Centers.** 4th ed. Young, Margaret L., Harold C. Young and Anthony T. Kruzas, eds. Detroit, Gale Research, 1977. v.1. 1,187p. \$74.00. LC 76-48854 ISBN 0-8103-0289-6

Volume 1, *Directory of Special Libraries and Information Centers in the United States and Canada*, covers nearly 14,000 libraries. Cross references; appendix of networks and consortia; 25,731-reference subject index. Volume 2: *Geographic-Personnel Index*. 657p. \$45.00. Volume 3: *New Special Libraries: A Periodic Supplement to the Fourth Edition of Directory of Special Libraries and Information Centers*. Subscription, 4 issues, \$60.00.

(77-105) **International Literary Market Place 1977-78.** Found, Peter, ed. New York, R. R. Bowker, 1977. 469p. \$24.50. LC 65-28326 ISBN 0-85935-055-X

Contains 8,000 book-related organizations arranged alphabetically by country. Includes a calendar of publishing events and list of literary prizes.

(77-106) **Developing Continuing Education Learning Materials.** Woolls, Blanche and Brooke Sheldon. Continuing Library Education Network and Exchange. Washington, D.C., CLENE, 1977. 36p. \$5.00 (\$4.25 CLENE members).

A concept paper containing guidelines drawn up to assist in the development of materials for the continuing library education market. A rationale plus examples accompany each of the guidelines.

(77-107) **User Education: Towards a Better Use of Information Resources.** MacCafferty, Maxine, ed. Oxford, England, Aslib and Eusidic, 1977. 139p. \$22.80 (\$18.00 Aslib and Eusidic members). SBN 85142-096-6

Proceedings of the Eusidic conference held in Graz, Austria, Dec 1-3, 1974. Number 4 in the European User series.

(77-108) **From Cutter to MARC: Access to the Unit Record.** Hyman, Richard J. Flushing, N.Y., Queens College Press, 1977. 40p. \$2.00. LC 77-089466 ISSN 0146-8677 ISBN 0-930146-10-7

Number 1 in Queens College Studies in Librarianship series.

(77-109) **The Responsibility of the University Library Collection in Meeting the Needs of its Campus and Local Community.** La Jolla, Calif., Friends of the UCSD Library, 1977. 52p. \$3.00.

A symposium in honor of Melvin J. Voigt. Available from: Friends of the UCSD Library, University Library, C-075, University of California, San Diego, La Jolla, Calif. 92093.

(77-110) **The Information Worker: Identity, Image and Potential.** Raffin, Margaret R. and Rona Passmore, eds. London, Aslib, 1977. 58p. ISBN 0-85142-099-0

Proceedings of a joint Aslib/Institute of Information Scientists conference held at the Geological Society of London, Nov 22, 1976. For ordering information, contact: Aslib, 3 Belgrave Square, London SW1X 8PL, England.

(77-111) **About Foundations: How to Find the Facts You Need to Get a Grant.** Margolin, Judith B. New York, The Foundation Center, 1977. 48p. \$3.00.

Revised edition of 1975 guide includes new information on the philanthropic field and two new bibliographies. Send prepaid orders to: The Foundation Center, 888 7th Ave., New York, N.Y. 10019.

(77-112) **The Technical Quality of Microfiche Reports: A Preliminary Study.** Horder, Alan. Hertfordshire, England, National Reprographic Centre for documentation, 1977. 58p. (NRCd Publication No. 8). ISBN 0-85267-126-1 (hardcopy); 0-85267-127-X (microfiche).

Evaluation of the image quality of 90 microfiche reports examined frame by frame on a reader screen. Includes recommendations for further research.

(77-113) **The ALA Yearbook 1977.** 2d ed. Chicago, American Library Assn., 1977. 432p. LC 76-647548 ISBN 8389-0233-2

Review of library events 1976 and recent statistical data.

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Noyes Data Corporation	Cover III
Special Libraries Association.....	10A
Special Libraries Association	474
Supreme Equipment & Systems Corporation.....	7A
United Nations Publications	4A
University Microfilms International	1A
John Wiley & Sons, Inc.	473

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Index

Volume 68 Jan-Dec 1977

January	1-56	July/August	221-292
February	57-102	September	293-374
March	103-140	October	Annual Directory Issue
April	141-180	November	375-424
May/June	181-220	December	425-494

n indicates a news item

A

- AFIPS. *See* American Federation of Information Processing Societies
- ALA. *See* American Library Association
- ASIS. *See* American Society for Information Science
- Abstracting and Indexing Services. Howard Goldstein (letter), 8A (Jan); Paul A. Smith, Jr. (letter), 6A (Feb); The Inadequacy of Interdisciplinary Subject Retrieval, Trudy Gardner and Mary Lou Goodyear, 193; Bank Letters, Bulletins, and Reviews, Mark Leggett, 425; Coverage of Marine Biology Citations, Annette Corth, 439; *see also* Data Banks
- Ackley, Maria, *n* 172
- Ackoff, Russell L., et al, *Designing a National Scientific and Technological Communication System*, book review by Irving M. Klempner, 218
- Acquisitions. Nancy Mary Panella (letter), 6A (Jan); Ernest Perez (letter), 6A (Jan); Cartographic Sources and Procurement Problems, Donald A. Wise, 198
- Administration. *See* Management
- Afro-Americans in New York Life and History*, *n* 134
- Age Discrimination in Employment Act, 467
- Ahl, Ruth, *n* 172
- Alabama Chapter, *n* 170, *n* 463
- American Association of Colleges of Pharmacy—Conference of Teachers: Section of Librarians. SLA Representative, 339; Report of SLA Representative, 356
- American Association of Law Libraries. Report of SLA Representative, 356
- American Association of Public Data Users. Report of SLA Representative, 357
- American Federation of Information Processing Societies. Report of SLA Representative, 358; AFIPS 1977 National Computer Conference Coordinator, Report of SLA Representative, 358
- American Library Association. Library Administration Division, Library Organization and Management Section, Statistics Coordinating Committee, Report of SLA Representative, 358; Reference and Adult Services Division, Interlibrary Loan Committee, Report of SLA Representative, 358
- American National Standards Institute. Sectional Committee Z-39 on Library Work, Documentation, and Related Publishing Practices, Report of SLA Representative, 359; Sectional Committee PH5 on Photographic Reproduction of Documents, Report of SLA Representative, 359; Sectional Committee Z-85 on Standardization of Library Supplies and Equipment, Report of SLA Representative, 359
- American Society for Information Science. SLA Program ASIS 1977, 370
- American Television and Radio Archives Act, *n* 45
- Architecture, *n* 136
- Archives. Document Examination in American Archives, Cheryl A. Price, 299
- Arshem, James, *n* 172
- Art Information, *n* 94
- Asia. A Trade Information Service in Asia: New Dimensions in Special Librarianship, N. P. Cummins, 269
- Aslam, Muhammad, Special Libraries in Pakistan, 161
- Aspnes, Grieg Garfield, 211
- Association of American Publishers/Special Libraries Association Joint Committee Report, 356
- Association of Research Libraries. Report of SLA Representative, 360
- Association Office Operations Committee, 166; 339; Report, 350
- Atherton, Pauline. *See* Tessier, Judith A.
- Atlanta Conference (1981), 41
- Automation. Selecting a Computer Terminal for the Library, Edward John Kazlauskas, 24; Computerized Storage and Retrieval of Newspaper Stories at the Globe and Mail Library, Toronto, Canada, David A. Rhydwen, 57; Fourth Generation Systems for Libraries: The Marriage of Data Base Management Systems and On-Line Mini-computer Hardware, Audrey N. Grosch, 221
- Avedon, Don M., Microfilm Generation and Polarity Terminology, 141
- Awards Committee Report, 350

B

- Baer, Mark H., President's Report 1976/77, 328
 Bahn, Catherine I., *n* 172
 Bailey, Virginia, *obit.* 132
 Baltimore Chapter, *n* 43, *n* 170, *n* 463
 Bank Letters, Bulletins, and Reviews, Mark Leggett, 425
 Banks, Paul N., Control of Environmental Conditions in Museums, Libraries and Archives in Situations of Energy Shortage: An Interim Statement by the National Conservation Advisory Council, 419
 Barlow, George, Shirley Echelman: SLA President 1977/78, 324
 Barone, Richard M., De-Programming Prison Libraries, 293
 Beame, Abraham D., Proclamation, 341
 Belleh, Godfrey S., Hospital Libraries in Nigeria, 122
 Bercovitch, Sari, 347
 Berger, Patricia W., *n* 172
 Bichteler, Julie, Special Libraries in the Philippines, 28
 Binding, Marvin H. Scilken (letter), 6A (Feb)
 Bloomfield, Masse, book reviews by, 53, 54, 101, 139, 470
 Boaz, Martha, *n* 172
 Bobb, John Morrow, *obit.* 132
 Bonn, Jane, *n* 411
 Book Reviews. *See* **Reviews**
 Book Selection. *See* Collection Development
Books in Print, *n* 136
 Boston Chapter, *n* 170
 Botanical Art. Subject Classifying Botanical Art, Mary Anne Snaveley Craft, 18
 Brahm, Walter T., *n* 411
 The British Film Institute: Resources, Publications, Services, Joseph W. Palmer, 313
 British Library. M. B. Line (letter), 8A (Jan)
 British Museum. *See* British Library
 Brown, Carolyn P., On-Line Bibliographic Retrieval Systems Use, 155
 Brown, Patricia L., *n* 172
 Budgets and Budgeting, Michael Koenig, Part I, 228; Part II, 234
 Bylaws Committee, 337; Report, 350

C

- CLENE. *See* Continuing Library Education Network and Exchange
 COM. *See* Computer Output Microfilm
 Calendar. *See* **Coming Events and Future Meetings**
 Calkins, Mary L., On-Line Services and Operational Costs, 13
 Campion, Serge G., Demonstration of Multi-File Interactive Searching for Transportation Information, 187
 Canada, *n* 95
 Canadian Library Association. Report of SLA Representative, 412
 Cancer Information, *n* 135
 Card Catalogs. Cecily J. Surace (letter), 6A (Sep); Catalog on Microfiche at the Eastman Kodak Libraries, Clare E. Freund, 375
 Career Guidance Committee Report, 350
 Carey, Hugh L., Proclamation, 340

- Carter, Jimmy, White House Greetings, 340
 Cartographic Sources and Procurement Problems, Donald A. Wise, 198
 Case, Sara, **Washington Letter**, 45, 133, 175, 213, 467
 Case, Sara, and Smith, Ruth, **Washington Letter**, 91
 Case Western Reserve University, *n* 95
 Casellas, Elizabeth, *n* 172
 Catalog on Microfiche at the Eastman Kodak Libraries, Clare E. Freund, 375
 Cataloging. Subject Classifying Botanical Art, Mary Anne Snaveley Craft, 18; *n* 136; Developments in Map Cataloging at the Library of Congress, Janet Swan Hill, 149; *see also* Card Catalogs
 Catholic Library Association. Report of SLA Representative, 360
 Central Ohio Chapter, 166
Chapters & Divisions, 43, 89, 170, 369, 463
Checklist of Human Rights Documents, *n* 95
 Chemical Abstracts Service, *n* 135
Chemical Abstracts Service Source Index. Problems in Accessing Scientific and Technical Serials, Julian R. Larson and Robert S. Tannehill, Jr., 241
 Chen, Ching-chih, *Application of Operations Research Models to Libraries: A Case Study of the Use of Monographs in the Francis A. Countway Library*, book review by Ferdinand F. Leimkuhler, 138
 Chilean Bibliography, *n* 215
 Cincinnati Chapter, *n* 43, *n* 170, *n* 463
 Citation Analysis. Methods of Citation Analysis in the Fine Arts, Diane M. Nelson, 390
 A Classification Schedule for Photographs by Process or Apparatus, Frederick Korn, 145
 Cleveland Chapter, *n* 170, *n* 463
 Collection Development, *n* 135
 Collection Development in Texas State Agency Libraries: A Survey with Recommendations, Mary C. Grattan, 69
 Colorado Chapter, *n* 43, *n* 170, 338, 347
Coming Events, 97, 138, 179, 217, 290, 371, 418, 469
 Committee on Committees Report, 350
 Computer Output Microfilm. Library Applications of Computer Output Microfilm: An Annotated Bibliography, Elaine S. Friedman, 447
 Computerization. *See* Automation
 Computerized Searching. *See* Searching
 Computerized Storage and Retrieval of Newspaper Stories at the Globe and Mail Library, Toronto, Canada, David A. Rhydwen, 57
 Conference Advisory Committee, 338
 Conferences. *See* New York Conference (1977), Kansas City Conference (1978), Honolulu Conference (1979), Atlanta Conference (1981), and SLA Conferences
 Congressional Information Service, *n* 214
 Congressional Research Service, *n* 215
 Conlon, Rosa, *n* 172
 Connecticut Valley Chapter, *n* 43, *n* 171, *n* 463
 Connolly, Bruce, *n* 411
 Connor, Billie, *n* 411
 Consultation Service Committee Report, 350
 Continuing Education, *n* 41, *n* 94, 338
 Continuing Library Education Network and Exchange, *n* 216; Report of SLA Representative, 360
 Control of Environmental Conditions in Museums, Libraries and Archives in Situations of Energy Shortage: An Interim Statement by the National

Conservation Advisory Council, Paul N. Banks, 419
 Cook, Anitz Inez, 347
 Cook, Gordon, Commentary on FOIA—Neither Sacred Nor Safe, 276
 Coplen, Ron, *The Big Apple* 1977, 342
 Copyrights, *n* 41; *n* 91; *n* 95; 165; Revision of Interlibrary Loan Form (ILL) Including Copyright Law Representations, 415, 467
 Cornfeld, Carol E., Caveat Emptor (letter), 6A (Sep)
 Corth, Annette, Coverage of Marine Biology Citations, 439
 Council of National Library Associations, 166; Report of SLA Representative, 360; CNLA Ad Hoc Committee on Copyright Practice and Implementation, Report of SLA Representative, 361
 Coverage of Marine Biology Citations, Annette Corth, 439
 Crachi, Rocco, 211
 Craft, Mary Anne Snively, Subject Classifying Botanical Art, 18
 Crouch, Wayne W. *See* Tessier, Judith A.
 Cuadra, Carlos A. *See* Wanger, Judith
 Cummins, N. P., A Trade Information Service In Asia: New Dimensions in Special Librarianship, 269
 Cveljo, Katherine, Post-Graduate Education for Librarianship at Yugoslavia's University of Zagreb: Development and Present State, 81

D

Dagnese, Joseph M., book reviews by, 53, 99
 Dallas, Zella, *n* 172
 Danard, Dianne, *n* 172
 Data Banks. Demonstration of Multi-File Interactive Searching for Transportation Information, Serge G. Campion, 187; Barbara Lawrence and Barbara J. Prewitt (letter), 6A (Dec); Irvin Weiss (letter), 6A (Dec); *see also* Abstracting and Indexing Services and Searching
 Davis, Joel, A Selected List of Government Documents on Extraterrestrial Life, 119
 Dayton Chapter. *See* Central Ohio Chapter
 Delmas, B. *See* d'Olier, J. H.
 Delougaz, Nathalie P., Martin, Susan K., and Wedgeworth, Robert, Libraries and Information Services in the U.S.S.R., 252
 Demonstration of Multi-File Interactive Searching for Transportation Information, Serge G. Campion, 187
 Denmark, *n* 94
 DePew, John N., **Staff Development**, 46
 De-Programming Prison Libraries, Richard M. Barone, 293
 Developments in Map Cataloging at the Library of Congress, Janet Swan Hill, 149
 Diener-Waxler, Laurie, *n* 411
Dimensions/NBS, *n* 215
Directory of Special Libraries in Israel, *n* 95
 Disk Storage Cases, *n* 216
 Document Examination in American Archives, Cheryl A. Price, 299
 Dodd, James B., 38
 Donati, Robert. Selective Survey of Online Access to Social Science Data Bases, 396
 Downs (Robert B.) Award, *n* 95

Drake, Miriam A., The Management of Libraries as Professional Organizations, 181; book review by, 422
 Dudden, Fred, *n* 172
 Dulaff, Jean E., Job Disadvantage (letter), 7A (Feb)
 Durey, Peter, *Staff Management in University and College Libraries*, book review by Joseph M. Dagnese, 53

E

ERIC. *See* Educational Resources Information Center
East African Community; Subject Guide to Official Publications, *n* 216
 Easter, Lenna, *n* 411
 Echelman, Shirley, 324; Methodological/Ontological, 326; 465
 Economic Interaction Between Special Libraries and Publishers of Scholarly and Research Journals: Results of an NSF Study, Herbert S. White and Bernard M. Fry, 109
 Education, *n* 45, *n* 93
 Education Committee, 41; Report, 351
 Education Coordinator. *See* Professional Development Coordinator
 Education for Librarianship. Post-Graduate Education for Librarianship at Yugoslavia's University of Zagreb: Development and Present State, Katherine Cveljo, 81; Technical Assistance for the Bureau of Outdoor Recreation, Mary Larsen, 266; Alan Edward Schorr (letter), 6A (Sep)
 Educational Resources Information Center Clearinghouse on Information Resources, *n* 135
 Eiser, Mary Jo, *n* 411
 Ellis, Aileen V., *n* 172
 Employment Policy Committee, 339
Energy Abstracts, *n* 215
 Erickson, Janet, *n* 411
Errata, 90, 419, 462
 European Chapter, *n* 171
 Evans, G. Edward, *Management Techniques for Librarians*, book review by Joseph M. Dagnese, 99
 Extraterrestrial Life. A Selected List of Government Documents on Extraterrestrial Life, Joel Davis, 119

F

FID. *See* International Federation for Documentation.
 Fang, Josephine R., *n* 411
Farm Books, *n* 96
 Fasana, Paul J., Do You Have Any? (letter), 6A (Jan)
 Federal Library Committee, *n* 91; Report of SLA Observer, 362
 Fees for Library Service. Commentary on the Special Librarian/Fee-Based Service Interface, Nancy M. Kingman and Carol Vantine, 320
 Fellowships and Scholarships, *n* 94, *n* 95, *n* 135
 Felter, Jacqueline W., *obit.* 132
 Field, Judith J., 35; Division Cabinet Report 1976/77, 333
 Files, *n* 92
 Films. The British Film Institute: Resources, Publications, Services, Joseph W. Palmer, 313
 Finance Committee, 338; Report, 351

- Fine Arts Literature. Methods of Citation Analysis in the Fine Arts, Diane M. Nelson, 390
- Fink, Donald G., The Impact of Technology on Library Science, 76
- Fishburn, Mary. *See* Wanger, Judith
- Florida Chapter, *n* 171
- Food and Nutrition Division, 338
- Food Librarians Division. *See* Food and Nutrition Division
- Fosdick, Howard, An SDC-Based On-Line Search Service: A Patron Evaluation Survey and Implications, 305
- Foskett, D. J., *NATIS: Preliminary Survey of Education and Training Programmes at University Level in Information and Library Science*, book review by Vivian D. Hewitt, 423
- Fourth Generation Systems for Libraries: The Marriage of Data Base Management Systems and On-Line Minicomputer Hardware, Audrey N. Grosch, 221
- Franck, Jane, *n* 411
- Fraser, Doreen, *n* 172
- Freedom of Information Act. Commentary on FOIA—Neither Sacred Nor Safe, Gordon Cook, 276
- Freund, Clare E., Catalog on Microfiche at the Eastman Kodak Libraries, 375
- Friedman, Elaine S., Library Applications of Computer Output Microfilm: An Annotated Bibliography, 447
- Fry, Bernard, *n* 172; *see also* White, Herbert S.
- Fulbright-Hays Awards, *n* 94
- Future Meetings**, 372
- G**
- GPO—Are You Listening? Shula Schwartz, 62
- Gardner, Trudy, and Goodyear, Mary Lou, The Inadequacy of Interdisciplinary Subject Retrieval, 193
- Gasaway, Laura N., 36
- Geographic Arrangement of Topographic Maps, Sheila Grant Johnson, 115
- Geography and Map Division, 349
- Gibson, Elizabeth J., *n* 172
- Glidden, Lt. Col. Benjamin C., *n* 172
- Godfrey, Lois E., Chapter Cabinet Report 1976/77, 332; *n* 411
- Goldstein, Howard, More Info (letter), 8A (Jan)
- Goodyear, Mary Lou. *See* Gardner, Trudy
- Gore, Daniel, ed., *Farewell to Alexandria; Solutions to Space, Growth and Performance Problems of Libraries*, book review by Masse Bloomfield, 470
- Gosnell, Dr. Charles F., *n* 172
- Government Documents. Howard Goldstein (letter), 8A (Jan); *n* 45; GPO—Are You Listening? Shula Schwartz, 62; *n* 94; A Selected List of Government Documents on Extraterrestrial Life, Joel Davis, 119; *see also* National Technical Information Service and United Nations Documents
- Government Information Services Committee. GPO—Are You Listening? Shula Schwartz, 62; Report, 351
- Government Libraries. Collection Development in Texas State Agency Libraries: A Survey with Recommendations, Mary C. Grattan, 69
- Grants, *n* 133
- Grattan, Mary C., Collection Development in Texas State Agency Libraries: A Survey with Recommendations, 69; *n* 172
- Greater St. Louis Chapter. *See* St. Louis Metropolitan Area Chapter
- Green, Shirley L., *Pictorial Resources in the Washington, D.C. Area*, book review by Dolores C. Leffall, 291
- Greer, Nancy, *n* 173
- Grenville, Sally, *n* 173
- Griffin, Linda D., *n* 173
- Grosch, Audrey N., *n* 173; Fourth Generation Systems for Libraries: The Marriage of Data Base Management Systems and On-Line Minicomputer Hardware, 221; 280; 348
- H**
- Hall, Janet, *n* 411
- Hamilton, Malcolm C., book review by, 373
- Hammond, Jane, *n* 173
- A Handbook of Laws and Regulations Affecting Public Libraries in New York State*, *n* 216
- Handicapped, *n* 216
- Have You Heard?** 93, 134, 214, 468
- Have You Seen?** 92, 177
- Health Science Libraries. *See* Medical Libraries
- Heart of America Chapter, *n* 43, 166, *n* 171
- Henderson, Floyd L., 39
- Herold, Virginia Wilcox, *n* 411
- Hewitt, Vivian D., 35; IFLA: International Federation of Library Associations and Institutions, 48; book review by, 423; 465
- Hexamer General Surveys*. Indexing the Hexamer General Surveys, J. B. Post and Joyce Post, 103
- Higher Education Act, 467
- Hilditch, Bonnie, *n* 173
- Hill, Janet Swan, Developments in Map Cataloging at the Library of Congress, 149
- Hoeck, Albertha J., *n* 173
- Hogan, Mildred E., *n* 411
- Holroyd, Gileon, ed., *Studies in Library Management*, v. 3, book review by Edward G. Strable, 54
- Honolulu Conference (1979), 338
- Hospital Libraries in Nigeria, Godfrey S. Belleh, 122
- Hudelson, Constance, *n* 411
- Hudson Valley Chapter, *n* 171, *n* 463
- Huggins, Solange Gignac, *n* 173
- Hughes, Rita A., *n* 173
- I**
- ICE Abstracts*, *n* 215
- IFLA. *See* International Federation of Library Associations and Institutions
- IFLA: International Federation of Library Associations and Institutions, Vivian D. Hewitt, 48
- Illinois Chapter, *n* 43, *n* 171, *n* 463
- The Impact of Technology on Library Science, Donald G. Fink, 76
- In Memoriam**, 132, 414, 466
- The Inadequacy of Interdisciplinary Subject Retrieval, Trudy Gardner and Mary Lou Goodyear, 193
- Indexing Services. *See* Abstracting and Indexing Services
- Indexing the *Hexamer General Surveys*, J. B. Post and Joyce Post, 103
- Indiana Chapter, *n* 464
- Information Retrieval. Computerized Storage and

Retrieval of Newspaper Stories at the Globe and Mail Library, Toronto, Canada, David A. Rhydwen, 57
Information Science Abstracts, n 95, 166
 Information Services. The Impact of Technology on Library Science, Donald G. Fink, 76
 Information Systems. Integrated Information Systems: A New Perspective, Louis J. Zeh, Jr., 430
 Institute of Museum Services, 467
 Insurance, 337
 Integrated Information Systems: A New Perspective, Louis J. Zeh, Jr., 430
 Interagency Council on Library Resources for Nursing. SLA Representative, 339
 Interdisciplinary Information. The Inadequacy of Interdisciplinary Subject Retrieval, Trudy Gardner and Mary Lou Goodyear, 193
 Interlibrary Loan. Toward a National Periodicals System, Alphonse F. Trezza, 7; Revision of Interlibrary Loan Form (ILL) Including Copyright Law Representations, 415
 International Development Research Centre, n 216
 International Federation for Documentation, 337
 International Federation of Library Associations and Institutions. IFLA: International Federation of Library Associations and Institutions, Vivian D. Hewitt, 48; 166; Report of SLA Representative, 363

J

Japan-United States Friendship Commission, n 92
 Jenkins, Ann, n 173
 Johns, Dr. Claude J., Jr., n 173; *see also* Murphy, Marcy
 Johnson, Carol A., n 173
 Johnson, Sheila Grant, Geographic Arrangement of Topographic Maps, 115
 Joint Committee on the Union List of Serials Report, 355
Journal of Library History, n 136
 Journals. *See* Serials
 Joyner, Nelson T., Jr., *Doing Business Abroad: Joyner's Guide To Official Washington*, book review by Ruth S. Smith, 99

K

Kaczmarek, Mary, n 411
 Kansas City Conference (1978), 41; 165; Call for Papers, 285
 Kazlauskas, Edward John, Selecting a Computer Terminal for the Library, 24
 Kentucky Chapter, n 43, n 171, n 464
 Kiersky, Loretta J., n 411
 King, David E., 39
 Kingman, Nancy M., Commentary on the Special Librarian/Fee-Based Service Interface, 320
 Klempner, Irving M., Reply (letter), 6A (Apr); book review by, 218
 Knox, William T., NTIS Defended (letter), 6A (Apr)
 Kochen, Manfred, ed., *Information for Action from Knowledge to Wisdom*, book review by Masse Bloomfield, 139
 Koenig, Michael, Budgets and Budgeting, Part I, 228; Part II, 234

Korn, Frederick, A Classification Schedule for Photographs By Process or Apparatus, 145
 Kovacic, Mary Lou, n 173

L

Lampkowski, Dennis, n 173
 Larsen, Mary, Technical Assistance for the Bureau of Outdoor Recreation, 266
 Larson, Julian R., and Tannehill, Robert S., Jr., Problems in Accessing Scientific and Technical Serials, 241
 Law School Depository Bill, 467
 Lawrence, Barbara, and Prewitt, Barbara J., Wrong Impressions (letter), 6A (Dec); *see also* Weiss, Irvin
 Leffall, Dolores C., book review by, 290
 Leggett, Mark, Bank Letters, Bulletins, and Reviews, 425
 Leimkuhler, Ferdinand F., book review by, 138
 Leonard, Dr. Lawrence E., n 173
Letters to the Editor, 6A (Jan), 6A (Feb), 6A (Apr), 6A (May/Jun), 6A (Sep), 6A (Dec)
 Librarians. The Management of Libraries as Professional Organizations, Miriam A. Drake, 181; *see also* Special Librarians
 Libraries. The Impact of Technology on Library Science, Donald G. Fink, 76; The Management of Libraries as Professional Organizations, Miriam A. Drake, 181; *see also* Government Libraries, Medical Libraries, Newspaper Libraries, Prison Libraries, Public Libraries, *and* Special Libraries
 Libraries and Information Services in the U.S.S.R., Nathalie P. Delougaz, Susan K. Martin, and Robert Wedgeworth, 252
 Library Applications of Computer Output Microfilm: An Annotated Bibliography, Elaine S. Friedman, 447
 Library Binding Institute. Report of SLA Observer, 364
 Library Education. *See* Education for Librarianship
 Library Management. *See* Management
 Library Schools. *See* Education for Librarianship
 Library Services and Construction Act, 467
 Library Users. *See* Users
 Line, M. B., Update (letter), 8A (Jan)
 Lloyd, Carolyn T., John Morrow Bobb, *obit.* 132
 Long Island Chapter, n 171
 Louisiana Chapter, n 171
 Lowe, Mildred, n 173

M

MARC, n 93
 McCusker, Sister Lauretta, n 173
 MacDonald, Barbara, n 173
 Machine Searching. *See* Searching
 McKenna, Frank E., 280, 346
Management. See Staff Development
 The Management of Libraries as Professional Organizations, Miriam A. Drake, 181
 Management Provisional Division, 338
 The Map Interpretation File, Karl H. Proehl, 455
 Maps. Geographic Arrangement of Topographic Maps, Sheila Grant Johnson, 115; n 135; Developments in Map Cataloging at the Library of Congress, Janet Swan Hill, 149; Cartographic

- Sources and Procurement Problems, Donald A. Wise, 198
- Marchant, Maurice, *Participative Management in Academic Libraries*, book review by Miriam A. Drake, 422
- Marine Biology. Coverage of Marine Biology Citations, Annette Corth, 439
- Martin, Susan K. See Delougaz, Nathalie P.
- Media Law Reporter*, n 95
- Medical Libraries. Hospital Libraries in Nigeria, Godfrey S. Belleh, 122
- Medical Library Association. Report of SLA Representative, 365
- Members in the News, 172, 411
- Membership Committee, 166
- Methods of Citation Analysis in the Fine Arts, Diane M. Nelson, 390
- Metric Style Guide for the News Media*, n 136
- Metropolitan Information & Library Services. Carol E. Kornfeld (letter), 6A (Sep)
- Michel, Victor J., Jr., n 173
- Michigan Chapter, n 171, n 464
- Microfilm Cameras: A Survey of Features and Functions, William Saffady, 1
- Microfilm Generation and Polarity Terminology, Don M. Avedon, 141
- Microform Equipment, n 177
- Microforms, n 96; Cecily J. Surace (letter), 6A (Sep); Catalog on Microfiche at the Eastman Kodak Libraries, Clare E. Freund, 375; *see also* Computer Output Microfilm
- Micrographics, n 136
- Mid-Missouri Chapter, n 43, n 171, n 464
- Mid-South Chapter, n 43, n 171, 347
- Miles, Herman W., 346
- Minnesota Chapter, n 43, n 172, n 464
- Molholt, Pat, n 173
- Montreal Chapter, n 43, n 172, 338, n 464
- Morton, Elizabeth Homer, *obit.* 466
- Mount, Ellis, Treasurer's Report 1976/77, 331
- Mullins, Lynn, n 411
- Mundstock, Aileen, n 411
- Murphy, Marcy, and Johns, Claude J., Jr., *Handbook of Library Regulations*, book review by Malcolm C. Hamilton, 373
- Murray, William, n 411
- Museum of Broadcasting, n 135
- Music Library Association. Report of SLA Representative, 365
- Music Therapy Index*, n 215
- N**
- NCLIS. *See* National Commission on Libraries and Information Science
- NTIS. *See* National Technical Information Service
- National Audio-Visual Association, n 215
- National Commission on Libraries and Information Science, n 46, n 133, n 134
- National Conservation Advisory Council, 419
- National Endowment for the Humanities, n 133
- National Federation of Indexing and Abstracting Services. Report of SLA Representative, 365
- National Health Planning Act Symposium Proceedings*, n 215
- National Library Week, 137
- National Micrographics Association. Report of SLA Representative, 366
- National Science Foundation, n 46
- National Technical Information Service, n 95; William T. Knox (letter), 6A (Apr); Irving M. Klempner (letter), 6A (Apr); Ruth S. Smith (letter), 6A (May/Jun)
- National Translation Center. Report of SLA Representative, 366
- Natural Resources Division, 166
- Needle, June, Peace Corps Librarians in the Developing World, 206
- Neff, Evaline, n 173
- Negoro, Karin Sue, 347
- Nelson, Diane M., Methods of Citation Analysis in the Fine Arts, 390
- Networking Committee Report, 351
- New Jersey Chapter, n 43, n 172, n 464
- New Measures of User Satisfaction With Computer-Based Literature Searches, Judith A. Tessier, Wayne W. Crouch, and Pauline Atherton, 383
- New York Chapter, n 43, n 44, n 369, n 464
- New York Conference (1977), 44; 90; The 1977 SLA Annual Business Meeting, 127; Conference Invitation, 128; British Learned Societies to Emphasize Latest Technology at SLA Conference, 131; New York a Decade Later, 168; Reports, 323-341; The Big Apple 1977, Ron Coplen, 342
- Newspaper Libraries. Computerized Storage and Retrieval of Newspaper Stories at the Globe and Mail Library, Toronto, Canada, David A. Rhydwen, 57
- Nigeria. Hospital Libraries in Nigeria, Godfrey S. Belleh, 122
- Nominating Committee, 42; 127; Report, 352
- North Carolina Chapter, n 44, n 369, n 464
- O**
- OCLC. *See* Ohio College Library Center
- ONLINE, n 96
- Oceanography, 137
- Ohio College Library Center, n 215
- Oklahoma Chapter, n 369, n 464
- d'Olier, J. H., and Delmas, B., *Planning National Infrastructures for Documentation, Libraries and Archives: Outline of a General Policy*, book review by Theodore P. Peck, 100
- On-Line Bibliographic Retrieval Systems Use, Carolyn P. Brown, 155
- On-Line Review, n 216
- On-Line Searching: *A Self-Instruction Manual*, n 216
- On-Line Services and Operational Costs, Mary L. Calkins, 13
- Oral History, n 215
- Oregon Chapter, 347, n 369
- Overseas Report, 81, 122, 161, 206, 269, 313
- P**
- Pacific Northwest Chapter, n 44, n 369
- Pakistan. Special Libraries in Pakistan, Muhammad Aslam, 161
- Palmer, Joseph W., The British Film Institute: Resources, Publications, Services 313
- Panella, Nancy Mary, To Whom It May Concern (letter), 6A (Jan)

Paper Shredders, *n* 93
 Paul, Sandra, *n* 173
 Peace Corps Librarians in the Developing World, June Needle, 206
 Peck, Theodore P., book review by, 100
 Perez, Ernest, New Rules with "Teeth" (letter), 6A (Jan)
 Periodicals. *See* Serials
 Perlin, Eleanor, *n* 174
 Petroleum & Energy Resources Division, 42, 338
 Petroleum Division. *See* Petroleum & Energy Resources Division
 Philadelphia Chapter, *n* 369
 Philippines. Special Libraries in the Philippines, Julie Bichteler, 28
 Phinazee, Annette, *n* 174
 Photocopying. *See* Copyrights
 Photographic Information. A Classification Schedule for Photographs By Process or Apparatus, Frederick Korn, 145
 Pittsburgh Chapter, *n* 44, *n* 369, *n* 464
 Plenum Publishing Corporation Award. Committee Report, 352; 1978 Award, 413
 Positive Action Liaisons, 166
 Positive Action Program for Minority Groups Committee, 41; 337; Report, 352
 Post, J. B., and Post, Joyce, Indexing the *Hexamer General Surveys*, 103
 Post, Joyce. *See* Post, J. B.
 Post-Graduate Education for Librarianship at Yugoslavia's University of Zagreb: Development and Present State, Katherine Cveljo, 81
 President's Committee on Employment of the Handicapped Library Committee. John Rebenack (letter), 6A (Sep); Report of SLA Representative, 367
 President's Report 1976/77, Mark H. Baer, 328
 Prewitt, Barbara J. *See* Lawrence, Barbara
 Price, Cheryl A., Document Examination in American Archives, 299
 Princeton-Trenton Chapter, *n* 89, *n* 369, *n* 464
 Prison Libraries. De-Programming Prison Libraries, Richard M. Barone, 293
 Privat, Jeannette M., 37
 Problems in Accessing Scientific and Technical Serials, Julian R. Larson and Robert S. Tannehill, Jr., 241
 The Procedure Manual, Ruth W. Wender, 407
 Proehl, Karl H., The Map Interpretation File, 455
 Professional Development Coordinator, 165
Il Progresso Italo-Americano. Paul J. Fasana (letter), 6A (Jan)
 Public Libraries. Commentary on the Special Librarian/Fee-Based Service Interface, Nancy M. Kingman and Carol Vantine, 320
 Publisher Relations Committee Report, 353
Pubs, 56, 102, 140, 180, 220, 292, 374, 424, 472

R

R & D Projects in Documentation and Librarianship, *n* 136
 Rebenack, John, Job Well Done (letter), 6A (Sep)
 Reed, Michael David, 347
 Rees, Alan, ed., *Contemporary Problems in Technical Library and Information Center*

Management: A State-of-the-Art, book review by Masse Bloomfield, 101
 Reith, Mariana, *n* 411
 Research Committee, 338; Report, 353
Reviews, 53, 99, 138, 218, 290, 373, 422, 470
 Rhode Island Chapter, 166
 Rhydwen, David A., Computerized Storage and Retrieval of Newspaper Stories at the Globe and Mail Library, Toronto, Canada, 57
 Ringer, Barbara Alice, 279, 339, 346
 Rio Grande Chapter, *n* 89, *n* 369, *n* 464
 Rocky Mountain Chapter. *See* Colorado Chapter
 Roloff, Daphne, *n* 411
 Roof, Sally, *n* 412
 Roper, Dr. Fred Wilburn, *n* 174
 Russia. *See* U.S.S.R.

S

An SDC-Based On-Line Search Service: A Patron Evaluation Survey and Implications, Howard Fosdick, 305
 SLA Annual Meetings. *See* New York Conference (1977), Kansas City Conference (1978), Honolulu Conference (1979), Atlanta Conference (1981), and SLA Conferences
 SLA Association Office, 42, 130, 337
 SLA Audit Report: Jan. 1, 1976-Dec. 31, 1976, 281
 SLA Board of Directors. Fall Meeting Actions, 41; Future Fall Meetings, 41; Winter Meeting Actions, 165; Annual Meeting Actions, 337; 339
 SLA Budget, 42
 SLA Candidates (1977), 35
 SLA Chapter Cabinet. Winter Meeting Actions, 165; Task Force on the Role of Chapter Members in the No-Host Chapter Conference, 166; Report 1976/77, Lois E. Godfrey, 332; Annual Meeting Actions, 337
 SLA Chapter Growth Award, 347
 SLA Chapters and Divisions. Allotments, 42, 165, 337; Archives, 338; Chapter Visits Scheduled, 465; *see also* **Chapters & Divisions**, SLA Provisional Chapters, and names of individual chapters and divisions
 SLA Committees. *See* name of committee
 SLA Conferences, 165; 338; *see also* New York Conference (1977), Kansas City Conference (1978), Honolulu Conference (1979), and Atlanta Conference (1981)
 SLA Division Cabinet. Winter Meeting Actions, 165; Report 1976/77, Judith J. Field, 333; Annual Meeting Actions, 337
 SLA Divisions. *See* SLA Chapters and Divisions
 SLA Education Coordinator, 41
 SLA Elections. Returns (1977), 284; Returns (1977), 414
 SLA Employment Clearing House, 127, 349
 SLA Hall of Fame/1977, 211, 462
 SLA Honorary Members, 279, 339, 346
 SLA Joint Committees. Reports 1976/77, 355
 SLA Officer's Reports. *See* names of offices
 SLA Professional Award, 280, 348, 462
 SLA Provisional Chapters, 338
 SLA Publications, 42
 SLA Representatives to Other Organizations. Reports 1976/77; 356; *see also* names of other organizations

- SLA Resolution Concerning the Unesco Programme for Information, Documentation, Libraries and Archives, 51
- SLA Resolutions of Appreciation, 341
- SLA Salary Survey (1977 Update), 461
- SLA Scholarships. Fund, 167; Fund, 337; 1977/78 Awards, 347; Committee Report, 353
- SLA Special Citation, 280; 1977 Citation, 346, 462
- SLA Special Committee on Copyright Law Practice and Implementation, 166, 338, 355
- SLA Special Committee on Copyright Law Revision. *See* SLA Special Committee on Copyright Law Practice and Implementation
- SLA Standing Committees. Reports 1976/77, 350; *see also* name of committee
- SLA Survey of Special Libraries in Commerce and Industry, 463
- SLA Travel Policies, 339
- SLA Winter Meetings, 165
- SPEC. *See* Systems and Procedures Exchange Center
- Saffady, William, Microfilm Cameras: A Survey of Features and Functions, 1
- St. John's University, *n* 215
- St. Louis Metropolitan Area Chapter, 166
- Salaries, *n* 41
- San Francisco Bay Region Chapter, *n* 89, *n* 369
- Sass, Samuel, 212
- Schechtman, Joan, 37
- Schild, Doris Lee, 40
- Scholarships. *See* Fellowships and Scholarships
- Schorr, Alan Edward, Library School Enrollment (letter), 6A (Sep)
- Schwartz, James H., Image Problem (letter), 6A (Feb)
- Schwartz, Shula, GPO—Are You Listening? 62
- Scientific Meetings*, *n* 41
- Scilken, Marvin H., What's a Perfect Binding? (letter), 6A (Feb)
- Scott, Catherine D., *n* 412
- Seal, Robert A., *n* 174
- Searching. On-Line Services and Operational Costs, Mary L. Calkins, 13; *n* 135; On-Line Bibliographic Retrieval Systems Use, Carolyn P. Brown, 155; Demonstration of Multi-File Interactive Searching for Transportation Information, Serge G. Campion, 187; The Inadequacy of Interdisciplinary Subject Retrieval, Trudy Gardner and Mary Lou Goodyear, 193; An SDC-Based On-Line Search Service: A Patron Evaluation Survey and Implications, Howard Fosdick, 305; New Measures of User Satisfaction With Computer-Based Literature Searches, Judith A. Tessier, Wayne W. Crouch, and Pauline Atherton, 383; Selective Survey of Online Access to Social Science Data Bases, Robert Donati, 396
- A Selected List of Government Documents on Extraterrestrial Life, Joel Davis, 119
- Selecting a Computer Terminal for the Library, Edward John Kazlauskas, 24
- Selection. *See* Collection Development
- Selective Survey of Online Access to Social Science Data Bases, Robert Donati, 396
- Serials, M. B. Line (letter), 8A (Jan); Toward a National Periodicals System, Alphonse F. Trezza, 7; *n* 94; Economic Interaction Between Special Libraries and Publishers of Scholarly and Research Journals: Results of an NSF Study, Herbert S. White and Bernard M. Fry, 109; Problems in Accessing Scientific and Technical Serials, Julian R. Larson and Robert S. Tannehill, Jr., 241; Bank Letters, Bulletins, and Reviews, Mark Leggett, 425
- Sessions, Vivian, *n* 174
- Sexton, Pamela A., *n* 412
- Shank, Russell, *n* 412
- Shannon, Zella, *n* 412
- Shapiro, Beth J., *n* 412
- Shung, Lily, *n* 412
- Sierra Nevada Chapter, *n* 369, *n* 464
- Slate, Ted, *n* 174
- Slides, *n* 93
- Smith, Paul A., Jr., Omission (letter), 6A (Feb)
- Smith, Ruth S., book review by, 99; NTIS and Special Libraries (letter), 6A (May/June); *see also* Case, Sara
- Social Science Literature. Selective Survey of Online Access to Social Science Data Bases, Robert Donati, 396
- South Atlantic Chapter, *n* 370, *n* 465
- Southern California Chapter, *n* 370, *n* 465
- Soviet Union. *See* U.S.S.R.
- Special Librarians. James H. Schwartz (letter), 6A (Feb); Jean E. Dulaff (letter), 7A (Feb)
- Special Libraries. Economic Interaction Between Special Libraries and Publishers of Scholarly and Research Journals: Results of an NSF Study, Herbert S. White and Bernard M. Fry, 109; Technical Assistance for the Bureau of Outdoor Recreation, Mary Larsen, 266; Commentary on the Special Librarian/Fee-Based Service Interface, Nancy M. Kingman and Carol Vantine, 320
- Special Libraries Association. *See* SLA
- Special Libraries in Commerce and Industry (SLA Survey), 463
- Special Libraries in Pakistan, Muhammad Aslam, 161
- Special Libraries in the Philippines, Julie Bichteler, 28
- Spoerri, Simone, *obit.* 132
- Spurlock, Sandra, *n* 174
- Staff Development**, 178, 287, 421
- Staff Development**, John N. DePew, 46
- Standards and Statistics Committee Report, 354
- Stephenson, Richard W., 349
- Stokes, Esther, *n* 174
- Stowe, Stephanie, *n* 174
- Strable, Edward G., book review by, 54; *n* 412
- Student Relations Officer Report, 354
- Subject Classifying Botanical Art, Mary Anne Snively Craft, 18
- Sullivan, Peggy A., *n* 412
- Surace, Cecily J., Microfiche Catalog (letter), 6A (Sep)
- Swanigan, Meryl, *n* 412
- Sweeney, Joan L., 346
- Systems and Procedures Exchange Center, *n* 94

T

- Tables, *n* 92
- Tannehill, Robert S., Jr., *See* Larson, Julian R.
- Technical Assistance for the Bureau of Outdoor Recreation, Mary Larsen, 266

Technical Book Review Index, n 41

Technical Reports. *See* National Technical Information Service

Telecommunications, n 133, 213

Telenet Communications Corporation, n 93

Tessier, Judith A., Crouch, Wayne W., and Atherton, Pauline, *New Measures of User Satisfaction With Computer-Based Literature Searches*, 383

Texas Chapter, n 89, n 370, n 465

Theatre Library Association. *Report of SLA Representative*, 367

Ting, Robert N., n 174

Toronto Chapter, n 89, n 370, n 465

Toward a National Periodicals System. Alphonse F. Trezza, 7

A Trade Information Service in Asia: New Dimensions in Special Librarianship, N. P. Cummins, 269

Translations, n 134

Translator Referral Directory, 1977, n 93

Transportation Information. *Demonstration of Multi-File Interactive Searching for Transportation Information*, Serge G. Campion, 187

Trays, n 177

Treasurer's Report 1976/77, Ellis Mount, 331

Trezza, Alphonse F., *Toward a National Periodicals System*, 7

U

USBE. *See* Universal Serials & Books Exchange, Inc.

U.S.S.R. Libraries and Information Services in the U.S.S.R., Nathalie P. Delougaz, Susan K. Martin, and Robert Wedgeworth, 252

Unesco. *SLA Resolution Concerning the Unesco Programme for Information, Documentation, Libraries and Archives*, 51

United Nations Documents, n 94, n 136

Universal Serials & Book Exchange, Inc., n 136

University of North Carolina, n 134

University of Vermont, n 215

Upstate New York Chapter, n 89, n 370

Users. *An SDC-Based On-Line Search Service: A Patron Evaluation Survey and Implications*, Howard Fosdick, 305; *New Measures of User Satisfaction With Computer-Based Literature Searches*, Judith A. Tessier, Wayne W. Crouch, and Pauline Atherton, 383

V

van Halm, Johan, n 174

Vantine, Carol. *See* Kingman, Nancy M.

Vickery, Brian C., *Classification and Indexing in Science*, book review by Masse Bloomfield, 53

Video Projectors, n 177

Vior Corporation, 373

Virginia Chapter, n 89

Virgo, Julie, A., n 412

Voigt, Annelene, n 412

von Roeschlaub, Ruth, Marian Manley Winsor, *obit.* 414

W

Wagner, Florence, *obit.* 132

Wagner, Judith, Cuadra, Carlos A., and Fishburn, Mary, *Impact of On-Line Retrieval Services: A Survey of Users, 1974-1975*, book review by Masse Bloomfield, 54

Washington, D. C. Chapter, n 89, n 90, n 370, n 465

Washington Letter, Sara Case, 45; Sara Case and Ruth Smith, 91; Sara Case, 133; Sara Case, 175; Sara Case, 213, Sara Case, 467

Wedgeworth, Robert. *See* Delougaz, Nathalie P.

Weiss, Irvin, *Reply* (letter), 6A (Dec); *see also* Lawrence, Barbara

Wender, Ruth W., *The Procedure Manual*, 407

Whisenton, Andre C., n 174

White, Herbert S., n 174

White, Herbert S., and Fry, Bernard M., *Economic Interaction Between Special Libraries and Publishers of Scholarly and Research Journals: Results of an NSF Study*, 109

White House Conference on Library and Information Services, 96, 175

Wijnstroom, Margreet, 279, 339, 346

Wilson (H. W.) Company Award for the Best Paper in *Special Libraries*, 346; Committee Report, 355

Wilson, Marijo S., n 412

Wilson, Marion C., Elizabeth Homer Morton, *obit.* 466

Winsor, Marian Manley, *obit.* 414

Wisconsin Chapter, n 90, n 370

Wise, Donald A., *Cartographic Sources and Procurement Problems*, 198

Worthen, Dr. Dennis B., n 174

Y

Yagello, Virginia E., 37

Yugoslavia. *Post-Graduate Education for Librarianship at Yugoslavia's University of Zagreb: Development and Present State*, Katherine Cveljo, 81

Z

Zeh, Louis, J., Jr., *Integrated Information Systems: A New Perspective*, 430

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Volume 68

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Index

Volume 68 Jan-Dec 1977

January.....	1-56	July/August.....	221-292
February.....	57-102	September.....	293-374
March.....	103-140	October.....	Annual Directory Issue
April.....	141-180	November.....	375-424
May/June.....	181-220	December.....	425-494

n indicates a news item

ERRATA

- Jan 1977, p. 40, middle..... Three names were inadvertently omitted from the list of officers who will continue to serve on SLA's Board of Directors in 1977/78. To the list should be added: Ellis Mount will continue as Treasurer. Mary E. Sexton will automatically succeed to the office of Chapter Cabinet Chairman. Renata V. Shaw will automatically succeed to the office of Division Cabinet Chairman.
- Sep 1977, p.372, col.1..... The dates of the Medical Library Association's 77th Annual Conference are Jun 10-15, 1978—not May 27-Jun 1, 1978, as reported in the September 1977 issue.
- Jul/Aug 1977, p.287, col. 1..... The names of two members of the ALA LAD PAS, Staff Development Literature Review Subcommittee were given incorrectly in the July/August 1977 issue. The correct names are Barbara Ormerod and Jim Lockwood.
- Dec 1976, p.600, middle..... A typographical error was made in reporting the figures in Table 2. Salary Distribution by Census Region in Rank Order of 1976 Mean Salaries (December 1976 issue). The South Atlantic 75th percentile should read \$22,000, not \$2,000.

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Smith, John and Virginia Dare / Special Librarian-ship in Action. *Special Libraries* 59 (no. 10): 1241-1243 (Dec 1968).

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

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

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

Andrei, M. et al. / *The History of Athens*. The History of Ancient Greece, 10v. New York, Harwood Press, 1850. 1,000p.

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

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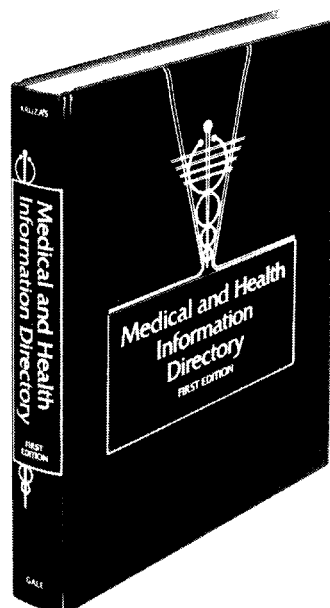
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