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Special Libraries, November 1968

Special Libraries Association

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November 1968, vol. 59, no. 9

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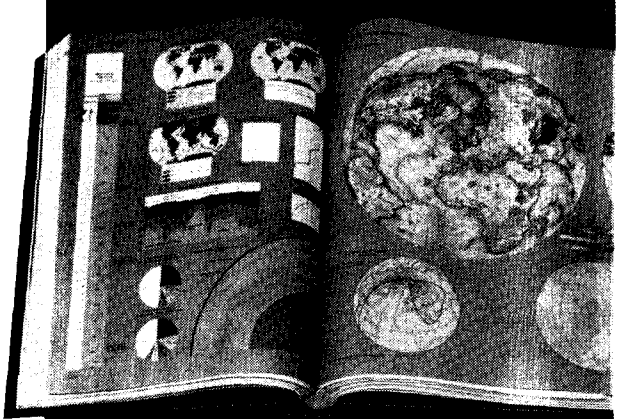

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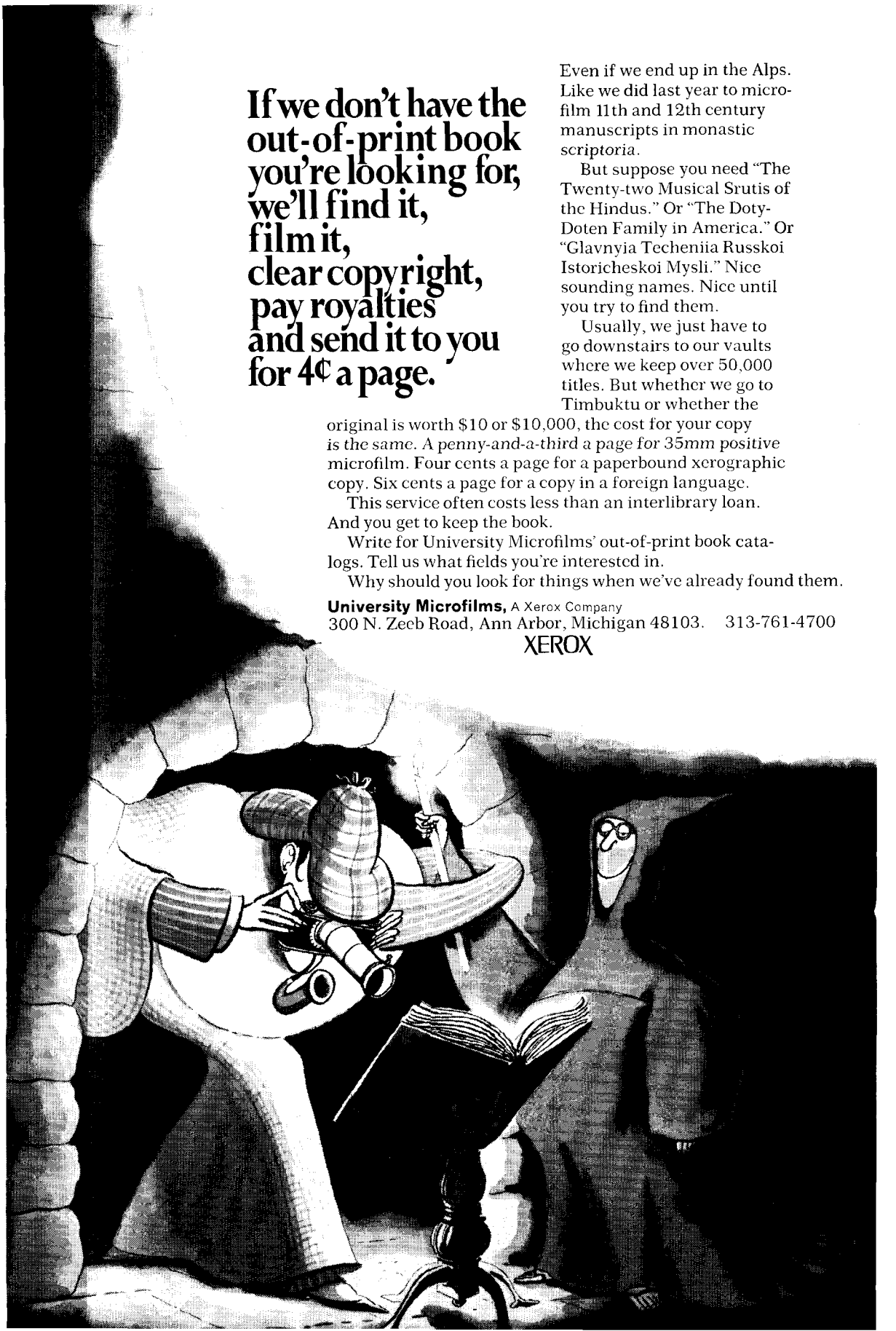

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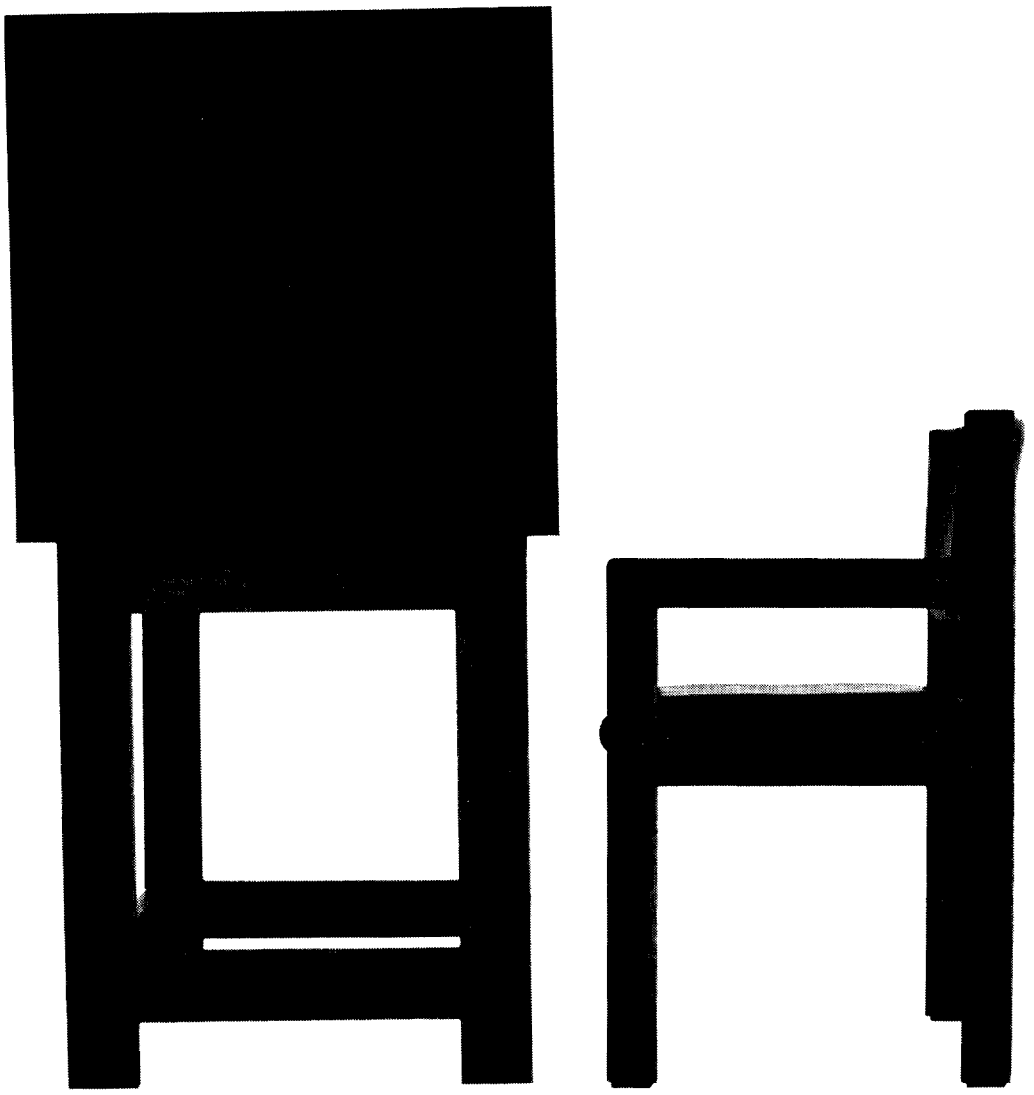

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special libraries

The establishment of unique depositories for presidential papers is a recent innovation in the library field. Although there has been some criticism of these libraries, they continue to develop and spread. Their success is suggested by the many scholars who use them and by the publications based on scholarly research in the manuscripts.

Presidential Libraries

VIRGINIA R. COLE

PRESIDENTIAL LIBRARIES ARE A RELATIVELY recent development. The first one, the Franklin D. Roosevelt Library at Hyde Park, New York, was dedicated in 1941, but not opened for research until 1950. With the establishment of the Harry S. Truman Library at Independence, Missouri, the Dwight D. Eisenhower Library at Abilene, Kansas, and the Herbert Hoover Library at West Branch, Iowa, there are now four of them. Two more, the John F. Kennedy and the Lyndon B. Johnson Libraries, are in progress. The federal government administers all of them under the National Archives and Records Service.

Purpose of the Libraries

One of the main reasons for the establishment of this type of library was to insure preservation of presidential papers and files. Until recently there had been no assurance of the safekeeping of such papers. They are the personal and private property of the president. What he does with his papers is entirely up to him. From the time of George Washington until Franklin D. Roosevelt, each president took his papers with him when he retired. Consequently, many papers were destroyed, lost, or dispersed into private collections. The federal government spent thousands of dollars collecting and purchasing available papers of presidents. In 1903 by Executive Order the papers of George Washington, James Madison, Thomas Jefferson, and James Monroe were transferred to the Library of Congress.[1] Altogether the Library of Congress has obtained papers of twenty-three presidents, but only sixteen of them are very substantial collections.[2] Some manuscripts the government never has been able to acquire such as those of John Adams, John Quincy Adams, and Warren G. Harding.[3]

Another major consideration in the creation of the libraries was to have files opened for research as soon after the termination of the presidency as possible. Many of the Roosevelt and Truman papers were open five or six years after they left office. In contrast, the last of the Lincoln papers were not available for research until 1949.[3]

In addition to the chief executive's papers, presidential libraries gather collections of many people who were associated with his administration as friends, cabinet officers, politicians, and diplomats. These are all kept as separate named collections within the library.

The establishment of the presidential libraries under the control of the federal government also assures proper care and maintenance. Each library has been built with non-federal funds. The land, buildings, and equipment have been donated to the government, as well as all the manuscripts in the collections of the libraries. The federal gov-

ernment has not had to pay any money for purchase or construction. It does maintain and staff the libraries, however, once they are built.

Creation and Characteristics

The FRANKLIN D. ROOSEVELT LIBRARY was the first presidential library. Both President and Mrs. Roosevelt were concerned with what should be done with their huge collection of gifts and mementos from home and abroad, as well as the voluminous papers and files. They began to think in terms of a single institution that could be the property of the United States government. The President wanted it housed in a place intimately associated with his background, career and public life. Out of this evolved the idea of a presidential library with the museum being an integral part of it.[4] The museum is the section that the general public sees and knows, whereas the library is reserved for scholars doing research. Researchers must obtain permission to use it, while the museum is open to all for a small fee.

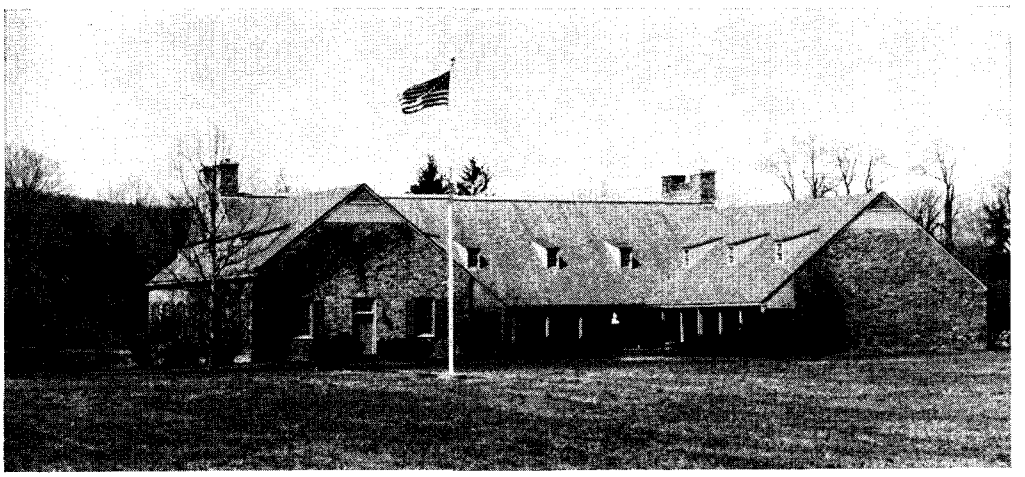
President Roosevelt and his mother donated the land at Hyde Park. Funds for construction and equipment were raised by public subscription. In 1939 by a Joint Resolution, Congress established the Franklin D. Roosevelt Library. This provided for the acceptance and operation of the library by the Archivist of the United States.[4]

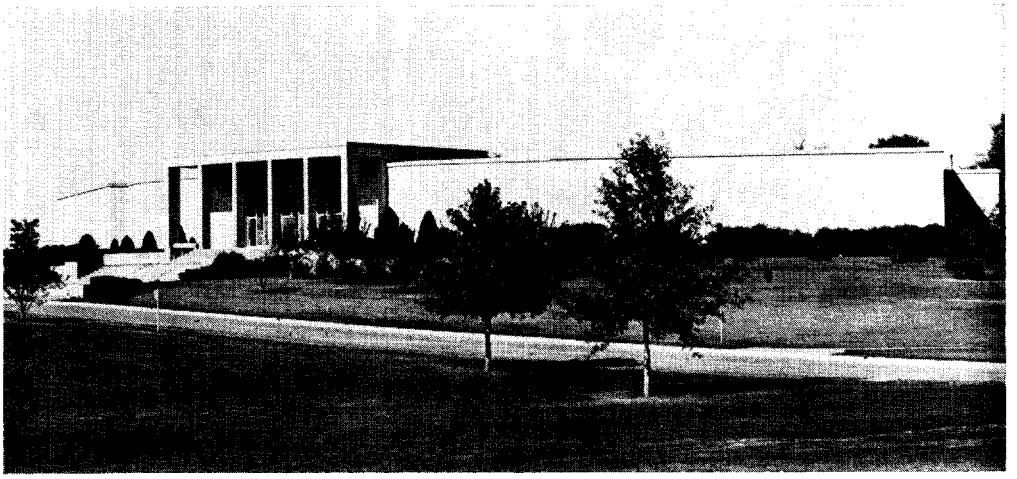
The Roosevelt Library has become a research center primarily for the period from 1932 to 1945. Many excellent publications have resulted from research in this library. Between 1950 and 1965 the papers were used in the preparation of over 500 published books, articles, and theses.[5] In 1957 twelve books were published that were based on research in the Roosevelt Library. Two of them became Book-of-the-Month selections.[6]

The library staff itself has been active in documentary publications. They have published two volumes on Roosevelt and conservation and are presently doing one on Roosevelt and foreign affairs that should be out before the end of 1968. Another is in preparation in the field of agriculture. A recent publication of the library is *The Era of Franklin D. Roosevelt, a Selected Bibliography of Periodical and Dissertation Literature, 1945-1966.*

The administrative staff of the Roosevelt Library has been very stable, with only two directors since 1941. They have been aggressive and successful in acquiring manuscripts and are still collecting them. They also have all of President Roosevelt's Press Conferences on microfilm available for purchase. Many university libraries have bought them for their collections. They make and sell thousands of copies of microfilm and photostats each year as well as several thousand photographic prints from their library collection.

Franklin D. Roosevelt Library, Hyde Park, N. Y.





Harry S. Truman Library, Independence, Missouri

The Roosevelt Library also encourages seminars from nearby colleges at the Library for discussions on the source material at hand. Dr. Elizabeth Drewry, the director, states:

> "The role of the Presidential Libraries should be—and I think is—to put their resources to use not merely by collecting and preserving research materials but by actively making them known through a strong reference staff, through publications, and through encouragement of research by holding seminars and lectures and, where possible, by fostering grants to promising students and writers."[7]

The HARRY S. TRUMAN LIBRARY was established at Independence, Missouri after Congress had adopted the *Presidential Libraries Act* in 1955. That act provided that the federal government through the National Archives and Records Service may accept and administer gifts of building, land, and historical material to be operated as presidential libraries. Also donors of papers to those libraries may put restrictions on their use if they wish. The act provided for acceptance of papers not only of presidents but of their associates as well.[8]

The Truman Library opened for research in 1959. Among its distinctions is that of having President Truman in residence. He has his own office there, but it is not a part of the research library.

The Harry S. Truman Library Institute for National and International Affairs is a nonprofit corporation made up of Truman's prominent friends, college presidents, and distinguished scholars who are interested in furthering research activities in the Truman era. The institute has raised money for various projects of the library. A grant-in-aid program is one of its undertakings. This provides grants of up to $1,000 for worthy students for travel and living expenses while doing research at the library. It also set up a David D. Lloyd Prize of $1,000 awarded biennially for the best book written on the Truman period based on sources in the Truman Library. The institute received a grant of $48,700 in 1958 from the Rockefeller Foundation for purchase of books, microfilm, and microprint.[9] The institute publishes a newsletter from time to time that emphasizes acquisitions, availability of research materials, and the progress of research in the subject field of the library.

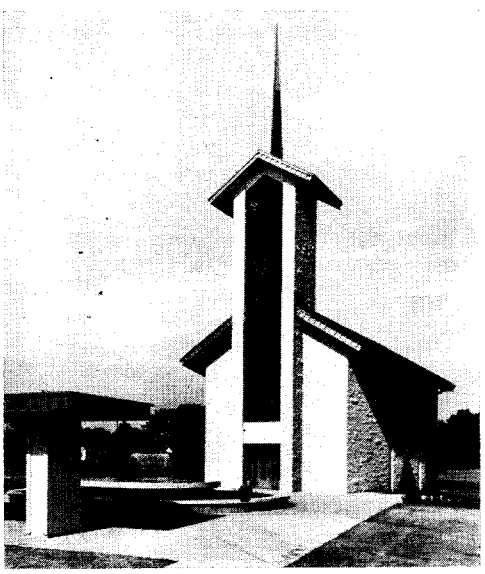
An Oral History Program is financed with institute funds. In this program tapes are made of interviews with people associated with the Truman administration and then transcribed and put in the library for use of researchers. The Oral History supplements the manuscript collections and fills gaps where material is missing or weak.

The institute sponsors conferences attended by many prominent scholars. A recent book has resulted from the papers pre-

sented at the conference held in 1966. *The Truman Period as a Research Field* was edited by Professor Richard S. Kirkendall and published in 1967.

The DWIGHT D. EISENHOWER LIBRARY at Abilene, Kansas opened for research in 1966. The original plans were to have it specialize in military history. With one or two exceptions, however, there has not been much success in acquiring collections of papers of other military men. Since it is new, the library is still not stabilized. It has had two or three directors in the short time it has been in existence.[10] They do have an Oral History Program, however, undertaken by grants from Columbia University with the tapes being turned over to the library.

The HERBERT HOOVER PRESIDENTIAL LIBRARY at West Branch, Iowa also opened in 1966. Neither the Hoover Library nor the Eisenhower Library has been in operation long enough to be very active in the way of publications. The book collection and the government documents of the Hoover Library are not yet strong, though they do have the personal library of Professor Charles C. Tansill, a noted diplomatic historian and a personal friend of President Hoover.



Eisenhower Meditation Chapel at the Dwight D. Eisenhower Library, Abilene, Kansas

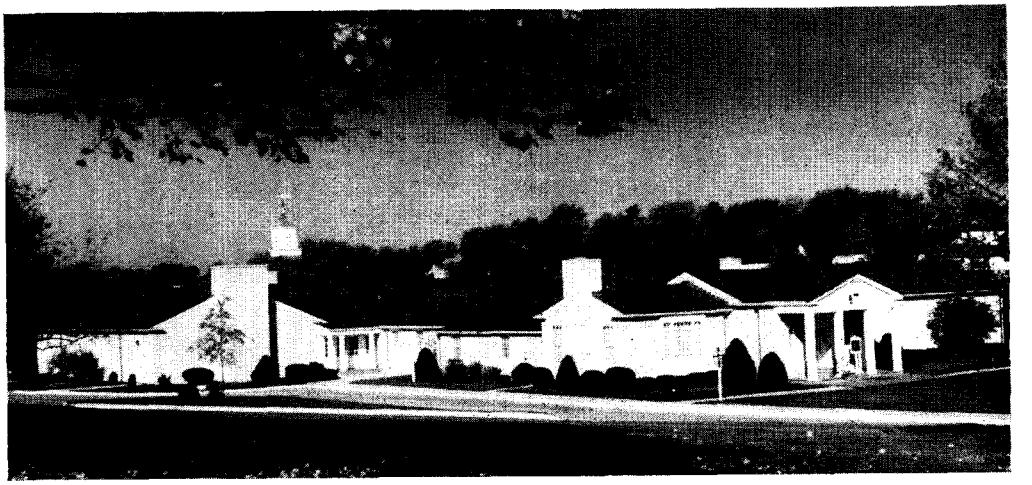
The Herbert Hoover Birthplace Foundation, Inc. raised the funds for and supervised construction of the Hoover Library. It offered the building, grounds, and equipment to the federal government as a gift.[11] There is adequate room for additional manuscripts and material as they are acquired. President Hoover did not permit his papers to be opened for research until after his death. He is the only president of the four to place such a restriction on the use of the presidential papers, but now everything is open that belonged to him.

The JOHN F. KENNEDY LIBRARY to be located in Cambridge, Massachusetts is still in the planning stage. The Kennedy Library Corporation is the moving force behind it. They have had the money available for some time, but complications as to location and construction have delayed progress. Originally, the city of Cambridge had donated two acres of land across the Charles River but still on the Harvard campus for the library. This, however, was considered too small an area for the kind of library they envisaged. Eventually thirteen acres of land were acquired from the transit company, near Harvard Square. Construction could not begin though until the transit company found new grounds for its buildings. Since the library will be located in a rather congested area, parking facilities provide a problem. It may be necessary to have an underground garage.

The Kennedy Library Corporation persuaded the Carnegie Corporation to give $300,000 to Harvard to administer the Oral History Program for the library. It used only $40,000 of these funds and then turned the remainder over to the National Archives to carry on the project. Over 700 interviews have already been taped and many more are planned. They are also doing a thorough job of indexing the Oral History transcripts.

The Kennedy Library probably will not be completed and opened until sometime in the early 1970's. The director and staff have not yet been appointed, but the National Archives are carrying on required library functions.[12]

The LYNDON B. JOHNSON LIBRARY is already under construction and is located on



Herbert Hoover Presidential Library, West Branch, Iowa

the campus of the University of Texas at Austin. The university has donated the land and money for the library. Alongside of the Johnson Library will be the Lyndon B. Johnson School of Public Affairs to be operated by the university. This is expected to be completed by September, 1969, and the school plans to have President Johnson as a faculty member.[13] A part of the University Library specializing in Texas and Latin American history also will be housed in the School of Public Affairs building.

In the Johnson Library there will be two reading rooms. One will be for undergraduates and contain mainly printed material. The other will be the graduate reading room for the archives. The Johnson Library will also have a separate audio-visual reference room, a sound recording room, and equipment for viewing and audio-visual use. So far there is no Oral History Program underway. The director and staff for this library have not yet been selected.[12]

Both the Johnson and Kennedy Libraries will be located on campuses of major educational institutions with close proximity to the universities' government departments. This will be a change from the type of locations of the four earlier presidential libraries. One important consequence should be a great increase in the number of users of these new libraries. With a larger number of users, there should be eventually more publications.

Staff and Holdings

Each of the libraries has a director who is an archivist. The libraries are as much archival depositories and museums as they are libraries. A Ph.D. in American history or a closely related field is required for the director. Most of the rest of the professional staff are archivists also. A Master's degree, or more, is required with emphasis in American history. There are also archival assistants who have high school diplomas or preferably Bachelor's degrees, and they do the more routine and clerical tasks thus releasing the archivists for professional duties. Each library has one professional librarian and a sub-librarian. There is also a museum curator for each.[12]

The director has the main responsibility for acquiring manuscripts. He must actively seek out papers and not just wait for donors to offer them. Consequently it involves a great deal of public relations work as well as a specialized knowledge in the subject field. The director should also be a real research scholar in order to work with and appreciate the problems of the researcher.

The holdings of the libraries are predominantly manuscript collections and these keep increasing in number. Each of the libraries also has a book collection, as well as pamphlets, serials, records, microfilm, tapes, and motion pictures.

Criticisms and Advantages

There has been a certain amount of criticism of presidential libraries. Some opposition comes from people who feel bigness is the yardstick of success—the bigger they are, the better. Others feel that by establishing these libraries, manuscript collections are being taken away from universities, historical societies, and other research centers.

Some researchers complain that not enough papers are open for use. In 1965, however, 90% of the papers at the Roosevelt Library were open for research.[14] Libraries must comply with the wishes of donors as to when the papers are available for research. For security reasons some remain closed.

Historians lament that the Truman papers are incomplete—too much is missing before 1940 and not enough available on foreign affairs during 1945-46. Some believe the former president is holding a quantity of them, perhaps doing some writing on his own. The Oral History Program was adopted to help fill the gaps.[15]

One prominent historian, Herbert Feis, has written:

> "A plentitude of records of recent times exists. But the historians cannot examine them until long after their pertinence has waned, their poignancy has faded. Customarily he must wait a generation upon the inclination of the executive who controls the papers, or his trustees, or the release from rigid rules of the official agencies in whose custody they are."[16]

In the presidential libraries there is no preferential treatment.

Some feel these libraries create undesirable decentralization of material, and that it should all be located in a place such as the National Archives or the Library of Congress.

There are people who think the libraries are mainly monuments glorifying "Great Men." President Roosevelt, however, did not want that. He strenuously objected to the use of "Memorial" in the name of the library. He wanted it devoted to material on his presidency, whether it be pro- or anti-Roosevelt.[17]

On the other hand, there are many advantages and satisfactions in the creation of the presidential libraries. Geographical decentralization, rather than being a drawback, can be a real benefit for various reasons, one being physical security. If one small place is destroyed by some catastrophe, all the others are not lost as well.

The research facilities being made available to scholars and students outside the eastern part of the country is of importance. The Middle West with three presidential libraries relatively close to each other now is becoming a major research center. The Lyndon B. Johnson Library will also be in the middle section of the country. This means a great deal to universities and scholars in that part of the United States. They can conduct research without having to travel to Washington, Boston, or elsewhere, and can save considerable time, energy, and money.

There are some real advantages in working in a small, quiet institution. The staff is specialized in its particular subject field and can devote considerable time to aiding the scholars who come. It is a convenient way for specialists doing research to get together with each other and learn what others are doing, as well as where other relevant manuscript collections might be located.[18] The physical facilities themselves are pleasant and relaxing. There usually are not too many people working at one time. The reading and research rooms do not have the hustle, bustle, and impersonality of some of the larger libraries.

Being in an environment closely linked to the particular president adds more to the understanding of the background of the man. The beautiful, peaceful setting of the Roosevelt Library at Hyde Park overlooking the Hudson River creates an emotional atmos-

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The author, Mrs. Wayne S. Cole, *is a graduate student in Library Science at the University of Maryland, College Park. This paper was prepared in conjunction with a project for a course in "Special Libraries." Several years ago the author had assisted her historian husband in his research at the Franklin D. Roosevelt Library at Hyde Park, and as a result she became interested in this type of library.*

phere quite different than one would get in going through his papers at the Library of Congress or National Archives. It is also possible, at least for a few years, to visit with friends and neighbors who actually knew the man. For instance, a first cousin of President Roosevelt worked for quite a while at the library. An older couple lived in Hyde Park who had been caretakers at the Roosevelt cottage for many years. The enjoyment of spending an evening with them was an invaluable experience and could not be duplicated in a manuscript collection. Before her death, Mrs. Eleanor Roosevelt frequently visited the library and museum, often taking visitors around the grounds and buildings. She also rode her little car in the small-town Fourth of July parade in Hyde Park. One cannot have such local color in places not closely associated with the president. President Truman, when he was in better health than he is at present, added much the same kind of excitement for the staff and researchers at the Truman Library.[19]

The success of the Roosevelt Library in permitting early opening and use of the president's papers helped persuade many government archivists and other custodians of private papers that it is not necessary to keep closed for fifty years or more the papers of government agencies and public figures.

Although these libraries are separately located, they did not spring up haphazardly. Each is in a place closely associated with the particular president and they are all under the auspices of the National Archives.

Conclusion

The innovation in research facilities brought about by the development of the presidential libraries has no doubt been extremely beneficial and pleasing to the majority of researchers using them. The libraries have been instrumental in encouraging active policies toward manuscript acquisition, actually contributing to friendly competition among the libraries in this respect. Of course, the most important and long-range consideration is the assurance that the manuscripts of the presidents and other donors will be protected, maintained, and made available for researchers in a proper manner and location, with specialists in charge of them. The libraries are a successful form of depository and, hopefully, through the years they will continue to spread and develop.

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The progress of the U.S. National Libraries Task Force is reviewed from June 1967 to June 1968. Ten working groups are now active in acquisitions, bibliographic codes, character sets, descriptive cataloging, generalized output, machine readable format, name entry and authority file, serials data program, subject headings, and systems. The directors of the three national libraries have accepted the recommendation to accept the MARC format. A set of standardized data elements is being identified for the control of serial literature. Descriptive cataloging practices have been examined in detail so as to achieve compatibility in such cataloging. A standard calendar date is being developed; and a comparative table of the three acquisition policies has been developed.

The U.S. National Libraries Task Force: An Instrument for National Library Cooperation

SAMUEL LAZEROW

THE JOINT ANNOUNCEMENT of the inauguration of the U.S. National Libraries Task Force was made on June 26, 1967 at the 86th Annual Conference of the American Library Association by L. Quincy Mumford, Librarian of Congress, Martin M. Cummings, M.D., Director of the National Library of Medicine, and Foster E. Mohrhardt, then Director of the National Agricultural Library. (Mr. Mohrhardt has since retired and has been succeeded by John Sherrod.) This announcement of a coordinated national library automation effort met with enthusiastic response from the beginning. Interest in it was stimulated at once and has continued. It is appropriate to review some of the highlights in the initial phases of this cooperative venture.

Mr. Lazerow *is chairman of the U.S. National Libraries Task Force. He presented this review of the work of the Task Force at the Second General Session of SLA's 59th Annual Conference in Los Angeles on June 3, 1968. Mr. Lazerow is chief of LC's Serial Record Division.*

The *broad purpose,* as defined by the directors of the three libraries in the beginning, is to "improve access to the world's literature in all areas of human concern and scholarship, so that comprehensive access to the materials of learning can be afforded to all citizens of the United States." *Specific goals* agreed upon by the three national libraries, as indicated in their joint announcement, were "the development of a national data bank of machine readable cataloging information" and a "national data bank of machine readable information relating to the location of hundreds of thousands of serial titles held by American research libraries," together with the continuing goal of achieving compatibility in as many areas of the three libraries' operations as possible.

This paper primarily reports the progress that has been made in relation to these specific goals, the paper will also briefly outline the mechanism adopted for pursuing these objectives. It is unfortunately not possible to present this story in dramatic terms or to record a miracle of instant change, but the foundation that has been established will

pave the way for the development and implementation in time of a variety of cooperative measures.

Under the chairmanship first of Stephen R. Salmon, now Assistant Director for Processing Services of the Processing Department, Library of Congress, the Task Force (composed of one member and one alternate from each of the three national libraries*) identified specific problem areas requiring detailed study and organized working groups to go into these problems in depth. Ten working groups are now active in the following areas:

1) Acquisitions
2) Bibliographic Codes
3) Character Sets
4) Descriptive Cataloging
5) Generalized Output
6) Machine Readable Format
7) Name Entry and Authority File
8) Serials Data Program
9) Subject Headings
10) Systems

All groups have made some progress. The chairman of each group is a national library staff member knowledgeable in the problem area concerned; the members of each group are staff having responsibilities in the pertinent areas in their respective national libraries. Determination of mission statements for each group was a first order of business. Meetings are held weekly or at the call of the group chairmen; some have found all day sessions to be profitable. The chairmen report to the Task Force in brief documentation or in oral presentations as requested. We are currently planning an all day session to hear reports from each working group chairman and to go into problems with each group.

The Task Force itself meets weekly for two or more hours. Some of the agenda items recently discussed illustrate the areas of present concern:

Common processing module for serial literature;
National library procurement and cataloging: Centralization? Decentralization? Shared? Other concepts?
Universal registration numbering code for serials;
Standard calendar date code;
Filing rules and questions of compatibility;
Hypothetical working system: Procedures and steps leading toward conceptualization of such a system.

An Advisory Committee, composed of representatives from major professional societies† meets with the Task Force as necessary to strengthen communications from the Task Force to the wider library community and to give us the benefit of other librarians' thinking with respect to coordinated national library automation programs.

By directing attention to the specific goals identified by the three directors, the Task Force began in December 1967 to examine the alternative general patterns that might be considered for a national library information system. As of this moment it appears that we are moving in the direction of a coordinated system involving three data stores compatible with each other. This would mean that the three libraries would have the capability of contributing to and extracting information from each of the three stores, and that they could each continue to produce from their own individual data stores the products and services needed by their special clienteles and thus fulfill their individual responsibilities as designated by statute.

Basic Data Needs

In February 1968 the Systems Working Group pointed out the need for more basic data about the collections, objectives, functions, services, and clientele of each of the three libraries as a foundation for further investigations and recommendations ultimately to be presented to the directors. As chairman I was asked to undertake this assignment. With the aid of documentation

* Task Force members, in addition to Mr. Lazerow, are Bella E. Shachtman, National Agricultural Library, and James P. Riley, National Library of Medicine. Alternates are Mrs. Henriette D. Avram, Library of Congress, Abraham Lebowitz, National Agricultural Library, Stanley Smith, National Library of Medicine. Mrs. Marlene D. Morrisey, Executive Assistant to the Librarian of Congress, serves as staff assistant to the chairman.

† The SLA Representative is Irwin H. Pizer, director of the library of the Upstate Medical Center, State University of New York, Syracuse 13210.

supplied by the three institutions a working paper was developed outlining the objectives and requirements of the three national libraries. This study confirmed our conclusion that the national libraries share responsibility for collections and services for a wide collective clientele: the library materials and the information contained in them in all disciplines, in all languages, in all forms, and from all parts of the world. The National Agricultural Library has the responsibility for agriculture and its allied fields, and the National Library of Medicine for the preclinical sciences and for medicine and related fields. The responsibilities of the Library of Congress extends to all fields of knowledge, but its cooperative acquisitions agreements with NAL and NLM defer to those institutions in respect to agriculture and medicine, respectively.

Responsibilities

The clientele served by each of the three libraries is similar, but with LC having special responsibilities to the Congress, NLM to the medical community, and NAL to the agricultural community. All of the libraries serve the general public, although other users may have higher priorities. Each of the three libraries serves other federal agencies, and each has responsibilities and cooperative arrangements with other libraries, federal and non-federal. All of them have international as well as national service responsibilities.

The services provided by each institution include use of collections on the premises, interlibrary loan, reference, bibliographic services, publications, photocopying, production of catalog cards, etc. Each library has varied specialized services related to various user groups.

The data submitted by the libraries have indicated that each national library has common purposes and services, that there is sound basis for continuing our compatibility studies, and that each library will expect any system to make available to each library and its clients bibliographic information on holdings.

Our Systems Group believes that solutions to the complex problems do exist, and the group continues to persevere in finding these solutions. However, the effort is handicapped by the lack of a sufficient number of trained people who can devote full time to this work for an extended period. Through the generous interest of the Council on Library Resources a system analyst has been assigned to this study, but other Working Group members are carrying additional responsibilities that cut into the amount of time they can spend on this detailed work. We are making every effort to solve this problem, but the difficulty of finding staff with the unusual combination of technical competence and librarianship is well known.

Importance of MARC II

Of basic importance to the systems effort has been the development of the MARC II (Machine-Readable-Cataloging) format, under the direction of Mrs. Henriette D. Avram, of the Information Systems Office of the Library of Congress, in cooperation with representatives of the other national libraries as well as of other institutions. This format, which reflects the requirements of each of the three libraries, is an outgrowth of the MARC Pilot Project, undertaken in February 1966 to test the feasibility of distributing LC cataloging data in machine readable form to a variety of users. Faced with the problem of keeping up with the rapidly increasing flow of new materials and the mounting demand for rapid information about these materials, librarians have felt that the development of a method for recording bibliographic information in machine readable form was basic to the solution of many library problems. In June 1965 a first draft of a format, based on standard cataloging practices and suggestions from experts throughout the country, was made available by the Library of Congress. In November 1966 the first experimental tapes were distributed to the libraries participating in the pilot project. On the basis of this experience the Library of Congress re-evaluated the pilot format with the result that a new format for the communication of bibliographic data, MARC II, was designed to serve not only the three national libraries but the entire library community as well.

Representatives from each of the three national libraries serving on the U.S. National Libraries Task Force and its Working Group reviewed the MARC format in terms of each library's individual needs and recommended that the national libraries adopt it as a standard format for the communication of bibliographic information. The directors have unanimously accepted this recommendation.

This adoption does not commit the institutions to include all the data elements described; each national library will determine individual implementation procedures.

The significance of this format and its acceptance by the three national libraries of the United States can perhaps best be illustrated by the following comparison. Just as there has been for many years an accepted standard format for the printing of bibliographic information on the traditional catalog card, including the positioning of the data and the typeface used, the MARC II format will now make it possible for bibliographic components to be identified uniformly through computer manipulation. This means that a tape can be produced in a standard format that will be intelligible to any computer programmed to accept it. This will enable the output of the three libraries to be utilized in the development of bibliographies, union lists, and other products and services. Furthermore, other libraries will be able to merge their own tapes with the MARC product without the expense of separate programming.

Agreement on this format, therefore, is a positive demonstration of the mutual desire of the three national libraries to extend the usefulness of their collections and services through the application of new technological capabilities wherever economically feasible, and it opens the way for further extensions throughout the library and scholarly communities. Thus the adoption of MARC II by the three national libraries will facilitate the exchange of cataloging data and bring the creation of a national data base of library cataloging information in machine readable form one step nearer reality.

National Serials Data Program

A second major goal toward which priority attention is being directed concerns the National Serials Data Program, where the three libraries have joined forces for the purpose of creating a national data base of machine readable information identifying the content and location of the serial titles in research libraries. The ultimate aim is the creation of a computer based tool that will be of enormous assistance to scientists and other scholars throughout the world.

Under the guidance of Mrs. Elaine Woods (Library of Congress) a set of standardized data elements is being identified for the control of serial literature. A contractual study on the interest and needs of users is under way, including an assessment of the needs of the three national libraries. This work will lead to the development of a definitive format for the identification, location, and service of serial literature, and the pre-design of an automated system.

The significance of serial literature to all scientific and technological research as well as to studies in the social sciences and humanities need not be emphasized again. Nor do I need to dwell on the extraordinarily difficult complications involved in the control of serials—the constant fluctuations of data elements because of the difficulty of identifying and describing serials, the frequent changes in titles of publishers, the constant updating, etc. Computer technology offers an exciting opportunity to gain more adequate control over this changeable material if we can arrive at common data elements and a standardized format.

The Working Group on the National Serials Data Program is making a strong effort to identify common functions and data elements in the control of serial literature at the three national libraries. Cost benefit studies will evaluate the cost of including specific data elements in a central control record in relation to their real value. Throughout its work this Working Group is continually aware of the large task it has undertaken. It is an assignment even more difficult than the development of MARC I and II. In MARC we had the printed catalog card as a basis for the initial format. In the serials program the basic record must first be developed, and it is this initial work that has consumed most of the time of this project this year.

The very large area of technical report

literature also presents monumental problems; our work here is just beginning. The elements required for adequate control of this literature are different and in some respects are even more complicated than in the serials area.

Additional Compatibility Problems

Among the compatibility problems to which special effort has been given, the following are of particular significance:

1) *Descriptive cataloging* practices in the three national libraries have been examined in detail to identify variations in practices and the degree of such variations. As a result of intensive work by cataloging administrators in the three libraries, under the leadership of Emilie Wiggins (NLM), recommendations were submitted early in 1968 to the directors for achievement of compatibility in descriptive cataloging practices. In some cases these recommendations required changes in practices in one institution to conform with practices followed by the other two. In other instances the recommendation involved reconsideration of the standard cataloging rules by other appropriate national groups. The directors approved the actions proposed; in so doing, they signified their willingness to change some of their practices in the interest of achieving a higher degree of compatibility among the three systems. The basic thinking leading to the resolution of these compatibility problems came from principal cataloging officers in the three national libraries, a fact that has contributed to our ability to get at the heart of compatibility problems quickly and to find practical methods of resolving differences.

2) On the basis of a pilot study on the *structure of authority files* in each institution, it has been determined that a mechanized central authority record file would be useful. The difference in size of the present authority files of the three libraries is an important consideration. We hope, however, that the findings of a full scale study will provide a factual basis for the policy decisions necessary for a joint effort in this area.

3) A proposed *standard calendar date code* is being developed by the Working Group on Bibliographic Codes. It is believed that such a code would provide a standard way of representing calendar dates in the data processing systems of the national libraries and may be a particularly beneficial reference for application in data interchange operations between federal agencies, where its common usage will eliminate the confusion caused by the many different representations of dates. Language codes and publisher codes are also under study by this group.

4) Some solid progress can be reported on the *acquisitions* front. A comparative table of the acquisitions policies of the three national libraries has been developed. This working document, based on the LC classification schedules, identifies the classes and subclasses in which the three libraries are collecting and the intensity of the collecting (exhaustive, research, reference, minimal). Later it is planned to bring non-book materials into the scope of this survey.

The Working Group on Acquisitions will identify areas in which the comparative table no longer reflects current practice and will review levels of coverage to identify areas, if any, in which none of the three libraries collects at either the exhaustive or the research level. It will review levels of coverage to ascertain which library should have primary responsibility for collecting retrospective materials in areas in which two or more libraries are currently collecting intensively. Any major areas of overlap will be identified. Attention will be given to the need for recommendations directed at achieving more coordination of information and cooperation in acquisitions programs.

5) *Subject headings* present very critical problems, and some librarians are melancholy about compatibility possibilities here. I hold the view, however, that this is an area which cannot be overlooked in our search for compatibility. Some progress has been evident and I am hopeful that there will be more.

No Illusions

Neither the directors nor the Task Force are under any illusions that the initial objectives can be achieved overnight. While

we are striving for standardization in technical procedures and policies as soon as sound, realistic recommendations can be developed, it is recognized that behind every technical recommendation there must be hours and days and weeks of the most careful consideration of every element of the problem and minute examination of all possible alternatives for achieving compatibility. There are bound to be many obstacles encountered in this effort, but only with this detailed study can a solid foundation be constructed. After all, traditional library policies and practices have existed for a long time.

I personally feel a serious responsibility, shared by my colleagues, that any modifications made in order to take advantage of fast moving technological innovations must be based on thorough investigation of alternative choices and full consideration of the validity of new paths. The success or failure of a library information system is, after all, measured by the degree to which its materials, services, and products are available for use and the extent of this use. The directors of the three national libraries are fully cognizant of this, and the U.S. National Libraries Task Force shares their dedication to uncovering every potentially useful instrument that can assure deeper library cooperation and revitalization of library resources and services.

Perhaps the really remarkable factor in this total program is the commitment that each of the three national libraries is making by joining together in a cooperative undertaking of this magnitude. From January to June 1968 these institutions have devoted the time of some of their most talented staff to this combined program. It is perhaps the largest effort, in terms of man-hours expended, toward national library cooperation ever undertaken by these institutions. The directors have made this commitment because they understand that only by detailed consideration together of these technical problems will a workable national system ever evolve. Their decision to pursue the feasibility of attaining compatibility in their automation programs rather than moving toward separate incompatible systems, with all the duplication of effort and expenditure that such a policy would imply, will have important consequences for all libraries in future generations.

Flexibility Is In—Reluctance Is Out

Librarians have long been criticized for their reluctance to give up their traditional ways of operating. The three national librarians are showing their departure from this pattern and their disposition toward flexibility and imaginative response; the Task Force, with their support, intends to press forward in the search for a breakthrough to the resolution of long standing differences in library policies and practices in order to achieve the required compatibility. It may well be that this joint effort represents the most forward cooperative step in recent library history and one which will inevitably have lasting benefits for the total library community, as well as offering challenges for today's and tomorrow's special librarians.

In July 1966 the Institute for Advancement of Medical Communication began work on a project aimed at developing methods for collecting objective data suitable for planning and guiding local, regional, and national programs to improve biomedical libraries and the biomedical information complex. Among the methodologic tools that have resulted from this work are objective tests of a library's capabilities for delivering the documents its users are likely to need, for verifying citations of such documents, and for answering questions of "simple fact." To the extent that the test conditions simulate operating conditions, the tests evaluate performance of these three basic types of library service. In a series of field trials, materials appropriate for testing academic libraries that serve biomedical researchers have been developed and assessed for reliability and practicality. These materials are also suitable for non-academic libraries and information services serving a biomedical research clientele, and the principles upon which the tests are based can be used to develop test materials appropriate for libraries serving other types of clientele. In addition to these tests, the project's results include a number of other methodologic tools that may be useful for planning and managing special libraries.

Objective Tests of Library Performance

IRWIN H. PIZER and ALEXANDER M. CAIN

IN THE PAST MANY LIBRARIANS have been concerned with evaluating their libraries for a variety of reasons, such as improvement of service, justification to management, and budget preparation. Traditionally, the principal method of gathering quantitative data for evaluation has been simple counting —for example, counting volumes, items circulated, loans and number of visitors. All of these counts, although the things and activities enumerated are eminently countable, in fact pose some well known problems of interpretation. Even more difficult to interpret are descriptive data on the services a library offers. The librarian may set forth his services in a users' guide or in his annual report; however, not only is customary terminology on library services vague, for example, "reference services", but also there is often a wide gap between the intentions represented by stated policy and actual performance. On the other hand, if the librarian seeks to evaluate library performance "objectively" by a questionnaire asking users for impressions of library service, the results of such surveys are commonly violated by an inadequate number of responses, the tendency of some users to be less than candid while others are belligerent, and many other factors including the phenomenon of users' expressing personal opinions about services they have actually not tried. It seems that libraries are such an accepted part of our cultural pattern that no one wants to look like a non-conformist who does not take advantage of their services.

A Project to Develop Better Methods

Is it possible to develop better methods for evaluating a library? We believe that it is. For the last two years, we have been collaborating with the Institute for Advancement of Medical Communication on a project funded by the National Library of Medicine and aimed at developing methods for collecting objective data suitable for planning and guiding local, regional, and national programs to improve biomedical li-

Irwin H. Pizer *is director of the library at the Upstate Medical Center, State University of New York, Syracuse. Mr. Pizer is also associate professor of medical history.* Alexander M. Cain *is library systems analyst at SUNY/Upstate. Dr. Cain had been a member of the British Museum staff before moving to Syracuse.*

The material covered in this paper was presented to the Pharmaceutical Division on June 5, 1968 during SLA's Annual Conference in Los Angeles. The study was funded by U.S. Public Health Service Contract PH 43-66-540.

braries and the biomedical information complex.

The development work was divided into some 15 "tasks" dealing with measures of various library services and of characteristics of library user populations. Although developed primarily for academic medical libraries, many of the techniques resulting from this work are also applicable to other types of libraries. Details of these methods are being reported elsewhere in a series of articles.* The purpose of this paper is to summarize briefly some of the results that may be of particular interest to special librarians.

A Document Delivery Test

The primary objective of most special libraries is to provide users with the information they need in the shortest possible time. As one means to this end, the library acquires, catalogs, stores and circulates items of recorded information, which we will refer to generically as "documents" regardless of form or issuing body. It also obtains items not in its collection on demand. In developing an objective test of a library's capability for providing the documents its users need, the best criterion for assessing this capability seemed to be the speed with which these documents can be provided. The main problem was to establish samples of such documents that could be used in a practical and realistic test.

For assessing academic medical libraries on a national basis, this problem was resolved by drawing random samples of 300 items from a large pool consisting of documents cited by U.S. biomedical researchers. After the citations for these items had been verified and corrected as necessary, the essential elements of each citation were entered at the top of a Document Delivery Sheet, such as that shown in Figure 1. The test was designed to be administered by professional librarians who visit the libraries to be tested, simulate a user, and search the collection for each of the items in a test sample. The search involves not merely ascertaining that a library is supposed to own an item but also, if the item is owned, categorizing its actual availability at the time of the test by answering the questions outlined on the Document Delivery Sheet and recording the answers on this form. In scoring the test, each of the 18 possible outcomes of a search is translated into an estimate of how long it would take for a user to obtain this item, that is, the "delivery time". For items that are not owned, the library's own records on borrowing from other libraries are used to estimate delivery time. The average delivery time for all items in the test sample is then employed to calcu-

* This work is reported in full in a series of articles; and the statistical material, developmental data and all other detailed documentation have been deposited at the National Library of Medicine. These may be consulted upon application. See: ORR, Richard H., et al. Development of Methodologic Tools for Planning and Managing Library Services. Part I. Project Goals and Approach. *Bulletin of the Medical Library Association,* v.56: p.235-40 (July 1968). Part II. Measuring a Library's Capability for Providing Documents. *ibid.* v.56: p.241-67 (July 1968). Part III. Standardized Inventories of Library Services. *ibid.* v.56: p.380-403 (Oct. 1968).

late a Capability Index, which ranges from a perfect score of 100, if a user could have obtained all the items in 10 minutes or less (that is, all items were on shelf), to 0 if none could have been obtained in less than one week.

Test procedures were refined in a series of pilot trials at the libraries of Wayne State Medical School and of SUNY Upstate Medical Center; then field trials were conducted at five other medical schools, a hospital library, and a large professional society library. The field trials demonstrated that a test with a sample of 300 items could be administered in a few hours and that, with a test sample of this size, one could have 95% confidence that the Capability Index for a given library would not vary more than $\pm$ 5 points on repeated tests with different samples, unless its capability had actually changed. After these trials, the test was ready for definitive use; and during March and April 1968 it was administered at all medical school libraries in the U.S. as part of a national survey conducted by the University City Science Center of Philadelphia under contract from the National Library of Medicine.

In the survey, the test was always administered by a librarian not associated with the institution being tested, and scoring was done by computer. However, experience has shown the entire procedure can be carried out by a library's own staff since the test materials include explicit instructions for carrying out this test and scoring it manually. The test samples currently available are appropriate only for libraries serving biomedical researchers, but it is hoped that others will develop samples suitable for libraries serving different types of populations.

The Capability Index based on this test would seem to have greater validity for evaluating a library's collection than the traditional volume count in that it reflects the differential value of material most likely to be needed by the library's user population. Furthermore, by giving credit for obtaining interlibrary loans rapidly, the Capability Index recognizes today's situation where a library does not necessarily have to own documents to satisfy the needs of its readers, but can draw upon the resources of other libraries in its region or network.

A Test of Interlibrary Loan Service

An analogous test was developed to measure a "reservoir" library's capability for filling interlibrary loan requests from biomedical libraries. The test sample consists of a random selection from all interlibrary loan requests received by the National Library of Medicine during one year. When supplemented with data obtained by a method developed to determine the time actually required to process interlibrary loan requests (see Figure 2), this test provides a realistic measure of a service that is assuming ever-increasing importance. In the course of the national survey previously mentioned, this second test was administered to 15 academic and professional society libraries that currently provide interlibrary loans to biomedical libraries in various sections of the country.

Inventories of Library Services

A somewhat different approach was followed in devising a method for characterizing the total range of services a library offers to its users and the policies relating to each of these services. A highly standardized inventory procedure was developed in which the head of a library is interviewed following a guide that specifies branching question sequences to elicit "yes" or "no" answers, very much in the manner of a systems analysis flowchart. Figure 3 illustrates two of the 54 sections in the Interview Guide, which covers almost any user service that a library may offer including loans, copying services, reference services, provision of work space for users, instruction, editing, translating, etc. The interview, which requires 1–2 hours, also determines how service policies vary for different user categories. Instructions for recording the data on a Checklist (Figure 4) are also given in the Interview Guide.

Assigning numbers to weight the inventory data so the results could be summarized as an index or score was more difficult than in the case of the document delivery test. Exploratory studies indicated that librarians often disagreed on the relative values of different services and policies, and that users' values could be markedly different than li-

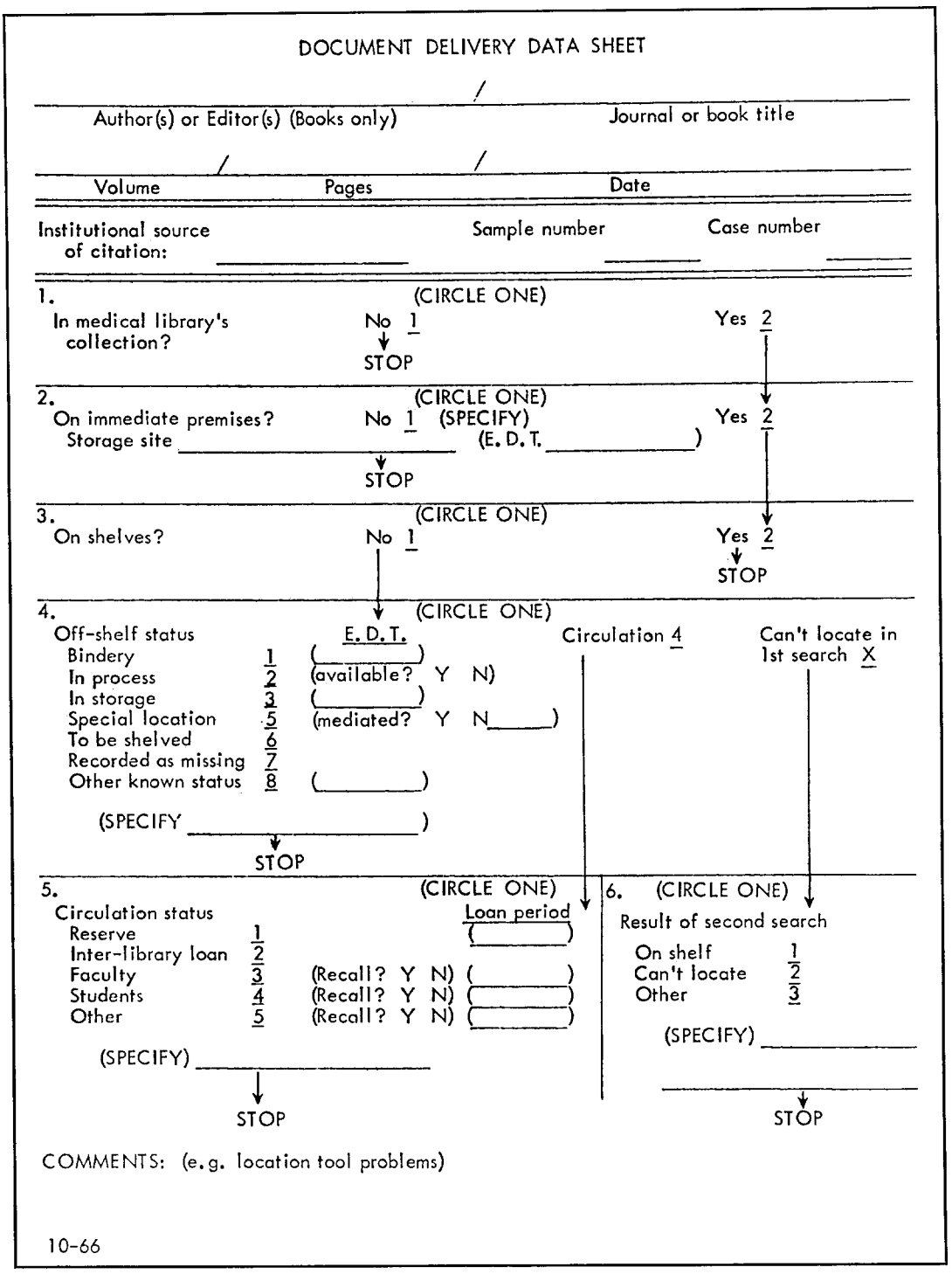
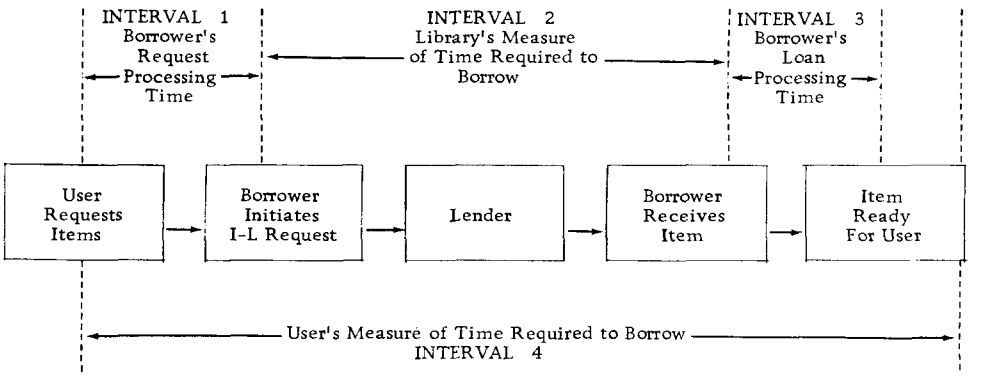


Figure 1. Document Delivery Data

I-L BORROWING DATA NEEDED FOR DDT

For *each* of the *last* 50 consecutive items borrowed by the library *either as originals or as facsimiles:*

1. *Date user made request*--the date desired is when he asked the borrowing library to obtain the document, not when the borrowing library filled out the I-L request (or made request by phone or TWX).
2. *Date item was ready for user*--the date he was told it was ready for him to pick up; not the date the borrowing library received it.



With these 2 dates for each of the 50 items, one can calculate the median time for Interval (4), which is needed for scoring the DDT. However, many libraries, if they log outgoing I-L requests and incoming loans, record only the dates that determine Interval (2). When no log is kept, only the dates on I-L request forms are available, and these also relate to Interval (2). In all cases where dates suitable for calculating Interval (4) are not available, note this fact, record the 50 pairs of dates relating to Interval (2), ask the library how many *working days* are *most often* required for Interval (1), record the estimate, ask how many *working days* are *most often* required for Interval (3), and record the latter estimate.

Figure 2. Interlibrary Loan Data

brarians' values. Rather than settling on a particular weighting scheme that others would rightly consider to be essentially arbitrary, the project team devised a general method that can be used to establish a weighting scheme reflecting the values of whatever group one feels to be most appropriate for the purposes the scores are intended to serve.

Trials of the inventory procedure were conducted, first at the medical libraries of Wayne State Medical School and SUNY Upstate Medical Center, then at other academic libraries, to refine the procedure so that data obtained by different interviewers would be comparable and that interviewers could be trained quickly. Then the inventory was carried out at all academic medical libraries in the U.S. as part of the national survey described earlier. For the survey, a similar, but less completely standardized, inventory was developed to cover the services that reservoir libraries offer to other libraries. Figure 4 shows the first four sections of the Checklist for the inventory of "interlibrary" services; these particular sections relate to the scope of interlibrary loan services, types of requests honored, and policies on

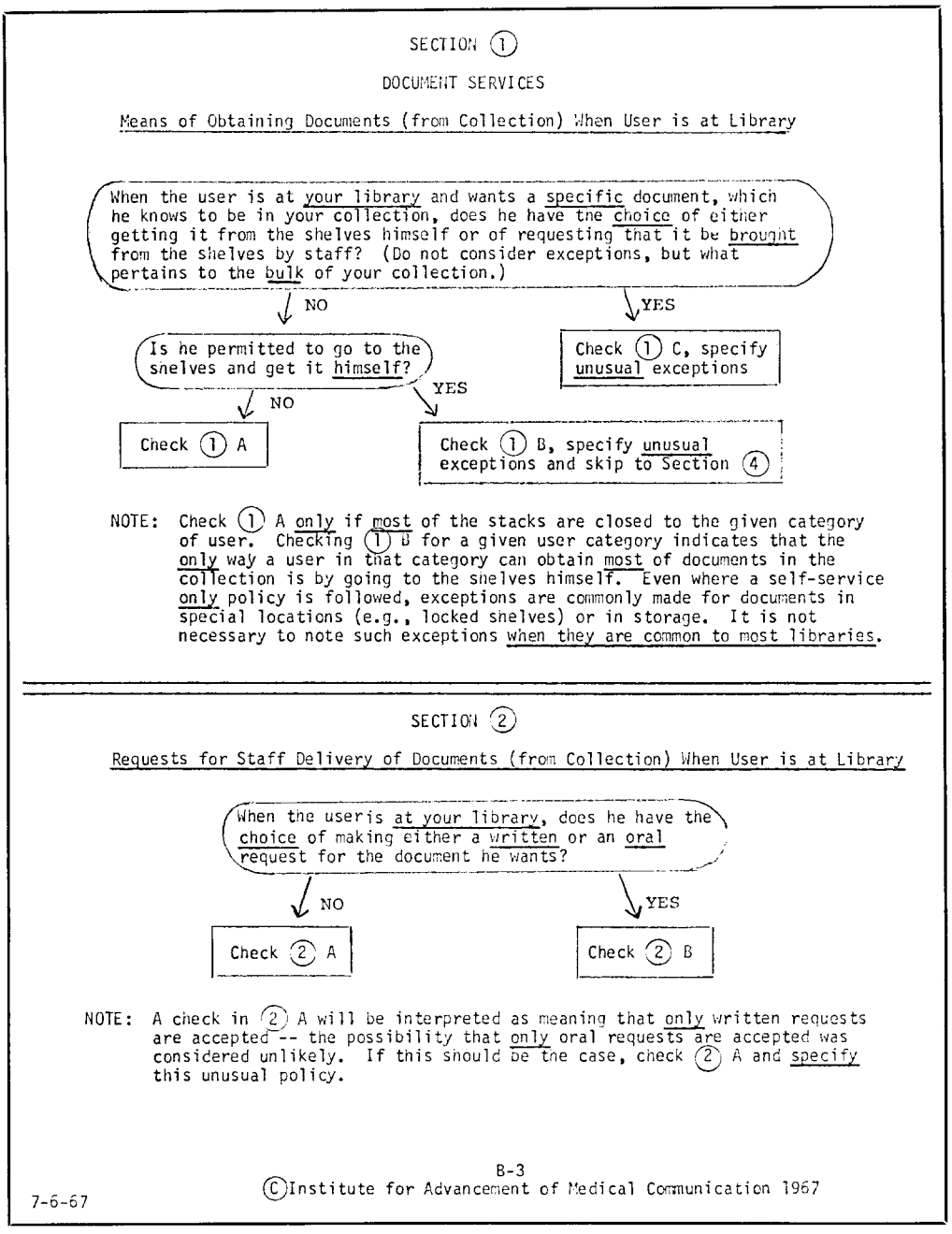


Figure 3. Standardized Interview Form

verification of citations on loan requests. Since a reservoir library's policies may not be the same for all the libraries that avail themselves of its services, separate columns are provided for recording data on different types of libraries.

Whether inventory data are converted into scores or left in their original form, the results will be very useful to the administrators of libraries covered in the national survey and the heads of similar libraries. They will be able to compare their services and policies

with those of others more systematically than was possible before, and to consider whether there are service areas they should attempt to improve. However, since the inventory is applicable to any type of library and can be self-administered by librarians or users "interviewing" themselves about the policies of their library, it is a flexible tool with many other uses. It can be employed for personnel relations, enabling the staff to see more clearly the policies of the library and the underlying principles; it can serve as a tool for improving relations between the library and users in that, by studying the answers users give, the librarian can see what users imagine the library is prepared to do for them and what misconceptions they may have. It is, further, a self-instructional tool enabling the librarian to become aware of what is going on in his library and to pinpoint problem areas in policies and operations; indeed it can be employed in library schools as a teaching device, as was demonstrated by trials at Syracuse University and other library schools in 1967-68.

Tests of Capability for Basic Reference Services

Verifying citations for users is one of the basic reference services. The project team developed simple tests of a library's capabilities for this service. In preparing materials for the document delivery test, many incorrect or incomplete citations were encountered. Random samples of these faulty citations are used for the citation-verification tests. A test sample of 50 such citations is given to a member of the library's reference staff, who verifies as many as possible within a 4 hour period; the test is scored on the basis of how many citations were verified correctly within this time limit. Then the library's holdings of bibliographic tools for verifying citations are assessed using a Checklist of all secondary sources known to permit verification of the test sample citations, and a score is calculated to indicate what the library's capability would be if the full potential of its bibliographic tools were realized. The difference between scores on these two tests may be interpreted as a crude measure of the skill and efficiency of the reference librarian in utilizing the library's bibliographic resources.

Analogous tests were also developed to measure capabilities for another basic reference service—answering questions of "simple fact". Subject matter experts and medical librarians reviewed a random sample of the documents in the pool from which samples had been drawn for the document delivery test. For each document, they tried to formulate one or more questions of simple fact that the author would probably have had to look up, or ask someone about, during the course of the work reported, or when writing the document. After eliminating all questions that could be answered authoritatively by referring to a single secondary source, such as, a handbook, directory, or standard text, the remaining questions were put into a pool, from which test samples were drawn randomly. These tests are administered and scored like the tests of citation-verification capabilities.

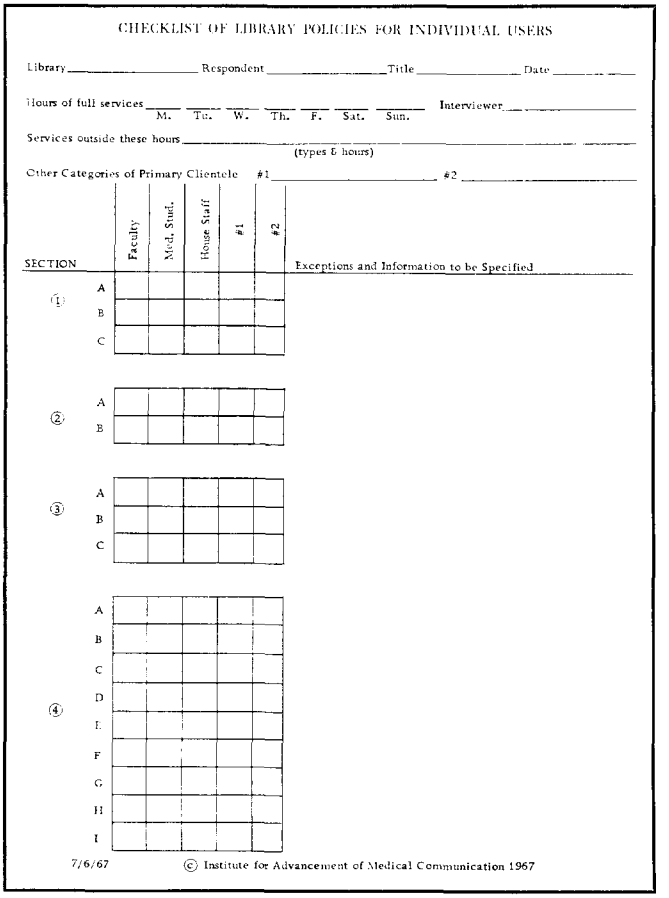
Trials of the citation-verification and question-answering tests were carried out in academic, industrial, and hospital libraries to assess their practicality and reliability. Unlike the methods described thus far, these tests were never intended for use in a national survey, rather they were designed primarily for library self-assessment. A library's administrator can employ these tests to assess his collection of bibliographic and reference tools and the skill of his staff in using these tools. They can also be useful for "in house" training programs. Although the present test materials are appropriate only for libraries serving biomedical scientists, materials suitable for testing other libraries can be prepared by anyone willing to make the effort.

Time Sampling Techniques

Some library services have been particularly resistant to objective measurement, and even simple counting has required so much effort that few libraries attempt to record the number of times the service is utilized, except perhaps for short periods on a special-study basis. For example, at a busy reference desk, keeping a total count of inquiries by type of question and type of user requires a

material investment of the reference librarian's time; and one can rarely be certain that the records so produced actually reflect total service since there is a strong tendency for the types of questions that can be answered quickly to be under-recorded. Other examples are the important services of maintaining tools and facilities that clients may use themselves, such as, provision of work space for users, current journal shelves, and "public" catalogs. One project task was aimed at developing more practical and reliable methods for assessing utilization of such hard-to-measure services.

Time sampling techniques proved to be the answer to many of the problems. Electronic devices about the size of a cigarette package that buzz at random time intervals are given to appropriate members of the library staff, who record specified data on a simple form each time the device buzzes. At SUNY Upstate Medical Center we used these devices to assess utilization of our card catalogs, seating facilities, and the public set of *Index Medicus,* among other things. In exploratory trials at other libraries, the "random alarm devices" were employed to measure volume and types of reference questions. For most purposes, only a few observations need be made each day; and the observations should require only a few minutes of staff time. When further refined, these techniques promise to make it practical and routine for library administrators to have data that either could not have been obtained at all by traditional methods, or would have required an inordinate amount of staff time to collect.[1]



CHECKLIST OF LIBRARY POLICIES FOR INDIVIDUAL USERS

Library _____ Respondent _____ Title _____ Date _____

Hours of full services _____ _____ _____ _____ _____ _____ _____ Interviewer _____
M. Tu. W. Th. F. Sat. Sun.

Services outside these hours _____
(types & hours)

Other Categories of Primary Clientele #1 _____ #2 _____

SECTION		Faculty	Med. Stud.	House Staff	#1	#2	Exceptions and Information to be Specified
①	A						
	B						
	C						
②	A						
	B						
③	A						
	B						
	C						
④	A						
	B						
	C						
	D						
	E						
	F						
	G						
	H						
	I						

7/6/67 © Institute for Advancement of Medical Communication 1967

Figure 4. Library Policy Checklist

Conclusions

The work reported very briefly here has resulted in a battery of tests and methods that are now available to librarians as tools for assessing the performance of their library objectively. These tools serve to clarify the picture of library services, enable the administrator to compare his services with those of another library in directly comparable terms, and provide a means of establishing baselines against which he can measure progress toward improved services.

Reference

1. *Annual Report 1967-1968,* SUNY Upstate Medical Center Library. *Library Bulletin,* v.8: Suppl. 2, p.32-34, 62-68 (Sep. 1968).

Research in the agricultural sciences is recognized as being of urgent importance if the food needs of the world's increasing population are to be met. To find the information their work requires, agricultural scientists and the librarians who serve them rely on several widely used subject indexes. A comparison of four of the most frequently used of these shows some surprising differences in their selection of index terms and raises questions about the validity of rules for subject indexing. For retrospective searching the agricultural librarian may find the publications of the British Commonwealth Agricultural Bureaux more consistently helpful than indexes prepared in the U.S.A.

Agricultural Information: Can You Find It with the Index?

MARCIA BYSTROM

WHEN THE PRESIDENT'S SCIENCE ADVISORY COMMITTEE published the Report of its Panel on the World Food Supply[1] last year, the panel repeated and stressed a warning that scientists had been sounding for over a decade: "Research and education at a greatly expanded level are absolutely imperative to provide the basis for increasing the production and utilization of food . . ." With hunger shadowing two-thirds of humanity, world leaders are becoming aware of the urgent importance of acquiring and disseminating information on plants, soils, fertilizers, and their complex interrelationships.

Agricultural scientists, like all scientists, depend on the journal literature to provide the background information and essential facts for continuing research. Those who have access to a strong library or information center are likely to rely on a reference librarian or information specialist to help them find the data they need to support their work. The librarian, in turn, faced with more than 12,000 serials which publish information relevant to agricultural research,[2] must depend on the abstracting and indexing services to guide him to the information his patrons need.

"Agriculture is well served by such journals," wrote J. R. Blanchard and Henry Ostvold in *The Literature of Agricultural Research,* adding that the United States has no abstracting journal devoted exclusively to agriculture.[3] This lack may be the reason for Blanchard's observation elsewhere[4] that *Biological Abstracts* and *Chemical Abstracts* receive more intensive use in agricultural libraries than reference tools covering only the field of agriculture. In addition to the indispensable *BA* and *CA,* the principal English-language abstract journals serving the agricultural research worker are the nineteen

Mrs. Bystrom *has been associated with the Tennessee Valley Authority's Technical Library at Muscle Shoals, Alabama, since 1961. The Library serves the Office of Agricultural and Chemical Development and other TVA divisions in north Alabama.*

publications of the Commonwealth Agricultural Bureaux, one of which, *Soils and Fertilizers,* has been used in compiling this report.

Soils and Fertilizers indexes more than 1,260 serial titles.[5] The bimonthly issues are not indexed, but the abstracts are grouped into rather narrow subject fields.

Of the two principal U.S. index services to agriculture, the H. W. Wilson Company's monthly *Biological and Agricultural Index* surveys only 148 of the better-known English language journals.[6] *Bibliography of Agriculture,* which indexes the comprehensive holdings of the National Agriculture Library, covers more than 8,000 serial titles[7] and averages more than 9,000 entries in each monthly issue. Since 1967, a key word subject index has made the monthly listings more accessible to the searcher. However, the annual index to *Bibliography of Agriculture* remains one of the least informative and most time consuming to use of that of any major reference tool in most libraries, as the examples below will indicate.

Ease of use is important, but it is not the first criterion by which an index is evaluated. The reference librarian values most the tool which leads him most readily to the fact he wants to know, or which rewards his systematic search with the greatest number of valid references.

How valuable, judged by these standards, are the indexes at the service of the agricultural librarian? Can he rely on them to lead him to the information he needs? There are, of course, no categorical answers. At best indexing is, as Julian Smith wrote, "a guessing game of indexers and searchers,"[8] where the hazard is that indexers cannot always anticipate the kind of information users will require.

In spite of this admitted uncertainty, rules for compiling subject indexes have been formulated and published,[9,10] implying that the hazards can be tempered by the advice of experts. If indexing is—at least to some extent—a skill whose precepts can be communicated, it is reasonable to expect a fair degree of consistency among subject indexes. Because earlier studies on technical indexes have found this degree to be not very high,[11] we thought it worthwhile to see what the agricultural librarian might expect from the indexes he has to use.

The comparisons reported are of subject indexes. *Biological Abstracts,* which is word-indexed by computer, is therefore not included, although its usefulness to the agricultural scientist is unquestioned.

A Hazardous Journey

Comparing indexes is fraught with the same hazards as preparing them. Success depends on a meeting of minds that is subject to many uncertainties. In making the comparisons that follow, we searched each index for what seemed all reasonable entries for each article. But, as Norman Fisher observed, with data as with things, one man's junk may be another's treasure.[12] So it is acknowledged that the journal indexer may have listed terms whose significance failed to impress the searcher and which have therefore gone unrecorded here. Every word found in the index of any source was sought in all.

No claim of statistical relevance is made for the small sample reported. The articles are considered to be typical of those published in the broad field of soil science and plant nutrition during 1965-66. This area was selected because, according to Blanchard and Ostvold, "The literature of soil science is unusually well documented and indexed."[13] Three of the four samples deal with nitrogen, because using them gave us a chance to compare the commercial indexes with one prepared by a soil scientist and the author for a large bibliography of abstracts on the use of ^{15}N in agricultural research.[14]

The ^{15}N bibliography was compiled to serve as a reference tool for agricultural scientists studying nitrogen reactions in soils and plants. It was indexed especially to serve their needs, with terms carefully selected to make the work of maximum usefulness to the research scientist.

In searching the commercial indexes for terms used for the sample articles, we had in mind the rules made by—and for—professional indexers,[9,10] foremost among which are: *1)* index new information, and *2)* index the most specific term justified by the document. *CA,* in addition, stresses the importance of recognizing the author's purpose, his point of view, and new or modified methods used in obtaining the data. Four examples are presented.

Example 1. MAYLAND, H. F. and MCINTOSH, T. H. Availability of biologically fixed nitrogen-15 to higher plants. *Nature (London)*, v.209: p.421-22 (1966).

Soils and Fertilizers

Algae
  nitrogen fixation by crust spp.
Grassland
  nitrogen fixation by algal-crust organisms in
Nitrogen fixation
  by algal-crust organisms
Nitrogen-fixing agents
  algal
Nitrogen isotope
  nitrogen fixation studies

Chemical Abstracts

Artemisia
  nitrogen fixation in nutrition of
Nitrogen fixation
  in *Artemisia* in nutrition

Bibliography of Agriculture

Algae
  in soils
  nitrogen fixation
Nitrogen fixation

^{15}N Bibliography

Algal crusts
  nitrogen fixation by
Mineralization
  in algal crusts
Nitrogen fixation, nonsymbiotic
  by algal crust organisms
Recovery of nitrogen by plants
  from algal crusts

Biological and Agricultural Index does not index *Nature*. The annual permuted title subject index of *Nature* records this article as follows:

Nitrogen-15 to higher plants: availability of biologically fixed;
Plants: availability of biologically fixed atmospheric nitrogen-15 to higher.

The *Chemical Abstracts* subject index to vol. 64 contains the terms Algae—nitrogen fixation by; Nitrogen fixation—by algae, and Nitrogen—isotope of mass 15; none of which was selected by the *CA* indexer as appropriate for this article, although all of the other sources used at least two of them. The *CA* indexer apparently felt bound by the very explicit rule of his journal to index the term *Artemesia* (*sic: Nature's* spelling), although the article does not indicate that the kind of grass present was significant to the investigation. Only *Soils and Fertilizers* saw fit to indicate that the study was carried out with the nitrogen isotope. (This would not be indicated in the ^{15}N index, of course, as all its entries pertain to the use of nitrogen-15.)

Example 2. CHU, J. P-H. and KNOWLES, R. Mineralization and immobilization of nitrogen in bacterial cells and in certain soil organic fractions. *Soil Science Society of America, Proceedings*, v.30: p.210-13 (1966).

The farmer's land power is built up by the addition of organic matter as well as important nutrients in the form of commercial fertilizers. As world-wide needs for agricultural products increase, the time lapse between the scientific literature and the farmer must decrease.

Photos courtesy of New Holland Division, Sperry Rand

Soils and Fertilizers

Humus
  immobilization of soil N in
Mineralization
  of soil nitrogen, "priming effect"
Nitrogen in soil
  immobilization by bacterial cells
Nitrogen isotope
  nitrogen cycle
    immobilization studies
  nutrition studies

Chemical Abstracts

Pseudomonas
  nitrogen metabolism by
Soils
  nitrogen immobilization and
    mineralization in

Bibliography of Agriculture

Nitrogen
  in soils
Soils
  bacteria

Biological and Agricultural Index

Humus
Soils
  nitrogen content

^{15}N *Bibliography*

Distribution of immobilized N
  in bacterial cells
Mineralization
  in bacterial cells
  of added N
  priming effect
Nitrogen distribution
  in soil organic matter
    immobilized N

The journal itself indexes this article:
  Nitrogen
    inorganic
      mineralization and immobilization in bacterial cells and in certain soil organic fractions
  Organic fractions soil, mineralization and immobilization of N in bacterial cells.

Again, the *CA* indexer lists the term "Pseudomonas," even though there is no evidence presented that the processes described are specific to that genus. The index to vol. 65 of *CA* uses the terms Nitrogen—in soils; Nitrogen—isotope of mass 15; and Humus; but these were not selected by the indexer. It is interesting that only two of the commercial index sources referred this article to a main heading "Nitrogen." Including this article, there are 54 entries in the 1966 subject index to *Bibliography of Agriculture* under the heading "Nitrogen—in soils." Of these, only a few deal with mineralization and immobilization, and only this one refers to immobilization of N in bacterial cells. There are 78 entries under the heading "Soils—bacteria," of which only seven refer to mineralization of nitrogen; thus, there is a long search for the specialist.

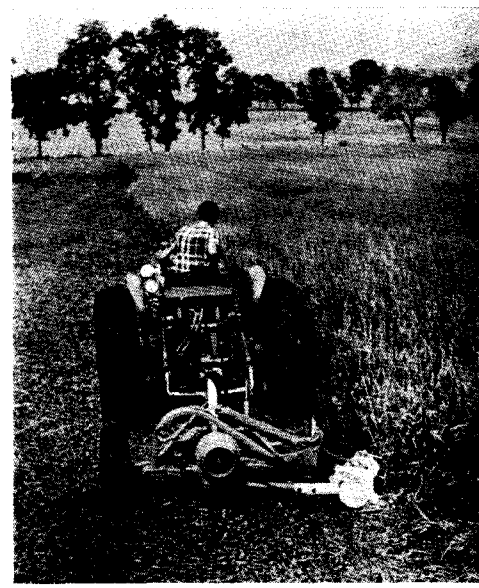
Example 3. BARKER, A. V., VOLK, R. J., and JACKSON, W. A. Effects of ammonium and nitrate nutrition on dark respiration of excised bean leaves. *Crop Science,* v.5: p.439-44 (1965).

Soils and Fertilizers

Ammonium ion in plant nutrition
  plant respiration and
Nitrate in plant nutrition
  plant respiration and
Nitrogen isotope
  plant respiration studies
Respiration of plants
  nitrogen metabolism and

Chemical Abstracts

Ammonium
  respiration by beans in relation to
Beans
  respiration by, effect of NH_4 and nitrates on



Fast, clean mowers are important in making top quality hay by saving as many of the fragile, protein-rich leaves as possible.

Carbon dioxide
  fixation or metabolism of, effect of NH_4 and nitrates on
Nitrates
  respiration by beans in relation to
Respiration, plant
  effect of NH_4 and nitrates on

Bibliography of Agriculture

Ammonium
  effects on beans
Beans
  physiology
Nitrates
  effects on beans
Plants
  respiration

Biological and Agricultural Index

Beans, Kidney
  experiments, laboratory
Plants
  effect of nitrogen on

^{15}N Bibliography

Ammonium and nitrate nutrition
  effect on amide synthesis
  effect on amino acid synthesis
  effect on respiration
  rate of ion metabolism
Multiple tracer experiments
Nitrogen metabolism
  in beans

The journal itself indexes this article:
  Ammonium and nitrate nutrition, effects of, on respiration of excised bean leaves
  Bean leaves, excised, effects of ammonium and nitrate nutrition on respiration of
  Nitrate and ammonium nutrition, effects of, on respiration of excised bean leaves
  Respiration of excised bean leaves, effects of ammonium and nitrate nutrition on

Most striking is *Biological and Agricultural Index's* failure to index the article under Ammonium, or Nitrate (or Nitrogen) or to include any reference to plant respiration. The ^{15}N index reflects the soil scientist's view that emphasis should be placed on the interaction of ammonium and nitrate in the plant. Although ^{13}C was used in the experiment, *Soils and Fertilizers* indexes only the nitrogen isotope, while none of the other commercial sources calls attention to either of these rather uncommon research tools.

Example 4. CHU, W. K. and CHANG, S. C. Surface activity of inorganic soil phosphorus. *Soil Science,* v.101: p.459-464 (1966).

Soils and Fertilizers

Alluvial soils
  surface activity of soil P in
Latosols
  surface activity of inorganic P in
Phosphorus in soil
  surface activity of inorganic, soil texture and

Chemical Abstracts

Aluminum phosphate
  surface activity of
Calcium phosphate
  surface activity of
Iron phosphate
  surface activity of
Soils
  phosphorus in
    surface activity of

Biological and Agricultural Index

Soils
  phosphorus content

Bibliography of Agriculture

Phosphorus
  in soils

There is no subject index in the journal. *Chemical Abstracts* claims, *"CA* has been thoroughly indexed—from the chemical viewpoint, of course."[10] This example, more than the others, reflects this viewpoint and the contrasting emphasis of *Soils and Fertilizers.*

Author → Indexes → Searcher

That indexing is not yet an exact science will surprise no reference librarian. To the degree that it is not, success in retrieving needed information from the index journals may depend on the precision with which the authors have defined in the title of the article the significance of their work. A so-called subject index which leads from a broad heading (e.g., "Soils—bacteria") to a statement of essential bibliographic data compels the searcher to rely on the title to tell him if the work is relevant to his need. In this case, it is difficult to see that the subject index offers any advantage over the mechanically produced word index.

By the same token, the obvious advantages of the abstract service may be lost if the index does not lead the searcher to find the abstract. This seems a likely possibility if the inflexible rules of subject indexing require

the indexer to list the irrelevant (e.g., "Pseudomonas") and permit him to omit significant aspects of a work (e.g., Mineralization of nitrogen).

Herman Skolnik set a user's criterion for subject indexes: The index "is a facility whose sole objective is to provide assistance in the solving of research problems."[15] How helpful in solving his information problems are the indexes available to the agricultural research worker? It is pointless to ask a man adrift on the ocean, "How useful is your rowboat?" If it is all he has, it is absolutely invaluable. The information seeker is likely to feel that all of his tools are necessary, but all together they are not entirely adequate.

If he is seeking the most comprehensive coverage of the literature, the agricultural librarian needs *Bibliography of Agriculture.* He also needs plenty of time, patience, and access to a wide selection of journals in order to use it effectively. To use *Chemical Abstracts* to advantage he may need imagination, familiarity with *CA's* indexing rules, and ability to see the "chemical viewpoint." The agriculturalist's viewpoint seems more consistently reflected in *Soils and Fertilizers,* which also offers greater depth of indexing than either of the two U.S. indexes for agriculture.

The agricultural reference librarian will want all of these tools, and one or another will answer most of his questions most of the time. But there will still be occasions when his ingenuity, more than his indexes, will lead him to the information he must have.

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10. *Chemical Abstracts.* Subject Index, Introduction to Volume 64. Columbus, Ohio, Chemical Abstracts Service, 1966.

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12. FISHER, N. G. Chemical Indexing: The Literature Chemist's Point of View. *Journal of Chemical Documentation,* v.1: p.52-56 (1961).

13. Ref.(3) p.131.

14. HAUCK, R. D., and BYSTROM, M. ^{15}N—*a Bibliography for Agricultural Scientists.* Unpublished.

15. SKOLNIK, H. Chemical Indexing: Management's Point of View. *Journal of Chemical Documentation,* v.1: p.57-61 (1961).

* * *

The advent of the computer sciences and the shift to automation has brought into being a jargon which is too often simply accepted and hardly ever actually understood. Instead of enhancing communications, such integration generates misunderstanding. The title *Systems Analyst* is defined in terms of its components: *system* and *analysis*. The characteristics that make up the profession, personality, and philosophy of this individual are enumerated and explained. In a hypothetical guide to the newly hired novice Systems Analyst some basic *do's* and *don'ts* are listed in ten steps that lead systematically from the first day to the finished product.

What Is a Systems Analyst?

DANIEL M. SIMMS

THE QUESTION NEEDS CLARIFICATION for a number of audiences—not the least of which are the systems analysts themselves—since there have been, and promise to be, more than a few times when the objectives of these individuals are, by themselves, misinterpreted and misapplied. It is the other audiences, however, for whom this critique is designed, such as the contemporary colleagues of the systems analyst who must suffer the opaqueness of his presence. Included here are those tortured souls who, as his associates, neither comprehend his methods nor his madness. For example, the most recent victim is the librarian, who has been forceably immersed in a veritable tsunami of information media, special services, statistics, systems, semiotics, ciphers, cybernetics, and CPM's. Automation, information management, mechanization, and super-synthesis have so confused many librarians that even when presented with a systems analyst, they treat this basic hope of salvation like a fiend from the pit—a sensitivity easily understood.

More than any other audience, however, the explication of the systems analyst is intended for the management. These are the chancellors of the exchequer on whom fall the decisions to exalt or excoriate, and their need to be informed is inimitable. Nevertheless, the subsequent elucidation is offered to all interested parties from serf to sovereign.

An understanding of systems analysis is imperative to the comprehension of what a systems analyst is.

System is defined as "a set arrangement of things related or connected to form a unity or organic whole, a set of facts, principles, rules, etc., classified or arranged in an orderly form so as to show a logical plan linking the various parts." In other words, the whole is the sum of its segments, an assemblage of objects united by some form of regular interaction or interdependence, an entity composed of methodical, coherently operating components.

Analysis is defined by Webster as a "separation of anything into its constituent parts or elements; an examination of anything to distinguish its component parts, separately, or in their relation to the whole." Synonyms are determination, reduction, methodical interpretation, investigation, resolution, dissection, and decomposition, that is, to take apart and criticize.

A Systems Analyst, by elementary deduction, must be someone who analyzes systems, that is, one who separates the components of an interacting process into its individual units for critical evaluation and explanation. An analysis of the analyst thus becomes pertinent.

At first impression the systems analyst is almost always looked upon as a rapacious barbarian, irresponsibly swooping down on a poor, honest, overworked peasantry, from the black evils of a banefully mysterious

Alamūt, where insidious machines whir and click with inhuman unscrupulousness and where the devotees are disdainfully contemptuous of the unenlightened.

The systems analyst has been unreasonably maligned. The tools of his trade have forced a slanderous maliciousness to be cast on his good faith and good character. Long before the electronic monster reared its ugly head, countless young Galahads had leaped courageously into the chasm of discontent with the *status quo,* only to mount their particular Calvary unappreciated and misunderstood. Basically the systems analyst is a challenger of chaos, and a champion of concord, but because of his inherent nonconformity, the suspicions of his perniciousness have run rampant. Unfortunately, they are not altogether unjustifiable, for the true systems analyst is indeed a character of some incredibility; there have been cases where exuberance and over-enthusiasm have evolved disasters more nefarious than those he was attempting to eradicate.

This is more than likely because the true systems analyst is the sum total of many paradoxically opposing parts. Part *loyalist,* he is thoroughly convinced that his main reason for existence is to reconstitute the world and thus make it a more glorious place in which to live, but as part *realist,* he knows that he must begin to question at something other than the highest level of operations; hence, he directs and applies his loyalty to some segment of the greater picture, most probably a company or a section in a company, and looks for ways to bring sweetness and light.

But divine as his intentions might be, the true systems analyst is not an angel of virtue. As part *critic,* he purposefully pursues each weakness in a procedure to the point of destruction. Part *efficiency expert,* he rapidly engages his subordinates, his peers, his superiors, the company demagogues, the traditionalists, and the visionaries in a mortal and mental combat of wills and logic over each activity, old and new, practiced and proposed. Sometimes to his company's chagrin (and to his own) his is unconscionably wrong and his image plummets. More often, however, to his company's everlasting gain of face (and to his own) he is proven so transparently correct that he generates a major re-evaluation of the organizational structure, the net results being operations which are orders of magnitude more efficient, but not without the loss of some time-honored techniques, together with some trusted "technical" experts. Hence, he is part *paring-knife,* constantly seeking to cut out the fat, but also part *physician,* seeking to heal the ruptures in the regimen through remodeling. He must be in large part *diplomat,* in order to sooth the ruffled feathers of the incumbents who fear a plague-like purge (often reacting in indirect proportion to the productiveness of their past performances), and often in order to explain, teach, and convince his superiors that he is acting in their behalf even though he suspects they haven't any idea what he is talking about. He is often, as the circumstances necessitate, part *machinist,* injecting automation here and there because of its efficiency, and part *economist,* seeking to save resources, but often having to spend huge sums of money in order to conserve the more important resources such as human potential, personal involvement, irreplaceable knowledge, and time.

More than all else, however, the systems analyst is a *logician.* His every activity is based on logic, on relevance to the issues, on the scientific application of the canons and criteria in validity of thought, and demonstration of the normative formal principles of reasoning. He becomes, thereby, part *revolutionist;* part *anarchist;* part *malcontent,* but also part *visionary;* part *poet;* part *grand designer.* Often part *skeptic,* part *cynic,* part *misanthrope,* but never sophist.

I could leave the issue at this point inferring that I have offered a definition and thus answered the question asked by the title, but for the sake of clarification some further remarks about how the systems analyst analyzes, and why he does so, would seem to be in order. It is not my intention to be overly detailed. Rather a short sketch of a somewhat typical, somewhat hypothetical example should suffice.

The Systems Analyst Recommends

Consider the case of an experienced and highly competent systems analyst newly hired by a firm and charged with the specific re-

sponsibility of recommending to his management certain operations adjustments from which will evolve a wholly new set of company activities. It is imperative that we lay extreme stress on the word *recommend*. The product of the systems analyst is recommendation—nothing more—no systems design, no implementation of new operations. These are responsibilities of complimentary personnel. The systems designer is responsible for the systems synthesis that is the productive outgrowth of the systems analyst's recommendations. Implementation of a designed system is the result of the combined efforts of several persons forming a spectrum from managers to clerks. It cannot be overstressed that one man does not and should not implement any system, unless it is highly specific and of restricted scope. Moreover, neither the systems analyst nor the systems designer create their products without consultation. Such one-man dictates are automatically doomed to immediate failure, but the final product of both these individuals, in the case of the former, a proposal, and in the case of the latter a report package, is generally the result of a one-man synthesis of data amassed from consultation.

The systems analyst, because of the necessity for most concerns to economize on personnel, often finds himself cast in these schizothymic roles, however, as does the systems designer, programmer, administrator, and often, just about anybody who happens to be available. The great difference is that the basic, characteristic logic of the systems analyst extricates him from potential perils, whereas individuals less fundamentally endowed are either impaled on a spear of everlasting penance for having failed in the resolution-recommendation-reconstitution process, or find themselves pinnacled eternally between a Charybdis and Scylla of their own creation.

Mr. Simms *is information specialist at the Field Research Laboratory, Mobil Research and Development Corporation, Dallas, Texas.*

Step-by-Step

Let us assume our hero is one who finds himself heir to several hats. He must follow the several steps of his professional flowchart carefully. The steps are presented as a series of instructions from a manual to the novice systems analyst. Even the most sophisticated of us can use a reminder.

STEP 1. Get a definitive and thoroughly clear picture of what your responsibility is supposed to be. Why were you hired? What is expected of you? How much time have you to produce? In what forms? Through what products? Getting superiors to commit themselves before they have had a chance to look you over may be difficult. Don't be pushy. Don't be impatient. While they are sizing you up, build your data base by applying the subsequent steps.

STEP 2. Learn the history of the company without committing yourself politically. Be sympathetic, be attentive, be objective, be evaluative, but never be opinionated.

STEP 3. Memorize the organizational structure. Know who is in what position. How did he get there? How long has he been there? What are his functions and responsibilities? Who does, and does not, like it? Never give the impression you are overly interested—just that it is all part of your work.

STEP 4. Read and review all documents, previous studies, and background material relative to the problem. Concentrate on in-house generated material. Be prepared to quote from these in discussion periods.

STEP 5. Meet your associates. Never create the impression you are there to show them how to do their job. Be personable. Be gregarious. Be helpful where asked, but don't offer too many suggestions. Don't imply you are thoroughly aware of their procedures and problems even if you are. Don't propound sweeping revolutions. Be content with diagnosing the psychological attributes of each situation and personality, and remain relatively free from mystery, unaloof, and noncondescending, but refrain from being transparent.

STEP 6. Study the techniques of your associates, especially with relation to one another. Be philosophical, but be evaluative.

Read the procedures manuals where applicable. Study their activities in detail from a distance. Prepare the first stage flowchart of your impressions of company operations. Note well the areas of duplication, waste, weakness, mismanagement, equivocation, and blatant error. Don't indicate disgust and demonstrative repugnance, yet. Don't advertise the inadequacies. Compare the situations critically to your problem. Remember your first product is recommendations. Be just as judgmental about the strong points; innovations, and efficiencies and solidarities of the system under observation.

STEP 7. Personally interview all parties who may possibly be affected by your proposals before you make them. Describe to their satisfaction what your basic responsibilities are. Be careful; they still suspect that you're a monster. Involve them in the dialog. Record their opinions. Entice them to elucidate on their work. Study their responsibilities. Get them to elaborate on their problems; be highly attentive to their suggested solutions. It is not impossible that they actually can do their job without your analysis of it.

STEP 8. Flowchart operations of each individual. Enlist their assistance. Use some of their ideas. Praise their progress. Thank them for their aid.

STEP 9. Draft your proposal. Document all processes thoroughly. Present the current situation. Objectively describe its advantages and disadvantages. Present the alternatives (several) and their advantages and disadvantages. Stress the objectives of the company. Employ sufficient statistics and graphics to be explanatory only.

STEP 10. Discuss the progress of your proposal with your immediate superiors. Incorporate their suggestions where possible. Finalize your proposal. Submit your recommendations.

As a systems analyst you are through. But be prepared to make a re-evaluation. Your proposal will not be accepted. Although the definition of your profession ends at this point, you will more than likely be requested to make many modifications that are actually in the realm of the systems designer.

For this reason every systems analyst must be part systems designer, and must have as the basis of his recommendations a theoretical system-solution. Such an "ace-in-the-hole" may make a traversty of his objectivity unless he is constantly alert, however. Favoritism for any technique has absolutely no place in systems analysis.

Should It Be Done?

Furthermore, every systems analyst will be called on to prove that his recommendations are sound, either through demonstration of a prototype system, or through a verbal elaboration of a theoretical implementation. His only defense for these extraprofessional demands is to have tried many of his alternatives, testing for both failure and feasibility. This may require that he not only design, but also actually construct, portions of his recommended system for the purpose of comparison and counterperformance testing.

If our hero has joined a company where actual systems analysis is a relatively new methodology, he will indeed be forced to wear all his inherited hats. If he has joined an established system analysis team, he may doff and don these hats so often that his company performance will more resemble a vaudeville impersonations act than true systems analysis.

Over a period of time the systems analyst becomes accustomed to these multiple characterizations, comes to expect them, and often finds himself in the middle of someone else's business believing that he belongs there as genuinely as at his own desk.

This ultimately ties in with *why* the systems analyst chooses his profession. The fundamental motivation is obviously a recalcitrant aversion for the dogmatic stagnation of an inert or inane process. His is a dynamic, constantly evolving universe, where instant change must be carefully balanced with creditable productivity. Any entity can be modified to function better. It can as easily be changed to function worse. The systems analyst is, depending on the outcome, a white knight or a black knight at war with the factors that influence the answer to the most monumental question of all time—not *can* it be done, but *should* it be done?

Systems analysis can be performed by librarians and need not necessarily involve elaborate mechanization. The advantage of systems analysis and flowcharting is to force one to analyze procedures step by step and to identify and eliminate bottlenecks and duplicated effort. In the fairly simple reference room subsystem analyzed in this paper, the main bottleneck was identified and an improved system suggested which would save the patron two minutes in locating a desired reference book. The improved system would cost an estimated $152, maintenance would be negligible, and in one year would save patrons' time estimated to be worth $2,000.

An Example of Systems Analysis: Locating a Book in a Reference Room

EDWARD C. JESTES

SYSTEMS ANALYSIS IS DEFINED in Edythe Moore's[1] excellent introduction to the concept as "organized common sense." This paper presents an example of systems analysis.

The analysis could be considered to be hypothetical in part because so many estimates and assumptions were made. However, because the system which was studied and the modified system which is proposed are so simple, more detailed collection of data is not warranted and would only add to the total cost of the analysis.

The analysis was done in a large university library (about 25,000 students and 3,000,000 books). The writer was not on the library staff, and the staff was unaware of the study. The analysis is of a patron entering a reference room with the title of a book in mind, perhaps obtained from the main card catalog. He is aware that card catalogs reveal call numbers by which books are located, but beyond that he has never attempted to locate a book in this particular reference room. It is apparent that this is only a subsystem of a system of entering a reference room to determine a fact without a particular book in mind, which in itself is another subsystem of locating facts and ideas in the entire library.

Dr. Jestes *is reference librarian at the University Library, University of California, Davis.*

Requirements of an Ideal System

From the entrance to the Reference Room there should be a direct line of sight to the main locating system, the card catalog or the librarian. The catalog should be convenient to use, that is, it should not require stooping and it should have enough working space to accommodate at least four people simultaneously (or some other number determined by a study).

The information on the card should enable the user to locate the book in the room directly or by referring to a chart or floor plan.

The distance between the card catalog and the book should be the shortest, yet it should be the most convenient possible. When the user finds the book, there should be lighted space available to use it, that is, a podium or table.

The Present System

Entering the Room. The door on the entrance to the reference-study room is labeled "Reference Room. General Reference Service." Many of the catalog cards for reference books in the main card catalog are stamped or typed "Reference and Bibliography." This difference in terminology is a minor annoyance. In the large room the sounds of chairs, rustling paper and sharp reports of books being dropped(?) echo through the otherwise hushed atmosphere.

To the left are rows of tables and chairs; to the front and about 20 yards across the room a sign, "Thesis Bibliography," can be seen. To the immediate right is a long table with a sloping top and with the label "Periodical Indexes." Further to the right and about 25 feet away is a fairly large sign on the end of a table, "Periodical and Newspaper Reference," above which is a smaller sign—difficult to read because of the glare from its acetate cover—"Reference Room Catalog."

The desk and reference librarian are to the right and are almost hidden from view by the intervening table and books. On approaching the desk a second card catalog, about 25 feet away, can be seen.

The Card Catalog. All of the drawers of the card catalog are below waist level and the user must back away from it and bend over to read the labels. The top of the catalog is clear, and about three persons can use it for placing drawers and writing call numbers. However, three persons will block all others from use of the catalog.

There are six different divisions of the catalog: *1)* A-Z, the largest number of drawers and presumably the author-title catalog, *2)* Trade and National Bibliography, *3)* Unbound Serials, *4)* Shelf List, *5)* Abbreviations, and *6)* Subject Analysis.

A floor plan of the room is on the top of the card catalog, but the glare from its acetate cover is annoying. Instructions on the plan are:

> "To find a book, look in the reference and bibliography card catalog" (which is labeled "Reference Room Catalog").
>
> "Most of the books are shelved by call number order, Cases 1-81."
>
> "If the book is shelved in a special location, the location is written in pencil below the call number."
>
> "The chart of the room shows the location of each section."

The relationships between the penciled instructions and sections on the floor plan are listed in Table 1.

To summarize the bottlenecks, the card catalog is not obvious on entering the room and it is inconvenient to use; the special penciled instructions on the cards do not (in about 50% of the cases) match the terms on the floor plan; the plan is too general; and the distance to many of the books is too great. (The room is about 62 feet wide and about 240 feet long.)

Table 1. Present Terminology

Penciled Terms* on Cards	Corresponding Terms on Floor Plan
Biographies	Biography
Desk	None
Dictionaries	Same
Directories	Same
General Reference Desk	General Reference Service
Indexed Books	Same
Periodical Indexes	Same
Periodical and Newspaper Reference	Same
Reading Room	None
Telephone Directories	Same
U.S. & British Trade	Trade and Bibliography

* Various abbreviations of these terms occur on the cards.

Analysis of the Present System

It is assumed that the patron knows the title of a reference book. An analysis is made of the sequence of steps, and the time and cost of the patron in locating the book. Emphasis is on the use of the card catalog because even if he asks for the book at the reference desk, there is a good chance he will be directed to the card catalog.

The steps and decisions the patron must take can be graphically displayed in a flowchart. The symbols (Figure 1) are defined as used in this paper (generally following IBM Flowchart Template, Form X20-8020).

Cost and Time Estimates

Cost Per Minute of Users' Time. It is assumed that out of every 100 catalog users 35 are undergraduates, 35 are graduates, 5 are faculty and 25 are various members of the library staff (who need to locate a book but who are not maintaining the catalog). Their time is assumed to be worth the following amounts:

Undergraduates	\$2/hr. or \$0.033/min.
Graduates	\$4/hr. or \$0.067/min.
Faculty	\$10/hr. or \$0.167/min.
Library Staff	\$4/hr. or \$0.067/min.

Time and Cost Estimates at the Catalog. The mean time that it takes to find the call number and to look at the floor plan is estimated to be 1.5 minutes (this is based on a very small sample and needs statistical checking as do all the other time and cost estimates in this analysis).

The cost of the 1.5 minutes at the catalog is calculated by multiplying: (No. of Users) $\times$ (1.5 min.) $\times$ (\$/min.) with the following results:

Undergraduate (actually user–\$ units)	$35 \times 1.5 \times 0.033 =$	\$1.73
Graduate	$35 \times 1.5 \times 0.067 =$	\$3.51
Faculty	$5 \times 1.5 \times 0.167 =$	\$1.27
Library Staff	$25 \times 1.5 \times 0.067 =$	\$2.51
Totals	100 users	\$9.02

This is \$0.09/user for 1.5 minutes (as a weighted average).

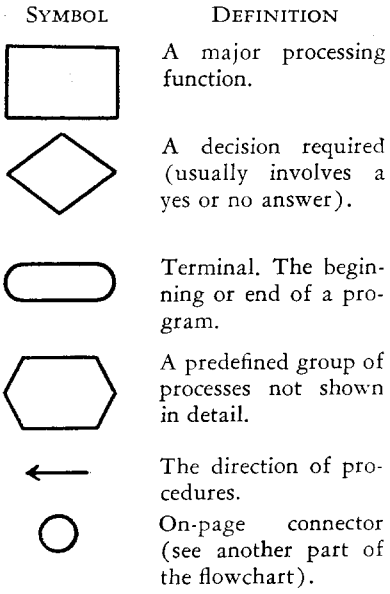

Figure 1. Flowchart Symbols

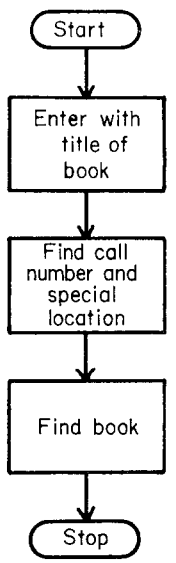

Figure 2. System Schematic: The Major Processes in Finding the Book

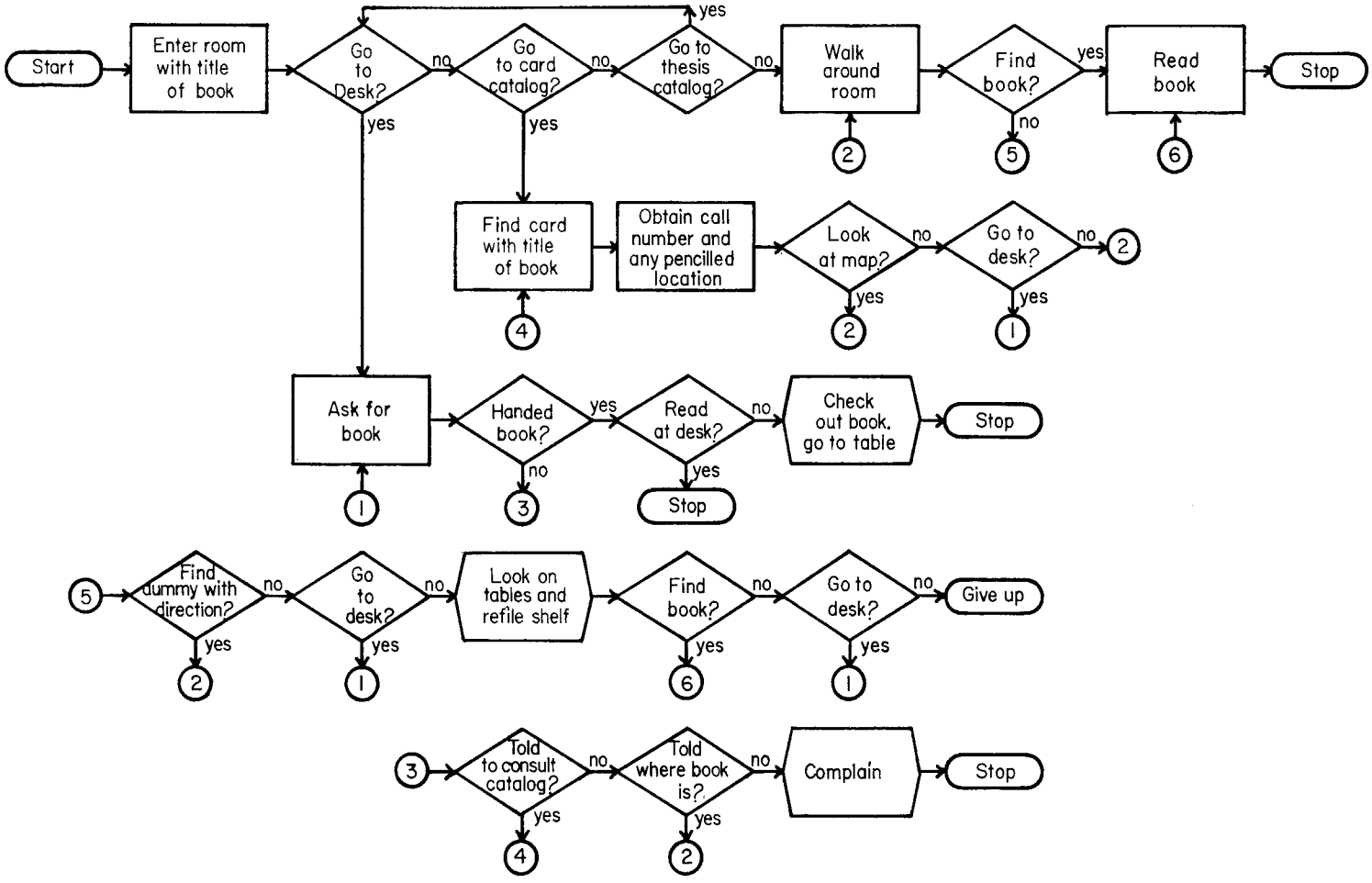

Figure 3. Flowchart of Steps Required to Find a Book in the Reference Room

To the Desk or Walk to Book? It is estimated that about 10% (1,500) of the books in the reference room are behind the desk and must be asked for. Because many of these books are those that are highly used, it is estimated that about 25% of the catalog users are directed to the desk and about 75% walk to the book located in the room.

Time and Cost Estimates of Asking for Book at Desk. The mean waiting time of a user is estimated to be one minute (with a range of 0.5–2 minutes), of which it takes 0.5 minutes for the librarian to get the book and hand it to the user. The cost is calculated by multiplying: (No. of waiters) × (1 minute) × ($/minute) with the following results:

Undergraduates	$9 \times 1 \times 0.033 =$	$0.297
Graduates	$9 \times 1 \times 0.067 =$	$0.603
Faculty	$1 \times 1 \times 0.167 =$	$0.167
Library Staff	$6 \times 1 \times 0.067 =$	$0.402
Totals	25	$1.469

The cost of the reference librarian to hand the book to 25 users is (25) × (0.5 minutes) × ($.067) = $0.837. The total cost to hand a book to 25 users then is:

$$\begin{array}{r} \$1.469 \\ +\ \$0.837 \\ \hline \$2.306 \end{array}$$

or $0.09/user (as a weighted average)

Time and Cost Estimates of Walking to the Book. It takes almost one minute to walk to the farthest corner of the 240 foot long reference room from the card catalog. This is just walking time and does not include time for scanning for call numbers. It is estimated that the mean time spent walking and scanning is 3.5 minutes with a range of 0.5 minutes to 6 minutes.

The cost of walking-scanning is calculated by multiplying: (No. of walkers) × (3.5 minutes) × ($/minute) with the following results:

Undergraduates	$26 \times 3.5 \times 0.033 =$	$ 3.00
Graduates	$26 \times 3.5 \times 0.067 =$	$ 6.09
Faculty	$4 \times 3.5 \times 0.167 =$	$ 2.34
Library Staff	$19 \times 3.5 \times 0.067 =$	$ 4.45
Totals	75	$15.88

or $0.21/user (as a weighted average)

Total Weighted Average Costs per User to Get a Book.

To get book at desk:	Catalog use	$0.09
	Desk Service	+$0.09
		$0.18/user
To walk and scan:	Catalog use	$0.09
	Walk-Scan	+$0.21
		$0.30/user

Alternative Systems

Several alternative systems might be:

1. A more detailed floor plan and decision-locator chart.
2. More information on the card (that is, case number).
3. Additional librarians to direct users.
4. Rearrange room; bring books closer together.
5. Arrange all books in one call number sequence.

More Detailed Floor Plan and Locator Chart. The flowchart for this system would be identical with that for the existing system. The new locator chart is shown in Figure 4; the cost of the new chart and floor plan is in Table 2.

The floor plan of the reference room would be as it is except the terminology would be made consistent with the penciled locations on the cards and the beginning and end call numbers for each section would be indicated as well as a few intermediate call numbers for large sections. Alternate case numbers would also be shown.

Maintenance of Floor Plan and Chart. The Locator Chart would probably not need any alterations for 2 to 5 years. The Floor Plan would have to be slightly altered only when an addition or deletion of a book was at the beginning or end of a section. This would be accomplished by pasting the new call number over the old. It is estimated that this is required each three months and if done by the librarian or library assistant, it would take about 0.5 hour at a rate of $4.00/hour for a yearly cost of about $8.00 plus ink, paper and paste. This amounts to about $0.67 month and is considered negligible.

Table 2. Cost of Producing New Floor Plan and Chart

Librarian's time to rough draft and plan: Two 8-hour days at $4.00/hr.	$ 64.00
Changing and correcting penciled location in card catalog: Three 8-hour days at $2.00/hr.	$ 48.00
Draftsman: One-and-a-half 8-hour days at $3.00/hr.	$ 36.00
Material	$ 4.00
Total	$152.00

Estimated Time and Cost of Using the New Chart and Floor Plan. The new chart and plan will add an estimated 0.5 minutes to the time for use of the card catalog, that is, raise the mean card catalog use time to two minutes. The cost of catalog use time is recalculated by multiplying (No. of users) × (2 minutes) × ($/minute) with the following results:

Undergraduates	35 × 2 × 0.033 =	$ 2.31
Graduates	35 × 2 × 0.067 =	$ 4.69
Faculty	5 × 2 × 0.167 =	$ 1.67
Library Staff	25 × 2 × 0.067 =	$ 2.35
Totals	100	$11.02

or $0.11/user (weighted average)

The walking-scanning time will be reduced from an estimated mean of 3.5 minutes to an estimated mean of 1 minute (with a range of 0.5 minutes to 3 minutes) for 75 of the 100 users. The cost is calculated by multiplying: (No. of users) × (1 minute) × ($/minute) with the following results:

Undergraduates	26 × 1 × 0.003 =	$0.858
Graduates	26 × 1 × 0.067 =	$1.742
Faculty	4 × 1 × 0.167 =	$0.668
Library Staff	19 × 1 × 0.067 =	$1.183
Totals	75	$4.451

or $0.06/user (weighted average)

STEP I. Obtain *Call Number* and any Location *Penciled* below Call Number.

STEP II. Penciled Location	What To Do
None	In Call Number order in study area. See map.
Biographies	To your left in corner of room.
Desk	Give title and Call Number to librarian.
Dictionaries	Behind you, against far wall.
Directories	On far side of Reference Desk.
General Reference Desk	Give Call Number to librarian.
Indexed Books	In Call Number order in study area. See plan.
Periodical Indexes	To your right.
Periodical and Newspaper Reference	Behind this sign.
Telephone Directories	Behind you, across room.
Trade & National Bibliography (Loan Hall)	Go to the Loan Hall.
U.S. & British Trade	Behind you, across room.

Figure 4. New Locator Chart

The total weighted average cost to locate a book by using the new chart and floor plan is:

Catalog time	\$0.11/user
Walk-scan time	+ \$0.06/user
	\$0.17/user

Savings of the Chart-Plan System. The new system would save \$0.13/user:

Present system	\$0.30/user
New system	\$0.17/user
	\$0.13/user

The number of users required to use the new system before the initial cost is paid off is $\frac{\$152.00}{\$0.13/\text{user}} = 1{,}169$ users. At a rate of 75 users per day it would take about 16 days to pay off the initial costs. If one operating year (24 days/month for 9 months) is 216 days and if there is an estimated 75 walk-scanners per day then there will be 16,200 walk-scanners in one operating year. At a savings of \$0.13/user this would amount to \$2,106.00. For the first year the initial cost reduces this by \$152.00 to \$1,954.

It is assumed in these saving figures that each user has to look up a title each time and that there are no repeat uses of the same book which would short-circuit the system.

Case Number on Catalog Cards. This system would require an estimated two week's work by a clerk at \$400/month, and, in addition, either a new floor plan or greatly altering the present plan. With the same amount of savings as with the Plan-Chart system, it would take about twice a long to pay off and the maintenance costs would be greater (every card would have to have a penciled case number).

Additional Librarians on Duty at the Card Catalog. This system would cost at least \$7,500/year per librarian, and this cost would be a continuing cost.

Arrange Books in Call Number Sequence. This system would cost an estimated \$1,200 (3 assistants working for one month at \$400/month). It would also place some of the most used books at the far end of the room and would, therefore, greatly increase the walking time.

Recommendations

It is recommended that the proposed Chart-Floor Plan system be installed. If data are desired, it is recommended that a librarian spend one week timing and counting users at the catalog and following them to the book. This would cost about \$125 of salary time with negligible equipment cost if the librarian has a watch with a second hand. If the new system were then installed, a one-week follow-up study could be done for an additional \$125 of salary time.

Conclusions

The system for locating a reference book in a large university library was basically sound. The application of systems analysis found a few inconsistencies which tend to annoy patrons and which increase the number of unnecessary directional questions for the reference librarian. By quantifying and placing a dollar value on the time of both librarians and patrons the cost of installing the modified system can be justified.

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1. MOORE, Edythe. Systems Analysis: An Overview. *Special Libraries,* v.58: no. 2, p. 87-90 (Feb. 1967).

Two currently emerging information needs are those for in-depth information which frequently necessitates detailed subject analysis and combinatory-type information retrieval, and the need for critically-evaluated and synthesized information. It is postulated that when the need for particular services arise within our society, society either obtains such services from existing institutions or creates new institutions to fufill desired needs. To satisfy the need for critically evaluated and synthesized information, traditionally fulfilled on a part-time basis by professionals within the respective subject disciplines, society created and funded the information center. To satisfy the demand for in-depth information service, a natural yet unfulfilled extension of library service, society funded and also allocated this task to the information center. The lack of continuing education for librarians is considered to be a major factor contributing to the inability of librarians, even special librarians, to satistfy the newly emerging user demand for in-depth information.

Information Centers and Continuing Education for Librarianship

IRVING M. KLEMPNER

IN A RECENTLY PUBLISHED ARTICLE Ralph Shaw postulates that when our society needs a particular service, such a service will be provided.[1] Relating this rather deterministic concept to our topic under discussion, we can state in effect that whether a particular service is supplied by a library or by an institution calling itself an information center or an information analysis center is quite immaterial to the members of our society. The inevitable fact is that the desired service will be made available.

Accepting the above postulate, questions which present themselves and which we may wish to consider are the following: What are the information services that are sought today by our society? Which are our current and pressing information needs? A close and searching look at developments affecting librarianship reveals that within the last several decades dramatic changes have taken place not only in the quantity and types of documents generated, but more importantly, in the *type of user demand* made on our information stores. In this journal it is hardly necessary to point out the incessant trend toward specialization, the interdisciplinary character of current research and development, or the creation of new fields of knowledge. Information is scattered; its fragments are diffused among a variety of disciplines and in a motley of document formats. To satisfy current user demands, the fragments or bits of information need to be retrieved and fused in particular combinations or permutations.[2] In short, in-depth access is required to stored information which would allow us retrieval from every viewpoint of potential importance. With such access, we would then be in a position to meet current demands made on our information stores. Generally, however, the library profession has not been sufficiently perceptive in recognizing the new user demands or in developing procedures, processes and systems for their satisfactory fulfillment. The traditional and

rigid classification scheme and the "imprisoned" vocabulary of the subject headings list have been hardly capable of helping us meet the information demands made by our clienteles. The need for in-depth, combinatory information retrieval has been—and in large measure still remains—an unfulfilled need of society.

Another keenly felt and unfulfilled society need has been the need for critically evaluated information or synthesized information. Let us be quite clear about this particular need. While this *is* an information need, its fulfillment falls largely outside the field of librarianship. The function of evaluation and the function of synthesizing information have traditionally and rightfully been the responsibility of the scientist, the scholar or the specialist within the learned, scientific or technological disciplines. The refereeing process that a journal article undergoes prior to publication is certainly not a newly devised procedure. Peer reviewers have frequently and consistently exercised their judgments, offered suggestions and, in general, critically evaluated newly generated information. Thus, evaluation of newly generated information, and synthesis of existing information have been on-going processes perhaps since the beginning of science and technology itself. It must be recognized, however, that the quantity of information produced within the last several decades and the fractionalization and specialization within the myriad of disciplines demanded a more systematic and orderly process for its evaluation and synthesis. The process of evaluation and synthesis needed to be institutionalized and carried out on a full-time rather than on a part-time and haphazard basis. The unfulfilled need of society for evaluated and synthesized information thus provided the fundamental motivation and impetus for the creation of the so-called "information center."

As a former librarian administering a collection of AEC documents, it had been my privilege to attend a meeting of AEC librarians at Oak Ridge (Sept. 12, 1962) and thus become more sensitive to the underlying need of society for evaluated and synthesized information. Dr. Alvin M. Weinberg, Director of Oak Ridge National Laboratories, spoke on the topic of "Information, Science and Government." His talk was given prior to the publication of the so-called "Weinberg" report. Since the proceedings of the Conference have been published, let me cite a key statment:[3]

> "Science must undergo a social reorganization to enable it to remain unified even though it continues to grow bigger and bigger. The beginning and the shape of such a social reorganization can be discerned in the emergence of a caste of scientists who are primarily *handlers of information*—who sift, retrieve, and analyze the *information* created by others, and who, in so doing, *synthesize new information* based on the individual findings of others." [Emphasis supplied]

Thus, Dr. Weinberg believed that the new caste of manipulators and interpreters of information, being exposed to more data than the specialist, would be more likely to come up with broad new insights of syntheses.

An Ideal Step?

Professional and institutionalized emphasis on evaluation and synthesis of information seemed like an ideal step forward in the development and utilization of science and technology. Science certainly could not make much progress by merely creating heaps of unrelated data. Whether—to use Dr. Weinberg's examples—it is Darwin's theory of evolution, the Mayer and Jensen formulation of the shell model of the nucleus or Mendeleev's periodic table; the evaluation and review of background data were essential for the synthesis of new theory. As librarians, we most certainly would fully support the view that evaluation and synthesis of newly created data are most desirable. That such evaluation and synthesis were to be carried out by scientists in institutions connected with research centers seemed quite logical and clearly in line with past performance of these functions.

Regretfully, and possibly unwittingly, emphasis in Dr. Weinberg's talk was placed on the description of the new caste of scientists as handlers of information, rather than as handlers of documents:[4]

> "A central feature of an information center is that it identifies itself with the scientific community rather than with the *documentation community*. The information center

must be operated by working and knowledgeable scientists who are recognized experts in the fields they cover, who extract information from the documents they manipulate, and who synthesize new information from what lies before them in a random array. *Primarily, they handle information, not documents.*" [Emphasis supplied]

Subsequently, the terms "critically evaluated" and the term "synthesis" were frequently discarded when defining or referring to the functions of the information center. The sifting and review of data were no longer to be done for the purpose of evaluation and synthesis. For many an information center, information storage and retrieval—a traditional library function—had been added or had become an end in itself. Obviously, one could provide a better justification for the creation and maintenance of an information center fulfilling two, rather than only one information need of society. The emphasis and differentiation between "handling of information, not documents," i.e., the evaluation and synthesis of information function which was initially used to justify the creation of the information center had been used and perverted to apply to information retrieval. The subsequently published "Weinberg" report itself blurred the overlap of information functions with such statements as:[5]

> "The centralized document depository is primarily a clearinghouse for documents; in general, it does not try to glean information from the documents it handles, but merely provides appropriate documents to users. But retrieval of documents is not the same as retrieval of information; a technical specialist really needs the information contained in the published literature not the published literature itself. *To retrieve information as contrasted to documents, the technical community has devised the specialized data and information center.*" [Emphasis supplied]

This emphasis and differentiation was to be repeated time and time again in the literature.[6-8] Parenthetically, it is perhaps ironic to note that half a century ago, in summarizing a decade's writing on the role of the special library, Ethel M. Johnson wrote that the main function of the general library was to make books available and that the function of the special library was to make information available.[9]

Why the Information Center?

Acknowledging certain shifts in vocabulary only, it is essential for us to recognize that a good number of the more than 400 information centers established in this country within the last decade were created to meet the new information demands of our clienteles, the unfulfilled demand for evaluation and synthesized information, and the demand for in-depth information retrieval. Our failure to recognize the latter need, and our failure to update our training and education to enable us to meet and satisfy this new demand, are in large measure responsible for the broadening scope of activities of the information center. Traditional library school preoccupation with the monograph and the related bibliographic apparatus tended to inhibit our exploration of controls for other forms of documents and the servicing of information contained in these documents. When the need for more specialized, intensive information services became urgent, society supported the institution capable of supplying that need.

We should have expected that those persons operating information centers, or in some way responsible for the creation of information centers, would have allocated the more challenging intellectual tasks to the information center, leaving the library with control of the monograph; i.e., the largely custodial functions of storing and servicing documents rather than information.

The kind of attempt is exemplified by an article in *Special Libraries* in which the Di-

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Dr. Klempner *is associate professor, School of Library Science, State University of New York at Albany.* *This paper is based on his talk presented at the Annual Meeting of SLA's Upstate New York Chapter on April 6, 1968.*

rector of Technical Information for the Department of Defense neatly pigeonholes the technical library:[10]

> "Within the broad pattern of scientific and technical information, the research libraries and their associated staffs are fitting effectively into a rather clearly defined role—a role in which they serve a primarily archival function and are mainly concerned with the published literature . . ."

Information centers or institutions under a similar name will continue to engage in library functions so long as we do not provide the kind of in-depth service that is demanded by our clienteles. The special library has the advantage. It needs but to intensify its service—a natural extension of existing services.[11] This certainly requires training or retraining of staffs to meet current objectives. As the world body of knowledge is changing, as methods of recording, distributing and using documents change, so must the profession and the art of librarianship change. In short, our rapidly evolving tools and intellectual environment demand programs for continuing education for librarianship.

Initiate and Influence

As professionals and members of professional associations, we need to take the initiative and exert our influence not only on our associations, but also on the library schools, our managements and the local, state and federal organizations—all who are capable of providing and supporting the formal courses, meetings, seminars, and workshops essential to keep us abreast of current developments. Thus we may truly become disseminators of information rather than keepers of the collections.

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Overseas Librarians Visit SLA

VISITORS FROM THREE CONTINENTS included the Association's New York offices in their itineraries while visiting American libraries. Even though such visits are necessarily brief, each occasion underscored the continuing need for world-wide contacts between our professional groups.

England. Under the auspices of the Ford Foundation two librarians visited the libraries of Business Schools in the U.S. during October. Kenneth D. C. Vernon and John D. Dews are especially concerned with the development of a faceted classification for business studies. Mr. Dews is librarian of the Manchester Business School* and Mr. Vernon is librarian of the London Graduate School of Business Studies.†

Brazil. Ten members of the Brazilian Federation of Associations of Librarians (FEBAB) ‡ visited U.S. libraries in a program sponsored by the State Department. The leader of the delegation was Mrs. Laura G. M. Russo, president of FEBAB and chief librarian for acquisitions and registration at the Municipal Library of Sao Paulo.

Five members of the delegation are special librarians: Maria A. F. Carreira, chief librarian, São Paulo School of Business Administration; Lourdes C. Gregol, chief librarian, Libraries of SESC (Commercial Social Service organization) of the State of Rio Grande do Sul; Maria A. deT. Leite, chief librarian, School Libraries of SESI (Industrial Social Service organization) of the State of São Paulo; Elza L. Mello, librarian, Documentary Service, Department of Public Health of the State of São Paulo; and Maria C. Pinheiro, librarian, Documentation Center, Institute of Gastroenterology of São Paulo.

Other members of the delegation were: Maria A. Atienza, librarian, Catholic University of São Paulo; Ruthe P. Conduru, professor of library science and director, Central Library, Federal University of the State of Pará; Maria L. deM. Cordeiro, director of the Public Library of Amazonas, and professor of library science, University of Amazonas, Manaus; and Eurydice P. de Sant'Anna, librarian, Salvador, State of Bahia.

Japan. The executive director of the Japan Special Libraries Association, Mr. Yasushi Sakai, visited SLA as part of his tour of libraries in the U.S. and Europe. Mr. Sakai is director, Division for Interlibrary Services, National Diet Library, Tokyo. He is also chairman of the Committee for International Relations of the Japan Library Association. Mrs. Sakai contributed to the usefulness of the meeting with her exceptionally competent translations.

Earlier in the month Mr. Heizo Miyata, who is a director of the Japan Special Libraries Association, also visited SLA. Mr. Miyata is librarian, Osaka Chamber of Commerce & Industry.

JSLA, an association of libraries rather than an association of individual members, was founded in 1952. JSLA is a depository of government publications; one of its objectives is to facilitate the use and distribution of government publications. In addition, great importance is attached to organization of workshops for the training of special librarians. The Kanto Chapter (Tokyo area) and the Kansai Chapter (Osaka area) are the largest organized groups because of the concentration of economic, political, industrial and trade activities in these areas. The other five chapters are Chubu, Kyushu, Hokkaido, Tohoku, and Chugoku. There are three divisions: Economics, Science & Technology, and Administration.

Individuals belong to the Special Libraries Department of the Japan Library Association; there is mutual coordination of activities with JSLA. In Japan, there are also two other related organizations: Documentation Association, and Documentation Kondankai. The latter is an association of persons concerned with scientific and technical libraries.

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* Manchester Business School, Hilton House, Hilton St., Manchester 1, England.

† London Graduate School of Business Studies, 28, Northumberland Ave., London WC2.

‡ Federaçao Brasileira de Associaçoes de Bibliotecários. Rua Santo Antonio 733, Apto. 91, São Paulo.

A Critical Look at the Recommendations of SLA's Special Committee on Membership Requirements

"When I use a word," Humpty Dumpty said in rather a scornful tone, "it means just what I choose it to mean—neither more nor less."

"The question is," said Alice, "whether you *can* make words mean so many different things."

"The question is," said Humpty Dumpty, "which is to be master—that's all."

LEWIS CARROLL, *Through the Looking Glass*

ON AUGUST 9, 1962, Special Libraries Association adopted new Bylaws which included academic and/or experience requirements for membership. This was an historic date because it was the first time any library association in the country departed from the wide-open-door policy under which anyone with the price of dues could become a member. When the requirements were formulated, nobody supposed that they were perfect and would never need changing or improving, but they did represent evidence that at least one segment of the library profession was trying to build a truly professional association. During the six years that the membership requirements have been in force, weaknesses have become evident and suggestions for changes have been made. Finally, in January 1968 a Special Committee on Membership Requirements was appointed by the President and charged with the responsibility of recommending necessary changes. [Ed. Note: At the request of the Advisory Council.]

This Committee presented its recommendations to the Board of Directors at its June 1968 Meeting and these recommendations were accepted by the Board. In *News and Notes* (July-August 1968) the Special Committee noted that the proposed changes in Bylaws are "consonant with the Association's objectives as defined in Article I, Section 2 of the Bylaws." This Section states, among other things, that one of the objectives of the Association shall be "to promote high professional standards," so let us see how "consonant" the recommendations are with this objective.

The Committee recommended that two classes of personal membership be retained—Member and Associate—and that Affiliate be dropped. It also recommended lowering requirements for both grades to the point where an Associate need have no education at all and no experience, but need only hold "a professional position in a special library." Interestingly enough, an applicant who holds a professional position in a *"library related information service"* must have at least a degree from an accredited university or college. The reasoning here is fascinating, and one can only wonder why, for example, a translator or an abstracter (both presumably professional posts) not directly connected with a library needs a college degree in order to join SLA, whereas the same translator or abstracter would need *no education* if he were so fortunate as to be employed in a special library. Furthermore, the person in charge of such a library (which position would presumably be defined as "professional") would need no education either. The logic behind this is really something to make one wonder.

By recommending that in order to become an SLA Associate the applicant need only hold "a professional position in a special library" the Committee *actually avoided setting up any qualifications at all for this class of membership,* so far as employees of libraries are concerned. There is a fundamental principle that must not be lost sight of here and that is simply that the phrase "professional position" is meaningless if the person holding it has no professional training and no professional competence. Anyone who is at all familiar with the special library field, particularly industrial libraries, knows that the term "librarian" is used very loosely. On paper there are "professional" library positions, or professional-sounding library positions, which in actuality are far from professional. These positions may involve professional functions—book selection, reference, bibliography, etc.—but these functions are not performed in a professional or an effective manner because the individual designated to perform them has no professional ability. We must ask ourselves this basic question: Can a position be called "professional" when it is in the hands of an individual who, because he lacks the necessary education, cannot possibly perform it with the necessary competence? To answer this with anything other than an emphatic "No!" is to distort the term "professional" to the point where it loses all meaning. It is to equate the witch doctor with

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Membership Qualifications: The Special Committee's Recommendations for Change

AT ITS JANUARY 20, 1968 MEETING, the SLA Board approved a recommendation of the Advisory Council that a Special Committee be appointed to study and recommend changes for personal membership requirements. President Usher appointed the following members to serve on the Special Committee on Membership Requirements: Phoebe F. Hayes, Ruth S. Leonard, Aphrodite Mamoulides, Edythe Moore, Charles H. Stevens, Martha A. Whaley, and Margaret L. Pflueger, Chairman.

The charge to the Committee was taken from the Advisory Council's recommendation:

1. Clarify the wording of the Bylaws and related documents to facilitate understanding, application, and administration of the membership requirements.
2. Delete the adjective "active" from the word "member" as it appears in the Bylaws and related documents.
3. Reduce the number of classes of personal membership (Active, Associate, Affiliate) from three to one or two.
4. Lower or remove the professional and/or the overall experience requirements for the various classes of personal membership.
5. Revise or remove the provision calling for employment in a special library or information center *at the time of application* as a factor in qualifying for personal membership.
6. Simplify the provision that substitutes experience for education as a qualifying factor for personal memberships.

Starting from several diverse positions, the Committee conferred by mail, resolving differences, offering suggestions, and preparing drafts for concurrence.

The result of our deliberations was a recommended statement of personal membership qualifications to replace those in our present Bylaws. These are the recommended qualifications:

Member. Membership shall be granted to an applicant who fulfills any one of the following requirements:

(a) Has a graduate degree in Library or Information Science;
(b) Has a bachelor's or higher degree and has three or more years professional experience in a special library;
(c) Has seven or more years of professional experience in a special library (a year's undergraduate college credit will equal one year of professional experience);
(d) Holds a teaching position in a university or college and is engaged in educating students in one or more disciplines related to the professional aspects of special librarianship or information science; or
(e) Has general administrative responsibility for one or more special divisions or subject areas in an academic or public library.

A Member shall have the right to vote, to hold Association, Chapter and Division office, to affiliate with one Chapter and one Division without further payment, and to receive the official journal free.

Associate. Associate membership shall be granted to an applicant who at the time of application does not meet the requirements for Member but who fulfills either of the following requirements:

(a) Holds a professional position in a special library; or
(b) Holds a degree from an accredited university or college and holds a professional position in the field of library related information services.

An Associate shall have the right to vote, to hold any Chapter or Division office except that of Chapter President and President-Elect or Division Chairman and Chairman-Elect, to affiliate with one Chapter and one Division without further payment, and to receive the official journal free. Upon qualification for membership, an Associate shall become a Member.

THE PURPOSE OF this article is to record some of the thinking of the Committee, to note some of the proposed changes and to urge members to study the recommendation by comparing it with the present membership qualifications. The Bylaws Committee will publish these recommendations again in the March 1969 issue of *Special Libraries* as Pro-

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the highly skilled surgeon. A profession is a vocation that requires specialized knowledge in some particular area of learning. Nobody can hold a "professional" position who has no such knowledge.

Surely SLA membership qualifications will become a farce if anyone with no knowledge of librarianship is admitted only because someone has chosen to bestow upon him a professional-sounding title. Evidence abounds of instances where people barely literate have been assigned the position "librarian" by some manager in industry and placed in charge of something called a "library". What organization that calls itself a professional association can be so weak and helpless that it clasps such an individual to its professional bosom? If the recommendations of the Special Committee are accepted, *SLA will not be making the decision as to who is eligible for Associate, but every uninformed manager, who does not know the difference between a librarian and a Liberian will be making that decision!* As a matter of fact, that manager will be deciding who becomes a *Member* and not only who becomes an Associate, because one of the requirements for Member is simply "seven or more years of professional experience in a special library." What this means is that if the uneducated and unqualified individual manages to limp along for seven years under the burden of that "librarian" or "research librarian" or "technical librarian" title, he can limp right into the higher grade of membership—on the basis of the intriguing but fallacious theory that if one does something badly for the magic number of seven years, one will then have attained professional competence. How many of us would choose a surgeon or even an automobile mechanic on the basis of this theory?

Now countless times the argument has been heard that we must accept as a fact of life that untrained and uneducated people are appointed "librarians" and that not only must we accept this as a way of our professional life but that we have an obligation to help these untrained people to do their jobs better. If librarians, ordinary or special, are ready to accept this weak-kneed position, then surely they stand alone among professions as willing to encourage the appointment of incompetents. What other group that dares call itself a profession weeps for such incompetents and lends them a helping hand rather than make every effort to purge its ranks of them?

In order for SLA membership qualifications to have any meaning, a basic requirement for Associate must be that the applicant hold a degree from an accredited four-year college. This will not, of course, guarantee that he will be a capable librarian but it certainly would improve the odds. Also it would put SLA on record once and for all that a college degree is the *very minimum* requirement for entering the library profession—and isn't it about time for *that?* If this degree requirement is adopted for Associate, then it would follow logically that it be also adopted for Member, thus the seven-year professional experience requirement without any academic qualifications for this grade would be eliminated.

By making a four-year degree a minimum requirement for membership, SLA will—of course—be taking the terrible chance that it may some day turn down a genius who for one reason or another never made it past the third grade. To safeguard itself against this mortal danger, provisions could be made in the Association's membership requirements for appeal to the Admissions Committee. That Committee could be empowered to waive the academic requirement in such cases.

Improvements in SLA membership requirements are needed, but weakening is not improving. We should be strengthening them by spelling out specific minimum academic requirements for professional librarians. If this step is too rich for our blood and if we want to dilute the requirements so that they become farcical, let's rather drop them entirely. Let's also remove from our Bylaws the objective "to promote high professional standards". Doing these things won't help raise our professional standards, but it will at least keep us more honest.

SAMUEL SASS
The William Stanley Library
General Electric Company
Pittsfield, Mass. 01201

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posed Bylaws Changes. They will be voted on at the June 1969 Annual Business Meeting in Montreal, and, if approved by a majority, be submitted to a mail ballot during summer 1969. Since this is a matter of much importance to the membership, we hope that there can be some discussion in the pages of *Special Libraries* before next June.

The Committee was concerned at all times that its recommended qualifications not lower the standards that had been set when the present Bylaws pertaining to membership were adopted. The objectives of Special Libraries Association were also kept in mind during the deliberations.

The Committee hoped in carrying out the Advisory Council's wishes, to reflect the changing nature of special librarianship. We sought to provide a place for the professional person associated with special libraries and information centers who has not had formal library school education but who can make a significant contribution to and further the objectives of the Association.

Under the charge we were to reduce the number of classes of personal membership. We chose to eliminate the present Affiliate membership, permitting persons who presently qualify under this type to qualify as Associates, if they can meet the Associate (b) requirement.

The Committee chose *not* to remove "the professional and/or the overall experience requirements for the various classes of membership," but we did agree that the present requirements could be lowered in terms of years of experience without detriment to our standards.

The change making the fifth year library or information science degree a sole qualification for membership (without a requirement for employment at the time of application) enhances the value of such a degree and makes it the union card for the professional. This, we feel, is good. It serves to emphasize the fact the librarianship is an essential part of the whole profession of librarianship, and, at the same time, it will bring immediately into the Association those who have special librarianship as their objective.

There are a number of terms in the wording of the Committee's recommendation that are subject to interpretation. The principal term that requires definition is "special library" and we propose this statement in the Bylaws:

Within the terms of this article (Article II) a special library is defined as

1) a library or information center maintained by an individual, corporation, association, government agency or any other group; or
2) a specialized or departmental collection within a library, for the organization and dissemination of information, and primarily offering service to a specialized clientele through the use of varied media and methods.

Other terms and phrases have been defined and elaborated on in a set of "Definitions and Guidelines" for the use of members and headquarters personnel. They appear at the end of this article.

Please give these proposals your careful thought. They are intended to reflect your wishes as expressed to the Board of Directors through the Advisory Council. If they do not reflect your personal convictions and if you want to express those convictions, write a Letter to the Editor. It would be good to have various positions stated in advance of the 1969 Conference.

MARGARET L. PFLUEGER, Chairman
Special Committee on Membership Requirements

Proposed Definitions and Guidelines for Administering SLA Member and Associate Applications

THE FOLLOWING DEFINITIONS AND guidelines were devised to assist *1)* prospective SLA members, *2)* present SLA members, and *3)* the Association's Admissions Committee in *a)* understanding SLA's membership requirements, *b)* explaining the requirements to prospective members, and *c)* processing applications.

DEFINITIONS

PROFESSIONAL EXPERIENCE shall be defined as experience in one or more of the areas of professional responsibility noted below:

1) selection of materials in special fields;
2) adaption and implementation of cataloging, indexing, and classification prin-

ciples and procedures appropriate to the library's collections;
3) reference and bibliographic services; and
4) supervision of library assistants, trainees, and clerical staff.

Such responsibilities require knowledge of the subject literature and its organization, comprehension of the library's resources, ability to interpret the collection in the light of user's needs, and knowledge of reference and bibliographic methodology and the principles of cataloging and classification.

In large special library systems specialists other than librarians, e.g. literature searchers, translators, abstractors, indexers, and information systems specialists, may be part of the professional library staff; they may have special positions and responsibilities which are "professional".

The "experience" of these types of specialists who have subject knowledge, usually on an advanced level, and special skills is considered "professional".

PROFESSIONAL POSITION IN A SPECIAL LIBRARY shall be defined as a position embodying one or more of the areas of professional responsibility noted in the definition given for professional experience.

PUBLIC LIBRARY shall be defined as a library serving the people of a city, county, region, state or province; or other such governmental unit.

GUIDELINES

REQUIREMENT (a) UNDER MEMBER—Graduate degree in library or information science. The various titles given to graduate degrees in Library or Information Science shall be considered equivalent to "a graduate degree in Library or Information Science".

A fifth year bachelor's library degree shall qualify an applicant for admission under Member, Requirement (a).

REQUIREMENT (b) UNDER MEMBER—A fourth year bachelor's library degree shall qualify an applicant for admission under Member, Requirement (b).

REQUIREMENT (c) UNDER MEMBER—1 year undergraduate college credit shall be construed as 30 to 32 semester hours or the equivalent in quarter or trimester hours.

REQUIREMENT (d) UNDER MEMBER—This requirement is self explanatory and needs no guideline.

REQUIREMENT (e) UNDER MEMBER—See definition of "Public Library."

REQUIREMENT (a) UNDER ASSOCIATE—See definition of "Professional Position in a Special Library".

REQUIREMENT (b) UNDER ASSOCIATE—"Holds a professional position in the field of library-related information services" is meant to include persons who are self-employed or hold general administrative or professional positions in an organization other than a library, and, who have knowledge and experience that qualify them to make a professional contribution toward the objectives of the Association. Included in this category may be chemists, engineers, economists, educators, lawyers, management personnel, physical and social scientists, etc. who qualify as above. Such persons do not necessarily need to be actively engaged in bibliographic work or directly responsible for a library. Also included would be persons who as a major part of their employment provide consulting information or other professional type services specially tailored to the needs of a particular special library or information service.

ANNUAL REVIEW OF INFORMATION SCIENCE AND TECHNOLOGY. v.3.* Carlos A. Cuadra, ed. Chicago, Encyclopaedia Britannica, Inc., 20 Oct. 68. 424p. $15.00.

THRALLS OF MANY A PUBLISHER should envy the writer of the news release for his effortless assignment to announce this third volume: "Like its predecessors, Volume 3 of the *Annual Review* continues to provide the most complete analysis of the year's accomplishments and trends in the information sciences available in any single source." Neither diversions nor digressions are needed for the accurate description of either the series or the individual volumes.

You, as a reader of *Special Libraries,* are urged to order your own copy of this volume at once. Run, do not walk to your typewriter or to your computer to activate your purchase order. Scan the pages of the review volume selectively. Digest thoroughly those pages that are of immediate value to you. Scribble in the margins, and underline words. Such activity will give you some good practice for your annotations of Volume 6 for 1970—when you may well be scribbling your notes with a light pen on a cathode ray tube. You may identify yourself as a pure librarian, or as an impure librarian, or as a member of a dozen or more of our co-existing species and subspecies. But you will find yourself and most of your problems in the 1967 *Annual Review;* you may even find some answers to your problems.

Many comments were heard in Santa Monica hotel corridors during the ADI Meeting in October 1966—that "they" at last were recognizing the existence of the users of information systems. The "theys" were presumably the hypothesizers, the developers and the vendors of products and services for the processing of information. Favorable echoes from Santa Monica in 1966 are found in the pages of Volume 3 of the *Annual Review of Information Science and Technology* for 1967.

A review of an *Annual Review* must, first of all, be a commentary on the developments of the year. The editor of such a review is usually praised or condemned for his ability to select the authors of each chapter and to direct their efforts. For the third year the important editorial contributions of Dr. Cuadra are to be saluted (in only one instance, to be noted later, is there criticism of the choice of authors). Authors of chapters are usually praised for their lucid presentations or they may be criticized for their overly zealous presentation of new but incomplete work of the year. With very few exceptions, this year's authors have presented unusually well balanced presentations of the state-of-the-art. Space allows comments only on some of the chapters, hopefully those of first interest to the readers of this journal. [This reviewer must admit to a continuing doubt that a new *scientific* discipline has been born—in spite of the repeated attempts at impregnation.]

The ultimate praise for 1967 must be for the activities of *all* members of our overlapping professional communities who are working to understand one another's problems and to evaluate one another's capabilities. Such progress is, indeed, apparent in this review of 1967.

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"The literature of library automation is scattered." This unarguable truth summarizes the sources of information in Hillis Griffin's chapter, "Automation of Technical Processes in Libraries." The sources are classified as:

1) The journals of regional associations publish articles on "How we did it at . . ."
2) Articles at a higher descriptive level appear in *Special Libraries.*
3) Both *American Documentation* and *Journal of Chemical Documentation* are devoted almost exclusively to the theory and practice of information retrieval, not to library automation.
4) ALA's Information Science and Documentation Division has undertaken to publish the *Journal of Library Automation* as well as *Interface* (a newsletter).

Exceptionally valid criticisms are directed by Griffin at the survey of automated procedures in libraries. The survey had been cooperatively

* Published for the first time this year by Encyclopaedia Britannica, Inc., the *Annual Review* is produced with the cooperation and editorial assistance of the National Science Foundation, the American Society for Information Science Advisory Committee, and the System Development Corporation.

conducted by ALA/LTP and SLA/Documentation Division. The form of the survey questionnaire is criticized as obscuring or distorting the true picture of the answers regarding the status of automation. Questions regarding further possible distortions in the analysis of the replies to the questionnaire are also raised. Future surveys will profit if their questionnaires are more carefully worded and if there is a more meaningful (and accurate) tabulation of the answers.

Massive training programs centered in the library schools, are recommended to bring librarians into the computer age. These programs must be more realistic and practical in their approach than most of those now being offered, if librarians are to develop any competence in the application of the new technology—which is now really no longer new.

Systems studies are logical tools for understanding; but the objectives of systems studies must be defined, and the interrelationships of the parts of the total library system must be identified. To produce a flowchart of existing library operations is not equivalent to the automation of such operations. Computer programs do not write and debug themselves; and data do not convert themselves to machine readable forms.

A significant advance in 1967 is cited as the introduction of PL/I (Programming Language/One) by IBM for use with its 360 computers.

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Reactions—both delighted and disgruntled —may well occur when readers find that the conference programs and membership directories are considered in "Professional Aspects of Information Science and Technology" (Chapter 11). Calm consideration will certainly convert the disgruntled to the delighted, even after the constructive criticism has been digested. Pauline Atherton and Roger Greer ask: Are the many meetings, conferences and conventions worth the effort? How many topical conferences on the same topic are necessary in one year? They observe that because the programs of SLA Conferences are still arranged by Divisions—not by topics—that important current topics necessitate many joint divisional meetings. The authors note that it was not until 1968 that abstracts of *some* of the papers appeared in the SLA Conference Program.

The authors observe that no membership directory of ALA is available and that few critical reviews of ALA's national meetings are published other than in *Library Journal*. It is further noted that ALA's annual meetings follow the same pattern year after year, possibly because other arrangements within such a large organization are too difficult.

SLA's Annual Forum on Education for Special Librarianship is viewed as the outstanding example of the debates that still rage within certain professional organizations about the relationship of education to a special field of work. The authors, who are themselves educators, note that SLA (even more than ALA and ASIS) considers itself to be outside the educational hierarchy. The papers in the January 1967 issue of *Special Libraries* are cited as a healthy indication that a professional organization is aware of its responsibility in the continuing education of its members. The need for some para-professional training was also recognized at SLA's Third Education Forum in 1967.

Curricula in information science and/or computer science are being established both in the library schools and as independent departments. Close scrutiny of both approaches by the professional associations and their members is recommended.

With little or no research-orientation as a result of either their education or work experience, librarians have risen to the attractive bait of government research contracts as librarians hire consultants to do research for them. The authors of the chapter observe that: "The field of librarianship cannot wait until librarians are trained to do research, especially if the government money is available now." Reference is then made to an article by an ALA staff member to help the novice writer of proposals.

[This reviewer will continue his stand to the far right of Charles De Gaulle in any consideration of the morality of using government funds just because the money is available *now*. If the library community does not now have members who can conduct meaningful original research, then we should honestly and openly ask for funds to correct our research-oriented deficiencies. Who is to say that a research proposal or the interpretation of the results is meaningful?]

Atherton and Greer further observe that basic research in documentation and information centers goes on, but that many *experienced* research workers have begun to center their attentions on libraries *per se*. By implication from other reports it would seem that such "experienced research workers" are not arising from within our own communities. Reference is made to several individuals as examples of "the new breed in this interdisciplinary field—

people comfortable in any one of several of the disciplines or professions it embraces." Several is not a large number.

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The first chapter of the volume, "Information Needs and Uses" by William J. Paisley, corroborates the observations in the chapter by Atherton and Greer that librarians (and other members of their family tree) are essentially without any research-orientation. The Paisley review adds substance to many earlier suspicions that intuitive observations at the reference desk (even with defective or non-existent methodology) are as accurate as *de novo* empirical research.

It is, perhaps, unfortunate that Calvin Mooers did not obtain copyright protection for his law. With no mention of "Mooers' Law" the law now appears to have been *proven* by a study of the literature habits of a group of biological scientists; conclusions such as the following are reported:

1) The decision not to seek information by scientists and technologists may be based on their estimate that the generation of new knowledge will be cheaper than an expensive—and possibly fruitless—search.
2) Some apathy may result from weak sanctions against ignorance in many fields of science.
3) Duplicated effort is tolerated because really comprehensive searches are almost impossible with existing information systems.
4) As information systems become more responsive, remediable ignorance will not be tolerated.

Should individual differences (between scientists and engineers) in favoring certain print channels or certain oral channels of communication be attributed to the training of the men, to the nature of their tasks, or to the strengths and weaknesses in the information systems serving them? The training of scientists may include the use of an unwieldy information system. Engineers with less training are likely to be rebuffed by their print channels; and the practicing engineer then looks elsewhere for his information. Editors of influential journals and their referees may act as invisible gatekeepers for the flow in the formal information system.

Few readers will object to the observations that defective methodology has been the most predictable and justified complaint against user studies of the past years. Inconclusive studies are conducted to fill gaps left by previous inconclusive studies. Objections must be noted to the poor conceptualization or the shallow conceptualization of some research projects. In many studies, it is hard to glimpse a real scientist or technologist at work, under constraints and pressures, creating products, drawing upon the elaborate communication network that connects him with sources of necessary knowledge.

A three-volume study (issued in November 1966) has shown that: "Need-to-know is a major bottleneck in obtaining information in the defense industry" and "The maintenance of security in information transfer alternately frustrates and amuses." As we approach the twenty-seventh anniversary of Pearl Harbor, it is reassuring (?) to learn that such scientific analysis is seeking to define fundamental truths.

Doubt is cast upon the role of the delegated agent (e.g. the reference librarian) as a judge of relevance, at least when the user does not provide feedback. Relevance is no longer considered to be a property of documents. "Preferential discriminatory response" moves relevance research into the mainstream of psychometrics where it belongs. The sophistication of this discussion is said to show progress from the days when relevance was considered to be a property of documents.

Information science and behavioral science are reported to need each other; and "Big Science" (that is, politically generated science) needs them both. Mutual education and accommodation will undoubtedly continue. Fewer naive solutions to the "information problem" will be offered by behavioral scientists when they have glimpsed the full complexity of the processes of dissemination, documentation, storage and retrieval. [*Amen.*]

Paisley concludes his chapter by reporting a bumper crop of user studies in 1967—high in individual quality as well as quantity. Now we can hope that 1968 will move beyond the echoing choruses, and that the second verse will be written.

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Common usage of "information retrieval" means the retrieval of a reference to a document, or to an abstract, extract or condensation of the document. Some information systems retrieve more than this minimal information, but Patricia L. Brown and Shirli O. Jones limit their reports in Chapter 9, "Document Retrieval and Dissemination in Libraries and Information Centers," to the delivery of a document surrogate to the user.

The delivery of an "answer" may either solve or aggravate the information problem of

the user. Whether the problem has been solved or aggravated is not known, because few abandoned information systems are exposed to public view. The authors observe quite correctly that critiques of last year's "supersystems" are rare indeed.

The increasing volume of publications on mechanized document retrieval systems appears to have levelled off in 1967. It is clear that the novelty of a mechanized system (just because it is mechanized) has worn off; we seem to be approaching an era of realism. Mechanization as a status symbol also seems to have lost its impact. In 1967 mechanization for document retrieval has, for the most part, entered a limbo. The new direction seems to be toward the test and evaluation of systems for the Selective Dissemination of Information. [This reviewer hopes that the Strasbourg goose technique will be avoided. The clients of information systems will certainly resent the forcible enlargement of their intellectual livers.]

One critical observation of these authors must be underlined. The annual literature of document handling is too often overloaded by reports of recent embryonic efforts concerned only with the development of a function. Reports of the "latest" techniques often generate a false picture of the true state of the art. Long-term costs and realistic performance experiences must be reported with a scientific detachment that has not yet permeated the interfaces of information science. Journal editors, conference planners and government contract officers must consciously encourage factual reports. [Suggested research for the behavioral scientists: How to convince an author that his report is *not* factual.]

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More than one-third of Chapter 2 denies the title of the volume. Joseph Kuney's "Publication and Distribution of Information" includes many non-advances published in 1967. Perhaps other chapters also include non-advances, but in Chapter 2 the reader is gagged with the aging cliches of after dinner speakers. Just two examples:

1) . . . if such a person exists, a combined reference librarian, instructor, psychotherapist, and program counsellor to provide a human source of information that can be compared with the mechanization imposed on the other vehicles. [Reviewer requests that this project be directed by a respectable geneticist if such a hybrid is to be developed by government grants.]

2) Authors bypass carefully edited primary journals in favor of more rapid publication in poorly edited reports. [Imagine! Those Authors! Still up to their old tricks . . . even in 1967! Tsk!]

This reviewer would be more comfortable if the American Chemical Society's (or any other organization's) programs were reviewed by someone who is not an employee. There is a double discomfort to read of a meeting without any identification of participants or of sponsor (p.52):

> "The availability of the 16-mm cassette and fast printers attached to microfilm readers certainly stimulated the acceptance of microfilm by industrial users; it led to what has become known as the 'grass roots' meeting of June 1967, where an *ad hoc* group of users made it clear to the principal suppliers of microfilm that the 16-mm cartridge or magazine was their preference over the 35-mm reel. The availability of *Chemical Abstracts* in 16-mm cassettes certainly aided the move."

[An *Annual Review* cannot provide historical perspective for the immediate past year, but the proprieties of historical accuracy should be observed. Industrial libraries were using microforms for several decades before 1967. It is true that microfilms of ACS publications were not being used; quite simply they were not available because of the then reactionary policies of that society towards either microfilm or hard copy reprints of its out-of-print journals, including *Chemical Abstracts*.]

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In spite of the total importance of this review volume to our universe, space has not allowed comment on all chapters. The topics reviewed are thought to be first interest to the men-on-the-street among the readers of this journal. Other chapters can occupy the serious reader during many a winter night: "Design and Evaluation of Information Systems" (Donald W. King), "Content Analysis, Specification, and Control" (Orrin E. Taulbee), "The Organization, Maintenance and Search of Machine Files" (Ralph M. Shoffner), "Automated Language Processing" (Gerard Salton), "Man-Computer Communication" (J. C. R. Licklider), "Information Systems Applications in Education" (H. F. Silberman and R. T. Filep), "Information Systems Applications in Medicine" (Richard P. Levy and Maxine R. Cammarn), and "Information Networks" (Joseph Becker and Warren C. Olsen).

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A rather tired information network, the U.S. Post Office, delivered the review copy of this *Annual Review* at the same time as the March 1968 issue of *The Information Scientist,* the journal of the Institute of Information Scientists (London). Although the Institute is observing its tenth anniversary, it is not well known in North America. The brief historical survey notes that the Institute "arose from the need felt by people doing information and library work in science and technology, particularly those with scientific qualifications, for an organization of their own. . . ." The journal further notes that the Institute introduced the terms, *information science* and *information scientist,* "which are now universally used, although not always with exactly the same connotation as here."

The dissemination of information about information is, perhaps, the most neglected of all of *our own* professional activities. The *FID News Bulletin* (July 1967)—also belatedly delivered—reported the suggestion of Professor A. I. Mikhailov and his co-workers at VINITI for use of the term, *informatics,* instead of information science. Had this Soviet suggestion been recognized in time, it might well have saved us from an increase of verbal entropy on the North American continent.

Around the world we will all await Volume 4 whether it be titled *Annual Review of Information Science and Technology* or *Annual Review of Informatics.*

FEMCK

New Information Facility at Celanese

A new Technical Information Center was dedicated on Sept. 26 at the Summit (N. J.) laboratory facilities of Celanese Research Company.* The Technical Information Center occupies the second floor of a new two-story structure that is joined to existing laboratory buildings. The ground floor contains an employee cafeteria and lounge and conference rooms.

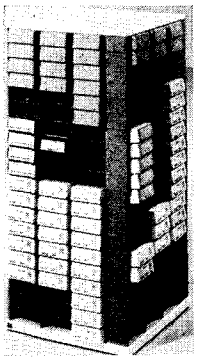
The center's 9,000 square feet of floor space has a capacity for 40,000 volumes as well as patents and research reports (both internal and government reports). A special Celanese Task Force planned the center for a 15-year time span. The task force consisted of: the head of the Technical Information Section (Roger L. Meyer), the plant engineer, an architect, and a consultant. The new structure was designed by Rouse, Dubin & Ventura (New York).

At the dedication Dr. Alfred E. Brown, president of Celanese Research Company, stated, "Our greatest resource of stored and retrievable scientific information is in the minds of . . . the scientists, engineers and technicians engaged in highly specialized research for Celanese. . . . Teamed with this efficient new Technical Information Center, they provide extremely rapid access to the expanding forefront of modern science."

Dr. Jerome B. Wiesner, provost of MIT, in his formal dedication address urged the audience to "rethink our scientific objectives." More than 200 scientists, science librarians and science writers attended the dedication.

* The physical facilities and organizational structure are described in: GRAHAM, Ronald A., LEE, Arthur E., and MEYER, Roger L. The Creation of a New Technical Information Center for a Diversied Chemical Corporation. J.Chem.Doc. v.8: no.2, p.60-66 (May 1968)

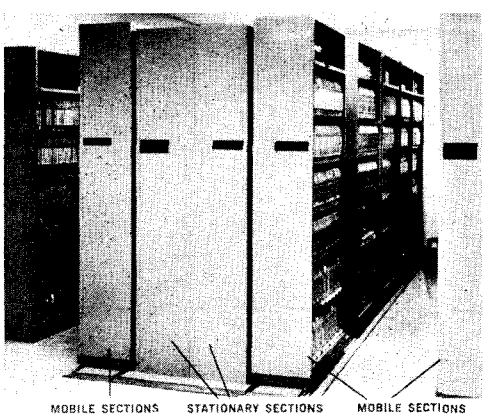
HAVE YOU SEEN ?

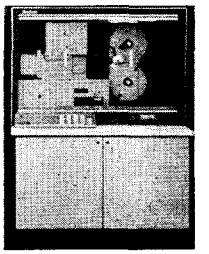


New Rotary Carrousel File provides open storage for 35mm microfilm in boxes or cartridges. Modular construction of units for either 35mm or 16mm film permits intermixing of film sizes. Storage capacity ranges from 60 to 576 films per unit. Rotation is on a ball bearing base. Files are available in combinations of blue, beige and grey. Write: Information Design, Inc., 755 Loma Verde Ave., Palo Alto, Calif. 94303.

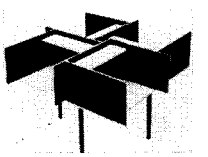
HNM Super Pamphlet is a new binding for government pamphlets, business reports, music scores, etc. that will not lie open flat. The hard cover and flexible spine can be applied to any loose-leaf, stitched, stapled or sewn item up to ⅜″ thick and 12″ high. Prices range from $1 to $2. For more information: Hertzberg–New Method, Inc., E. Vandalia Rd., Jacksonville, Illinois 62650.

Quik-Lok Mobile Shelving units, mounted on tracks, move laterally to expose material stored in stationary sections behind. Rubber bumpers cushion contacts with walls or other units. Full width supports on front and rear of every shelf give added strength. Contact: Aurora Steel Products, 153 Third St., Aurora, Illinois 60507.





Kodak KOM-90 Microfilmer accepts digitized data from magnetic tape at a transfer rate of up to 90,000 characters per second. Throughput rate is 300 to 500 pages of man-readable information per minute. Internal display of data on a cathode ray tube is photographed on 16mm microfilm. Bold face, italics and regular face type may be intermixed within one print line of 132 characters. Several software packages have been prepared. Delivery: early 1969. For information: Eastman Kodak Company, Business Systems Division (Dept. 200), 343 State St., Rochester, N. Y. 14650.



Howe Island Carrels are available in eight different models: straight line, back-to-back, staggered and pinwheel seating arrangements. Two, three, four or six readers can be accommodated; each position is 30″ W × 24″ D with 18″ H side panels. Optional accessories include bookshelf, an 8 watt fluorescent light (12″ long) for mounting beneath shelf, 110 volt dual outlet, projection screen or projector tab. Contact: Howe Folding Furniture, 360 Lexington Ave., N. Y. 10017.

Shelby Instant Mail Overdue Notices in continuous style NCR paper are available in many sizes and up to five parts per set. Each set includes a built-in self-mailing envelope; all data except the borrower's address is automatically and confidentially written into the envelope. Space for five call numbers and authors. Write: Shelby Business Forms, Inc., 40 High School Ave., Shelby, Ohio 44875.

Photographic positives can now be printed on film and paper bases without chemicals by a new process of the S. D. Warren Division, Scott Paper Co., Boston. The "1264" process uses a special paper, **Fotoproof.** Dark rooms are not required because the film is processed by exposure to ultraviolet light.

HAVE YOU HEARD ?

Obstacles to Recruitment?

A recent survey by United Educators showed that librarians feel that a lack of information about the profession is the most significant influence in keeping people from entering the field. Other reasons include the limited number of library schools as well as inadequate promotion by the schools and the profession to emphasize the varied fields of interest within the library profession. Respondents also urged training in the use of multi-media and deep training in new technology.

N. Y. Stock Exchange Information

Xerox Financial Information Service has been announced as new microfiche service for information on the 1,300 companies listed on the New York Stock Exchange. Included on the fiche will be: annual and interim reports, prospectuses, proxy statements, listing applications and acquisitions details. Three subscription options are available: annual at $1,000, quarterly at $1,300, and monthly at $2,300 per year. Order from: University Microfilms, Ann Arbor, Mich.

Canadian Business Archives

The Business Archives Council of Canada was organized on May 2, 1968. A publications program has been organized with distribution gratis or on an exchange basis to appropriate archivists and libraries in Canada and abroad. Contact: Dr. James C. Bonar, president, 599 Lansdowne, Montreal 6, P. Q., Canada.

Administration of Special Libraries

Kansas State Teachers College (Emporia) again offered a course, "Special Library Administration and Organization," during the last academic year. Dr. Wallace Houk, assistant professor at Emporia, reports the second year enrollment was 22—up from the three students registered in 1966-67.

Midwest Medical

The John Crerar Library has been designated as the Midwest Regional Medical Library to serve the states of Illinois, Indiana, Iowa, Michigan and Wisconsin. A grant of $150,000 was made under the authority of the Medical Library Assistance Act of 1965 (PL 89-291).

Appointment of Editor Announced

The appointment of Dr. Frank E. McKenna as editor of *Special Libraries* has been announced by SLA's Executive Director, George H. Ginader. McKenna will also serve as manager of the Association's Publications Department. During the past eight months he has been acting editor of this journal. His name has also appeared in these pages both as an author and in many appointive or elective offices in the Association. Dr. McKenna had been in charge of Airco's Information Center in Murray Hill, New Jersey since 1953.

Toronto Re-organization

The "new" Toronto Public Library system will develop larger regional libraries in various parts of the City of Toronto. The following specialized collections will be located at branches: business reference, current events and education, history, home arts, literature and foreign languages, travel and biography, and business information.

Info Sciences Curriculum Workshop

A five-day workshop for the newly created Curriculum Committee of the American Society for Information Science was held at the University of Pittsburgh in September. Chairman of the twenty-five-member committee is Professor Jack Belzer of Pitt's library school. The workshop was funded by an NSF grant.

Market Research Files on Microfiche

The complete corporate research files of Merrill Lynch are to be available on microfiche from Microcard Editions, a publishing operation of NCR. The subscription offer includes annual reports, prospectuses, proxy statements, annual meeting reports, etc. Subscribers can specify the entire list of 15,000 companies, the 1,050 American Stock Exchange companies, the Fortune 500 list, the 1,500 N. Y. Stock Exchange companies, or 1,200 selected over-the-counter companies. Contact: National Cash Register Co., Public Relations Dept., Dayton, Ohio 45409.

Neglected Philosophy of Mechanization?

In the June/July 1968 issue of *Nachrichten fur Dokumentation* (p.126-29) M. Marthaler reports his impressions from a 1967 study trip to the U. S. The author concludes that the selection of ready-for-use systems for document control, information retrieval, etc. available in the U. S. is impressive. The author questions the usefulness of the equipment because of the neglect of overall philosophies and problems of linguistics in the U. S.

COMING EVENTS

Dec. 9-11 . . . the **1968 Fall Joint Computer Conference** at the Civic Center, San Francisco.

Dec. 29-30 . . . Industrial Relations Research Association. Winter meeting at the Sheraton-Blackstone Hotel, Chicago. Write: IRRA, Social Science Building, Madison, Wisc. 53706.

Jan. 16-18, 1969. SLA Advisory Council and Board of Directors, Sheraton Hotel & Motor Inn, Rochester, N. Y.

Jan. 26-31, 1969. ALA *Midwinter Meeting* at the Shoreham Hotel, Washington, D. C.

Apr. 7-10. Catholic Library Association, Roosevelt Hotel, New Orleans. Contact: M. Richard Wilt, CLA, 461 W. Lancaster Ave., Haverford, Penna.

Apr. 13-25, 1969 . . . "Library Executive Development Program, an Institute for Advanced Study for Librarians," at the University of Washington Continuing Education Center at Lake Wilderness (near Seattle). Limited to 35 participants. For more details write: Dr. Irving Lieberman, Director, Graduate School of Librarianship, UW, Seattle 98105.

Apr. 20-26. National Library Week.

May 6-8. National Microfilm Association at the Sheraton-Boston Hotel, Boston. Theme: *Instant Information.* For information write: NMA, P.O. Box 386, Annapolis, Md. 21404.

May 14-16 . . . the **1969 Spring Joint Computer Conference,** AFIPS, at the War Memorial Auditorium and Sheraton-Boston Hotel.

June 1-5. SLA 60th Annual Conference at the Queen Elizabeth Hotel, Montreal. Theme: *Information Across Borders.* Conference chairman: Miriam Tees, The Royal Bank of Canada, P.O. Box 6001, Montreal 3, P. Q.

June 22-28. ALA in Atlantic City. Conference manager: C. J. Hoy, ALA, 50 E. Huron St., Chicago 60611.

June 29-July 3. American Association of Law Libraries at the Sheraton-Lincoln Hotel, Houston.

Aug. 6-8 . . . World Convention & Seminar on Genealogy in Salt Lake City. Host: **The Genealogical Society.** Contact: Planning Coordinator, 79 S. State St., Salt Lake City 84111.

Oct. 26-30. Medical Library Association at the Brown Hotel, Louisville, Ky. Convention chairman: Joan Titley, Kornhauser Memorial Medical Library, University of Louisville.

CHAPTERS & DIVISIONS

Minnesota *UL*

The *Minnesota Chapter Union List of Periodicals* has just been published. Price: $6 per copy, payment in advance and payable to Minnesota Chapter, SLA. Orders to: Marjorie McNeill, Minneapolis Gas Company, 739 Marquette Ave., Minneapolis 55402.

New York

The Chapter's Technical Sciences Group and the N. Y. groups of the Association for Computing Machinery and ASIS again were the joint sponsors of an all-day conference on computerized information systems. The session on Sept. 28 was the fourth annual joint meeting.

Rio Grande

The Chapter's October meeting considered the statewide programs of the New Mexico State Library, its federal programs, public library development, and federal and state aid programs. The Southwest Collection, its use and its future were also described.

MEMBERS IN THE NEWS

Mrs. Hannah Atkins, chairman-elect of SLA's Social Welfare Section, is a candidate for State Representative on the Democratic ticket in Oklahoma City. She is chief, General Reference Division, Oklahoma State Library. Mrs. Atkins is a past president of the Southwestern Law Librarians Association.

Ray Brian, librarian of the California Academy of Sciences (San Francisco), is teaching the first of the required sequence of reference courses in the new curriculum of the School of Librarianship, University of California, Berkeley in the Fall 1968 semester.

Richard A. Davis . . . appointed assistant librarian for Regional Medical Library Services at The John Crerar Library.

Samuel Goldstein from the University of Massachusetts . . . to project director, New England Library Information Network (NELINET), Wellesley, Mass.

Cloyd Dake Gull from National Library of Medicine . . . to Document Systems Inc. as Washington area sales representative. He is a past president of the Indiana Chapter.

Arthur T. Hamlin . . . appointed director, University Libraries, Temple University, Philadelphia effective Dec. 15. He has been university librarian, University of Cincinnati for the past 12 years.

Dr. Theodore Hines, associate professor at Columbia's School of Library Science, has been named as a special educational consultant to Educators PRIME Information Service, Totowa, N. J. He will redesign the indexing system of the 1969 edition of PRIME Catalog, the buyer's guide of the educational market.

Richard S. Huleatt . . . to technical information manager, Stone & Webster Engineering Corporation, Boston . . . from General Dynamics Electric Boat Division, Groton, Conn.

Dr. Phyllis Richmond appointed as professor, School of Library Science, University of Syracuse effective Jan. 1969.

Arnold Sadow has been appointed editor of New York Public Library's *New Technical Books;* he has served as assistant to the former editor of *NTB,* **Robert G. Krupp.**

Princeton University has announced the appointment of **Mrs. Eva Conrad** as cataloger, and **Helen Fairbanks** as industrial relations librarian.

Mrs. Helen R. Asher, librarian, St. Joseph's Hospital, Orange (Calif.) . . . elected president of the Hospital Librarians' Section of the Association of Western Hospitals. **Isabelle Anderson,** librarian, St. Joseph's Hospital, Phoenix (Ariz.) and **Sherry Terzian,** librarian, Neuropsychiatric Institute, Los Angeles . . . are liaison officer and charter chairman of the section, respectively.

The Nov. 16 Workshop on Careers in Library Science at St. John's University, Jamaica (N. Y.) will be addressed by **Ted Slate,** chief librarian at *Newsweek,* and **Mrs. Rose Sellers,** director of the Brooklyn College Library.

SLA Authors

BAATZ, Rosemary. Author and Subject Index to v.7(1949)-v.25(1967). *Journal of the Illinois Optometric Association,* v.26: (no. 3) p.16-21 (May/June 1968).

BOYLAN, Nancy. A History of the Dissemination of PB Reports. *Journal of Library History* (Apr. 1968).

LITTLE, Dean K. Computer + Microfiche = Better Communications. *Business Graphics,* p.6-9 (May 1968).

MARKS, Barbara S. *The New York University List of Books in Education.* N. Y., Citation Press, 1968. 528p. paperbound. (2,857 titles arranged under 344 subject headings).

YONGE, Ena L. *A Catalogue of Early Globes Made Prior to 1850 and Conserved in the United States: A preliminary listing.* N. Y., American Geographical Society, 1968. *Its* Library series no. 6. 118p.

In Memoriam

Constance Beal Adams, who had headed one of the country's largest and most important private reference libraries, that of the Russell Sage Foundation, died on Sept. 24, 1968 at Saint Barnabas Hospital, New York.

Mrs. Adams, who was known in library circles as Constance Beal, was born in Framingham, Massachusetts. She attended the School of Library Science at Simmons College.

She joined the staff of the Russell Sage Foundation in 1917 and served as its librarian until the library was closed in 1949. At that time she undertook the monumental task of distributing the library's books and reference works to colleges and other institutions—a task for which she was superbly fitted because of her close interest in students and institutions of learning. From her personal funds she had financed more than a dozen young men and women who—without her aid—would have been unable to obtain a college degree.

Mrs. Adams had maintained her interest and activity in the College Club of Jackson Heights, the Business and Professional Women's Club of The Brick Church, and the United Presbyterian Church Presbyterial Society of New York. A member of Special Libraries Association since 1917.

Thomas R. Moore, supervisor, Reference Group of the JPL Library in Pasadena, passed away on August 20 after a long illness. Mr. Moore's age was 31. He was a graduate of Loyola University of Los Angeles (BS in Econ, 1959) and USC (MSLS, 1964). His associates describe his dedication as purposeful because he knew his life would be a short one.

Miles O. Price, professor emeritus of law at Columbia University and librarian of its School of Law for 30 years before his retirement in 1959. Professor Price died on August 18 in Waterville, Maine. His age was 78. He was a member of SLA's Executive Board in 1930-1931 and was president of the American Association of Law Libraries in 1945-1946.

OFF THE PRESS

FID Pubs

The third edition of *Library and Documentation Journals* (1968) has been announced. Price: $5.60. The directory lists 517 periodicals issued in 57 countries; in addition details of 47 abstracting and indexing services are given. Orders to: Internation Federation for Documentation, 7 Hofweg, The Hague, Netherlands.

20/20 Vision

The American Optometric Association has issued a new pamphlet, "Answers to Your Questions About 20/20." Single copies on request to AOA, 7000 Chippewa St., St. Louis, Mo. 63119.

Global Changes

Territorial Changes since World War II is a set of nine overhead transparences with 28 overlays in color. The set demonstrates the many changes in territorial boundaries. Price: $59 (includes a leatherette carrying case). Order from: AEVAC, Inc., 500 Fifth Ave., N. Y. 10036.

Reclassification

Proceedings of the reclassification conference held at the University of Maryland in spring 1968 have been edited by Jean M. Perreault, the conference chairman. Order from: University of Maryland, Student Supply Store, College Park, Md. 20742 at $5 a copy.

TV Producers

A complete how-to-do-it guide for television videotape production is available to A-V directors and educators from the 3M Company. Write for the 42 page book: 3M Company, Magnetic Products Division, Market Services Dept., St. Paul, Minn. 55101.

Information Technology Reports

Science Information Specialist Training Program, C. W. Shilling and B. Berman, George Washington Univ., Mar. 1968, 31p. PB 178 072.

A Study of Scientific and Technical Data Activities, Science Communication, Inc., Washington, D. C., for the Federal Council for Science and Technology, Apr. 1968, 3 vols. AD 670 606, -07, & -08.

Computer Programs for Ordering, Listing, and Circulating Library Books, N. A. Buhl and M. S. Feldman, E. I. DuPont DeNemours & Co., Aiken, S. C., Sept. 1967, 49p. DP-1113.

National Traffic Safety Data Center, Project Definition Phase, EBS Management Consultants Inc., Washington, D. C., for the Dept. of Transportation, Nov. 1967, 196p. 2 vols. PB 178 183 & -84.

Non-Impact Printing Project (NIPP), U.S. Army Materiel Command, Washington, D. C., Jan. 1968. 80p. AD 671 611.

All above reports available from Clearinghouse, Springfield, Va. 22151 at $3 per paper copy or 65¢ for microfiche.

New International Journal

Restaurator, International Journal for the Preservation of Library and Archival Material, is issued three times a year. Subscription rate per volume: 125 Danish kroner (1 kroner = $0.14). Publisher: Restaurator Press, Postbox 96, DK 1004, Copenhagen K, Denmark.

The Office

The behavioral sciences have been focused on the forgotten man: the office worker. Problems are defined and solutions suggested; for example: "sitting at desks" is criticized as causing a steady decline in vitality, energy and body tone." The 80 page book by Robert L. Propst is available at $8 from The Business Press, Elmhurst, Illinois.

RECENT REFERENCES

Bibliographic Tools

JACKSON, Ellen. *Subject Guide to Major United States Government Publications.* Chicago, Am. Library Assn. Pub. Dept., 1968. 200p. $5.50. (LC 68-25844)

This comprehensive guide covers titles of permanent importance issued by the Government Printing Office from the earliest period to the present. Entries are arranged under subject headings which follow Library of Congress practice, with modifications. An annotated bibliography of other outstanding guides, catalogs, and indexes adds still another dimension to this basic list of lasting government publications.

PASZTOR, Magda and HOPKINS, Jenny, comps. *Bibliography of Pharmaceutical Reference Literature.* London, Pharmaceutical Press, 1968. viii, 167p. pap. 25s.

The bibliography contains material published from 1960 through March 1968, but a few earlier items of special interest have been included. Authors, titles and many inverted entries are included in the index. The book includes a directory of associations and learned societies related to pharmacy, and a directory of British Schools of Pharmacy.

Directories

Gebbie House Magazine Directory, 6th ed. Sioux City, Iowa: Gebbie Directory, Box 1111, 1968. 476p. illus. pap. (LC 52-14335)

A public relations and free-lance guide to the nation's leading house magazines. Alphabetical listing by company name, giving name and address of issuing company; type of business; editor; frequency of publication; number of pages, etc. Circulation breakdown; Subjects requested; Questions and answers.

RUFFNER, Frederick G. et al., eds. *Encyclopedia of Associations, 5th ed. vol. 1, National Organizations of the United States.* Detroit, Mich.: Gale Research Co., 1968. 1331p. $29.50. (LC 68-17314)

More than 13,600 trade associations, professional societies, labor unions . . . listed giving detailed information. The scope of this edition has been widened, non-membership groups are now included, Foreign groups and also some types of U.S. local and regional groups. 30,000 entries. Alphabetical and keyword index. vol. 2: *Geographic-Executive Index,* 392p. $17.50; vol. 3: *New Associations.* $25.

Information Handling Techniques

GUIDRY, Nelson and FRYE, Kenneth B. *Graphic Communication in Science.* Washington, D. C. National Science Teachers Association, 1968. $2, prepaid for single copies, discounts on quantity orders.

The book is divided into one section on graphic presentation and one on tools and techniques, and was designed to assist scientific researchers in all aspects of graphic communication. It has particular value for the student engaged in his first presentation of scientific data who needs basic understanding of the concepts of graphics. Includes a glossary of terms and a bibliography of further surveys of information about the art of graphics.

LUCKY, R. W., SALZ, J. and WELDON, E. J. *Principles of Data Communication.* New York: McGraw-Hill, 1968. 448p. $14.50.

A handy reference for communication engineers, explores recent research results as well as current design principles and provides the practicing engineer with up-to-date material dealing with rapidly expanding field of data communication. The integration of coding and modulation theory in a single volume is new; and the sections on theoretical performance bounds, optimum pulse transmission systems, and effects of intersymbol interference have not been treated before in a book like this. Extensive appendices offer the practicing engineer a large number of codes.

Librarianship

CURLEY, Marie T. *The Buckram Syndrome: A Critical Essay on Paperbacks in Public Libraries of the United States.* (Public Library Reporter, no. 13.) Chicago, Am. Library Assn., 1968. 80p. pap. $1.75.

A penetrating commentary on the use and implications of paperbound books in public libraries. In many ways an angry book, the critical conclusions are likely to excite a great deal of controversy. Selected bibliography on paperbacks, compiled by Harold H. Laskey.

HARRIS, Michael H. *A Guide to Research in American Library History.* Metuchen, N. J: Scarecrow Press, 1968. viii, 186p. $5. (LC 67-12068)

This book is intended to serve four purposes: (1) to indicate areas of darkness and light in the broad spectrum of research in American library history; (2) to discuss the philosophy and methodology used by American library historians; (3) to provide a descriptive list of the guides to primary and secondary source materials that are of use to the library historian; and (4) to present a descriptive bibliography of the nearly five hundred masters theses and doctoral dissertations on American library history completed through 1965. Author and Subject indexes.

Miscellaneous

BORDEN, Norman E., Jr. *Air Mail Emergency, 1934,* with a Foreword by Ira C. Baker. Freeport, Me., Bond Wheelwright Co., 1968. 192p. $7.95.

A definitive record and valuable file of carefully annotated portraits of airplanes of the era. The aeronautical buff will find this indispensable for his library.

KIPP, Egbert M. *People Aspects of Research and Development.* N. Y., Gordon & Breach, 1968. 116p. $9.

This original study on attracting, selecting, and retaining key scientific and technical personnel describes how to identify motivations, grade performance levels, and make the best use of scientific human resources.

OFFICE OF THE FEDERAL REGISTER. NATIONAL ARCHIVES AND RECORDS SERVICE. GENERAL SERVICES ADMINISTRATION. *Guide to Record Retention Requirements, Rev. as of Jan. 1, 1968.* Washington, 1968. 85p. pap. 40¢. (Available from Supt. of Docs)

This is a guide in digest form to the provisions of Federal laws and regulations relating to the keeping of records by the public. It tells the user (1) what records must be kept, (2) who must keep them, and (3) how long they must be kept. Index, numbering over 2,000 items.

A Pictographic History of the Oglala Sioux, Drawings by Amos Bad Heart Bull, Text by Helen H. Blish, Introduction by Mari Sandoz. Lincoln, Neb., Univ. of Neb. Press, 1968. xxii, 562p. $17.95.

Consisting of 415 drawings and script notations made in an old ledger book by a cousin of Chief Crazy Horse, records all aspects of Sioux life during a period surely the most heroic and the most tragic of that people's existence.

Survey of Research Projects in the Field of Aviation Safety, 1968 Annual Supplement. New York: The Daniel & Florence Guggenheim Aviation Safety Center at Cornell University, 1968. 29p. tables. pap.

This survey is not a bibliography of reports but a listing of over 160 new research projects established during 1967 in the United States and abroad. Each project is coded and catalogued under several general subjects. Abbreviations.

UNESCO. *Catalogue of Ethnographical Films on Africa.* N. Y., UNESCO Publications Center, 1967. 408p. $7.50.

This first international Catalogue of Ethnographical Films on Africa was prepared by the International Committee of Ethnographic and Sociological Films. The catalogue lists 467 films, indicating subject, date, production unit, technical characteristics, language used, etc. Films are arranged according to the African country or territory with which the films deal and there are four cross-indexes.

WOODS, Hubert. *Durability of Concrete Construction.* (ACI Monograph no. 4). Detroit, Mich.: American Concrete Institute, or Ames, Iowa: Iowa State University Press, 1968. 190p. tables. $6.50; to ACI members $5.

Contains references to detailed studies of practical means of achieving durability and presents the results of extensive research. Prepared especially for engineers and those who are interested in making or specifying durable concrete and who realize the need for information on possible deterioration under various circumstances. A list of some subjects covered: Nature of concrete; Aggregates; Chemical processes, etc.

Proceedings

ARBEITSGEMENINSCHAFT DER SPEZIALBIBLIOTHEKEN (ASpB). *Bericht Über Die 11 Tagung in Stuttgart 15.bis 17.März 1967.* Munchen, Germany: Norbert Fischer, Zweibrucken Str., 12, 8 Munchen 2, 1967. 244p. illus. pap. DM 20.

Proceedings of the Association of Special Libraries held 1967.

Periodicals

U.S. OFFICE OF EDUCATION. EDUCATIONAL RESEARCH. INFORMATION CENTER (ERIC). *Research in Education.* Washington, D. C., illus. pap. published 12 times a year. Subscription: $11 a year, domestic; $2.75 additional, foreign; single copy, $1, domestic. (Available from Supt. of Docs)

A monthly catalog to provide up-to-date information about educational research sponsored by the Bureau of Research. It is designed to keep teachers, administrators, research specialists, others in the educational community, and the public informed about the latest significant findings from educational research.

Journal of Learning Disabilities; Multi-Disciplinary Clinical Exchange International. Chicago, The Professional Press, Inc., 5 N. Wabash Ave. illus. pap. issued monthly. Subscription: One year, $7; Canada & foreign $10; two years, $10; Canada & foreign $17; Special one year teacher & student rate $4.

The first multi-disciplinary exchange of international information in the field of learning disabilities. Original articles from around the world.

Reference

WALSH, S. Padraig, comp. *Anglo-American General Encyclopedias, a Historical Bibliography 1703-1967.* N. Y. & London. R. R. Bowker Co.; 1968. xix, 270p. U.S. & Canada, $9.85; elsewhere $10.85. (LC 67-25023)

A guide to some 419 English language encyclopedias under many titles. Appended to this is an index of encyclopedists and their co-workers and a directory of publishers and distributors of encyclopedias. Also included are a chronology of general encyclopedias in English published in the United States, Great Britain, and Canada from 1703 to 1967, and the 1965 symposium on the theme *"Can Our Good Encyclopedias be made better?"* sponsored by the American Library Association.

CLASSIFIED ADVERTISING

Positions open and wanted—50 cents per line; minimum charge $1.50. Other classifieds—90 cents a line; $2.70 minimum. Copy must be received by tenth of month preceding month of publication.

Advertising rates will be increased—beginning with the January 1969 issue. The rate for all Classified Line Ads will be $1.50 per line, with a minimum charge of $4.50. Current members of SLA may place a "Positions Wanted" ad at a special rate of $1.00 per line with a minimum charge of $3.00. **Copy** for line ads must be received by the **fifteenth** of the month preceding the month of publication. Proofs cannot be submitted for classified ads. Only one tear sheet can be supplied to line advertisers.

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POSITIONS OPEN

LIBRARIAN—To organize, administer and staff a new business library. MLS degree—4-5 years experience—preferably in related field. Salary—$12,000 and over, commensurate with experience and qualifications. An additional year-end merit bonus could be substantial. Contact Robert A. Jordan, Oppenheimer & Co., 5 Hanover Square, New York, New York 10004. Telephone (212) 344-4460.

SCIENCE LIBRARIAN—Attractive opening for Assistant Science & Technology Reference Librarian, with special emphasis in the biological sciences. A rapidly growing college is building collections to support graduate programs. Degree from ALA accredited library school is desired. Salary and grade dependent upon experience offered. Apply to Gordon P. Martin, College Librarian, Sacramento State College, 6000 J Street, Sacramento, California 95819.

SERIALS LIBRARIAN—Experienced. To advance to top managerial position with leading antiquarian periodical house. Should know periodical values. Will train right person if necessary. Excellent opportunity and benefits. Replies treated in confidence. Write: Box C-71.

THE CENTRAL LIBRARY OF THE INDIAN INSTITUTE OF TECHNOLOGY/KANPUR—needs Indian librarians with American library education and experience. IIT/KANPUR is assisted by U.S. Government funds and ten leading U.S. educational institutions. The IIT/K Central Library, in collaboration with Purdue University Libraries, already has nearly 100,000 volumes. The LIBRARIAN (scale Rs 1100-1600 plus allowances) will be a member of the academic senate. The scale for DEPUTY LIBRARIAN is Rs 700-1250. Benefits include return transportation to India. Airmail resume outlining academic qualifications, professional experience, publication, and names and addresses of three references familiar with your professional achievements to: E. C. Subbarao, Dean of Faculties, Indian Institute of Technology/Kanpur, Kalyanpur Campus, Kanpur, U.P., India.

CATALOGERS with experience sought for growing department. New building, expanded operations planned. Faculty rank, normal benefits, salary to $8,000 dependent upon qualifications. Fifth year library degree, language facility required. Two positions available July 1. Contact Dean of Library Service, University of Montana, Missoula, Montana 59801. Tel: 406-243-2053.

BANK LIBRARIAN—An experienced librarian is needed to organize and manage a new Information Center in a progressive Denver bank. You must have 3 years professional librarian experience including selecting and organizing materials; business education or experience desired; MLS required. Send resume and salary requirements to Valerie Flick, Personnel Department. Denver U.S. National Bank, P.O. Box 5247 Terminal Annex, Denver, Colorado 80217.

REFERENCE LIBRARIAN—Technical. Master's Degree in Library Science, BA in Math, Physics or Chemistry preferred. Comprehensive reference and bibliographic work. Prefer candidates with experience, but will consider recent graduates. Located near Universities of Wake Forest, Duke and North Carolina. Starting salary $8,000—$10,000. Write to Mr. C. O. Mahaffey, Western Electric Company, Incorporated, 3300 Lexington Road, Winston-Salem, North Carolina 27102.

LIBRARIAN—*for library of foot health materials.* 800 books, 15,000 reprints. Cataloging nearly completed (LC). Present librarian retiring. Interesting promotion work to be done. Serves staff and membership. Many fringe benefits. Medical library experience preferred. Salary open. Write: Mr. Louis Buttell, American Podiatry Association, 3301 16th St., N.W., Washington, D. C. 20010.

LIBRARIAN—needed immediately to develop highly specialized collection to serve the Faculty and Staff of an Institute affiliated with The Johns Hopkins University. Staff composed of librarian and clerical assistant. Library degree desired. Medical background helpful. Must have imagination and flexibility. Send resume to Administrator, The John F. Kennedy Institute, 707 N. Broadway, Baltimore, Maryland 21205.

An Equal Opportunity Employer.

ASSISTANT DIRECTOR, TECHNICAL SERVICES DIVISION, OREGON STATE LIBRARY—Librarian 5. Located in Salem, capital city of 67,000 midst scenic, rolling hills and abundance of Oregon's Willamette Valley. Opportunity for professional growth and challenge in important position as Assistant to Technical Services Director and with primary responsibility for work of an active Documents/Serials Section. Builds documents collection and does consultant work with Oregon's state depository libraries. Assists in planning for automation of serials. Qualifications: MLS degree and four years of experience, including work with documents. Salary: $9,120—$10,980, depending on qualifications. Apply to: Oregon State Library, Salem, Oregon 97310.

INFORMATION SERVICES MANAGER—Seeking an experienced Technical Information Systems specialist to assume the total information services function for the R & D Division. He or she will be responsible to guide and operate a newly established technical library, administer technical report system, and monitor other activities such as release of technical data on products. Operation of technical library will include a small business library function as well. Individual will be expected to develop and justify policies and procedures pertaining to information collection and dissemination; effectively initiate and maintain suitable information retrieval system; provide effective technical information management. Salary $13,000—$17,000 per year. Write: R. E. Kotrba, Technical Center, Cummins Engine Company, Inc., Columbus, Indiana 47201.

CATALOG LIBRARIAN—Opening for Assistant Catalog Librarian, Librarian II grade, for a rapidly growing College building graduate program. Degree from ALA accredited library school is desired plus experience in cataloging humanities. Foreign languages desirable. Apply to Gordon P. Martin, College Librarian, Sacramento State College, 6000 J Street, Sacramento, California 95819.

CHEMICAL LIBRARIAN—The Shell companies have an opening in the San Francisco Bay Area, and another in New York, for a Chemical Librarian. San Francisco Bay Area: Library serving major industrial research laboratory seeks individual to take charge of all public services, including scientific and bibliographic reference, and to assist in planning and implementing utilization of new methods of handling scientific and technical information. New York: Cataloging, reference, and literature searching on behalf of management and technical personnel engaged in research and development, engineering, sales, and market research. Requirements: BS in Chemistry, MLS preferred. 0 to 5 years' experience. Shell's employee benefits include a liberal education assistance program. If interested in these positions, please send a complete résumé to Q. C. Stanberry, Recruitment Representative, Department SL, The Shell Companies, Box 2099, Houston, Texas 77001. An equal opportunity employer.

HEAD, TECHNICAL PROCESSING—needed to direct order, serial, and cataloging activities of small, highly specialized library. Degree from ALA accredited school, and professional experience at supervisory level essential. Salary range, $8,500—$12,000, dependent upon qualifications. We are an equal opportunity employer. Send resume to: Miss Natelle Isley, Manager, Information Services Division, Mississippi Research and Development Center, P. O. Drawer 2470, Jackson, Mississippi 39205.

LAW LIBRARIAN—for joint appointment as faculty member and librarian. Both law and library degrees necessary. College of Law has faculty of 20 and student body of 450, housed in new building with new library. Library of 93,000 volumes, staff of seven. Faculty status, TIAA/CREF, usual fringe benefits, salary open. An excellent opportunity for a strong person boxed in by circumstances or a head man who will never retire. An equal opportunity employer. For details, write Stuart Forth, Vice President and Director of Libraries, 207 Administration Building, University of Kentucky, Lexington, Kentucky 40506.

POSITIONS WANTED

CATALOGER—to establish the technical processes dept. of a new library. MLS, 7 yrs. exp. cataloging and reference in public and special libraries. $11,000 min. Write Box C-83.

INFORMATION SPECIALIST—Male. D.Sc. Geology, fluent in French and German. 5½ years experience indexing, abstracting, searching, translating, working with computer-based information system, building and maintaining thesaurus. Previous experience in geophysics and geology. Box C-90.

FOR SALE

BACK ISSUE PERIODICALS—Scientific, Technical, Medical and Liberal Arts. Please submit want lists and lists of materials for sale or exchange. Prompt replies assured. G. H. Arrow Co., 4th & Brown Sts., Philadelphia, Pa. 19123.

"ESCHEW OBFUSCATION" PLAQUE, 8½" x 4", typographically incredible, $1.50; deluxe edition, $2.50; grandiose, $5.00. Wry Idea Co., Box 178-L, Rye, N. Y. 10580.

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QUICK TRANSLATION—German and French technical articles, patents, letters, etc. translated by Ph.D. chemist (minor in physics). Quick service, confidential, very neat work. $1 up per hundred words, typewritten in duplicate. Technical Translation Service of Buffalo, P.O. Box 21, Townline, New York.

WANTED—*Encyclopedia of Chemical Reactions*, edited by Jacobson & Hampel, vol. 1-5, and vol. 7. Good condition, Reply to Box C-91.

INDEX TO ADVERTISERS

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D. Free distribution (including samples) by mail, carrier or other means	63	63
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GEORGE H. GINADER, Executive Director

Instructions for Contributors

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Special Libraries publishes material on all important subject areas and on all methods and techniques for "Putting Knowledge to Work." New and developing areas of librarianship, information science and information technology are sought. Informative papers on the administration, organization and operation of special libraries and information centers are solicited. Scholarly reports of research in librarianship, documentation, education, and information science and technology are appropriate contributions. Bibliographies and bibliographic essays, discussions and opinions that are intended to be authoritative or that reflect original research are also published. Professional standards, salary information, education, recruitment and public relations are other representative subjects for inclusion. Controversy is not shunned.

As the official journal of the Association, *Special Libraries* also publishes reports of business of the Association and its subunits, as well as news of its members and for its members.

Contributions are solicited from both members and non-members. All papers submitted are considered for publication. Papers are accepted with the understanding that they have not been published, submitted, or accepted for publication elsewhere. *Special Libraries* employs a reviewing procedure in which manuscripts are sent to three reviewers for comment. When all comments have been received, authors will be notified of acceptance, rejection or need for revision of their manuscripts. The review procedure will usually require a minimum of six weeks.

Types of Contributions. Three types of *original* contributions are considered for publication: full-length articles, brief reports or communications, and letters to the editor. New monographs and significant report publications are considered for critical review. Annotations of the periodical literature as well as annotations of new monographs and reports are published—especially those with particular pertinence for special libraries and information centers.

Editing. Manuscripts are edited primarily to improve the effectiveness of communication between the author and his readers. The most important goal is to eliminate ambiguities. In addition, improved sentence structure often permits the readers to absorb salient ideas more readily. If extensive editing is indicated by reviewers, with consequent possibility of altered meanings, manuscripts are returned to the author for correction and approval before type is set. Authors are free to make additional changes at this stage.

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

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

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Figures should be lettered in black India ink. Charts drawn in India ink should be so executed throughout, with no typewritten material included. Letters and numbers appearing in figures should be distinct and large enough so that no character will be less than 2 mm high after reduction. A line 0.4 mm wide reproduces satisfactorily when reduced by one-half. Graphs, charts, and photographs should be given consecutive figure numbers as they will appear in the text. Figure numbers and legends should not appear as part of the figure, but should be typed double spaced on a separate sheet of paper. Each figure should be marked *lightly* on the back with the figure number, author's name, complete address, and shortened title of the paper.

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

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

Accuracy and adequacy of the references are the responsibility of the author. Therefore, literature cited should be checked carefully with the original publications. References to personal letters, abstracts of oral reports, and other unedited material may be included.

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

SMITH, John, JONES, B. H. and DOE, Richard. Special Librarianship in Action. *Special Libraries,* v.59 (no. 10): p.1214-21 (Dec. 1968)

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

BROWN, Abel. *Information at Work.* N. Y., Abracadabra Press, 1909. 248p.

Full-Length Articles

Articles may range in length from about 1,000 words to a maximum of 5,000 words (up to 20 typed double spaced manuscript pages). Provide a title of one or two lines of up to 35 characters plus spaces per line.

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

Write a brief author note, and include position title and address. In the author note, include information concerning meetings, symposia, etc. where the paper may have been presented orally. Also submit recent glossy black-and-white photographs of the authors.

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Short reports or communications will usually be less than 1,000 words in length (up to 4 typed double spaced manuscript pages). List the authors on the last page of the text in the form of a signature and include a simple mailing address.