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## Special Libraries, December 1973

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# *special libraries*

*December 1973, vol. 64, no. 12*

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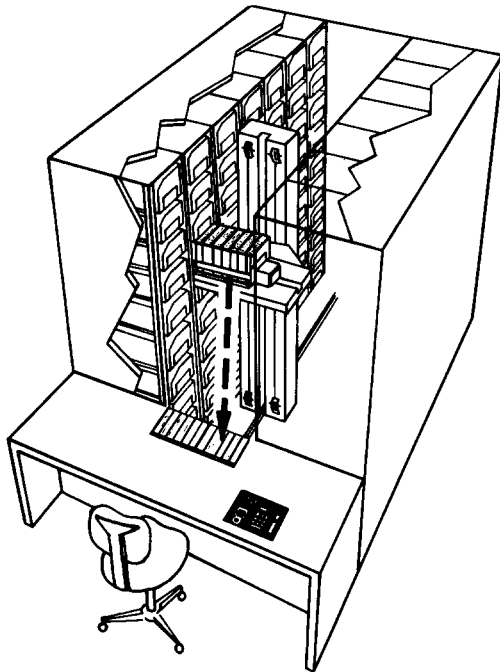
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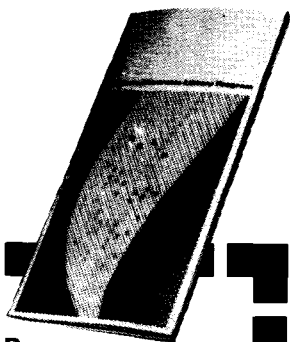
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From about 1897 through 1905, a predecessor publication was printed in the San Francisco area by the same Navy men under the title: *Naval Flashes*. When ownership of *Our Navy* changed hands in 1932, there were no copies of *Naval Flashes* in the files.

Do you have knowledge of any issues of *Naval Flashes* which have been preserved?

**R. E. Stivers**  
Bethesda, Md. 20014

### *Literature Searching*

The Computer Search Center at Illinois Institute of Technology Research Institute has recently begun retrospective searching of *CA Condensates* at \$50 per volume [*Information. Part I News, Sources, Profiles* 5 (no.4): 183 (Jul-Aug 1973)] and could be added to the list of vendors in the article "Computer Literature Searches in the Physical Sciences" [*Special Libraries* 64 (no. 10): 442-445 (Oct 1973)].

An approach to computerized literature searching that might be explored as an alternative to the suppliers of searches mentioned by Murdock and Opello is in-house searching, via terminal connection to multiple, on-line, data bases. I am presently aware of three ventures in this area: The Systems Development Corporation which includes *CA Condensates*, the National Agricultural Library's *CAIN*, Abstracted Business Information's *INFORM*, and *ERIC*; Lockheed Information Services which offers on-line searching of the *NTIS*, *INSPEC*, *ERIC*, *Psychological Abstracts*, *CAIN*, *INFORM*, *PANDEX*, and *TRANSDEX*; and the Science Information Association offering *CA Condensates*, *NTIS*, and *TOXLINE*. Systems such as these are attractive for two reasons. First, they may be less expensive for institutions which would be likely to have a number of searches of a particular data base during a year, for example, 20 separate searches of *CA Condensates* at \$50 per volume for the years 1970-1972 would be approximately \$6,000 if obtained through outside vendors; twenty searches in-house might

(continued on p 9A)

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Eileen E. Hitchingham  
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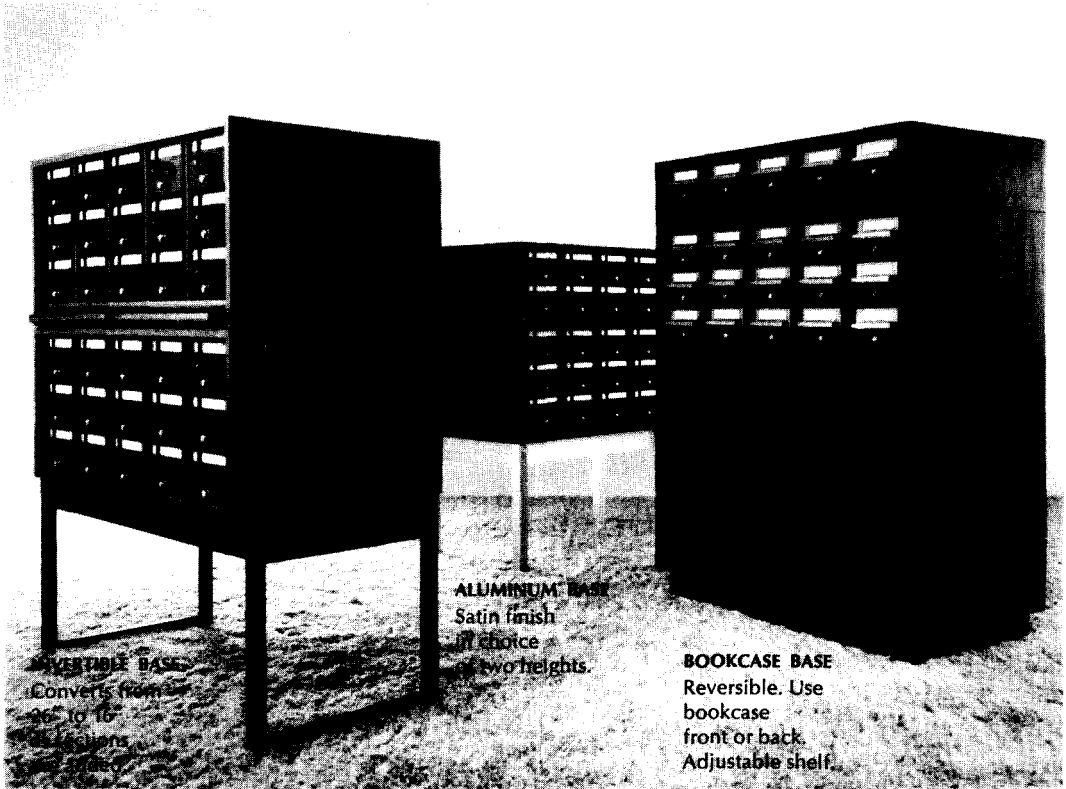
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■ Currently within the U.S. Department of Agriculture's Agricultural Research Service, a large-scale selective dissemination of information (SDI) system is in operation. The unique characteristic of this system is that the users develop and modify their own profiles rather than rely on an intermediary who interprets and translates their needs. Requiring minimal staffing and relying on the proven subject expertise of the researchers, the system makes it possible

for a wide number of users in various disciplines to have access to a variety of commercial tape services at no direct charge. An important outgrowth from the system has been increased user interest in information services and a desire to learn how to better utilize them. The experience gained from, and the implications of, this user-dependent approach for information system planners are also discussed.

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IN MAY 1972, a Current Awareness Literature Search Service was made available to Agricultural Research Service scientists within the Department of Agriculture. The service, referred to as an SDI system (Selective Dissemination of Information) by librarians and information specialists, consists of regularly recurring searches of computer readable magnetic tape versions of several commercially published abstracting and indexing journals. The data bases offered include *Biological Abstracts* and *Bio-Research Index*, *Chemical Abstracts*, *Engineering Index*, and CAIN (a file compiled by the National Agricultural Library). The system is designed to provide the scientist with regular surveil-

lance of the currently published literature. Periodically, he receives lists of citations, some with abstracts, to relevant journals, articles, proceedings, patents, etc. There is no direct charge to ARS users for this service.

The Agricultural Research Service system differs from many SDI systems, such as those offered commercially by the University of Georgia and the Institute for Scientific Information, in that it relies on the scientist himself to develop and present his information request to the computer and to initiate all revisions. The request is written in the form of a profile which specifies as exhaustively as possible the list of keywords or phrases or authors' names or journal



coden, etc., that the user is interested in having the computer search. In addition to specifying the search terms and synonyms, the user must also indicate the search logic (i.e., which terms must co-occur, which are adequate by themselves, etc.), and the various data bases to be searched. All of the pertinent rules and procedures as well as numerous examples are presented in the *User's Guide (1)*, which any individual interested in writing a profile may request. The *User's Guide* and the appropriate three-part profile form are sufficient for the user to take advantage of the system. Supplemental information such as thesauri or classification schedules are useful in searching several of the data bases. For example, we make available copies of Biosis' cross (subject) and taxonomic codes for *Biological Abstracts* users and we loan copies of SHE (Subject Headings for Engineering) to Engineering Index users.

### Implications of the System

The user-dependent nature of the search system has had several effects on the system's continuing development and has wide implications regarding information services:

1. User-dependence results in lower system implementation and maintenance costs. To maintain a staff of subject specialists broad enough to represent ARS interests who would write and revise profiles would make the system prohibitively expensive. There is also some doubt as to whether such an arrangement would result in more effective profiles since the scientist himself knows most about what his interests are. The current system is operated by a staff of three: The first is an information specialist who conducts the user education program, handles user's questions, and evaluates general system performance in terms of unmet needs or areas needing improvement, such as, acquisition of new data bases. The second is a computer technician who handles the keypunching contracts and sets up the computer runs.

The third is a programmer/operations manager who does any necessary program revision or development.

2. User-dependence results in a closer relationship between the user and the system with increased responsiveness on both sides. Because the user understands the mechanics of the system, he can and usually does recognize and appreciate the implications of faulty term truncation, unclear search logic, omitted terms, etc. And when he receives five hundred citations instead of the fifteen he was expecting, he knows it is up to him to do something. Likewise, when the information specialist receives a request for useful reference tools such as thesauri, etc., or a general call for help, she tries to help as quickly as possible for the system will only be as good as the users try to make it. Slowness or lack of response on the system's part could easily dampen the user's enthusiasm and willingness to participate actively.

3. Increased user participation has resulted in increased user education. Many scientists have been using the published equivalents of the tape files for years without taking full advantage of the information included. For instance, the many kinds of indexes available in *Biological Abstracts* had rarely ever been adequately explained to many users. Users were not utilizing fully the breadth and flexibility of the publication. We have found this same kind of problem with respect to most of our data bases. In teaching the user to write a profile, we are, in effect, teaching him to instruct the computer how to search the various secondary journals, such as *Chemical Abstracts*. In the process of doing this, the individual learns a great deal about how the journals and the citations within it are constructed and the various avenues open for searching. Additionally, he is formalizing his own sometimes vague ideas about what he is interested in. Both are valuable activities.

We are currently operating with more than 6000 profiles and the total increases steadily. We have roughly a thousand

users, but the average number of profiles per user is closer to three than six. The distortion results from several users with 20 or 30 profiles—such as a librarian with 26 profiles to monitor the major areas of research with which his laboratory is concerned. Ninety percent of our users search more than one data base (2). We receive new profiles via two different channels. We receive unsolicited profiles from users who hear of the service, request a User's Guide and develop a profile unassisted. Additionally, we offer seminars and workshops to our various field locations across the country. Here, groups of individuals varying from 5 to 175 scientists are given a general introduction to the search service and then can ask questions on an individual basis while they actually write their profiles.

### Interest Spreading

Word of mouth has played an important part in bringing in new users. While only a third of a given staff may turn out for a seminar and actually write profiles, as soon as they begin receiving output and their colleagues see it, interest grows. "I want some, too," is an extremely common phenomenon. Although we don't encourage individuals to try to teach each other the specifics of profile writing, conversation between individuals which results in fuller elaboration of the actual search topic is extremely valuable. Also we have found the profile to be a useful means of communication between sometimes uncommunicative scientists. Often groups from different laboratory locations will be present at the same seminar. While developing profiles, users who thought they were working in unrelated areas will find that their profiles include similar terms or concepts and this will often lead to a better overview and perspective on the broad research program. Many cooperative profiles are yielding information for such multidisciplinary groups.

In general, user response to the system has been excellent. Although no



formal monitoring of user response is conducted, many individuals have written in to say how pleased they are with the service. We recently sent out a questionnaire to obtain various kinds of information among which was whether the service provided any benefits to the user. Response to the questionnaire was 98 percent—a remarkable occurrence in itself. Of the total returns, 75 percent reported specific time savings, broader coverage, etc., and about 15 percent replied there were benefits derived but did not elaborate. We have had fewer than thirty profiles dropped from the system since its inception. The average profile is revised twice before the user is fully satisfied. Obviously there is a wide range of tolerance in evidence here—for example, some users are irritated if five citations out of a list of 35 are irrelevant. Conversely, some individuals will accept 50% irrelevant material if they feel they are not missing the important citations. We place no restrictions on the number of profiles or amount of output an individual can have; we simply ask him to make sure he really wants it all and uses it. Our attitude is to explain to the user the mechanics he needs to know to take advantage of the system. At the same time we tell him there is no single "right" way to write a profile or search the literature.

The object is to give him enough knowledge so that he can use the tool, the computer search, in a manner that produces acceptable output. We see noticeable differences in the levels of sophistication of our users. A few have become expert enough that they could conduct seminars and workshops for us. Most have learned enough to get what they want from the system and feel no desire to go further.

The consensus of the users is that the new service allows them to cover a much broader section of the literature than they ever could manually and that the searching is done in a more thorough and consistent fashion than if they had done it. In short, the service appears to be valuable in two ways: as a useful research support service and as a worthwhile educational experience.

#### Literature Cited

1. Current Awareness Literature Service / *User's Guide*. 1972 Data Systems Applications Division, Agricultural Research Service, U.S. Department of Agriculture. Beltsville, Md.

2. In-depth analysis of statistics collected from the system will be published in a later paper: "Analysis of System Statistics and User Feedback in a Multidisciplinary SDI System."

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# A System for Cataloging Computer Software

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■ As a form of nonbook material, computer software (programs and data bases) can be cataloged and the collection managed by a library. The System Development Corporation Technical Information Center has adapted the *Anglo-American Cataloging Rules* for descriptive cataloging of computer programs. A classification schema is used to categorize

programs by their general areas of application, such as in accounting or artificial intelligence. For subject access, descriptors are applied to represent the processing functions performed by a program, such as data validation or parsing. The software catalog is published in book form, with divisions for classification, author, title, and subject.

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SYSTEM Development Corporation (SDC), one of the largest firms developing computer programs (software) for customer use, recently decided to create a library for its software materials. Responsibility for developing the catalog for this library was delegated to the director of the Technical Information Center, Diana D. DeLanoy, who not only has an extensive background in library automation, but who also was able to take advantage of the talents, techniques, and tools of SDC's Education and Library Systems Department. Thus, the project from its inception was based on principles of librarianship and information science. We believe that the cataloging procedures developed for the SDC Corporate Program Library represent a significant advance in establishing management control over an organization's inventory of software, which frequently represents a substantial financial investment.

If a good system for cataloging software had existed, it would not have been necessary to invent one. We performed a limited literature search that identified several software catalogs, but failed to find one that provided both adequate subject access to a collection and useful descriptive summaries of the salient characteristics of programs (1-5). Most catalogs (or, more properly, indexes) are simple listings of programs by acronymic or coded title with little additional information (6).

One exception is the SHARE program catalog developed by the IBM user group (7). Since this catalog provides a reasonably complete model for describing a program, we have adopted it as a basis for developing the rules for descriptive cataloging for the SDC catalog. Unlike most other systems, SHARE does recognize the importance of including the names of the persons responsible for developing a program. A program's

author is normally the best source of information about the program's capabilities, limitations, and adaptability to use in a different application. Documentation describing a program is usually too sketchy to provide adequate information or so bulky that the most important information is buried.

It is not particularly surprising that few systems apply subject headings or index terms to indicate the subject matter of programs; there is no thesaurus suitable for such a purpose. Unlike primarily informative materials such as books or technical reports, computer programs are really mechanisms or tools for carrying out processes. (A case might be made for considering programs as more akin to musical scores than to any other kind of library material.) Yet, because the functions performed by computer programs are so generic that they occur in many different application areas, subject (function) access to programs is as necessary as subject access is to literature. If a software catalog is to serve a wide range of users, a suitable thesaurus of software function names and terms must be developed to provide subject access to program collections.

### System Objectives

We began the development of our cataloging system with several objectives in mind. First, we wanted to create and maintain a centralized stock of software of current or potential use in performing software design and development work for customers or for the corporation itself. Even when existing programs cannot be modified inexpensively for a new use, their design concepts can often be translated into a new program code at a fraction of the cost required for starting afresh. However, such savings can be realized only if people working on a new project can discover what software is available.

Second, we wanted to take advantage of the information embedded in a catalog of program descriptions to help identify and define the range of programming skills and experience that could

be tapped within the corporation. Because SDC's chief stock in trade is the talent of its employees, it would be desirable to have a source of more detailed information than personnel résumés from which to find who is capable of doing what.

Third, it is becoming increasingly necessary to employ a "make-or-buy" decision with regard to software, just as has long been the case in acquiring machinery or equipment components. As various parts of the organization acquire programs from outside the corporation, a central record should be made so that other departments do not, in ignorance, purchase the same or similar programs unnecessarily, or worse, redevelop these programs from scratch. Thus the cataloging system should accommodate programs acquired from noncorporate as well as corporate sources.

Most important, we wanted to create a cataloging system for software that would compare favorably with cataloging practices for nonbook materials, journal articles, and technical reports. Our objective was to be user-oriented. We wanted the catalog to be easy to use; to offer at least the most valuable points of access to the software collection; to provide an adequate description of each program so the user could decide with some confidence whether or not the program might fit his requirements; and to furnish an array of access points to the collection, so that the user would be able to select alternative search strategies on the basis of his knowledge, interest, and need for information.

In summary, an organization's software cataloging system should provide a high degree of control for the software inventory. The system can best achieve this goal by employing the standard principles and techniques of cataloging and information retrieval, in relation to the information-seeking habits of the system users. Good advantage should be taken of the by-products of the system, such as the availability of information indicating particular talents and experience of people and organizations cited in the catalog.

## Design Criteria and Considerations

The cataloging system as it now stands is still a pilot model that, while fulfilling the basic objectives, is subject to much improvement and refinement in the light of operational experience and (hopefully) suggestions from persons outside SDC who are contending with the problem of cataloging computer software.

We estimated that the complete catalog would only have about 2,000 main entries. Nevertheless, our design was based on the consideration that a software catalog could well be much larger, or could be combined with other catalogs, and so should employ techniques useful in managing large catalogs.

A decision was made at the beginning to use SDC's bookform catalog program package. This system has been in operational use since 1970 for production and maintenance of a machine-readable catalog for a large local junior college. The package incorporates many desirable features for file handling, such as controls for the release of entries to the master file, separation of authority-type cross references into a separate physical data set of the master file, and use of an in-process file for new entries to allow for verification and correction before adding them to the master file. A well-proven sort key generation routine approximates the most important library filing rules for entries. Cross references based on information in the entry, such as an added author or title, are automatically generated. The catalog page composition program contains a simple hyphenation routine and allows for specifying at run time the number of columns per page, the number of characters per column line, and the number of lines per column.

The decision to use the existing package ensured that we would follow closely the standard cataloging rules established for book and nonbook materials. We were further resolved in so doing by discussions appearing in the Summer 1972 issue of *Library Resources and Technical Services* (9) regarding the standard-

ization of cataloging rules for nonbook materials. While the problem of cataloging computer software was alluded to only once in this issue, a strong case was made for observing the *Anglo-American Cataloging Rules* (AACR) as much as possible in handling all the kinds of materials that a library might contain. Computer programs are essentially similar to other kinds of works produced by an individual or small number of individuals, and so the standard descriptive cataloging rules should apply where appropriate.

We adopted a simple classification schema that was acceptable to potential users of the catalog. The main classes were adapted from those used by International Computer Programs, Inc., for listing programs in its quarterly publication of programs for sale (1). We modified the set of classes by adding groups for programming techniques and systems software, and developed a two-level hierarchy for the eventual subdivision of main classes into subclasses. Initially, we have assigned approximately 70 classes, all on the main class level. There appear to be no major advantages in using an existing standard classification schema such as the Library of Congress classification, since these emphasize division by intellectual content (philosophy, biology, etc.) rather than by function or application. However, there does appear to be an advantage in assigning multiple classifications for a single program; one primary class number must be designated, and any number of secondary classes may be assigned.

## Subject Cataloging

Since no suitable thesaurus was available, we decided to begin subject cataloging by allowing the persons filling out the program descriptions to assign whatever terms they wished. In most cases, these persons are the authors or maintainers of the programs and so are likely to come up with the terms and phrases most meaningful to potential catalog users. Of course, a cataloger must edit the raw terms into a standard form

and add other terms if those supplied do not fully cover the functions listed under the program description.

We are monitoring user requests for reference assistance and are employing questionnaires to ascertain how people are using the catalog and what terms they are employing in searching. With some pragmatic information in hand, we can create a semicontrolled vocabulary that will weed out the most bothersome anomalies in the set of descriptors in use. This should lead to the eventual development of a thesaurus. The thesaurus will be developed using the guidelines established by Unesco (8).

### Form

It is necessary to control the form, and in some cases the content, of any element in a catalog entry that may be used as an access point or as a sort key for sequencing entries in the printed catalog. This control is accomplished primarily through the use of authority lists, although the computer program that generates catalog entries has a limited capability to make certain simple checks.

Finally, we fixed upon the use of a full upper- and lower-case character set for the catalog, for both esthetic and practical reasons. Upper- and lower-case printing is easier to read than is the all upper-case form traditional in the computing field. The full character set also allows for a larger variety of entry format clues to assist the reader in locating a particular element of information within a printed entry. There is a slight additional cost for using the full character set, and its use can create some processing difficulties in obtaining adequate input devices and the prompt return of a job from the computer center, but the advantages outweigh the disadvantages. We have had a number of favorable comments from users, including some people who had not realized that computers could print in lower case!

In laying out the design criteria and considerations for the cataloging system, we attempted to achieve a balance

among factors of effectiveness, flexibility, and economy. While we intended to develop a cataloging system for software that would be an advance over those currently in use, we could not afford the time or money to carry out the extended research required to establish firm specifications for such a system. However, it seemed likely that we could quickly come fairly close to meeting our goals by combining the application of standard cataloging rules with the capabilities of a time-tested program package for catalog maintenance.

### Elements of a Software Catalog Entry

An information element is a portion of a catalog entry that must be separately distinguishable to a computer; for example, a program's acronymic title must be an information element if a cross-reference entry is to be generated automatically from the acronym to the main entry for the program. In most cases, an information element is coextensive with a corresponding data element defined as a portion of the computer record for the catalog entry.

Information elements of a catalog entry for a computer program are, for the most part, analogous to the elements in an entry for other types of library materials. A few elements of information for computer programs, however, are unique to this type of material. Care must be taken to ensure that the former set of elements are handled according to the standard cataloging rules; for the latter set of elements, special rules are needed.

In creating the design for the entry record in our cataloging system, we have established the set of information elements listed below. Each element is defined and described; then a statement is made indicating whether the element is required and must be present in the record; whether it may be multiply-occurring (i.e., having more than one occurrence or value in a single record); and whether it is likely to serve as an access point to the record for retrieval purposes. Comments concerning the reason

for establishing the element are appended at the end of each description.

1. *Primary Classification Code and Call Number.* Contains the classification code indicating the *primary* application area for which the program is intended. The code is supplemented with an accession number to uniquely identify the record. A classification code consists of a three-digit number designating a major area of application for a program, and a two-digit subclassification number that indicates a more specific application within that major area. Thus the classification code "060.00" designates the major application area "Education and Libraries." The classification number, when combined with the accession number (starting at .1 for each subclass), is the entry's call number. The call number is required and is an access point.

2. *Secondary Classification Codes.* Contains classification codes for *other* application areas where the program might find use. These codes may be multiply-occurring; each is an access point.

3. *System Name.* Contains the acronym or title for the system or package of which the program is a part, and is analogous to an added title. Only two hierarchical levels are allotted for indicating the relationships among systems, subsystems, modules, programs, routines, blocks, etc. This constraint is desirable for two reasons: a) It would be difficult to establish a rigorous definition of the various levels of software that would be commonly accepted. b) The cross-referencing structure for the catalog would become complex (as in the analogous case of cross-referencing from the various segments of a corporate body such as "U.S. Congress. Senate. Committee . . ."), causing an increased cost for computer processing and printing for the cross-references. The system name is an access point.

4. *Program Acronym.* Contains the acronym or code, if any, identifying the program, and is analogous to an added title. Most programs are denoted by an acronym or code rather than by a descriptive title. The acronym is an access point.

5. *Program Title.* Contains an indicative title for the program. The title should not begin with a content-poor phrase such as "A program to . . .". In generating a sort key for the title, the cataloging program will drop off a leading "A," "An," or "The." The title is required and is an access point. Programs typically have an acronymic rather than indicative title, so that it will often be necessary to invent a title for this element when the program itself does not bear one. Our reason for establishing this element was that it would provide a better clue than the acronym itself to the program's function.

6. *Author.* Contains the name of the person who is most responsible for the creation of a program, when such a person can be distinguished. The program author should be treated as the author of any other work, in accordance with the *AACR Rules*. Where there is an added author for the program, the authors' primary relationship to the work must be indicated as: "prog." for programmer, or "anal." for analyst or designer. The author is an access point. We were impressed by Seymour Lubetzky's cogent arguments in favor of author main entries for nonbook materials (10, 11). Even though in our system the main entry appears under the primary classification code rather than the main author, we believe that it is necessary to provide sufficient information in the record to allow listing the main entry under the main author if the program catalog entries are to be merged with entries of another catalog, such as the regular catalog of the Technical Information Center. Although the location of the main entry does not have much significance in terms of a machine-readable catalog, and particularly when on-line access is available, a mechanism should be provided whereby it is easily possible to list the main entry under any likely access point, including the main author.

7. *Added Authors or Information Source.* Contains the names of persons other than the author who are also responsible for the creation or maintenance of the program, or the name of



the person within the organization sponsoring the catalog who knows how a program acquired from outside the organization is supposed to operate. The information source's relationship to the program should be indicated by "info"; the relationship to the program of other added authors must be indicated as: "anal.", "prog.", or "maint." Added authors may be multiply-occurring and each is an access point. If there is a corporate author other than the source, this corporate author may be designated as an added author.

8. *Source*. This element is analogous to the place of publication and publisher portion of an imprint. In the case of the SDC catalog, this element contains the organization code for the department within the corporation which developed the program, or the name of the firm or agency from which the program was acquired. The source is required and is an access point.

9. *Operational Date*. Contains the month and/or year indicating when the program first became operational or available. A program becomes operational when its initial development is completed or terminated, or when the program is used for productive work. For a program in current use, an older operational date suggests that there has been time to work out almost all the bugs and to establish efficient procedures for its use. For a program not in current use, an older operational date suggests that the program is no longer viable and would require extensive rework to bring it back to operational status; also, there is less likelihood that anyone (including the author) has detailed knowledge of the program. As in the case of other works, the copyright date may be used for this element.

10. *Special Protection*. Contains terms designating any special protection required for the program, such as its security classification or its designation as a corporation proprietary product.

11. *Price and Terms*. Contains a brief statement describing the program's price and terms of sale or license, or a citation to the document containing this infor-

mation if lengthy or if it is subject to frequent change.

12. *Language*. Contains an authorized abbreviation for the programming language(s) in which the program is written. This element is required, may be multiply-occurring, and is an access point.

13. *Machines (Computers and Operating Systems)*. Contains authorized abbreviations for the computer systems needed to operate the program. This element is required, may be multiply-occurring, and is an access point. The list of computer systems should be indicative rather than exhaustive, and there is likely to be little value in updating it because of a model change (as in the case of IBM's introduction of the 370 series computers, which were able to handle, without modification, programs written for the 360 series computers).

14. *Mode*. Indicates whether the program operates in interactive (on-line), or both interactive and batch modes. Interactive programs imply requirements for terminal equipment and communications capabilities additional to the requirements of a computer center that operates only in batch mode.

15. *Core Requirement*. Contains the minimum amount of computer core or main memory required for operation of the program, including data areas and buffers. Normally expressed in thousands (or K) of bytes or characters. Minimum size may also be designated in words or registers, or regions and partitions. The minimum core size is required.

16. *Minimum System Requirements*. Contains a statement listing any special equipment needed for operation of the program, assuming a standard computer configuration with a card or tape reader, a 64-character high-speed printer, and magnetic disc drive or four dual density (800/1600 bpi) tape drives. For example, the program might require a 556 bpi tape drive, or a TTY-compatible printing terminal, or a TN upper- and lower-case print train.

17. *Other Technical Information*. Contains additional information about

the program such as running time or productivity statistics, a citation of the processing algorithm employed, etc.

18. *Documentation*. Contains a list of the types of documentation available in the library for the program, and a citation to any other documentation concerning it. We have identified nine types of documentation for a program: user manual, design specification, detailed program description, source listing, job control language listing, test plan, test data listing, computer operator guide, and marketing materials. The amount of documentation for a program may indicate its potential value to a user; if the program is poorly documented, it is often easier to write the program again rather than attempt to figure out what the program does and how it is to be operated.

19. *Description*. Contains a summary or annotation of the functions performed by the program, written in detail sufficient to help a user decide whether to investigate the program further. A description is required and may be multiply-occurring, with each occurrence treated as a new paragraph in the printed catalog.

20. *Index Terms*. Contains a word or phrase indicating one of the program's functions, analogous to a subject heading for a monograph or index term for an article or report. At least one index term is required. Index terms may be multiply-occurring, and each is an access point.

21. *Installations*. Contains a list or statement of the number of installations or applications in which the program is used, as an indication of its success and utility. May be multiply-occurring. In the SDC catalog, programs are listed in the subject section under installations as well as index terms. Frequently, users may think of a program in terms of where it is used rather than by what it does.

22. and 23. *See Reference* and *See Also Reference*. Contains cross references that cannot be generated automatically by the computer, such as a reference from one name for an author to his authori-

tative name, or from one index term to a related one. Reference entries must have either an Author or Index Term element, and at least one *See* reference and/or *See also* reference element. A description (annotation) element may also be used, but no other element. References may be multiply-occurring.

### Catalog Divisions

Being relatively unconstrained by cost considerations in determining the number, format, and content of the divisions to be used for the printed catalog, we decided to implement a wide variety: classification, author, title, subject, language, and machine. The latter two divisions were designed as indexes rather than catalogs, in that only one line was allotted per entry. Based on user preference, and reinforced by our own conclusions in the matter, the main entry for a program appears in the classification division. We expect this division to receive the most use, and thus there is a logical basis for its choice as the location for the main entry. The main entry for a computer program, because of the inclusion of descriptive and technical information, occupies almost a whole column on the page rather than just a few lines. If entries of such size were to be interspersed with cross references from added authors, titles, or subjects, it would be difficult to create a format for the page that would allow easy scanning to find a particular entry.

The classification division illustrated in Figure 1 contains three types of entries: main entries, cross references, and classification titles. Classification titles are composed of the main class-subclass code number and a title information element naming the application area identified by that classification code. Cross references consist of a tabular list of the call numbers of all catalog entries that specify the code as a secondary classification. Main entries for the classification subdivision then follow in call number order. Paragraph headings for the several segments of a main entry are used to improve readability.

## Figure 1. The Classification Division

PLEASE FILL OUT QUESTIONNAIRE  
19 APRIL 1973

System Development Corporation  
SDC SOFTWARE LIBRARY CATALOG

600.00

23

600.00.2

600.00 DATA ENTRY AND VERIFICATION

600.00.2 EDITOR FOR PREPARING STATISTICAL  
(continued)  
DOCUMENTATION: source listing.

600.00 SEE ALSO:

600.00.6            060.00.7            100.00.1  
100.00.5            610.00.2

600.00.1 AUTOMATIC EDIT AND TEXT SUBSTITUTION (AUTOEDIT)

Southworth, Lemont E. ORG: 4628, 09/70.  
Proprietary.

Assembler. S/360-370, OS. 100K bytes  
core.

MINIMUM REQUIREMENTS: Disk or 3 tape  
drives.

DOCUMENTATION: user manual; source listing;  
JCL.

DESCRIPTION: AUTOEDIT performs text substitution for coded information and assigns sequence numbers to input data records. Input is 80-column card images. Output is also card images in CMS format. It is designed to process computer tapes created from optically scanned type and preprinted forms. AUTOEDIT is a preprocessor for CMS data input.

INDEX TERMS: CMS; Data entry; Editing; Optical scanning; NLS Toxicology project; RJS; Mapping (from an authority file); Toxicology project; Regional Justice Information System. 730420

DESCRIPTION: Provides a framework, and a few routines, for editing raw statistical data obtained from questionnaire surveys and controlling the release of records to a data base for subsequent analysis. The program consists of a release control section to allow a user to specify whether all (correct) records are to be added to the data base, only designated records, or all but designated records. Nonreleased records are placed in an in-process file for correction by the CATEDIT program, whereupon they can be run again through LABFORM. Routines are available for verifying that one or more characters are all numeric and contain a number within an allowable range, for checking that one or more characters are blank, or verifying that a character is Y, N, or blank.

The program must be tailored for use with a specific data base, but this requires only a day or two of effort for most uses, and can be done in conjunction with the preparation of the data code list and keyboarding instructions for the questionnaire responses.

INDEX TERMS: Data entry; Data cleaning; File generation; Validation; Input processing; Editing. 730420 060.00

## Figure 2. The Author Division

PEARSON, Karl M., Jr.

Software catalog record checker and reformatter (PHCFOPM) (SYSTEM: PROFORM) EY \*\*, proj. and Delaney, Diana D., anal. ORG: 6221, 03/73. Proprietary.  
PL/1. S/370, OS. 200K bytes core.  
060.00.7, 600.00, 610.00

PEARSON, Karl M. Jr., anal.

Medical literature analysis and retrieval system, second version. 100.00.1

PEARSON, Karl M., Jr., maint.

Book card puncher. 060.00.4

Circulation control report generator.  
060.00.10

Circulation transaction processor.  
060.00.11

RAO, Koganti M., prog.

Batch release and selection subsystem.  
100.00.7

On-and-off-line retrieval. 100.00.4

ROGERS, Miles S.

Cross tabulations (R005B) (SYSTEM: Statistical Program Package) BY \*\*, anal. and Southworth, Loren L., prog. ORG: 4628, 12/69.

FORTRAN. S/360-370, OS. 350K bytes  
core. 320.00.9

Factor analysis (R020B) (SYSTEM: Statistical Program Package) BY \*\*, anal. and Hartley, Jane A., prog. ORG: 4628, 12/69.  
FORTRAN. S/360-370, OS. 300K bytes  
core. 320.00.11

Factor rotation (R021B) (SYSTEM: Statistical Program Package) BY \*\*, anal. and Hartley, Jane A., prog. ORG: 4628, 12/69.  
FORTRAN. S/360-370, OS. 250K bytes  
core. 320.00.12

Frequency distributions (R003B) (SYSTEM: Statistical Program Package) BY \*\*, anal. and Southworth, Loren L., prog. ORG: 4628, 12/69.

FORTRAN. S/360-370, OS. 250K bytes  
core. 320.00.8

The author division illustrated in Figure 2 contains author entries and added author cross references. Only the most important elements of information are included. Added author cross references contain the title and class number of the referenced program, rather than referring the user to the entry under the program's author.

We are guessing that users would prefer to be directed to the full entry in the

classification division rather than to the entry under the main author, but we will be guided by users' comments after they have had time to work with the catalog. Note that the author's relationship to the program is included in the entry heading, since this is highly useful information. In the main author entry, it might be arguable whether the special protection and price information elements need be included; we have done

### Figure 3. The Title Division

PLEASE FILL OUT QUESTIONNAIRE  
19 APRIL 1973

System Development Corporation  
SDC SOFTWARE LIBRARY CATALOG

MDLARS

55

MORR

SEE Publication selection, construction,  
and sorting subsystem (PUBLICELL) 100.00.9

SEE Text editor for making final changes in  
proof before photocomposition (PREDCYST)  
100.00.2

SEE Unit record input control subsystem  
(UBIC) 100.00.5

SEE Universal specifications table maintainer  
(UNIHAIN) 100.00.6

MESSAGE REDUCTION PROGRAM (MRP) (SYSTEM:  
Air Combat Maneuvering Range (ACMR))  
Sandusky, Edward R., anal; Simmons, Frederick W., prog., and Zimmerman, Raymond L., prog. ORG: 4522, 12/72. Owned by Cubic Corporation (and Navy).  
Assembler. SIGMA 3, BCP. 8K bytes core.  
180.00.5, 680.00

MODERATELY ADVANCED DATA MANAGEMENT (MADAM)  
(continued)

Core.  
MINIMUM REQUIREMENTS: 5 tape drives (can use 7).  
610.00.1, 700.00

MRP  
SEE Message reduction program  
180.00.5 12/72 Air Combat Man

MULT  
SEE Multiple correlation analysis  
320.00.2 01/68 Time-Shared St

MULTIPLE CORRELATION ANALYSIS (MULT) (SYSTEM:  
Time-Shared Statistical Data Analysis)  
Wolf, Gary D., prog. and Zagorski, Henry J., anal. ORG: 4626, 01/68.  
JOVIAL. S/370, ICOS. 150K bytes core.  
Interactive.  
320.00.2

### Figure 4. The Subject Division

General

80

INDEX

General Motors Research  
DS/2 data management system (SYSTEM: DS/2). Williams, Richard S., maint. ORG: 3424, 04/70.  
Assembler; MOL. S/360-370, DOS; OS. 48K byte partition (and up). Interactive.  
Self contained teleprocessing capability supporting 2741 or TRV-compatible terminals. 630.00.3, 610.00

GRAPH THEORY  
Compiler for writing and implementing compilers (SYSTEM: CWIC). BY Schorre, Dewey V., prog.; Book, Erwin, anal. and Gold, Barry D., info. ORG: 3431, 01/70.  
CWIC. S/360-370, OS. 920.00.1, 680.00

GRAPHIC ACCESS METHOD  
Graphic support module (SYSTEM: GSM). BY Albrecht, Drew E., prog. and Behb, Joan E., info. ORG: 3325, 01/73.  
Assembler. S/370, ADEPT. 12-30K bytes core. Interactive. 660.00.2, 680.00

HAND-PRINTED CHARACTER ANALYSIS  
Hand-printed character analyzer and recognizer (Builder). BY Zgawa, Jean K., prog. and Bernstein, Morton I., anal. ORG: 3325, 09/70.  
Assembler. S/360-370, ADEPT. 57K bytes core. Interactive. 660.00.1, 650.00, 620.00

HEALTH DATA SYSTEMS  
Bio-dynamics for C.F.O. (SYSTEM: Neighborhood Health Center Data System). Southworth, Leont E., info. and Bio-Dynamics, Inc. U.S. Office of Economic Opportunity, 07/71.  
COBOL; FORTRAN. S/360-370, OS. 200K bytes core. 100.00.12

HYPHENATION  
Ccapose catalog pages (CATPO) (SYSTEM: CATFORM). BY Pearson, Karl M. Jr. ORG: 6221, 1971.  
PL/1. S/370, OS. 200K bytes core. can output to a TW-train-equipped printer or to CCM device. 060.00.2, 250.00

so because we prefer to err on the side of inclusiveness. Entries are sequenced by author's name, then by program title.

The title division illustrated in Figure 3 contains title entries, system name cross references, and program acronym cross references. Under the system name appear the titles of all the programs that are a part of that system. For title cross references, we have taken the opposite tack from our handling of added author cross references; the title cross references refer to the title entry as well as to the classification division full entry. The reason for so doing is our expectation that most users of the title division will already know something about the program, and therefore may not need all the

information in the full entry in the classification division.

The subject division illustrated in Figure 4 contains only subject entries, with no cross-referenced entries. The basic consideration for the content of the subject entry is to provide adequate information for the user to get a good understanding of the types of programs available to perform a function and to decide which programs or application areas to focus his attention on. A user is likely to go to the classification division to find which programs are available in a particular *application area* such as accounting or artificial intelligence; he is likely to use the subject division to find out which programs perform a particu-

lar function such as data validation or parsing.

The two indexes, one for programming languages and the other for computers and operating systems, simply list under each language or computer the call number and as much of the title as will fit on the rest of the line for each program in the catalog that uses that language or computer.

We have been guided in our design of the catalog divisions by the ideal of striking a balance between too much and not enough information in an entry. We do not take an immovable stand on the number, format, or content of the catalog division as currently established. Some modification will undoubtedly be required in the light of experience. Nor is it true that what is most desirable for the SDC library need be the perfect solution in another organization.

### Summary

As software inventories pile up, and as concern mounts over the traditional programming practice of "reinventing the wheel," managements should become more hospitable to the concept that a software *catalog*, rather than a simple list of programs, can save the organization money. The agency within the organization that is best qualified by education and practice to develop a software catalog is the library. To prepare themselves to take on this responsibility, librarians now should be developing the rules, procedures, and practices for cataloging computer software as an extension of the standards already developed for nonbook materials. It is our hope that the cataloging system described in this paper represents a step in this direction.

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2. COSMIC (Computer Software Management and Information Center), University of Georgia, Athens, Ga.
3. *Computer Program Abstracts*. NASA, Washington, D.C.
4. National Computing Centre, Ltd. / *Factfinder 11 Verified Software Products: A Catalogue*. Quay House, Manchester, England.
5. Geoffrey Knight, Jr., ed. / *Computer Software*. Cambridge Communications Corp., Washington, D.C., 1968.
6. In addition to the formal published catalogs listed in the preceding references, we have seen a number of informal "catalogs," "indexes," or "lists." These are mostly for internal use only by relatively small groups with a limited number of programs to keep track of.
7. SHARE Secretary's Distribution / Computer program catalog entries are maintained by SHARE Program Agency, COSMIC-Barrow Hall, University of Georgia, Athens, Ga.
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10. Weihs, Jean R. / *The Standardization of Cataloging Rules for Nonbook Materials: A Progress Report—April 1972*. *Library Resources and Technical Services* 16 (no.3) (Summer 1972).
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# Experiences with Scientific Journals on Microfilm in an Academic Reading Room

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■ Experiences with chemistry and biology journals on 16 mm microfilm in a reading room which serves chemistry faculty and graduate students are reviewed. Surveys in 1971 and 1972 indicate that the users have accepted the microfilm as a satisfactory replacement

for hardcopy; in some instances they even find it preferable to hardcopy. The reactions of both the staff and users are, however, that both the microfilm machines and the micropublishing criteria need to be improved.

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THE MIT Ford Reading Room has been in operation as an official part of the MIT library system since April 1970. The Reading Room provides convenient access to a basic core collection of research journals and monographs in chemistry and biology, duplicating material in the more comprehensive Science Library collection. The room is located in the Camille Edouard Dreyfus Chemistry Building and is open to the entire

MIT community Monday through Friday, 9 AM-5 PM; faculty and graduate students in the Chemistry Department and researchers with related interests can obtain keys to the room for use after hours. It is presently staffed by one librarian and an assistant, who work a combined total of 40 hours per week in the facility.

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In planning for the room, the decision was made that backfiles of the more highly used journals would be kept on 16 mm microfilm only. This decision was instigated by several faculty members who were aware of a successful film operation in an industrial chemical library. For the library staff there were two immediate advantages to the use of microfilm: 1) the possibility of acquiring complete backfiles of journals that might not otherwise be available from book dealers; and 2) the ability to store lengthy sets (1).

The complete reliance on microfilm for journal backruns has given the staff of the Ford Reading Room a unique

opportunity to observe both user and staff reactions to the microfilm.

Contrary to an earlier impression that microforms would not find acceptance in academe (2), the limited experience of this reading room indicates that a microfilm facility can successfully be integrated into an academic library system.

A user survey has shown a general acceptance of the microfilm, rather than the frequently mentioned reluctance of patrons to use microforms (3, 4). The survey results were comparable to the experiences of industrial chemistry libraries which have reported general satisfaction with using chemistry journals on microfilm and increased ease and efficiency in doing a literature search in *Chemical Abstracts* (5, 6, 7, 8).

User and staff criticisms of this microfilm experiment have largely been directed at problems with the available microfilm readers and printing attachments and at shortcomings in film quality. The dry-process reader-printer was a significant improvement over the wet-process machine initially employed; but both staff and users look forward to a more flexible machine, such as the reader described by Stevens (9).

Although the quality of the microfilm acquired has been improving, the staff strongly agrees with Veaner that micro-publishing has to be recognized as a complex manufacturing process and that standards need to be established (10). Patrons rightfully expect to find microfilm journal editions to contain what is present in hardcopy.

### The Collection

The present book collection contains approximately 1,800 volumes. The chemistry faculty participated in the initial selection of monographs and serial titles. The 100 journal titles under regular hardcopy subscription were chosen entirely by the faculty and represent the basic journals in the field, as well as specialty journals for specific research.

The microfilm plan for the journals has been to acquire complete backfiles in

16 mm cartridges for 40 of the most frequently used titles (including *Chemical Abstracts*) and to update these film runs yearly. For another 30, the film backfiles date only to 1970 because of cost considerations, but are updated yearly. Also due to cost, there are no microfilm plans for the remaining 30 journals, and they are accumulating in hardcopy at this time. The Appendix lists the journals in these three groups.

The microfilm is all 16 mm negative and is loaded in cartridges. The hardcopy journal volumes are removed when the microfilm editions arrive. As of Feb 30, 1973, there were over 1,700 cartridges in the collection, representing approximately 1,600 cumulative years of journal volumes.

### Film Acquisition and Quality Control

As much film as available was ordered commercially. To insure long-term stability of the microfilm after its receipt, an MIT micro-reproduction facility has made spot checks for residual thiosulfate; there has been a minimum amount of rejection due to this.

When the cartridges are received in the reading room, the staff checks the film for image quality, proper film exposure and contrast, complete pagination, and proper labeling. The majority of the film cartridges have been found to be satisfactory, although enough have been returned to make an initial check worthwhile.

In addition, all reels are checked for an index, and the label is marked indicating the presence of an index and its location on the reel. To the dismay of staff and users, many indexes, as well as supplementary material, have been omitted from the microfilm journal editions although they exist in hardcopy. Also, publishers generally do not indicate the presence or position of special material on the reel.

### Film Costs and Space Savings

As expected, purchasing journals on microfilm in addition to having hard-

copy subscriptions is a strain on the budget. As part of the MIT library system, the reading room does not directly benefit from hardcopy sales to dealers since the money goes into a general fund.

Unfortunately, many titles are not yet commercially available on film; and custom filming is almost prohibitively expensive. For those journals that are available on microfilm, the film costs for the recent year can be as high as the hardcopy subscription although this is not usually the case. Several publishers have offered to trade the microfilm edition for the hardcopy volumes—either on an even exchange basis or at a sizeable discount. Hopefully, the market for microfilm will increase sufficiently to induce publishers to make the journals available on film to their hardcopy subscribers at a cost dramatically lower than the hardcopy subscription rate.

The reading room still has adequate room for a moderate growth in the collection. This freedom is entirely due to the reliance on microfilm for journal backfiles; comparable backfiles in hardcopy could never have been accommodated. For example, the hardcopy volumes for the *Journal of the American Chemical Society* from volume 1, 1879, to volume 94, 1972, occupy about 60 feet of shelf space; each volume measures 11½ inches tall. The comparable film run uses about 12 feet of shelf space, and the cartridges are only 4 inches tall.

### Microfilm Machines

During the operation of the reading room, both Recordak Lodestars and Recordak Microstars have been used. The Lodestar, which has a wet-process printer, is being phased out by the manufacturer. It is being replaced by the Microstar which, among its several improvements, has an optional dry-process printer.

The room now has two Microstar readers and two Microstar reader-printers. Equipment costs remain high and have restricted the number of machines it is possible to have in the reading room. It should also be noted that,

because cartridges of different manufacturers are presently not compatible in competitors' machines, the initial choice of equipment has to be recognized as a long-term commitment.

The staff performs basic machine maintenance, including changing the toner every 300 prints and replacing the paper and projection lamps when needed. The wet-process printer required periodical flushing of the system and changing of the fluid, a messy and unpleasant task.

Also, the staff has become adept at troubleshooting for machine problems and at correcting some difficulties which previously required a service call. Nonetheless, the staff feels strongly that service contracts are indispensable. Servicing is periodically needed to readjust the optical system, to check for mechanical wear, and to correct printer difficulties.

Copy charges are passed on to the patron. With the wet-process printer it was necessary to charge \$.10 a copy if cash was paid (and \$.15 if charged to an account to cover the copy plus bookkeeping). However, since the dry-process printing attachments were installed in September 1972, the print cost has been lowered to \$.05 for a cash copy.

### User Response

The most pleasant surprise has been the ease with which our users have accepted microfilm despite machine problems and gaps in film holdings. Since the opening of the reading room, during the public hours, the staff has kept an hourly count of the total number of people in the room and of the specific number using the microfilm machines, with a breakdown by the type of machine used. These figures have consistently shown that both the room and the film receive active use. There is no reliable measure of the extent of use the room and/or machines receive in the evenings or on weekends. In addition, it was noted that when there was a choice between using a Lodestar or a Microstar reader, the Microstar was invariably selected.



**Table 1. Users' Response to Journals and CA on Microfilm 1971 and 1972**

Response	1971 Survey*		CA	
	Journals		# Users	%
	# Users	%		
Prefer	54	59%	71	76%
Accept	17	19%	3	3%
Dislike	20	22%	20	21%
Total	91		94	

Response	1972 Survey**		CA	
	Journals		# Users	%
	# Users	%		
Prefer	59	62%	67	87%
Accept	15	16%	8	10%
Dislike	21	22%	2	3%
Total	95		77	

\* Machines included 3 Microstar readers and 3 Lodestar reader-printers.

\*\* Machines included 2 Microstar readers and 2 Microstar reader-printers.

Another measure of user reaction was made in September 1971, and again in September 1972. Machine users were asked to indicate their reactions ("prefer," "accept," or "dislike") to using both journals and *Chemical Abstracts* on film. A copy of the questionnaire was placed by each machine for a period of a week; written comments were also solicited. The results of the two surveys are shown in Table 1.

The percentage of users who preferred using the microfilm editions of the journals and particularly of *Chemical Abstracts* increased in 1972. Many users said they prefer doing a literature search in *Chemical Abstracts* on film because they find it more efficient and less exhausting physically. Other comments indicated that the accessibility of all journal volumes of a given title make searching more convenient. Enthusiastic users are quite so, giving such comments as "great," "excellent quality," and "hooray for microfilm."

In both the 1971 and the 1972 surveys, the written comments directed criticism toward machine inadequacies. The Lodestar had been a particular target for criticism. Patrons indicated the Microstars were preferred because of: 1) the zoom attachments (optional on the

machine) which make reading easier and reduce eyestrain; 2) a more sensitive advance/rewind knob that improves scanning; and 3) the dry-process printer for its cleaner, faster, and more inexpensive copies. Several patrons wished the Microstar had a surface on which to place a notebook while taking notes from the screen. Also, there was an expressed interest in a more horizontal or an adjustable screen.

## Conclusion

Based on operating experience in the MIT Ford Reading Room and on the results of two user surveys, it is apparent that a retrospective journal collection on microfilm can be a substitute for a comparable hardcopy collection. While the results of the 1971 and 1972 surveys discussed here indicated strong support for the use of microfilm, it must be recognized that there is no available measure of the attitudes of faculty and student nonusers who may have a basic resistance to using microfilm, or who may have tried it at one time and found it unsatisfactory.

While users have recognized and appreciated recent improvements in microfilm readers and printer attachments, there remain valid criticisms of the quality of commercially available microfilm. Editorial and technical criteria for the preparation of microfilm journal editions must be established to make them as acceptable as hardcopy editions. Despite present shortcomings, user and staff responses have been very positive. In the short time the reading room has been in existence, some machine and film improvements have been noted, and it remains our feeling that journal collections on microfilm do have a future.

## Appendix

### Journal holdings in the Ford Reading Room

#### I. Current subscriptions in hardcopy; complete backruns on microfilm:\*

\* The last part of this appendix lists the suppliers' names, addresses, and phone numbers.

*Accounts of Chemical Research*  
*Acta Chimica Scandinavica*  
*American Chemical Society Journal*  
*Analytical Chemistry*  
*Angewandte Chemie*  
*Archives of Biochemistry and Biophysics*  
*Biochemical and Biophysical Research Communications*  
*Biochemical Journal*  
*Biochemistry*  
*Canadian Journal of Chemistry*  
*Chemical Abstracts*  
*Chemical Reviews*  
*Chemical Society, London. Journal*  
*Chemische Berichte*  
*Coordination Chemistry Reviews*  
*Faraday Society. Transactions*  
*Helvetica Chimica Acta*  
*Immunochemistry*  
*Inorganic Nuclear Chemistry Letters*  
*Inorganic Chemistry*  
*Inorganica Chimica Acta*  
*Journal of Biological Chemistry*  
*Journal of Chemical Education*  
*Journal of Chemical Physics*  
*Journal of Chromatographic Science*  
*Journal of Molecular Biology*  
*Journal of Organic Chemistry*  
*Journal of Organometallic Chemistry*  
*Journal of Physical Chemistry*  
*Justus Liebigs Annalen der Chemie*  
*Macromolecules*  
*Nature (all sections)*  
*Organometallic Chemistry Reviews (A and B)*  
*Quarterly Reviews*  
*Royal Society of London. Proceedings (A and B)*  
*Societe de Chimie. France. Bulletin*  
*Tetrahedron*  
*Tetrahedron Letters*

II. Current subscriptions in hardcopy; backruns from 1970 onward on microfilm:

*Acta Crystallographica (A and B)*

*Biochimica et Biophysica Acta (all sections)*  
*Biophysical Journal*  
*Canadian Journal Research*  
*Experimental Cell Research*  
*European Journal of Biochemistry*  
*FEBS Letters*  
*Federation Proceedings*  
*Genetics*  
*Journal of Bacteriology*  
*Journal of Biochemistry (Japan)*  
*Journal of Cell Biology*  
*Journal of Experimental Biology*  
*Journal of Immunology*  
*Molecular Pharmacology*  
*National Academy of Science. Proceedings*  
*Physiological Review*  
*Quarterly Reviews of Biophysics*  
*Science*  
*Scientific American*  
*U.S. National Cancer Institute. Journal*  
*Virology*

III. Current subscriptions and backruns dating from 1970 in hardcopy:

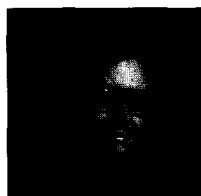
*Applied Physics Letters*  
*Canadian Journal of Physics*  
*Chemical Physics Letters*  
*Current Contents: Physics & Chemistry*  
*Developmental Biology*  
*Journal of Applied Physics*  
*Journal of Molecular Spectroscopy*  
*Journal of Physics (A-F)*  
*Journal of Statistical Physics*  
*Molecular Physics*  
*Physica*  
*Physical Reviews (A-D)*  
*Physical Society, Japan. Journal*  
*Physics Abstracts*  
*Physics Letters A, B, C,*  
*Physics of Fluids*  
*Progress in Theoretical Physics*  
*Reviews in Modern Physics*  
*Soviet Physics J.E.T.P.*  
*Studies in Applied Mathematics*  
*Zeitschrift fur Physik*

<i>Micropublisher</i>	<i>Address</i>	<i>Phone</i>
American Chemical Society	1155 16th St. N.W. Washington, D.C. 20036	202/737-3337
American Institute of Physics	335 E. 45th St. New York, N.Y. 10017	212/685-1940
Chemical Abstracts Service	Ohio State University Columbus, Ohio 43210	614/422-5022
Maxwell International Microforms Corporation	Fairview Park Elmsford, N.Y. 10523	914/592-9141
Princeton Microfilm Corporation	Alexander Rd. Princeton, N.J. 08540	800/257-9502 (toll free)
University Microfilms	300 N. Zeeb Rd. Ann Arbor, Mich. 48106	313/761-4700
Williams & Wilkins Co.	428 Preston St. Baltimore, Md. 21202	301/727-2870

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# How to Control a Runaway State Documents Collection

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■ This documents study was instituted to develop a structured list of New York State agencies that publish, to develop an agency classification system, and to explore a means by which subject access to Penfield Library's collection could be gained. A computer generated subject

search tool—*New York (State) Documents Agency Authority File With Keyword Index*—was produced, and the ultimate purpose of the project, which was to gain bibliographic control of materials in Penfield Library's document collection, was realized.

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PENFIELD Library, State University of New York, College at Oswego, is a select depository for New York State documents, which means that it does not receive all documents listed in the *Checklist of Official Publications of the State of New York* (hitherto referred to only as the *Checklist*), but gets key items automatically and can secure a selection of other documents upon request from either the Gifts and Exchange Section of the New York State Library in Albany or from the issuing agencies (1). At present this collection is made up of approximately 5,500 items, and until

April 1972, all of these items had subject tags written on them which were formulated and remembered by the documents librarian, and were arranged on shelves by these subjects. These documents had never been formally classified or subjected to any bibliographic control. The collection was controlled by memory and by an out-of-date card catalog drawer with short title entries organized under subjects that were discontinued in 1969. New York State publications are listed in the *Checklists*, but Penfield Library's *Checklists* had never been marked to indicate receipt of

items, and it was difficult to locate publications from a *Checklist* entry even when they were in the collection because the *Checklist* lists documents only by issuing agency and our collection was arranged by subject.

The three prime focuses of this study were the development of a structured list of New York State agencies that publish, the development of an agency classification system, and the exploration of a means by which subject access to the collection could be further developed and facilitated. The ultimate purpose, however, was to gain bibliographic control of all the materials in the collection.

### Methods

Three methods of checking in documents were explored:

1. making up catalog cards following traditional cataloging procedures;
2. keypunching bibliographic information onto computer decks;
3. checking in all newly received New York State documents in the *Checklist* by writing locational symbols to the left of the document order number followed by a slash (locational symbols could be marked on the upper left-hand corner of the cover of each document).

The third method of checking in documents was adopted because it was the only feasible method in terms of both manpower and materials. Making up catalog cards was rejected after a short trial period because it took too much time, and it was impossible to handle all the items that were being received. Key punching bibliographic information onto computer decks was rejected because no trained keypuncher was regularly available.

### Difficulties

There are difficulties inherent in this system of checking in documents via the *Checklist* however. Some of them are as follows.

1. There is a lag between the receipt of some publications and their listing in the monthly *Checklist*. (A temporary card may be made for this type of item, and it can be noted in the *Checklist* when that publication finally publishes its listing.)

2. When monthly lists are cumulated into annual volumes, the notations in the superseded issues must be transferred to the annual cumulation.

3. Not all official publications have been listed in the past and other provisions must be made to control unlisted items. (If it is an important document, it probably should be cataloged and placed in the general collection. If it is a pamphlet, leaflet, etc., it may be stored in a vertical file. Or, it may simply be left in its author/agency section with the other documents, unlisted except in the temporary file but available to the browser. Etc. . . .)

4. Last but certainly not least: Locating a specific publication in a series of monthly *Checklists* can be time consuming and frustrating because the *Checklists* are alphabetically organized by the first "important" keyword in the title of the authoring agency. It is often difficult to ascertain what the key "keyword" is; and when one is looking for a sub-agency or sub-sub-agency, location of a specific citation can be torturous. The KWIC index that was developed minimizes this difficulty however (Figure 1).

### The Collection

It was decided that it would be advisable to reorganize the collection on the shelves by issuing agency. Also, an issuing agency format could mirror the format of the *Checklist*—which is not only the primary ordering tool for these documents, but could then act as a key to both their bibliographic control and shelf organization.

Before an extensive documents collection could be reorganized by publishing agencies, however, a fairly comprehensive list of those agencies had to be located or developed. There is such a listing for New York State agencies,

Figure 1. KWIC Index by Title and Author Words

F250		FAMILY COURT OF THE STATE OF NEW YORK, COUNTY OF SUFFOLK
F275		FAMILY COURT OF THE STATE OF NEW YORK, COUNTY OF ULSTER
F225	NELTADY	FAMILY COURT OF THE STATE OF NEW YORK, COUNTY OF SCHENECTADY
F175	E	FAMILY COURT OF THE STATE OF NEW YORK, COUNTY OF MONTGOMERY
F250	LK	FAMILY COURT OF THE STATE OF NEW YORK, COUNTY OF SUFFOLK
F150	F	FAMILY COURT OF THE STATE OF NEW YORK, COUNTY OF HALMAD
F275	R	FAMILY COURT OF THE STATE OF NEW YORK, COUNTY OF ULSTER
F125	K	FAMILY COURT OF THE STATE OF NEW YORK, COUNTY OF NEW YORK
F200	AGA	FAMILY COURT OF THE STATE OF NEW YORK, COUNTY OF MONTGOMERY
G825		CRAIG COLONY SCHOOL AND HOSPITAL, SONYEA
G900		CRIME VICTIMS COMPENSATION BOARD
G850		CRIME, GOVERNOR'S CONFERENCE ON
G875	Y, J.L.C. ON	CRIME, ITS CAUSES, CONTROL AND EFFECT ON SOCIETY
G925	N	CRIMINAL OFFENDERS, GOVERNOR'S SPECIAL COMM. ON
F510		BUR. OF SCHOOL AND CULTURAL RESEARCH
F215		CURRICULUM DEVELOPMENT CENTER
F220		BUR. OF CONTINUING EDUCATION CURRICULUM DEVELOPMENT
F230		BUR. OF SECONDARY CURRICULUM DEVELOPMENT
E225		BUR. OF ELEMENTARY CURRICULUM DEVELOPMENT
C450		CLINTON PRISON, DANFORTH, DIAGNOSTIC AND TREATMENT CENTER
C575		COMMERCE DATA CENTER
C275		CIVIL DEFENSE COMMS., EXECUTIVE DEPT.
B125		HANKING DEPT
A225		DEPT. OF FOOD SCIENCE AND TECHNOLOGY
A175		AGING, DEP. FOR THE EXECUTIVE DEPT.
F700		** CONSERVATION DEPT.

but it is embedded in the State Library's *Checklists*, and had never been extracted and published in separate form.

Upon analysis, the *Checklist* therefore proved to be the key to proper handling of New York State documents, albeit an underexplained and hard-to-use key. Its primary functions are to facilitate shelf organization of large numbers of the same documents at the State Library as well as to act as a document order-catalog for other libraries and interested individuals (2). To transform it into a list of author headings for New York State agencies that are currently publishing documents was the first step in implementing this project.

First of all, it was decided to accept and work with the *Checklist's* format of agency organization, which is to alphabetize both primary agencies and sub-agencies under the first keyword in the title of the agency. In the case of primary agencies the *Checklist* alphabetizes, and when necessary inverts the title of the authoring agency (example: AGING, OFFICE OF), but in the case of a sub-agency, the *Checklist* does not invert the title to put the sub-agency's keyword at the beginning of the citation, but it alphabetizes them under the keyword nonetheless. This causes a good deal of trouble when one is attempting to locate a sub-agency under a multi-branched department like the Education Department.

Figure 2. Sample Checklists Index Card

- L125. LABOR, DEPT. OF. See also: STATE LABOR RELATIONS BOARD; WORKMEN'S COMPENSATION BOARD.
- L150. Advisory Council on Employment and Unemployment Insurance.
- L175. Advisory Council on the Labor and Management Improper Practices Act.
- L200. Div. of Employment.
- L225. Research and Statistics Off.
- L250. Smaller Communities Pro.

New York State agency titles that appeared in the 1968 and 1970 cumulated *Checklists* were transferred to 5 in. x 8 in. index cards with each primary agency having at least one card (see sample index card, Figure 2).

Extensive investigation of various methods of classification used by other states was also conducted. The prototype of the California State Library was finally followed because it was easily adaptable to another state, was flexible, and provided space for addition of new issuing agencies.

In the agency classification code that was then developed, the first part of the agency number was the initial letter of the key word in the agency's name. The second part was a number derived by arranging the agencies under each letter

Figure 3. The Input File

AUDIT AND CONTROL, DEPT. OF	A550
DIV. OF AUDITS AND ACCOUNTS	A575
DIV. OF MUNICIPAL AFFAIRS	A600
BUREAU OF MUNICIPAL ACCOUNTING SYSTEMS	A625
BUREAU OF MUNICIPAL RESEARCH AND STATISTICS	A650
BUREAU OF STATISTICAL SERVICES	A675
BANKING DEPT.	B125
BANKING LAW, J.L.C. TO REVISE THE.	B150
BATTERY PARK CITY AUTH.	B200
BETHPAGE PARK AUTH.	B250
BUDGET, DIV. OF, EXECUTIVE DEPT.	B300
STATEWIDE INFORMATION SYSTEM STEERING COMM.	B325
INTERGOVERNMENTAL RELATIONS GROUP	B350
OFF. OF STATISTICAL COORDINATION	B375
BUFFALO AND FORT ERIE PUBLIC BRIDGE AUTH.	B400
BUFFALO STATE HOSPITAL	B425
CAPITAL DISTRICT STATE PARK COMMS.	C125
CAUSES OF CAMPUS UNREST, TEMPORARY COMMS. TO STUDY THE	C150
CENTRAL ISLIP STATE HOSPITAL	C175
CENTRAL NEW YORK REGIONAL MARKET AUTH.	C200
CHILD CARE NEEDS, J.L.C. ON	C225
CITY UNIVERSITY CONSTRUCTION FUND	C250
CIVIL DEFENSE COMMS., EXECUTIVE DEPT.	C275
RADIOLOGICAL INTELLIGENCE SEC.	C300
CIVIL SERVICE, DEPT. OF	C325
DIV. OF CLASSIFICATION AND COMPENSATION	C350
EQUAL OPPORTUNITY UNIT	C375
HEALTH INSURANCE SEC.	C400
MERIT AWARD BOARD	C425

of the alphabet in alphabetical order and then assigning numbers beginning with 125 for the first agency and skipping 24 numbers between agencies (and subdivisions of agencies) thus providing for agencies which may be created later. In some cases more or less than 24 numbers were skipped in order a) to provide for additional agency growth range, and b) to keep a total number of three digits in the numerical part of the agency code. In other words, a number at or above A 1000 was avoided. For a sample of the Agency Authority File . . . see Figure 3.

Another principle of the system was that "An agency that had changed name before the classification scheme was drawn up was classed under its latest name. But an agency that changed name since the classification scheme was drawn up is still classed under the original number. If an agency is abolished and is succeeded by a newly created agency, the new agency is assigned a different number" (3). The organization of the publishing agencies listed was—in every case—taken from the *Checklist*.

After the agency authority file and the agency classification code had been developed, they were keypunched and a master authority file with agency code as well as a KWIC index to the master au-

thority file were run off at the Syracuse University Computing Center.

This tool, which could be called: A Permutated Index to Current Publishing New York State Agencies, proved a useful aid in locating specific State documents in the *Checklists*, and has provided a clear listing of publishing agencies linked to an agency code. As a result of the development of this organizational tool, Penfield Library's New York State documents collection was converted from a subject collection to a collection organized by authoring agency in June 1972.

All items are now marked with the agency classification code of the publishing body, the received item is marked as received in the *Checklists*, and bibliographic control of the collection has been achieved.

### References

1. New York State Library, Gift and Exchange Section / *A Checklist of Official Publications of the State of New York*. Albany, New York State Library, Vol. 1— . 1947—
2. Each item in each *Checklist* has a unique document number that is composed of the year of the *Checklist* volume and its numerical accession number within the

year. For example: in the 1970 annual cumulation of the *Checklist*, the first item is marked "C70-1," and the last item is marked "C70-1186." Documents in the New York State Library are arranged on shelves by author agency and then by document number, and when one wishes to secure items from that Library, they must be requested by the document number.

3. California State Library, Sacramento / *California State Publications: Manual for Acquisitions, Processing and Use*. 2d ed. rev. Sacramento . . . 1961. page D-1.

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# Overseas Report

## Problems of Interlibrary Cooperation Among Nigerian Medical Libraries

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■ Interlibrary cooperation between libraries all over the world has been in existence from time immemorial. However, the level of library development and the availability of library resources differ from one country to another. Developed nations have sufficient money, resources, and personnel to run various

services in their libraries compared with the developing countries which are restricted by the limited availability of these essentials. These problems, as applied to a developing country, are surveyed and solutions to them are suggested.

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COOPERATION among libraries is an essential aspect of smooth library services in developed and developing countries. It is even more important in the latter case since many of the libraries in this class have neither the manpower nor the financial resources with which to provide all the services alone. Also libraries in the developed nations cannot afford to stand alone; for even though they are endowed with substantial sums of money, such funds are not enough to purchase all that is published in the medical field today. In addition, the high cost of establishing and maintaining medical libraries, compared with other special libraries, is another factor.

Nowadays, money is voted for various research projects, the numbers of workers increase and the numbers of pub-

lications grow at an alarming rate; this trend is more pronounced in the scientific and medical fields. Because the growth is exponential, scientists are finding it increasingly difficult to acquaint themselves with all that is published in their field of interest; the large number of indexes and abstracts notwithstanding. Vannevar Bush has therefore predicted that, "Science may become bogged down in its own product, inhibited like a colony of bacteria by its own exudations" (1).

To contain this exponential growth, the National Library of Medicine introduced mechanization into the documentation of medical literature in 1958; however, this measure only alleviates the problem, it does not completely solve it. Developing countries cannot

afford to go into mechanization at present because of the huge sums of money involved and the lack of manpower to manage the machinery. The meagre budget of the libraries cannot sustain such an expensive project. While libraries want to keep abreast of what is published, their vote cannot support such a venture. Hence cooperation is the only solution to the predicament facing the medical libraries in Nigeria today. Although cooperation among the libraries is inevitable, it is not without its own problems. Among these are 1) short history of Nigerian medical libraries and small collections, 2) lack of funds and equipment, 3) high postage cost and inefficient postal system, 4) time lag between sending and receiving an interlibrary request, 5) uncooperative attitude of many librarians, and 6) absence of lists of holdings of various medical libraries.

### **Libraries in Nigeria**

The history of medical libraries in Nigeria dates back about 26 years to the establishment of the Central Medical Library in 1947 (2). Since then four new medical libraries have been established: These are the University of Ibadan Medical Library established in 1948, College of Medicine Library of the University of Lagos established in 1962, Ahmadu Bello University Medical Library which opened in 1968, and the University of Nigeria Medical Library. In addition, two new medical libraries are being planned; these are at the Universities of Ife and Benin. Until recently the Central Medical Library Yaba, supposed to serve as the national library of medicine in Nigeria, was not properly managed. Many of the publications are outdated and subscriptions to many periodicals were cancelled with no professional librarian responsible for the upkeep of the library. However, efforts are now being geared toward revitalizing the library and a professional librarian has been detailed to organize the library. Efforts are also being made in the Uni-

versities to develop their various medical libraries. With only 26 years behind them, many of the medical libraries in the country are very young in comparison to their counterparts in Europe and America; hence not so much has been acquired within their relatively short periods of existence. At present, all the libraries share about 50,000 volumes of monographs and periodicals. The Central Medical Library has 15,000 volumes and 350 current serials; University College Hospital Library, 16,000 volumes and 657 current periodicals (3, 4); College of Medicine Library, 13,000 volumes, 7,000 pamphlets and 550 current serials (5). The other newer libraries account for a small percentage of holdings in the country today. So, judging by the present-day developmental rate of libraries, the total volume shared among the libraries is even small for a medium-sized medical library in many countries. As a result of the small collection, medical libraries are saddled with the problem of providing all essential publications in the field to their clientele. In some cases they have to look outside the country for interlibrary loan facilities—a process which may involve legal technicalities and loss of valuable time and money.

### **The Need for Cooperation**

Funds are another limiting factor affecting these libraries and this accounts for the small collections they have. Until recently, many Nigerians looked upon libraries as drain pipes of the economy, forgetting their value in terms of what they contribute to the economy by increasing the manpower potential of the country and aiding in successful research. Many of these libraries are provided with less than \$12,000 per year; once they subscribe to the essential journals, the balance is not enough to purchase relevant books. An extreme case is found in an agricultural library which was able to add only five volumes to its collection in a year. How does the authority concerned expect such a library to fulfill its functions and aspirations?

Table 1.

Name of Library	Articles Requested	Date Sent (a)	Date Arrived (b)	Time Lag (b - a)
Library A (London)	1) German Medical Monthly 1: 4-5 (1971).	2/3/72	15/3/72	13 days
	2) Lyon Med. 225: 693-700 (1971).	2/3/72	15/3/72	13 days
	3) Canadian J. Surg. 13: 303-306 (1970).	7/3/72	22/3/72	15 days
	4) Amer. J. Dis. Child. 43: 1162- (1932).	2/3/72	15/3/72	13 days
	5) J. Pead. Surg. 4: 667-673 (1969).	29/3/72	12/4/72	14 days

Average 13.6 days.

Table 2.

Name of Library	Articles Requested	Date Sent (a)	Date Arrived (b)	Time Lag (b - a)
Library B (London)	1) J. Urol. 43: 831- (1940).	12/4/72	27/4/72	15 days
	2) J. Urol. 74: 693-706 (1955).	13/3/72	23/3/72	10 days
	3) Geriatrics 24: 119-128 (1969).	13/3/72	25/3/72	12 days
	4) South Afr. Med. J. 48: 721-730 (1968).	7/3/72	20/3/72	13 days
	5) J. Marine Biol. Ass. 49: 766- (1969).	10/5/72	25/5/72	15 days

Average 13 days.

This is the pattern in many of the special libraries in the country today. Lack of funds also accounts for the inability of some libraries to own the essential equipment which aids cooperation among libraries, e.g., photocopy machines. Much of this equipment is very expensive and many libraries cannot afford it. Since the majority of requests are met by photocopying the original materials, libraries may have the requested publications but may not be able to fulfill such requests. Funds are also the limiting factor for medical libraries in acquisition; the exorbitant cost of medical books coupled with the high rate of publication is a major problem for medical librarians. An average medical book now costs \$15.00 while medical periodicals are about the most expensive. In addition, the life span of medical books is about 5 years, after which they are superseded by newer editions. One is faced with the problem of acquiring new publications in the field and at the same time replacing the old editions in the library, both through the meager budgets of these libraries. Thus, when the problems of lack of equipment and the high cost, coupled with the short life span, of medical books are weighed

against the budget and services these libraries provide, one can appreciate the difficulties of librarians in meeting the needs of their clientele and colleagues from other libraries.

The high cost of postage within a poor postal service is also part of the problem. Requesting publications from abroad is costly but faster (as will be shown later); the majority of these libraries, however, cannot afford it. On the other hand, it is relatively cheaper to request publications from other libraries in Nigeria, but this advantage is neutralized by the poor postal system. On the average it takes between 4 and 8 days for a letter to travel between Lagos and Ibadan, a distance of 88 miles. In some cases, the materials may even get lost in transit, and both cooperating libraries are saddled with the additional problem of locating the valuable items.

It should therefore not be surprising to learn that it is quicker to send a request abroad than to a library in Nigeria. An illustration is the data compiled at the Medical Library, University of Ibadan. The library has inter-library loan agreements with two leading libraries in England—Libraries A and B, both in London. Tables 1 and 2

Name of Library	Articles Requested	Date Sent (a)	Date Arrived (b)	Time Lag (b - a)
Library C (Lagos)	1) <i>Cancer</i> 22 (no.6) (1968).	12/1/70	30/1/70	18 days
	2) <i>Acta Endocrin.</i> 58: 419- (1968).	23/12/70	12/1/71	19 days
	3) <i>Proc. Roy. Soc.</i> 193: 269- (1969).	12/2/70	28/2/70	16 days

Average 17.7 days.

show the time lag between sending and receiving requests from abroad.

On the other hand, interlibrary loan between University College Hospital and a Lagos Library shows the above pattern (Table 3).

It takes an average of 17.7 days to receive a request sent to Lagos (88 miles) while it takes 13.3 days to receive the same from London (4,000 miles). The differences in time can be traced to two main factors: poor postal system in Nigeria and, probably, nonchalant attitude of librarians about time. The attitude of librarians may contribute to the long delay in fulfilling requests from other libraries. Experience shows that some librarians do not attend immediately to requests from other libraries. They keep such requests on their desks; some even forget there were requests from some libraries until they stumble across them later. If librarians could appreciate the time factor as a necessary ingredient to efficient library services, much of the time wasted could be curtailed considerably. Requested material is useless when the purpose for which it was intended has been fulfilled before it arrives.

### The Absence of Cataloging Causes Problems

The absence of a list of holdings for each library is another problem. It is no exaggeration that some special libraries have no catalog record of their publications at all. The interdisciplinary aspect of medicine makes it imperative for medical libraries to work in unison with other scientific and technical libraries in Nigeria. As a first step toward achieving this objective, each library could

make available its own list of periodicals and publish a monthly list of new publications received. With improvement in the budget, one of the libraries can undertake the publication of a "Union List" of periodicals in all medical libraries in the country. At present, the University College Hospital medical library has a comprehensive list of its periodicals. If others follow suit, this may be the basis of cooperation among these libraries. In addition, the International Institute of Tropical Agriculture Library has taken a step forward by publishing a "Union List of Scientific and Technical Periodicals in Nigerian Libraries" (6); the new edition of which would include medicine. This publication may ultimately serve as the basis of cooperation among Nigerian scientific and technical libraries. With the publication of the "Union List," libraries separated by distance and those with poor collections could identify at a glance which libraries have the particular publications they require. The net result would be to save much time and energy and our readers would then enjoy efficient library services.

In conclusion, Nigerian medical libraries cannot afford to inaugurate any Farmington or Scandia plan now. The budget and the library resources cannot sustain such a scheme; however, the little these libraries now possess could be put to maximum use by cooperation. If the budgets of these libraries are substantially increased so that purchase of essential monographs and journals is possible and an efficient and dedicated staff is engaged, many of the problems would be solved. With the Nigeria Telecommunication projects now in the last stage, it would be easier and faster

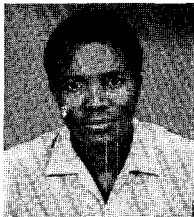
soliciting requests by telephone than by mail. Also, cooperation among librarians could improve by periodic meetings where some of these problems could be discussed and solutions found.

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# This Works For Us

## Selecting Titles for Binding

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■ A method for determining which titles should be bound based on "significance" to the physics literature, number of copies available, and circulation statistics is briefly described. The scheme provides for continuous evaluation of the journals which are bound.

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A PERENNIAL PROBLEM is lack of sufficient funds to bind all of the journals in the library. Therefore, the librarian must devise a scheme for determining which titles should be bound and in what order.

In July 1971 in the Physics Library there were over 1,000 volumes to be bound; but we had a quota of only 600 volumes. The journals to be bound included new subscriptions, regular binding, abstracts, volumes in temporary binding due to missing issues or indexes, rare old volumes that required rebinding, etc. Checking the shelves, it was found that we had been binding titles of peripheral interest, such as general science journals, or subjects that were no longer taught in the Physics Department, such as geoscience. Monographs were also being rebound without considering their value to the collection.

Some sort of formula was needed by which to evaluate all the titles. The

Figure 1. Rating Scale for Binding

- 100 The primary abstract journals
- 90 Titles for which Physics Library has more than one subscription
- 80 "Significant" titles in physics
- 70 Only set on campus, has been bound previously
- 60 Only set on campus, new subscription
- 50 Only set on campus, not bound previously
- 40 Only set on campus, ceased publication
- 30 Other journals in the field of physics published in the last 10 years
- 20 Monographs that required rebinding
  - Is this the only copy on campus?
  - Is this volume part of a set?
  - Is this the most recent edition of a book?
- 10 Miscellaneous
- 0 Do not bind

• •

scheme had to be easy to use, easy to teach to clerical assistants, and easy to supervise.

A system was needed that would assure that we were binding: 1) the heavily used abstracts as soon as the volumes were completed; 2) the "significant" journals of physics; 3) the titles and new subscriptions that represented the only set on campus; and 4) heavily used journals, not necessarily the most "significant."

A scale for rating each title was devised (Figure 1). An explanation is given at the end of the paper. We originally used a reference from *Reports on Progress in Physics* (1) to choose the significant journals. We have since modified our ratings based on two additional studies (2, 3).

Figure 2. Sample Rating Cards

PHYSICS IN CANADA	70
PHYSICS IN CANADA	
v. 20	1964 lacks issue 3
v. 21	1965 lacks issue 2
v. 25	1969 lacks issue 2
v. 26	1970 ready
v. 27	1971 ready

### The Rating System

Using 5"×8" cards we marked the appropriate rating number for each title (Figure 2). On the back of the card we had previously listed all of the volumes that required binding or rebinding for the period Jul 1, 1971–Jun 30, 1972. After we rated each item, we consulted with the Physics Library Committee to obtain their ideas on setting priorities.

The cards were arranged according to the scale 100 to 0. Each time the assistant prepared the binding, she selected titles from the 100 category, then the 90, then the 80, etc., until she had reached her assigned number of volumes. If there were missing issues, she ordered replacements. The physics librarian briefly checked the volumes before they were sent out.

After a three month trial, we evaluated the ratings. Some journals were so heavily used that we increased the ratings. For example, *Scientific American* is not a significant journal in the physics literature. However, some departments in the School of Science assign the issues for outside reading, and the students use the Physics Library set. Another example is *Contemporary Physics*. Although there are several sets on campus, the one in the Physics Library was so heavily used that its rating was changed from 30 to 80. Of the approximately 300 titles which were evaluated, 20 were upgraded and 2 downgraded.

A very unscientific method for checking circulation was used. The librarian placed all volumes that were ready for binding on the shelves in the workroom. If numerous requests for a title came in, the rating increased. If no requests were received, the rating remained at "30" or "0" and the volume returned to the open shelves.

The rating scale based on 100 was used rather than one based on 1–10 or A–Z because it was an easy method to indicate that a title rated 100% was more important than one rated 30%.

Since July 1971, three assistants have been trained to use the system. They found that the procedure is easy to learn and that they can prepare binding with a minimum of supervision.

In addition, the system has the advantage of providing for continuous evaluation and revision of the ratings by including the subscriptions which are added and dropped each year. Most other schemes provide only one time evaluation.

One point that may be significant is that no monographs have been rebound since instituting this system. Previously an estimated 30–35 volumes per year were rebound.

### Appendix: Explanation of Rating Scale

- 100 *Physics Abstracts*, *Nuclear Science Abstracts*, and *Chemical Abstracts* are the titles in this category.
- 90 The Physics Library has duplicate subscriptions to *Physical Review*, *Nuclear Physics*, *Journal of Physics and Chemistry of Solids*, etc.
- 80 A list of 50–60 journals which were considered to be key titles in three studies (1, 2, 3) was prepared.
- 70 Since there is duplication of subscriptions among the various departmental libraries, priority was given to unique subscriptions. Some examples are *Annalen der Physik*, *Atomic Data*, *Optica Acta*, and *Physics in Canada*.
- 60 We established a separate category for the new titles which we were purchasing. These titles include *General Relativity and Gravitation*, *Journal of Nonmetals*, and *Optics and Laser Technology*.

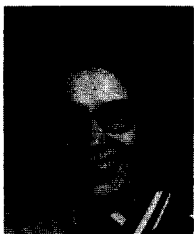
- 50 Some of the unique sets were not bound previously or required rebinding. These are *Ferroelectrics*, *Foundations of Physics*, and *Neue Physik*.
- 40 There were some sets that required rebinding or replacement of missing volumes. These were unique titles that had ceased publication. Some items in this category are *Cahiers de Physique*, *Physical Society of London, Proceedings*, and *Zeitschrift fur Astrophysik*.
- 30 This category was used for journals cataloged in the 530's that were duplicated somewhere on campus. This includes *Infrared Physics*, *Journal of Plasma Physics*, and *Astrophysical Letters*.
- 20 Here we provided for rebinding monographs.
- 10 We left this category for material not mentioned above such as pamphlets, reports, etc.

0 Do not bind. These titles include *American Scientist*, *ISIS*, *Journal of the History of Ideas*.

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# Machine Dictation:

## A Time Saver for the Library Staff

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■ Machine dictation in library work is an adaptation of dictating practices used by other businesses. Besides normal correspondence, the application has been extended to producing complex computer search logic, bibliographies, and

public relations materials. The success of these examples indicates that additional communicating functions of the library will be handled with machine dictation.

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**LIBRARIES**, like all service groups, are continually looking for faster and more economic ways to handle their increasing volume of paper work. One way to accomplish these goals is to adapt a technique already used by progressive industrial and business firms. That is, apply some form of machine dictation.

The advantages of machine dictation are obvious. It is convenient in that you can dictate when a thought comes to your mind rather than wait until the secretary is free. It is efficient in that it is faster to speak than write. It is economic, in that the cost is \$5.90 for 1,200 words or 100 lines, compared to \$13.75 for shorthand and \$21.40 for longhand.\* (These costs include dictating and transcribing time.) Finally, it is more enjoyable for the secretaries for

they are able to spend more time on their professional duties.

We have applied machine dictation in our library. Librarians and staff members now dictate all correspondence and communications which they previously wrote or typed themselves. At present, these include complex logic structure revisions for our SDI service (Selective Dissemination of Information), library order forms for interlibrary loans and photocopy requests, communications to patrons, bibliographies, public relations materials, articles for newsletters and newspapers, and this article for *Special Libraries*.

### The Concept

Let us follow the handling of one of these communications to see the machine dictation concept in action. Arbitrarily, we will describe the application of our SDI notification system.

We distribute to our engineers computer-generated SDI notifications from several data bases, among them the *En-*

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\* Dartnell Analysis and Staff Report, 1970.

Figure 1. Sample SDI Notification Order Form

AF KWONG SJOS SDD D/G51 B/O13 MAN NO. 544407 71D11  
 JOURNAL REQUEST CARD. COPIES NOT MICROFILMED AND NOT AVAILABLE FROM ITIRC.  
 REFER REQUESTS TO YOUR LOCAL IBM LIBRARY. CIRCLE ITEM NUMBER DESIRED.

- 1 X110940 AT ENERGY REV V 8 N 1 1970 P 127-72
- 2 X111060 REACTOR MATER V 13 N 2 SUMMER 1970 P 92-105
- 3 X112960 NON-DESTRUCT TEST (LONDON) V 3 N 4 AUG 1970 P 302-6
- 4 X113958 MATER EVAL V 29 N 29 N 6 JUNE 1971 P 117-24
- 5 X114112 MATER EVAL V 29 N 5 MAY 1971 P 105-11
- 6 X114303 PROC BRIT CERAM SOC (MODERN ANALYTICAL TECHNIQUES, CERAMICS AND GEORCHEMISTRY) N 16 APR 1970 P 41-51
- 7 X11621 MATER EVAL V 29 N 6 JUNE 1971 P 16A-18A

*gineering Index*. We also distribute computer printouts of abstracts describing the articles which match their profiles (job interests), together with an order and response form. The sample SDI order form shows some items requested by an engineer (Figure 1). All he has to do is circle the number of the item that he wants.

When items are available in our library, we simply pull them from the shelves and make a photocopy. When we don't have them, we first check the *IBM Union List of Serials* and code the company location on the SDI order form. If the items are not available in an IBM library, we check for them in other sources and note the libraries at which they are available. (The *Engineering Index* computer tape we run for our SDI service includes some additional journal references not available from the Engineering Societies Library.)

The full bibliographic citation is not presently printed on the SDI order form, yet it is required on the regular order form or the interlibrary loan form. This missing information is obtained from a special computer printout via the *Engineering Index* tapes arranged in the same numerical order as the SDI form.

It is an easy and rapid mental gymnastic process to transfer the bibliographic information and to change the format at the same time by dictating. No longer do we follow the old practice of handwriting notes on the SDI form and subsequently transferring that information to order forms. We now transfer the information from a computer printout to the order form, photocopy form, or interlibrary loan form via dictation.

Before beginning to dictate the bibliographic information, we indicate to the secretary which form she should

Figure 2. Sample of Profile Search Logic

H KAHN 449890 SJOS SMD 767 005 02/72

- A1 TRANSMIS\* OR RECEIVING OR RECEPTION WITH HIGH OR HI OR RADIO WITH FREQUENS\* OR WAVES
- A2 PHOTO-ELECTRONICS\* OR CAPACITORS OR INDUCTORS OR I-C OR SEMICONDUCTORS OR MICROWAVES OR OPTICS WITH MEASURS\* OR TESTS\* OR INSTRUMENTS\*
- A3 IMAGES WITH SCANS\* OR PICKUP OR PICK-UP OR REPRODUCTS\*
- A4 COMPONENTS OR DIODES OR SEMICONDUCTORS OR TRANSISTORS WITH LASERS OR LIGHT OR DETECTS\* OR ELECTRONIC
- A5 NETWORKS WITH FILTERS WITH MEASURS\* OR INSTRUMENTS OR TESTS OR ELECTRO-OPTICS\* OR ELECTROOPTICS\*
- A6 CRTS WITH DISPLAYS
- A7 CATHODE WITH RAY WITH DISPLAYS
- A8 ELECTRONIC WITH COMPONENTS WITH MEASURS\* OR TESTS OR INSTRUMENTS\*
- A9 INTEGRATED WITH CIRCUITS WITH MEASURS\* OR TESTS OR INSTRUMENTS\*
- A10 A1 OR A2 OR A3 OR A4 OR A5 OR A6 OR A7 OR A8 OR A9
- B1 APPLICATIONS OR IMPLEMENTATIONS OR CIRCUITS OR MEASURS\*

CON 1 A10 AND B1  
 CON 2 ABS ELECTRONICS ADJ LETTERS  
 CON 3 NOT CHEMISTRY OR MATERIALS OR MANUFACTURING OR RELIABILITY-TESTING OR RELIABILITY  
 CON 4 NOT PRSCA OR CNPBR OR PYSZA OR PHVA OR PHSSA OR JECVA OR CBSMA OR BUSCA OR SPTPA OR MBTLA OR HITEA OR IMPAA OR PRITA OR PLENA  
 CON 5 NOT APOFA OR ASME OR ESTHA OR PYSCA OR PSENA OR JACNA OR JOSSA OR JNARA OR JESTA OR JAAMI OR PLNSA OR JNSLA OR JVEAA OR PYESA OR PSCNA OR PLAWA

END

use. She transcribes the complete bibliographic citation onto the proper form and checks it with the interlibrary loan librarian for accuracy and completeness. Then she mails the orders to the appropriate sources.

**Increased Efficiency**

We record about 10 to 15 citations per belt, requiring approximately 15 minutes of dictating time. This means that we (interlibrary loan librarians) now process 2 to 3 times as many orders by dictating as we were able to do previously. Usually, we do about 3 belts each time we dictate, amounting to about 30-45 orders. The number we dictate is up to us. We are able to dictate orders that use the same form or orders that require different forms—all on the same belt—because each citation is marked (or a hole punched) on the index slip associated with each dictation belt. This indexing makes it convenient for the secretary to separate the items or to stop at any point.

**Lower Costs**

Another example where dictation has been a great cost reducer is in the revision of profile search logic used for our SDI service. This is sometimes extremely complicated as shown (Figure 2). However, the secretary seems to have no problem in transcribing the search logic

**Figure 3. Sample Response Form**

L REISWIG SJOS SDD D/G92 B/028 MAN NO. 176879 71B10

PLEASE EVALUATE THE ATTACHED ABSTRACTS AND RETURN THIS CARD TO YOUR LOCAL IBM LIBRARY (IF NONE, SEND TO ITIRC).

CHECK

GOOD - OVER 75 PERCENT OF THE ABSTRACTS ARE OF INTEREST.

FAIR - ABOUT HALF OF THE ABSTRACTS ARE OF INTEREST.

UNSATISFACTORY - LESS THAN 25 PER CENT ARE RELEVANT.

ENTER BELOW - COMMENTS, QUESTIONS, ADDRESS OR PROFILE CHANGES.

*Please dict INFORMATION RETRIEVAL profile.*

YOU RECEIVED 6 NOTIFICATIONS FROM NON-IBM DOCUMENTS 09/22/71

structure even though she may not understand it or its logical requirements.

Responses to the SDI system are constantly monitored through the response form (Figure 3). Whenever a notification is returned from a patron with either a question, comment, or unsatisfactory hit ratio, a memo is dictated answering his question, or the profile logic

is amended, or a copy of the current profile is forwarded to the user for possible comment or revision.

Our application of machine dictation equipment has been successful in promoting both cost and manpower savings, primarily through more efficient use of talents and time. There is only one application we have not yet tried—cataloging. Even here we have a good start; we have been dictating full bibliographic citations.

*Received for review Apr 17, 1972. Manuscript accepted for publication Oct 27, 1973.*



Karen Takle Quinn is presently with IBM Systems Development Division, Palo Alto, Calif.

*Erratum*

The titles of the authors on p.497 of the Nov 1973 issue of *Special Libraries* were inadvertently switched. The author note should read: "Dr. Pauline M. Vaillancourt is associate professor and Dr. Lucille Whalen is professor and associate dean, School of Library and Information Science, State University of New York, Albany."

## 1974 Candidates for SLA Office

Following are the candidates for SLA office 1974/75. Full biographies and photographs will appear in the February 1974 issues of *Special Libraries*. For President-Elect: Jean Deuss (Federal Reserve Bank of New York, Research Library, Federal Reserve P.O. Station, New York, N.Y. 10045) and Miriam H. Tees (The Royal Bank of Canada, Box 6001, Montreal 101, P.Q., Canada); For Chairman-Elect of the Advisory Council: James A. Damico (Sciences Librarian, Brown University Library, Providence, R.I. 02912) and H. Robert Malinowsky (University of Kansas Libraries, Lawrence, Kan. 66044); For Director: Constance Ford (Union Electric Company, P.O. Box 149, St. Louis, Mo. 63166) and Aphrodite

Mamoulides (Shell Development Company, P.O. Box 481, Houston, Tex. 77001); also: Larry X. Besant (Ohio State University Libraries, 1858 Neil Ave., Columbus, Ohio 43210) and Joseph M. Dagnese (Purdue University Libraries, West Lafayette, Ind. 47907).

Edythe Moore (Aerospace Corporation, Charles C. Lauritsen Library, P.O. Box 92957, Los Angeles, Calif. 90009) will automatically succeed to the office of President. Roger M. Martin (American Express Investment Management Company, P.O. Box 7583, San Francisco, Calif. 94120) will automatically succeed to the office of Chairman of the Advisory Council. Continuing to serve on the Board will be Past President Gilles Frappier, Treasurer Janet M. Rigney, and Directors Robert L. Klassen, Marian G. Lechner, Anne C. Roess, and Charles H. Stevens.

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## Actions of the Board of Directors Oct 11-13, 1973

The Board of Directors held its Fall Meeting Oct 11-13, 1973, at the Gramercy Park Hotel in New York City. During the meeting the Board visited the Association Office to familiarize themselves with Association operations and to meet members of the staff.

**FY 74 General Fund Budget**—The Board approved the General Fund Budget for FY 74 (page 578).

**Chapter and Division Allotments**—The Board approved the recommendation of the CLO and DLO for allotments for FY 74 to

be paid at the same rate as last year, except that Student Member allotments are again included at the full rate. Chapter allotments of \$3.00 per member per year and Division allotments of \$2.00 per member per year will be paid by the Association for all member categories, including Student Members. Allotments for 1974 based on the Dec 31, 1973, membership count (highest of the year) will be mailed about mid-February 1974. The minimum Chapter allotment will be \$150 per Chapter as in the past.

**Position Statements**—In separate actions, the Board endorsed the AALS (American Association of Library Schools) Position Paper on Continuing Library Education and the ACRL (Association of College and Research Libraries) Joint Statement on Faculty Status of College and University Librarians.

**General Fund Budget (Summary) January 1–Dec 31, 1974**

Dues & Fees	\$252,500
Less Allotments paid to Chapters, Divisions and Student Groups	<u>(44,800)</u>
Dues & Fees (Net)	<b>\$207,700</b>

INCOME, GENERAL OPERATIONS	
Dues & Fees (Net)	\$207,700
Contributions (Patrons & Sponsors)	5,000
Periodicals Programs	
Special Libraries Program (Net)	\$(27,000)
Scientific Meetings Program (Net)	1,500
Technical Book Review Index Program (Net)	<u>3,500</u>
Periodicals Program (Net)	(22,000)
Conference Program (Net)	62,200
Education Program (Net)	1,100
Promotion Program (Net)	(13,300)
Interest Income	9,000
Addressing Service (Net)	2,500
Other	<u>1,000</u>
Income for General Operations	<b>\$253,200</b>
Expenses of General Operations	<u>251,700</u>
Anticipated Excess Income Over Expenses	<b>\$ 1,500</b>

EXPENSES, GENERAL OPERATIONS	
Salaries (Net)	\$144,800
Employee Benefits (Net)	23,100
Office Services	54,500
Occupancy Costs	34,900
Professional Fees & Services	22,300
Travel (Net)	11,600
Member Services	16,200
Bank Charges	400
Depreciation on Equipment	1,000
Miscellaneous	100
Contingency	<u>500</u>
	<b>\$309,400</b>
Overhead Transfers from Program Budgets	(45,900)
Overhead Transfers from Other Funds	<u>(11,800)</u>
Expenses of General Operations	<b>\$251,700</b>

**Gross Income of General Fund**

Because the program budgets indicate net income rather than total income, anticipated gross income for FY 74 is presented below:

Dues & Fees	\$252,500
Contributions (Patrons & Sponsors)	5,000
Periodicals Programs (Subscriptions and Advertising)	
Special Libraries	\$98,400
Scientific Meetings	24,300
Technical Book Review Index	<u>34,200</u>
Total	<b>156,900</b>
Conference (Exhibitors, Program Advertising and Registration Fees)	100,000
Education Program	9,000
Interest	9,000
Addressing Service	3,500
Other	<u>1,000</u>
Gross Income of General Fund*	<b>\$536,900</b>

\* N.B.: The total Gross Income of the General Fund does not include income to the SLA Scholarship Fund, Non-Serial Publications Fund, Reserve Fund or Equipment Reserve Fund.

The Statements appear elsewhere in the issue.

The Board also voted to support the provisions of H.R. 6305 and S.1576 relating to the support of credit toward Federal Civil Service retirement. These bills would correct the inequity whereby federal librarians (and other federal employees) who are paid out of "nonappropriated" (as contrasted to "appropriated") government funds do not receive credit toward retirement. The Board action is to be reported to House and Senate Committees on Post Office and Civil Service.

**Copyright Matters**—The Council of National Library Associations (CNLA) submitted a statement on copyright matters to each of its member associations in an effort to "draft a common reply to facets of the copyright problem that affect all of our Associations." The SLA Board commended CNLA for its efforts to develop a unified position for the entire library community of the U.S. and urged CNLA to continue its efforts with a sense of urgency to achieve such a goal for presentation at future hearings of appropriate Congressional bodies. However, SLA expressed its regrets that it cannot endorse the proposed statement *in its entirety* because of SLA's Statement on the Copyright Revision bill [SL 64 (no.3): 158 (Mar 1973)] and especially in view of SLA's Statement and Addendum to the Senate Subcommittee [SL 64 (no.10): 467-472 (Oct 1972)].

The Board noted that SLA *does agree* with the new concept expressed in the CNLA statement: "The arbitrary exclusion of certain fields of investigation, such as music and the fine arts, was totally unacceptable."

**Nominating Committee 1974/75**—The Board voted to elect the 1974/75 Nominating Committee as submitted: Floyd L. Henderson, chairman; Sara Aull; S. K. Cabeen; Duane M. Helgeson, and Doris B. Marshall.

**Employment Clearinghouse**—The Board authorized the Association office to establish an Employment Clearinghouse using the proposal of the Employment Policy Committee as general guidelines. It is hoped that details of the Clearinghouse (to be established in 1974) will be available at the Advisory Council meeting in January 1974.

**Surveys Planned for 1974**—Three surveys are being planned by Association units. The Publisher Relations Committee is preparing a questionnaire on the acquisitions procedures of librarians and the promotional practices of publishers. The Special Committee on Copyright is planning a survey on photocopying practices in special libraries. The SLA Representative to the Library Binding Institute is preparing a questionnaire on binding practices in special libraries. Details will follow.

**ARL Representative**—The Board authorized the appointment of an SLA Representative to the Association of Research Libraries (ARL) so as to establish cross-representation between SLA and ARL.

**Auditors**—The Board authorized the appointment of J. K. Lasser & Co. as auditors for FY 73.

**Association Office**—The Board authorized that the SLA New York Office at 235 Park Avenue South be designated as Association Office instead of Headquarters.

**Restructure of the Advisory Council**—As a result of Council action in June 1973, the Board established a Special Committee to study the Association-wide implications of a proposal to restructure the Advisory Council by replacing it with a Division Cabinet and a Chapter Cabinet. The Special Committee presented a report to the Board. A memo and the report are being sent to the Chapter and Division officers for discussion at the 1974 Winter Meeting.

# AALS (American Association of Library Schools) Position Paper on Continuing Library Education

## *Introduction*

Present day developments, including changes in our society, the accelerated growth of new knowledge, the implications of new technology, and the increasing demands for additional or changing types of library, information and communication services support the assumption that continuing library education is one of the most important problems facing librarianship today. In recognition of these societal changes and increased demands for professional services, the library and information science professions should adopt a vigorous role in providing opportunities for continuing education for all their profession. Libraries designed to serve the information needs of the citizenry will not service fully unless librarians first share and agree on some fundamental ideas as to what constitutes a practical and feasible plan of continuing library education.

## *Basic Assumptions*

### 1. *Need for Continuing Education*

A. Continuing education is essential for all library personnel, whether they remain within a position category or are preparing to move into a higher one. The best library education can become obsolete in a few years, unless the librarian makes a very determined effort to continue his or her education.

B. The gap between knowledge and application grows wider for several reasons: rapid advances in research; unequal distribution of opportunities for continuing library education; patterns of educational opportunities and of dissemination of knowledge which are not efficient in terms of the librarian-student's needs.

### 2. *Objectives of Continuing Education*

A. Any continuing education program in librarianship should aim toward the total improvement of the individual with specific attention to his development in the following categories: personal growth, improvement of basic professional skills, acquisition of new skills in other fields, attitudinal changes, etc.

### 3. *Content of Continuing Education*

A. Programs that are developed should be based on educational needs as expressed by the profession and take in con-

sideration societal, professional and individual requirements:

(1) Diversity of job and career related programs—program should be developed in enough breadth and depth to meet all career needs.

(2) Continuity of programs—librarian-student should be able to build an individualized program from various sources in which each learning experience builds upon the previous one.

(3) Convenience and accessibility—any and all programs should be accessible to all librarians, regardless of geographic location, type of library, or position within the library.

(4) Personal satisfaction.

B. Techniques and methods exist to meet the individual librarian's requirements for continuing professional education through his or her career. Existing knowledge and tools from the combined fields of library education, information science, educational technology, and the behavioral and management sciences are available, and should be used to the fullest advantage.

C. In planning and developing programs the continuing education experience and resources of other professions should be studied and adopted and/or adapted when feasible.

D. Any national program developed should be based on an evaluation of what continuing education programs exist today in the field and how well they are meeting the needs.

E. Constant evaluation should be made and new research and developments in librarianship and related fields should be constantly incorporated into the overall program.

### 4. *Organizational Structure for Continuing Education*

A. The complexity of the problem demands that any vigorous planning for continuing education for librarians will, at a minimum, call for coordination and cooperation among five components; individual librarians, state, regional and national library and information associations, library schools, the libraries, and state, regional and national agencies.

These components have a financial responsibility to assure the development of their human resources. While financial support of continuing education opportunities will not insure staff development, the lack of support can cause its failure. Considering the great importance of competent staff in providing good library service and the speed of obsolescence in human expertise in modern society, there is an imperative need for acceptance of

this responsibility in order to assure adequate service.

B. The problem is of national dimensions and the best solutions can only be found through coordinated and vigorous planning at the national level. A national organizational structure is needed which insures cohesion of efforts and insures a balance that can articulate effectively individual, local, state, regional, and national programs and educational resources.

## ACRL (Association of College and Research Libraries) Joint Statement on Faculty Status of College and University Librarians

As the primary means through which students and faculty gain access to the storehouse of organized knowledge, the college and university library performs a unique and indispensable function in the educational process. This function will grow in importance as students assume greater responsibility for their own intellectual and social development. Indeed all members of the academic community are likely to become increasingly dependent on skilled professional guidance in the acquisition and use of library resources as the forms and numbers of these resources multiply, scholarly materials appear in more languages, bibliographical systems become more complicated, and library technology grows increasingly sophisticated. The librarian who provides such guidance plays a major role in the learning process.

The character and quality of an institution of higher learning are shaped in large measure by the nature of its library holdings and the ease and imagination with which those resources are made accessible to members of the academic community. Consequently, all members of the faculty should take an active interest in the operation and development of the library. Because the scope and character of library resources should be taken into account in such important academic decisions as curricular planning and faculty appointments, librarians should have a voice in the development of the institution's educational policy.

Librarians perform a teaching and research role inasmuch as they instruct stu-

dents formally and informally and advise and assist faculty in their scholarly pursuits. Librarians are also themselves involved in the research function; many conduct research in their own professional interests and in the discharge of their duties.

Where the role of college and university librarians, as described in the preceding paragraph, requires them to function essentially as part of the faculty, this functional identity should be recognized by granting of faculty status. Neither administrative responsibilities nor professional degrees, titles, or skills, per se, qualify members of the academic community for faculty status. The *function* of the librarian as participant in the process of teaching and research is the essential criterion of faculty status.

College and university librarians share the professional concerns of faculty members. Academic freedom, for example, is indispensable to librarians, because they are trustees of knowledge with the responsibility of insuring the availability of information and ideas, no matter how controversial, so that teachers may freely teach and students may freely learn. Moreover, as members of the academic community, librarians should have latitude in the exercise of their professional judgment within the library, a share in shaping policy within the institution, and adequate opportunities for professional development and appropriate reward.

Faculty status entails for librarians the same rights and responsibilities as for other members of the faculty. They should have



corresponding entitlement to rank, promotion, tenure, compensation, leaves, and research funds. They must go through the same process of evaluation and meet the same standards as other faculty members.<sup>1</sup>

On some campuses, adequate procedures for extending faculty status to librarians have already been worked out. These procedures vary from campus to campus because of institutional differences. In the development of such procedures, it is essential that the general faculty or its delegated agent determine the specific steps by which any professional position is to be accorded faculty rank and status. In any case, academic positions which are to be accorded

faculty rank and status should be approved by the senate or the faculty at large before submission to the president and to the governing board for approval.

With respect to library governance, it is to be presumed that the governing board, the administrative officers, the library faculty, and representatives of the general faculty, will share in the determination of library policies that affect the general interests of the institution and its educational program. In matters of internal governance, the library will operate like other academic units with respect to decisions relating to appointments, promotions, tenure, and conditions of service.<sup>2</sup>

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<sup>1</sup> Cf. 1940 *Statement of Principles on Academic Freedom and Tenure*; 1958 *Statement on Procedural Standards in Faculty Dismissal Proceedings*; 1972 *Statement on Leaves of Absence*.

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<sup>2</sup> Cf. 1966 *Statement on Government of Colleges and Universities*, formulated by the American Council on Education, American Association of University Professors, and Association of Governing Boards of Universities and Colleges.

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### SLA Goes Latin

**SLA's best-selling *The Library: An Introduction for Library Assistants* has been translated into Spanish by the Regional Technical Aids Center, Mexico. Copies of the Spanish edition (*Técnicas del Bibliotecario*) may be purchased directly from the publisher, Editorial Pax-México, S.A., Argentina No. 9, Mexico 1, D.F., or through any commercial book dealer.**

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*Printed below is the draft of the NGLIS statement issued Oct 1973. Comments from members will appear in the January issue of the journal. It had been hoped that the official Association statement could also appear in that issue. It will, however, be published in a later issue.*

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*vistas*

## National Commission on Libraries and Information Science

The accompanying draft of a proposal on "A New National Program of Library and Information Service" is being distributed for study, discussion and comment. The National Commission urges librarians and information scientists throughout the country to give this document serious attention and to submit their general reactions and suggestions for specific emendations and additions.

The proposal arises from meetings of the Commission with professional society representatives, private and public funding agencies, government agencies, and from the hearings held by the Commission in Chicago, San Francisco, and Atlanta. During these sessions, the need for a national approach to the growth of libraries and information centers became self-evident as numerous witnesses testified to the unplanned nature of the current system, expressing concern over its survival. A national program of library and information service emerged as the unifying concept around which the professional is prepared to rally and for which the National Commission was urged to begin work.

The development of a national program requires a fresh look at Federal and state policy toward library and information services. The enclosed proposal, in brief, is that the Federal Government assume responsibility for the interstate components of a national program and for matching incentive funding to the states to help

them create the intrastate components. It requires recognition that the library and information needs of the country are of more than local concern, and that the Federal Government, in partnership with local and state agencies, must participate actively. For example, only the Federal Government can give adequate direction and support to the computer and telecommunications facilities that would eventually link state and local information systems into a compatible national system.

The Commission's intent is to sort out the various roles and responsibilities of the institutions likely to be involved in a national program, to clarify their functional relationships, and to work with the profession during the coming year in refining the program. The enclosed draft proposal is highly tentative and sketchy, but it should serve as a firm first step in setting forth the goals and the framework of a future national program.

Comments on the substance of the proposed program are invited. Reactions to this draft will serve as input to the development of the detailed program which will be the basis of the case for new Federal legislation.

Please address your comments to Mr. Joseph Becker, Commission Member, or to Mr. Roderick Swartz, Deputy Director, at the following address: National Commission on Libraries and Information Science, 1717 K Street, N.W. (Suite 601), Washington, D.C. 20036 (202/382-6595).

### DRAFT

## A NEW NATIONAL PROGRAM OF LIBRARY AND INFORMATION SERVICE

NATIONAL COMMISSION ON LIBRARIES  
AND INFORMATION SCIENCE  
OCTOBER 1973

### Preface

This is an overview of a new program of federal and state support for libraries and information services now in process of development by the National Commission.

The National Commission views libraries and information centers as a national knowledge resource to be sustained and integrated for all

citizens to use in the course of their personal and economic pursuits.

The Commission also believes the time has come to develop a national network of libraries and information centers as a total system rather than as a collection of separate parts.

Essentially, the new program now being formulated by the National Commission is based on three important assumptions:

First, that all citizens expect realistic and convenient access to library resources and information services in the United States for their self-enrichment and economic well-being.

Second, that the total information resource in the United States is a national resource which should be sustained and made available to the maximum degree possible in the public interest.

Third, that with the help of new technology and with national resolve the disparate collection of libraries and information centers in the United States can become an integrated national system.

## I. The Need for a National Program of Library and Information Service

### THE RESOURCE AND THE PROBLEM

Information, whether in the raw form of empirical data or in the highly processed form we call "knowledge," has come to be regarded as a national resource as critical to the nation's well-being and security as any natural resource like water or coal. The wealth of popular intellectual, scholarly, and research resources in its libraries and information centers is one of the great strengths of the nation. But like many natural resources, knowledge resources uncoordinated in growth and usage, are in danger of being inefficiently and wastefully utilized.

Only the judicious use of knowledge resources gives us power to solve the complex social and economic problems that will face our nation in the future.

In establishing the Commission, Congress affirmed that "library and information services adequate to meet the needs of the people of the United States are essential to achieve national goals and to utilize most effectively the nation's educational resources and that the Federal Government will cooperate with state and local governments and public and private agencies in assuring optimum provision of such services." Public Law 91-345 further authorized the National Commission to "promote research and development activities which will extend and improve the nation's library and information handling capability as essential links in the national communications networks."

Pursuant to its mandate, the National Commission recognizes that library problems and information needs may not be the same in every section of the Nation. It feels it imperative, therefore, to obtain first hand reports concerning adequacies and deficiencies from people who use libraries as well as from the professionals. Accordingly, the Commission holds regional public hearings throughout the country to obtain grass-roots testimony. In its own deliberations the Commission has focused on six facets of the problem:

1. *The needs of users.* Library and information needs are felt at all levels of society, regardless of an individual's location, social condition, or level of intellectual achievement. Each citizen must feel an identity with the

local point of contact for his information and be able to gain access to the pertinent part of the total information resource which interests him.

2. *The deficiencies in current services.* Most libraries are crowded and understaffed. They are critically short of money because of the withdrawal of categorical federal aid, they are unable to keep pace with current demands, and they have little flexibility to undertake new programs of value to the people they serve.

3. *The trend toward cooperative action.* In order to keep local programs alive, many libraries have formed consortia or cooperatives. Useful as these stop-gap network arrangements have been they are not developing according to any national standard, nor is the financial commitment to their continuance permanent. Without technical standards for interstate and regional network development, we are in danger of spending large sums of money on piecemeal programs which may never connect.

4. *The financial base for libraries.* Because of diverse tax structures, some American communities receive library services according to their ability to pay, rather than according to need. In Denver, last year, the Commission convened a conference on "user needs" and learned that millions of Americans who need library service—particularly the underprivileged, the culturally deprived, and the geographically remote—are not getting it.

Moreover, the traditional federal funding structure for libraries has collapsed. Programs like the Library Services and Construction Act are being discontinued in favor of revenue sharing. Since libraries must compete with other local agencies for such funds, the amount available to them remains uncertain. It is most unlikely that revenue sharing funds will be allocated to library projects involving extra-jurisdictional services and facilities.

5. *The potential of new technology.* The library is affected by four new technologies: computers, micrographics, telecommunications, and audiovisual systems. The use of computers in libraries has already been pioneered and the principles of use are now well understood. However, direct application of computers has been minimal and there is a critical shortage of trained manpower to help libraries convert from manual to machine methods. The use of micrographics for compact storage is increasing, but it is far from widespread. Some library experiments with telefacsimile and CATV have been fruitful, but there are only a handful of operating systems. And finally, while libraries have been reasonably active in acquiring audiovisual materials, there is still some reluctance to give the same attention to non-print forms of information—like films, slides, filmstrips, audio

cassettes, video tapes, video cassettes, and digital tapes—that libraries give to books.

6. *The staffing and manpower needs of libraries and information centers.* The human resources required to plan, creatively manage, and operate the nation's libraries and information centers are poorly understood analytically. An assessment of the quantity and quality of the manpower to meet future demands for information services in the U.S. has not yet been made in any depth. It is clear that new approaches to educational programs will be needed in library science and information science if library technicians, professionals, and auxiliary personnel are to learn to function in non-traditional ways.

Libraries and information centers in the United States are not developing according to any national plan, and consequently, from a systems viewpoint, their growth continues to be uneven and uncohesive. A new philosophy of library and information service is needed, one based on a common sense of direction and purpose and a commitment to national cooperative action.

#### COOPERATIVE SHARING THROUGH NETWORKS

Libraries generally are not in a position to meet all the needs of their constituents. In a world having an unprecedented supply of information, no one library can afford the cost of acquiring all the necessary books, computer data bases, video tapes, audiovisual materials and other information. It is not surprising, then, to find that the level of library and information service in most parts of the United States is below American Library Association standards.

Librarians have long realized that service to their patrons can be markedly upgraded through "resource-sharing," in which any one library may augment its own holdings by having access, through loans, to the holdings of neighboring libraries. During recent years, libraries across the country began to develop new organizational relationships to facilitate the sharing of resources. These cooperative programs are variously referred to as regional library systems or library consortia. Unfortunately, though these arrangements are well-motivated and are pointed in the right direction, they are on too modest a scale and too frugal in support to offer solutions that can be fitted to the nation's libraries as a whole.

Computers and communications—which have been developing in such spectacular fashion over the last twenty years—are now in a position to make nationwide resource-sharing arrangements technically feasible. These two powerful technologies, the computer and modern telecommunications, can be joined as the basis of a

national network in which existing information systems and libraries are interconnected.

A national network involves the co-joining of general and specialized libraries and information centers throughout the country. This co-joining first requires formal organization in which these institutions agree to certain common programs. Later, it calls for the introduction of computer and telecommunications facilities to facilitate the exchange of information and materials among them. The purpose of a national network is to permit any citizen—be he a businessman, researcher, scholar, or student—in the public or the private sector to access the total knowledge resource of the country from his own physical location.

The cost of establishing such a network will be large, and may raise doubts about whether the value of increased access to information is worth the price. A number of points, however, bear the answer: First, the logic of resource-sharing implies that a network is capable of absorbing part or all of its own investment by reducing the financial pressure on each individual library in the network to buy *all* of its own books and materials. Secondly, the alternative cost of fifty independent networks plus the eventual cost of interconnection after the fact is clearly more expensive. Finally, the "value" of increased access to information, like the value of increased access to education, grows exponentially.

Many libraries, having understood this facet of resource-sharing economics, have moved ahead to form local network arrangements. Intra-state networks are being planned or are in partial operation in Washington, Illinois, New York, Wisconsin, Maryland, and California. Regional networks, such as SLICE in the Southwest, NELINET in the Northeast, and a new one which is forming among the states of the Southeast, are examples of emerging networks that will cross state lines. At the present time, these groups find it feasible to share only bibliographic data. However, others are already experimenting with interactive computer time-sharing networks for data retrieval and still others are investigating future use of electronic communications for the routing of whole books and documents from place to place as an alternative to mail.

While efforts toward building local network arrangements are commendable, they are proceeding at a very slow pace and without benefit of national direction. There is both hope and peril in this: hope because there is something in place on which a national network might be built, and peril because these networks represent an entirely new form of uncoordinated growth on top of the library growth pattern that has traditionally occurred. Uncoordinated network development can also be extremely costly. The alternative to building an organized national network is the continued proliferation of smaller, incomplete networks

in different parts of the country. The National Commission fears that if this practice persists the disorganized aggregation could develop to the point of being incapable of future interconnection. It is for this reason that firm action by the federal government is now called for.

#### FEDERAL AID

Past federal aid to libraries, especially for school and university libraries, was mainly for the acquisition of materials. Its purpose was to ensure that each local community had resources adequate for serving its own constituents. This was a continuation of the practice started in the 1900's by Andrew Carnegie to provide grants to public libraries for the procurement of materials and physical facilities.

Even if the federal government would be willing and able to continue this kind of aid, there are ample signs that it would be insufficient to fill the gap that most libraries see between future needs and probable future funds from all sources, including federal. This gap is having a catastrophic effect on many libraries right now.

The recent cut-back in federal funding for libraries has not only limited their ability to buy books for local use but, even worse, it has had a curtailing effect on the amount and variety of information services offered to the public. As a consequence, libraries are beginning to engage in modest cooperative programs with other libraries hoping that by sharing resources they will be able to continue these threatened information services despite limited funding. At best, however, these are stop-gap measures. What is needed is a new federal investment policy in libraries, a long range policy which encourages local development while at the same time accelerating interdependent growth nationally.

It is a well-known fact that America's expanding population is more mobile and more literate today than at any previous point in history. People move continuously from one part of the country to another while their sources of information and knowledge remain fixed in location. It therefore seems reasonable to propose that the federal government share in the responsibility to provide the telecommunications, technology, and systems development required to establish linkages between individuals in all parts of the country and information sources in each state.

For resource-sharing, for the dissemination of specialized information, and for many other unsatisfied needs in what is truly an information-rich country, the major inhibiting factor is distance. It is evident that the type of telecommunications planning that would be embodied in a national program of library and information services would open the way to the conquest of distance and enable access to information wherever it may be.

Almost everyone agrees that the interconnection of libraries and information centers across state lines would constitute a national asset of immense proportions and vastly increase the tempo and variety of knowledge exchanged within the country. To build a national library network on a state-by-state basis would be self-defeating and very costly. But, with shared specifications, shared systems, shared engineering know-how, shared telecommunications, and the introduction of national standards and procedures, it would be possible to justify and maintain a major federal investment in this area. Building a national network of libraries to promote knowledge and progress between and among the people of the states will require the same foresight that Congress had when it invested in the Interstate Highway Act to promote travel and commerce.

#### THE RATIONALE FOR FEDERAL INVOLVEMENT

While the federal government is broadly aware of the part played by libraries and information centers in national growth and productivity, the Commission believes that now is the time for the federal government to specifically begin dealing with information as a national resource. The Commission is recommending that the concept of a national program of libraries and information centers is a highly appropriate focus for governmental action because the concept is designed to promote a match between: (1) information needs that are more pressing than ever before; and (2) information technology that is nowhere more strongly developed than in the United States.

It should be recognized that the United States, though it may have a unique opportunity to plan its "information economy," is not alone in this position. Japan, West Germany, and other countries have published national plans which attest to the importance of national information policies and networks. We have more knowledge and data within our own borders than any other country, but if we fail to link these resources together nationally so that all can use them, we may be neglecting the most significant contribution we can make to our own productivity.

The implementation of a workable national program requires close cooperation between the federal government and state and local governments; such cooperation is most appropriately brought about through federal legislation. Legislation would adopt as its prime philosophical goal equal accessibility of the nation's libraries and information centers. In doing so, it will greatly increase our potential to attain our chosen national goals, increase national productivity, and improve the quality of life in America.

Information is a national resource for which the federal government must share a responsibility.

ity. Today this resource is not being managed adequately and is not meeting citizens' needs. For this reason the Commission believes that a federally sponsored national program offers a promising vehicle for dealing with the problem.

## II. The Main Elements of a National Program

The following pages propose a framework for a national program of library and information service. It is the view of the National Commission that any new national program must involve a partnership between the federal government and state and local governments in terms of both program planning and program execution. To achieve this will require that all parties involved have the fullest opportunity to debate the issues and confront the problems before the promulgation of federal legislation. For this reason, the Commission expects its proposed framework to undergo many changes before it is finally ready to form the basis of new legislation.

Briefly, the National Commission proposes a new national program for accomplishing an organizational and technological upgrading of libraries and information centers in the United States. The program advocates federal funding for the national elements of the program and funding by the states for their jurisdictional share.

The Commission suggests establishing a national authority in the federal government that will administer a national program of library and information service. The program assigns interstate planning functions as well as certain research and development responsibilities to the new authority. It also prescribes standards for the states to follow so that they may qualify to be members of the program. The Library of Congress and other national libraries are designated in the program as national collections. In addition, the facilities of the Federal Telecommunications System are enjoined to provide the electronic telecommunications necessary to exchange information messages and interconnect relevant computer installations.

Future legislation would outline the role of the federal government, the national libraries, and the states in the development and implementation of such a program; it would specify the functions which the new technology will perform as a central service; and it would establish the basis for appropriate federal and state incentive funding to guarantee a continuing intrastate investment in the program.

Some of the key issues which the National Commission believes must be addressed in developing the program follow.

### ORGANIZATION

The National Commission regards as axiomatic that any effort to bring organization to

the nation's libraries and information centers must result in the simultaneous maximization of: 1) the benefits that come from being part of a national program; and 2) a degree of local autonomy that is equivalent to that which libraries have always enjoyed. This philosophy, after all, is one that is common to many federal/local enterprises and that is implicit in the word "federal" itself.

At present there is no central authority in government empowered to set information science policy, direct a national program, or create a general purpose national network. Even though various parties in and out of the federal government have tried for decades to attain some degree of centralization in the nation's information services (at least at the policy level), no focal point yet exists in the federal establishment to formulate and execute policies relating to those activities.

Therefore, one of the important issues to be resolved in pursuing a national program for libraries and information service is deciding what kind of permanent operating agency is required at the federal level to establish policy and implement programs of national concern. Regardless of the ultimate structure chosen, it is evident that some central activity is needed to coordinate national library and information center development, to set and enforce national policies, and to undertake functions consistent with the federal government's responsibility.

Once the functions of an operating agency are defined it will then be necessary to recommend where the agency should be located organizationally in the federal government. At present there is no natural home for libraries in the federal establishment. Should a National Library Agency be created? Or, perhaps a quasi-governmental organization for libraries and information centers like the Corporation for Public Broadcasting? Are there other more desirable organizational formats?

### RESPONSIBILITIES OF THE FEDERAL GOVERNMENT

The National Commission has identified the following principal responsibilities which belong at the federal level, but there may be more:

*Planning the national program as a total system.* This means giving continuing direction to the coordinated development of the nation's libraries, information centers, and other knowledge resources to make sure they evolve as part of an integrated national plan.

*Administering the interstate portions of a national program.* The interstate portions include such activities as providing national computer and telecommunication facilities; setting and enforcing standards for systems compatibility among states and regions; and coordinating library and information science research and development in areas of common concern.

*Safeguarding national knowledge resources.* This implies federal protection of unique resources of major importance to the nation and creation of central services, like periodical banks and bibliographic centers, under federal sponsorship for the use of all the states.

*Designing a national network.* This means doing the initial planning and subsequent systems development to achieve the interconnection of relevant national information resources.

*Supporting intrastate network programs.* This implies establishing a working technical partnership and a matching fund relationship between the national network and emerging state networks in order to achieve consistent mutual development and minimum duplication of effort.

*Operating an extramural program.* To achieve a technological and organizational upgrading of libraries and information centers will require new approaches to manpower development, continuing education, technical training, and other matters relating to human resources. In this area, the federal government has a responsibility to ensure that people required to operate a national program are educationally prepared and qualified for their jobs.

*Cooperating with similar international programs.*

*Publicizing the program in the U.S.*

#### RESPONSIBILITIES OF STATE GOVERNMENTS

It is the view of the National Commission that any new national program would rest on the understanding that the federal government would fund those aspects of the program of common concern nationally, e.g., telecommunications, in return for the states' willingness to accept responsibility for funding libraries within its own jurisdiction. If this type of *quid pro quo* philosophy were adopted it could very well create a national program that over the years would grow simultaneously from the bottom up and the top down. To achieve this, however, requires that the federal government and the states work out appropriate matching fund formulae that ensure that most steps taken by either will be mutually reinforcing. Federal legislation would spell out the obligations incurred by the states when joining the program, describe the services they would receive in return, and set forth matching fund criteria for development of the intrastate parts of the national program.

It may be that each state will choose to prepare corresponding state legislation that ensures a continuing state commitment to the national program, to the financial support of all types of libraries within the state, and to the exercise of its program responsibilities, such as:

Designating a major state organization to represent it in the national program and giving

management direction to the development of libraries and information centers within the state.

Financing the state's share of its obligation to the national program and to state library development, according to formulas which take the entire state population into account.

Supporting libraries within the state so that they meet standards which qualify them to receive the benefits and services available through the national program.

Promoting the use of the national program among the people residing in the state.

Forming an intrastate network or regional networks with other states where appropriate.

#### THE ROLE OF THE LIBRARY OF CONGRESS

Because of its size, stature and comprehensive collections, the Library of Congress is the hub of the nation's bibliographic apparatus. Although the Library of Congress is not officially designated as a national library, it does, in fact, perform many common processing services and provide many user services for the libraries of the country. It receives and catalogs the bulk of the same titles received by other American libraries and the intellectual work which it does centrally offsets the need for local reduplication. The Card Distribution Service and the MARC (Machine Readable Catalog) Program, which includes making current cataloging information available on magnetic tape, are prime examples of the central work done by the Library of Congress which accrues to the benefit of most American libraries. The machine records of MARC may eventually form the nucleus of a computerized information system for a national network.

The Library of Congress is crucial to the organization of a national network because it has the capacity and the materials to perform many common services in both the areas of technical processing and reference and because it can set national bibliographic standards for the program. New legislation may be needed to designate the Library of Congress as having responsibility for integral aspects of a national program.

Examples of national functions which the Library of Congress could perform alone or in concert with other libraries are:

Expansion of national lending services and management of a national interlibrary lending system with the Library of Congress as the library of final resort.

Expansion to worldwide coverage of the National Program for Acquisitions and Cataloging.

Expansion of machine-readable cataloging to include cataloging in substantially all languages of current monographic, serial and other significant materials acquired by the Library of Congress.

Expansion of the MARC data base retrospectively to at least 1968, and then to the earliest date which can be shown to be cost beneficial.

Establishment of a National Bibliographic Center and development of uniform bibliographic procedures with the National Network Collections.

Operation of a comprehensive national reference and referral service.

Distribution of bibliographic data through on-line communication.

Operation of a national serials service.

#### *THE ROLE OF NATIONAL COLLECTIONS AND SERVICES*

The Commission recognizes that there are other institutions in the United States in addition to the Library of Congress, in both the public and private sectors, whose collections and services constitute unique national assets. The National Library of Medicine in the field of medicine, and the Center for Research Libraries in the field of academic research are just two of many collections in different fields that could play important roles in a national program. A new national program should have the means to protect and nourish these national resources whether they be research libraries, periodical banks, indexing and abstracting services, special libraries, or data bases. In their respective specialized domains, they would offer user services to all libraries in the country affiliated with the national program. Nothing currently exists to permanently safeguard or to develop these resources so that their use can be extended nationally.

A national program would be responsible for identifying these institutions and for supporting their continuation and maintenance. The program would also sponsor the establishment of other national information activities when it could be proven that a central service clearly would have cost/benefit advantages for the country. Examples include a national periodical bank, a national lending library, a national audiovisual repository, national documents services, etc.

It is true of almost any organization that some of its functions are better performed locally than centrally. However, in many aspects of library operation, no centralization exists at all; many libraries are duplicating effort, performing repetitive processing, storing similar materials, and giving incomplete or limited service to the public. National services that now serve the library and information community at large would be incorporated intact into the national program and others that are needed would be established. The criteria to be followed in designating national services or in recommending their establishment will need to be carefully articulated in proposed legislation.

#### *THE NATIONAL NETWORK*

The computer would ultimately become central in the operation of a national network. Many computer centers will be needed to help transform the machine-readable bibliographic records produced by the Library of Congress and other national libraries into by-products for local distribution, such as cards, book catalogs, special bibliographies, SDI services, etc. For each library to own its own computer installation would be prohibitively expensive, so the cooperative, multi-institutional approach to computer usage is proposed by the Commission as the most economic and efficient solution.

Computer installations in the network would be of two types, the first dedicated to bibliographic production (the processing of machine-readable tapes produced by the national libraries into by-products required by the local institutions), and the second devoted to service uses (recording holdings, making referrals, managing interlibrary loans, searching data bases, performing interactive searches of bibliographies and abstracts, etc.).

Existing MARC tape processing centers are examples of what the first type of computer center may be like. The second type, in its interlibrary loan version, would resemble the System of Interlibrary Communication now under study by the Association of Research Libraries. The existence of such computer centers may not offset the need of some libraries to maintain independent computer centers—possibly minicomputers—to satisfy local internal processing needs.

Federal legislation would designate the number and the location of Type I and Type II centers and support them with research, software, technical guidance, and perhaps even funds for equipment. Computers at this level of the national network would be a set of large, fast, time-shared information computers with many receiving sets in libraries. Computer usage usually implies economies of scale, suggesting that Type I and Type II installations will be massed to serve the processing and service needs of many institutions on an intra-state, multi-state, or regional basis.

The critical part of the national network concept is the means of interconnection of libraries and information centers over telecommunication lines. It is in regard to this element of the network that the greatest change in our thinking, about ways of dealing with recorded knowledge and about the very information metabolism of the nation, is required. Any system that transmits the volumes of information implied in interlibrary resource sharing will require great channel capacities. Recent developments in laser technology and micrographics portend advancements in the communication of information. Lasers and millimeter wavelength radiation, between them, are capable of bringing telecommunications costs down



by a factor of five by 1980, and with volume usage, no doubt even more than that.

A national network must, therefore, incorporate the means for communicating among the nodes of the network. While it is true that AT&T, Western Union, Microwave Corporation of America, and other companies are in the process of upgrading their commercial lines for domestic use, it seems that a library network exception to the federal telecommunications regulations will be needed to guarantee low telecommunication rates.

Needless to say, since the main purpose of a national network is to place the user in contact with his material, rapid and inexpensive telecommunications among libraries could turn out to be the greatest boon ever to the national distribution of knowledge for education and progress.

Whatever the cost to a member library might be in the usage of telecommunications facilities, there are still bound to be inhibitions. The federal government is in a position to give the whole network system an initial shot in the arm, through subsidization, until the entire scheme reaches a volume usage that ensures its economic viability. This it can do through legislation authorizing network participants the right to use the Federal Telecommunications System free of charge or at a sufficiently reduced rate. Many European countries have already begun to provide communication links

at lower tariff rates in order to influence and stimulate the development of national information systems.

### III. Epilog

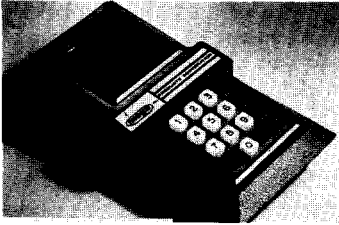
Unless we take steps now to develop a unified program of library and information service in the United States, the National Commission believes the current system of libraries and information centers will be unable to cope with the nation's growing information requirements.

The Commission views the outline of a new national program presented in this paper as a beginning. We hope during the coming year to refine our ideas by exposing them to the widest possible range of public and professional opinion and criticism. Our goal, however, is clear and we are firmly committed to it. We want to give everyone in the country, regardless of social or economic condition, equal access to the rich information resources this country possesses.

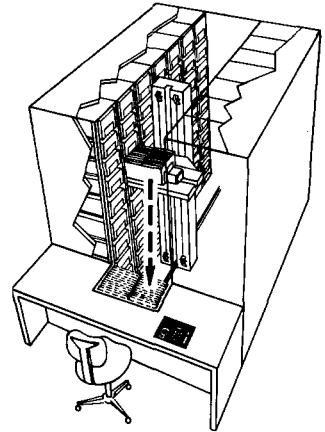
Certainly the task will not be easy. It will take intense professional energy to work out the complex problems inherent in such a program and to weigh the potential benefits and costs of new concepts and new solutions. But we are confident that by the end of a year, and with your help, we will have solidified the case for recommending new federal legislation.



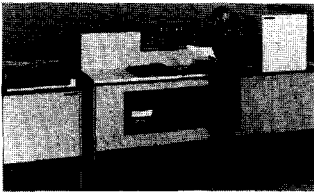
## HAVE YOU SEEN ?



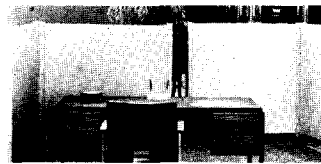
**Mega's Model 10-9** is a visual display/data inquiry terminal (DIT) which operates as a substitute for a Cathode Ray Tube in applications with a limited amount of data. It is oriented to numeric data programs, with limited alphabetic characters for indication of specific fields or functions. It includes a 10-digit visual display area, 9 back-lit panels, 16-character keyboard, and an indicator light which informs the operator when the terminal is transmitting. For information: Mega Products Corp., P.O. Box 534, 622 Lancaster Ave., Berwyn, Pa. 19312.



**Conserv-a-file Minitrieve**, a self-contained filing system housed in a small rectangular enclosure, is available in various sizes and is expandable to accommodate increased filing needs. Access to filed material stored in facing banks of columns inside the enclosure is controlled by a person sitting at a keyboard console. For information: Supreme Equipment & Systems Corp., 170 53rd Street, Brooklyn, N.Y. 11232.



**The Xerox 1200 Computer Printing System** is a xerographic printer, which prints on ordinary, unsensitized  $8\frac{1}{2}'' \times 11''$  paper at speeds of up to 4,000 lines per minute (slightly over 60 pages). Fixed-format information can be copied onto the paper simultaneously with variable, tape or computer-generated data. An unlimited number of copies can be printed, eliminating the need for multiple passes on the computer. The paper output is cut and copies are machine collated. Bursting and decollating operations, required in the handling of impact printer forms, are not needed. Additional information from Don Ransay, El Segundo, Calif. 213/679-4511, ext. 2236.



**The Landscape Partitioner** consists of two all steel panels  $48''$  long  $\times$   $54''$  high which are attached to a pre-assembled hinged post. The hinged post is reversible, thus permitting panels to open inward or outward or in a zigzag pattern. Units can be used alone or may be combined. Panels are available in a choice of colors, heights, and structural material. Chalkboard, pegboard, corkboard, masonite or glass are the choice of top inserts. For additional information: Rockaway Metal Products Corp., Dept. L.P., 175 Roger Ave., Inwood, N.Y. 11696.

## REVIEWS

**Application of Computer Technology to Library Processes: A Syllabus**, by Joseph Becker and Josephine S. Pulsifer. Metuchen, N.J., Scarecrow Press, 1973. 182p. \$5.00.

The subtitle of this work sums it up. It is a syllabus. It is noteworthy that neither the subtitle nor the coauthor's name appears on the spine of this volume. There are eight general units of study each of which is subdivided into an introduction, a statement of purpose, behavioral objectives for students, an outline, a syllabus specific to the unit, and a list of references. Although both general and specific selected bibliographies appear in the back of this book, there is no guarantee that entries which appear there will be cited at appropriate places in the main body of the syllabus.

This is not an expensive book at \$5.00, but it is difficult to recommend it. Virtually all ALA-accredited schools by now have faculty members qualified to teach courses in the area of information science. Each such person will have his or her own ideas of how a course in data processing should be organized, and it may or may not correspond to the method of organization in this book. Moreover, the bibliographic citations, although not bad, are not nearly so complete as those to be found in the *Annual Review of Information Science and Technology*.

In short, this book may be useful to some accredited and unaccredited library schools having difficulty attracting qualified faculty, but it is doubtful that many others will find much use for it.

Charles H. Davis  
The University of Michigan  
Ann Arbor, Mich.

**Title Derivative Indexing Techniques: A Comparative Study**, by Hilda Feinberg. Metuchen, N.J., Scarecrow Press, 1973. 297p. \$15.00.

This book could have been titled "KWIC, KWOC and Permuter Indexes." The title the book does carry is accurate but somewhat more scholarly than necessary. The book concerns indexing based on title words, and these indexes are computer generated.

There are more examples of machine produced indexes shown in this book than I have seen in any other one place. There are about all the variations and sophistications possible with the KWIC and KWOC indexes. If you are interested in the initiation of a title based index or in changing one in use, this book provides an excellent source. No computer programs are given

in this book which is proper in a book written for librarians. In my opinion, there is no need to develop a program, when many KWIC and KWOC computer programs are available from hardware manufacturers.

The major portion of the book is devoted to examples and definitions of various computer printouts. These are shown with many variations, allowing the librarian to see how differences developed. My own preference in title generated indexes is for the augmented KWOC, then using special symbols in the indexing allows authors, report numbers, contract numbers or any other aspect of the record to be indexed in separate sections of the printout. These symbols separate various aspects of the bibliographic information into unique files apart from the keyword index. Some of these additional files would have to have augmentation in order for the index to be created.

Dr. Feinberg does describe what she feels is the worst part of the title based index and that is the scattering of information. She does discuss ways in which *see* references can be introduced into the index thus allowing synonyms to appear in one place in the index. She brings out the problems not only of synonyms, but of singular and plural words, variant forms of the same word, spelling variations, abbreviations, antonyms and hierarchical relationships. There are ways to use the machine in order to control vocabulary, but using raw title information generally will cause significant scattering of information.

The author includes conclusions in her book which probably could have just as well been omitted. I take issue with one of these. She says, "Current manual methods of producing indexes to the present volume of scientific and technical literature are less than adequate in terms of coverage, timeliness and cost. Future indexes must be designed to handle an increasing mass of material." This may be a fine conclusion for some study, but nowhere in this book did I see evidence to support this conclusion. This conclusion, in my opinion, is out of place entirely. The book restricts its area of coverage to indexes produced mainly from title words. There is no evidence anywhere in the text which allows the author to make a statement about manually produced indexes.

With the exception of Dr. Feinberg's one conclusion, which probably does not either detract or add to the main thrust of the book, I feel that I can recommend this book. It is an excellent source for the study of title based indexes. Much work has been directed toward improving the early Uuhn KWIC program. There is a place for the KWIC and KWOC indexes and this book does a good job in describing the various ways to implement them.

Masse Bloomfield  
Hughes Aircraft Company  
Culver City, Calif. 90230

SPECIAL LIBRARIES

## PUBS

(73-28) **A Guide to Parliamentary Papers: What They Are, How to Find Them, How to Use Them**, 3d ed. Ford, P. and Ford, G. Totowa, N.J., Rowman and Littlefield, 1972. (Southampton University Studies in Parliamentary Papers) xiii, 87p. \$8.50. ISBN 0-87471-100-2

Revision of this standard guide to the various papers emanating from the British Parliament, first published in 1955.

(73-29) **The Illustrations Collection: Its Formation, Classification and Exploitation**. Corbett, Edmund V. London, Grafton & Co., 1941. Reprinted: Ann Arbor, Gryphon Books (division of Gale Research), 1971. 158p. \$11.00. LC 72-164185

Practical manual for selecting, classifying and managing an illustrations collection. The author established several such collections in Britain and corresponded with experienced American librarians.

(73-30) **Proceedings of the LARC Institute on Automated Serials Systems** (May 1973). Axford, H. William, ed. Tempe, Ariz., LARC Assn., 1973. 128p. ISBN 0-88257-098-6 paper.

Ten articles on many aspects of automated serials systems. Four describe the PHILSOM Network, an acronym for "Periodical Holdings in Library School of Medicine" (at Washington Univ. of St. Louis) currently used by seven libraries.

(73-31) **Guidelines for Handling Library Orders for In-Print Monographic Publications**. Book-dealer-Library Relations Committee, Amer. Libr. Assn. Chicago, Amer. Libr. Assn., 1973. 16p. \$1.75. LC 73-12827 ISBN 0-8389-3148-0

Relationship between librarian and bookdealer is discussed with guidelines for orders, claims, returns, invoices and payments.

(73-32) **A Cost Survey of Mechanized Information Systems**. Vickers, P. H. *Journal of Documentation* 29:(no.3): 258-280 (Sep 1973).

Survey of 18 operational computer-based systems in U.S. and Europe including data base producers and self-contained systems. Unit costs in U.S. dollars are given for most operations.

(73-33) **The Oral History Review, 1973**. Hand, Samuel B., ed. New York, Oral History Assn., 1973. vii, 119p. \$3.00.

With this volume the Oral History Association begins a new policy of including articles and highlights of proceedings of its annual colloquia. Selections include legal considerations in oral

history, an overview of Canadian practice, use as a teaching tool and coverage of Black America.

(73-34) **Library Telecommunications Directory: Canada-United States**. 5th ed. Bird, Warren and Melvin, David S., comp. Durham, N.C., Duke University Medical Center Library, 1973. 35p. \$2.00.

Lists both TWX and TELEX installations. Introduction states that the National Library of Canada has both types and will transmit messages between Canadian and American libraries on different telecommunications networks.

(73-35) **International Bibliography, Information, Documentation**. v. 1, no.1- (Mar 1973). New York, Bowker/Unipub, 1973- \$15/year (quarterly). ISSN 0000-0329.

In three sections: 1) Information and News provides background on the U.N. and Specialized Agencies and their publishing activities. 2) Bibliographic data and annotations for all new priced publications. 3) Contents of current periodicals. Edited by Harry Winton, formerly Chief, Documents Reference Section, Dag Hammarskjöld Library.

(73-36) **The National Library of Canada**. Donnelly, F. Dolores. Ottawa, Can. Libr. Assn., 1973. xvii, 281p. \$15.00. ISBN 0-88802-096-1

"Historical analysis of the forces which contributed to its establishment and to the identification of its role and responsibilities."

(73-37) **British Academic Libraries**. Neal, K. W., et al. Cheshire, U.K., K.W. Neal (7 Church Rd., Wilmslow), 1973. 193p. £2.80.

Broad overview that includes specialized academic libraries, management, nonbook materials and case studies of individual libraries. Eight library plans, index and bibliographies.

(73-38) **International Interlibrary Loan**. Veintraub, I. *Bibliotekar'*, no. 8, 1973. p.57-8. (in Russian)

(73-39) **Copyright Bulletin**. Paris, UNESCO, 1967- \$3/year (quarterly). Order: Unipub, Box 433, New York, N.Y. 10016.

Developments in the field of international copyright; documentation, reports of meetings, and bibliographies.

(73-40) **Use of Professional Staff in Libraries: A Review 1923-1971**. Bishop, Olga B. Ottawa, Can. Libr. Assn., 1973. (Occasional Paper, 81) ii, 28p. \$4.00 ISBN 0-88802-097-x

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# SLA Salary Survey 1973

The 1973 SLA Salary Survey is the third triennial salary survey to be conducted by Special Libraries Association. The first and second triennial surveys were in 1967 and 1970. To allow comparison with the 1967 and 1970 surveys the 1973 questionnaire (Appendix A) was as similar as possible. However, some adjustments were made in the 1973 format to take into account experience gained during the earlier surveys. In addition, new questions to determine racial representation and to determine the degree of unemployment were added. (The report of the earlier survey in 1959 was such that much of the 1959 data reported is not compatible with the later series of triennial surveys.)

The objectives of the SLA Salary Surveys are:

- To obtain systematic accurate information about the salaries of special librarians and information personnel;
- To establish a data bank from which inquiries about salaries can be answered for persons engaged in personnel and recruitment activities, for prospective students, and for SLA members themselves; and
- To enable SLA members to assess their own salaries in view of the numerous variables.

During compilation of the 1970 Salary Survey, a number of uncertainties had been encountered concerning the internal consistency of some returned questionnaires. Therefore the 1973 Salary Survey questionnaire was designed to allow for computer inter-comparison and challenge of some internal "control" replies. A greater number of apparent internal inconsistencies appeared than had been expected. Such "challenges" required a physical re-examination of the questionnaires. The re-examination of these original questionnaires showed several categories that caused the "challenges":

1. Unclear markings of the questionnaires by some respondents which resulted in misreadings during keypunching operations; in general, all such "challenges" could be clarified for valid inclusion; and
2. Contradictions in the respondents' replies to related questions which could not be resolved:
  - a. In 58 returned questionnaires, the answers to one or more questions were obviously invalid (perhaps by the misinterpretations of the questions or by respondents' refusal or neglect to answer certain questions). In such cases, some parts of a questionnaire could be correlated and analyzed while other parts were invalid for correlation and analysis;
  - b. Only 5 returned questionnaires had to be totally rejected because of internal contradictions; written comments on these 5 questionnaires suggest that the respondents may have attempted to be either "humorous" or misleading.

Respondents who reported that they were unemployed on Apr 1, 1973 or who reported only part-time employment were not included in calculations of either means or medians. The salary means and medians represent respondents *employed* on a *full-time* basis and those whose academic year basis could be converted to a calendar year equivalent.

## Mean Annual Salary in 1973

The mean (average) basic annual salary on Apr 1, 1973 was \$14,000. This is a 19% increase over the 1970 mean of \$11,800, a 45% increase over the 1967 mean of \$9,600, and a 129% increase in the 14 years since 1959. The basic annual salary distributions are in Table 1; they are presented graphically in Figures 1 and 2.

Table 1. Basic Annual Salaries: 1959, 1967, 1970 & 1973

	1959	1967	1970	1973
No. Respondents	2,180	3,867	3,594	3,893
\$ 5,999 and under	85%	33%	11%	<1%
6,000- 6,999				2
7,000- 7,999				2
8,000- 8,999	7	17	11	6
9,000- 9,999	3	13	14	9
10,000-10,999	2	12	14	11
11,000-11,999	1	7	12	10
12,000-12,999		6	10	11
13,000-13,999	1	3	7	9
14,000-14,999		3	9	8
15,000-15,999				6
16,000-16,999		2	5	5
17,000-17,999				4
18,000-18,999	1	1	3	4
19,000-19,999				2
20,000-20,999				2
21,000-21,999			3	2
22,000-22,999		1		1
23,000-23,999				1
24,000-24,999				1
25,000-29,999		0	1	3
\$30,000 and over				1
	100%	100%	100%	100%
Mean	\$6,100	\$9,600	\$11,800	\$14,000
Median	5,800	9,000	11,000	12,800

\* The preliminary report in the Sep 1973 *Special Libraries* (p.381) is affected slightly by reanalysis of "challenged" responses. Because 3,893 responses could be used instead of 3,757 (as used in the September report), the 1973 Mean Annual Salary is \$14,000 (\$100 higher than the \$13,900 in the preliminary report), while the 1973 Median Annual Salary is \$12,800 (\$100 lower than the \$12,900 reported in the Sep 1973 issue).

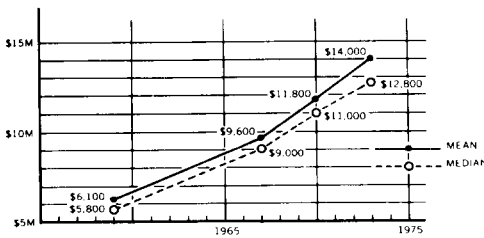
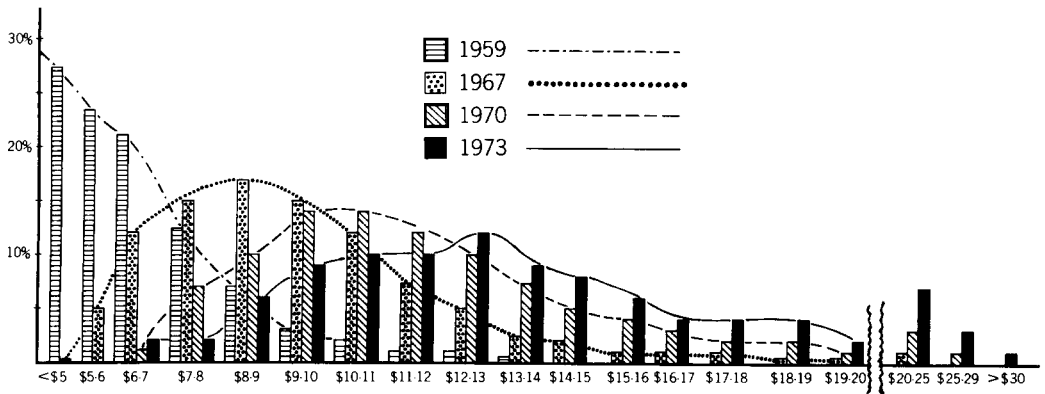


Figure 1. Annual Salaries: 1959, 1967, 1970 and 1973

In the reports of the 1970 survey, salaries reported below \$8,000 a year were not distinguished by salary brackets. The data for 1959 and 1967 below \$8,000 had also been compressed into one cumulative figure for each survey. The 1973 survey has isolated salaries reported in the ranges: \$7,000-7,999, \$6,000-6,999, and \$5,999 and under. At first sight, it may be disturbing to note that some respondents have reported an annual salary below \$6,000. A sub-analysis of such questionnaires appears to indicate that individuals reporting a full-time annual salary of less than \$6,000 are, in general, women who are employed outside of metropolitan areas and who are either above 50 years of age with many years of work experience or who have less than three years of experience (regardless of age). One suggested hypothesis for such a profile is that such individuals may be working in their present location



**Figure 2. Distribution of Mean Annual Salaries in Thousands of Dollars**

because of personal considerations (for example, family responsibilities).

There is a less clear profile for those respondents who report an annual salary between \$6,000 and \$9,000. About 10% of the respondents are at a pay level below the \$9,000 minimum defined by SLA Board policy as an acceptable minimum for classified ads to be accepted by *Special Libraries* for "Positions Open" in the U.S. (The policy minimum defined by the Board for positions in Canada has been \$8,500.)

The mean was computed using the following values: a) the midpoints of all \$1,000 intervals between \$6,000 and \$25,000; b) \$27,500 as the midpoint for the \$5,000 interval from \$25,000 to \$29,000; c) the lowest salary category (\$5,999 and under) was assigned a midpoint of \$5,900\*; and d) the highest category (\$30,000 and over) was assigned a value of \$32,500.\* All dollar figures are reported to the nearest \$100.

### Median Annual Salary in 1973

The median basic annual salary on Apr 1, 1973 was \$12,800.

The median is an arithmetic average which represents the salary at the center of the distribution. Half of the salaries reported are less than the median, and half are greater than the median.

When the median salary for any group is less than the mean salary, this indicates that more respondents are below the average than

above. With a relatively few exceptions in this report, the medians are less than the means.

### Survey Questionnaire

On Apr 20, 1973 a questionnaire was mailed to persons in three SLA membership categories: Member, Member (Paid-for-Life), and Associate Member. Questionnaires were *not* mailed to Student, Retired, Sustaining or Honorary Members. An explanatory letter accompanied the questionnaire as well as a postage paid return envelope. To insure complete anonymity the questionnaires were returned to a special Post Office Box.

Of the 6,108 questionnaires mailed, 3,956 were returned by the deadline date (May 18, 1973). Of the questionnaires returned, 3,893 could be used for salary analysis. The difference (3,956 - 3,893 = 63) has already been discussed.

	Questionnaires Mailed	Usable Responses
1959	3,963	2,180(55%)
1967	5,752	3,867(67%)
1970	5,975	3,594(60%)
1973	6,108	3,893(64%)

### Presentation of Data

Data in this report are presented to show the relationships between salaries and a number of variables. Any group with fewer than 20 respondents in any category has not been separately identified in this report. In general, the percent of respondents in each salary bracket is reported instead of the actual number of respondents.

It must be remembered that between \$6,000 and \$24,999, the salary brackets are \$1,000 intervals, but that there is a \$5,000 interval from \$25,000 to \$29,999.

\* Replies in the highest and lowest categories were examined to establish their assigned midpoint values. The lowest category (\$5,999 and under) was examined so that pay for part-time employment should be excluded.

An important consideration in the use of any *anonymous* survey is often overlooked by users of such a survey: The basic assumption must be that *the respondents are representative of the non-respondents*.<sup>\*</sup> Because there is no way to identify the non-respondents, there is no way to test this basic assumption.

If a user of the questionnaire wants to extrapolate the number of members in any category to obtain an *approximation* of the total persons in such category in the entire Association, a multiplying factor of 1.5<sup>†</sup> should be used because questionnaires were not mailed to all SLA members (the excluded membership categories are listed in the previous section).

It must also be noted that every respondent did not answer every question. Therefore, if a user of the survey cross-totals the number of respondents in each column of any table, such a total will often not be equal to 3,893 (in Salary Tables) or to 3,956 in Non-salary Tables.

### Census Regions

In the 1973 SLA Salary Survey, the nine geographical U.S. Census Regions have again been used as the largest regions for definition of job location. Canada was considered again as a tenth region. The Census Regions are shown in Figure 3; the corresponding mean salaries are in Table 2, and the salary distributions are in Table 3.

New England	West North Central
Middle Atlantic	West South Central
South Atlantic	Mountain States
East South Central	Pacific Coast
East North Central	Canada

<sup>\*</sup> For 1970 there exists one independent observation (i.e., *not* derived from returned questionnaires) that may suggest that the respondents were not all representative of the non-respondents. This independent observation was an "eyeball" comparison of the Jun 30, 1970, membership directories of SLA and of ASIS. This matter is discussed in more detail in a footnote to Table 11b. No similar comparison could be made for the 1973 survey. With only one apparently discrepant datum, it is probably premature to attempt any hypothesis whether the respondents to SLA Salary Surveys are representative of the nonrespondents.

<sup>†</sup> 6,108 Questionnaires Mailed ÷ 3,956 Usable Responses = 1.54. But 1.5 is the recommended factor to use because there are internal indications that ratios from this survey are meaningful only to two significant figures.

### Salaries by Census Regions

The highest mean regional salary in 1973 is again for the South Atlantic Region (\$15,900). This region again also includes the highest mean salary for a Standard Metropolitan Area: \$17,800 for Washington, D.C.

More changes have occurred from 1970 to 1973 in the relative rank of the Census Regions than had occurred from 1967 to 1970. For example, the Pacific Coast Region shows a continued drop from second place in 1967 to third place in 1970 to fifth place in 1973. Canada has moved up from tenth to eighth place; while the West South Central Regional has moved up to ninth place with the West North Central Regional now at the bottom tenth position. The mean for Canada is \$12,700;<sup>‡</sup> and the mean for the U.S. is \$14,000.

### Standard Metropolitan Statistical Areas (SMSA)

To avoid the possibility of identifying individual respondents, data are not reported for a Standard Metropolitan Statistical Area in which there were fewer than 20 respondents. When the replies to the 1967 survey were later analyzed and compared with the Post Office ZIP lists of member addresses, it had appeared that many respondents could only be tabulated in a Census Region rather than in the Standard Metropolitan Statistical Areas selected for the 1967 survey. Therefore in the 1970 survey, additional SMSAs were added and two or more contiguous (or almost contiguous) SMSAs were grouped together to obtain a higher population of SLA respondents in identifiable SMSAs.

A few additional SMSAs (or contiguous SMSAs) were added to the 1973 questionnaires for a further more complete identification of areas where SLA members are employed. Definitions of SMSAs in the 1973 survey also reflected recent changes in the SMSA definitions and nomenclature of the

<sup>‡</sup> The 1967 survey had not specified a currency conversion; presumably Canadian members reported salaries in Can\$ in the 1967 survey. The 1970 questionnaire specifically asked Canadian members to report their salaries in US\$ by multiplying Can\$ by the factor, 1.07. The 1973 survey did not specify a currency correction because the two currencies were essentially equal at the time of the 1973 survey (i.e., the factor would have been unity).





Figure 3. Census Regions and Geographic Distributions of Respondents

Table 2. Mean Salaries by Census Region in Rank Order of 1973 Data

	1967	1970	1973	Increase	
				\$	(%)
South Atlantic	\$11,000	\$13,500	\$15,900	\$2,400	(18%)
East South Central	9,900	12,300	14,400	2,100	(17%)
Middle Atlantic	9,600	11,900	14,200	2,300	(19%)
<b>Mean</b>	<b>9,600</b>	<b>11,800</b>	<b>14,000</b>	<b>2,200</b>	<b>(19%)</b>
East North Central	9,600	11,600	13,500	1,900	(16%)
Pacific Coast	10,100	11,900	13,400	1,500	(13%)
New England	9,300	11,500	13,300	1,800	(16%)
Mountain States	9,300	11,200	13,100	1,900	(17%)
Canada	8,100*	10,000*	12,700*	2,700	(27%)
West South Central	8,900	10,800	12,600	1,800	(17%)
West North Central	8,900	11,100	12,500	1,400	(13%)

\* 1967 Can\$; 1970 US\$; 1973 Can\$.

Note: 22 respondents outside the U.S. and Canada reported salaries with a mean of \$14,700, with a range from \$8,000 to \$30,000.

U.S. Census Bureau. When the replies from an SMSA (or combined areas) did not meet the requirement of a minimum of 20 respondents, the replies from such areas were included in the total for the Census Region.

Major relative changes have occurred in the rank order of Standard Metropolitan Statistical Areas between 1973 and 1970 (Table 4). The most spectacular increase is that of Ottawa which moved from twenty-fifth place to second place just below Washington, D.C. (which has continued in first

place). The Los Angeles area has moved down from tenth place in 1970 to nineteenth place in 1973. Total changes in rank order are so many that space does not permit individual comment on each change. Each reader must specifically compare the relative position (or change in relative position) of the SMSA that is of interest to him. (See the footnotes to Tables 4 and 4a-4i for the SMSAs which were omitted from this report because there were fewer than 20 respondents from each such area in 1973.)

Table 3. Salary Distribution in Census Regions: 1973

No. Respondents	South Atlantic 567	East South Central 72	Middle Atlantic 946	1973 Survey Respondents	East North Central 602	Pacific Coast 569	New England 235	Mountain States 99	Canada 250	West South Central 185	West North Central 187
\$ 5,999 and under	0%	0%	<1%	<1%	<1%	<1%	<1%	0%	0%	2%	2%
6,000-6,999	1	3	1	2	1	2	1	1	3	5	3
7,000-7,999	2	3	1	2	2	3	1	2	2	5	4
8,000-8,999	3	10	4	6	4	7	11	7	6	12	11
9,000-9,999	6	7	7	9	12	9	10	9	10	7	12
10,000-10,999	7	8	11	11	12	11	10	12	19	11	11
11,000-11,999	6	8	11	10	11	11	10	13	11	11	12
12,000-12,999	11	10	10	11	12	14	10	16	15	8	9
13,000-13,999	7	6	11	9	8	8	9	9	6	8	9
14,000-14,999	9	8	10	8	8	7	10	5	8	9	6
15,000-15,999	6	4	7	6	8	6	7	6	5	6	6
16,000-16,999	5	7	5	5	5	4	3	7	3	2	3
17,000-17,999	7	4	5	4	4	4	2	4	3	3	3
18,000-18,999	5	8	4	4	4	4	5	3	2	2	1
19,000-19,999	2	3	1	2	2	1	3	1	2	1	2
20,000-20,999	4	0	3	2	1	1	1	1	1	1	3
21,000-21,999	5	2	2	2	1	2	2	2	1	2	1
22,000-22,999	3	1	1	1	1	1	1	0	1	0	1
23,000-23,999	3	1	2	1	<1	1	<1	0	0	1	0
24,000-24,999	2	1	1	1	<1	1	2	1	<1	1	1
25,000-29,999	5	3	2	3	2	2	1	1	2	2	<1
\$30,000 and over	1	3	1	1	1	1	<1	0	0	1	<1
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Mean	\$15,900	\$14,400	\$14,200	\$14,000	\$13,500	\$13,400	\$13,300	\$13,100	\$12,700	\$12,600	\$12,500
Median	14,500	13,500	13,500	12,800	12,500	12,500	12,500	12,500	11,500	11,500	11,500

**Table 4. Mean Salaries Ranked by Standard Metropolitan Statistical Areas in Rank Order of 1973**

	1967	1970	1973	Increase (1970-1973) \$(%)
Washington, D.C.-Md.-Va.	\$11,600	\$15,100	\$17,800	2,700(18%)
Ottawa	9,300†	10,900†	15,300	4,400(44%)†
Newark, N.J.	10,100	12,400	15,200	2,800(23%)
Atlanta	10,500	11,900	15,000	3,100(26%)
Baltimore, Md.-Wilmington, Del.-N.J.-Md.	9,900	11,500	14,800	3,300(29%)
New York	9,500	12,000	14,400	2,400(20%)
Indianapolis; Lafayette-West Lafayette; Anderson; Muncie	‡	‡	14,400	‡
Buffalo; Rochester, N.Y.	8,700	12,300	14,300	2,000(16%)
Albany-Schenectady-Troy	*	11,500	14,000	2,500(22%)
<b>Mean of All Respondents</b>	<b>9,600</b>	<b>11,800</b>	<b>14,000</b>	<b>2,200(19%)</b>
Hartford; Springfield-Chicopee-Holyoke	9,600	12,800	13,900	1,100( 9%)
San Diego	10,000	12,900	13,900	1,000( 8%)
Detroit; Flint; Kalamazoo; Jackson; Ann Arbor	9,900	11,600	13,800	2,200(19%)
San Francisco-Oakland; San Jose; Stockton; Vallejo-Napa; Sacramento	10,400	11,900	13,700	1,800(15%)
St. Louis, Mo.-Ill.	9,100	10,900	13,600	2,700(25%)
Philadelphia, Pa.-N.J.; Trenton; Reading; Lancaster	9,000	11,600	13,600	2,000(17%)
Chicago; Gary-Hammond-East Chicago	9,400	11,300	13,500	2,200(19%)
Cincinnati; Dayton	9,600	11,900	13,500	1,600(13%)
Syracuse; Utica-Rome	*	11,900	13,400	1,500(13%)
Los Angeles-Long Beach; Santa Barbara; Oxnard-Ventura	10,100	12,100	13,400	1,300(11%)
Durham; Raleigh	*	12,200	13,400	1,200(10%)
Pittsburgh; Johnstown; Altoona	8,900	10,700	13,300	2,600(24%)
Boston; Lowell; Brockton	8,900	11,300	12,800	1,500(13%)
Milwaukee; Racine	9,300	11,900	12,800	900( 8%)
Minneapolis-St. Paul	8,700	11,400	12,700	1,300(11%)
Denver; Colorado Springs; Pueblo	8,600	10,400	12,600	2,200(21%)
Cleveland; Akron; Canton; Youngstown-Warren	9,000	12,100	12,400	300( 2%)
Houston; Galveston-Texas City; Beaumont-Port Arthur	8,800	10,500	12,300	1,800(17%)
Richmond, Va.	*	10,200	12,200	2,000(20%)
Dallas; Fort Worth; Sherman-Denison	8,400	10,800	12,000	1,400(13%)
Toronto	8,000†	9,900†	11,900†	2,000(20%)†
Montreal	7,700†	9,400†	11,900	2,500(27%)†
Oklahoma City; Tulsa	‡	‡	11,600	‡
Seattle-Everett; Tacoma	8,700	10,200	11,200	1,000(10%)
Kansas City; St. Joseph	9,100	10,100	11,000	900( 9%)

\* Standard Metropolitan Statistical Area was not separately identified in 1967 Survey.

† 1967 Can\$; 1970 US\$; 1973 Can\$.

‡ Standard Metropolitan Statistical Area was not separately identified in 1967 or 1970 Surveys.

Note: Data for the following SMSAs are not being reported since there were fewer than 20 respondents in each in the 1973 survey: a) New Haven; Bridgeport; Norwalk; Stamford; b) Knoxville; Nashville; c) Huntsville; Birmingham; Tuscaloosa; Gadsden; d) Peoria; Bloomington-Normal; Champaign-Urbana; e) New Orleans; f) Albuquerque; g) Portland; Salem; Eugene; h) Victoria & Vancouver.



Table 4a. Salary Distributions in the New England Region

No. Respondents	Hartford; Springfield- Chicopee-Holyoke 28	Boston; Lowell; Brockton 144	Total New England 235
\$ 5,999 and under	0%	0%	<1%
6,000-6,999	0	2	1
7,000-7,999	0	1	1
8,000-8,999	4	15	11
9,000-9,999	14	10	10
10,000-10,999	4	9	10
11,000-11,999	11	11	10
12,000-12,999	11	12	10
13,000-13,999	4	10	9
14,000-14,999	21	8	10
15,000-15,999	18	6	7
16,000-16,999	0	3	3
17,000-17,999	4	1	2
18,000-18,999	0	5	5
19,000-19,999	3	1	3
20,000-20,999	0	1	1
21,000-21,999	3	1	2
22,000-22,999	0	0	1
23,000-23,999	0	1	<1
24,000-24,999	3	1	2
25,000-29,999	0	1	1
\$30,000 and over	0	1	<1
	100%	100%	100%
Mean	13,900	\$12,800	\$13,300
Median	14,500	12,500	12,500

Note: There were fewer than 20 respondents from the New Haven; Bridgeport; Norwalk; Stamford SMSAs.

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Tables 4a-4i are tabulations of the salary distributions for the Standard Metropolitan Statistical Areas within each Census Region. Again in 1973, as in 1970, Standard Metropolitan Statistical Areas in the East South Central Region cannot be separately identified because there are fewer than 20 responses from each (Knoxville; Nashville and Huntsville; Birmingham; Tuscaloosa; Gadsden).

Table 4b. Salary Distribution in the Middle Atlantic Region

No. Respondents	\$ 5,999 and under											Mean											
	6,000-6,999	7,000-7,999	8,000-8,999	9,000-9,999	10,000-10,999	11,000-11,999	12,000-12,999	13,000-13,999	14,000-14,999	15,000-15,999	16,000-16,999	17,000-17,999	18,000-18,999	19,000-19,999	20,000-20,999	21,000-21,999	22,000-22,999	23,000-23,999	24,000-24,999	25,000-29,999	30,000 and over	100%	Mean
101	0	0	3	4	7	14	11	10	11	12	13	11	6	0	3	5	3	1	1	0	0	100%	\$15,200
Passaic, Middlesex; Suffolk, Westchester & Rockland) Somerset Paterson-Clyffton- (NYC, Nassau, New York, N.Y., Essex, Morris & Newark, N.J.	0	0	1	3	8	14	10	10	11	12	13	11	3	0	3	5	3	1	1	2	0	100%	\$14,400
456	1	1	3	8	10	14	9	11	7	7	4	3	1	0	3	0	0	1	1	2	0	100%	\$13,500
Buffalo; Rochester, N.Y.	0	2	5	13	14	13	9	9	7	7	4	2	3	0	2	5	2	1	1	0	0	100%	\$14,300
24	4	0	4	8	4	13	4	9	4	4	17	9	8	0	4	0	4	0	0	0	0	100%	\$14,000
Albany- Schenectady- Troy	1	1	0	4	4	13	10	9	4	4	17	9	8	0	4	0	4	0	0	0	0	100%	\$12,500
145	1	7	1	5	14	14	10	10	10	14	10	9	4	0	4	2	1	1	3	1	1	100%	\$13,600
Philadelphia, Pa.- N.J.; Trenton; Reading; Lancaster	0	0	0	0	23	14	10	9	5	8	10	9	3	0	4	2	1	1	3	1	0	100%	\$12,500
22	0	0	0	0	23	14	9	5	14	8	9	4	4	0	0	0	0	0	0	0	0	100%	\$13,400
Syracuse; Utica-Rome	0	0	0	0	23	14	9	5	14	8	9	4	4	0	0	0	0	0	0	0	0	100%	\$12,500
80	3	3	5	6	15	11	6	13	4	5	16	9	6	1	1	3	0	0	1	1	1	100%	\$13,300
Pittsburgh; Johnstown; Alioona	3	3	5	6	15	11	6	13	9	5	16	9	6	1	1	3	0	0	1	1	1	100%	\$12,500
946	1	1	4	7	11	11	10	10	10	11	11	10	7	1	7	5	5	4	1	2	1	100%	\$14,200
Total Middle Atlantic	1	1	4	7	11	11	10	10	10	11	11	10	7	1	7	5	5	4	1	2	1	100%	\$13,500

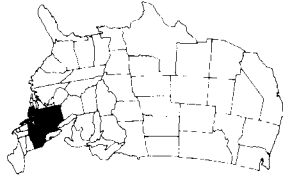


Table 4c. Salary Distribution in the South Atlantic Region



No. Respondents	Washington, D.C.-Md.-Va. 313	Atlanta 31	Baltimore, Md.; Wilmington, Del.-N.J.-Md. 71	Durham; Raleigh 39	Richmond, Va. 28	Total South Atlantic 567
\$ 5,999 and under	0%	0%	0%	0%	0%	0%
6,000-6,999	<1	0	3	5	7	1
7,000-7,999	<1	3	1	0	11	2
8,000-8,999	1	0	6	2	0	3
9,000-9,999	3	7	7	8	7	6
10,000-10,999	3	29	3	18	11	7
11,000-11,999	5	3	6	10	7	6
12,000-12,999	9	16	13	18	21	11
13,000-13,999	6	3	11	8	7	7
14,000-14,999	10	7	6	8	4	9
15,000-15,999	5	0	11	3	7	6
16,000-16,999	4	6	7	5	14	5
17,000-17,999	10	0	9	3	0	7
18,000-18,999	7	0	4	0	4	5
19,000-19,999	4	0	0	0	0	2
20,000-20,999	5	7	1	0	0	4
21,000-21,999	6	0	4	5	0	5
22,000-22,999	5	3	1	0	0	3
23,000-23,999	4	3	1	5	0	3
24,000-24,999	2	3	3	2	0	2
25,000-29,999	8	10	3	0	0	5
\$30,000 and over	3	0	0	0	0	1
	100%	100%	100%	100%	100%	100%
Mean	\$17,800	\$15,000	\$14,800	\$13,400	\$12,200	\$15,900
Median	17,500	12,500	13,500	12,500	12,500	14,500

Table 4d. Salary Distribution in the East North Central Region



No. Respondents	Indianapolis; Lafayette-West Lafayette; Anderson-Muncie 40	Detroit; Flint; Kalamazoo; Jackson; Ann Arbor 123	Cincinnati; Dayton 43	Chicago; Gary-Hammond-East Chicago 213	Milwaukee; Racine 35	Cleveland; Akron; Canton; Youngstown-Warren 56	Total East North Central 602
\$ 5,999 and under	0%	1%	0%	0%	0%	0%	<1%
6,000-6,999	7	0	2	0	3	2	1
7,000-7,999	0	0	2	1	6	7	2
8,000-8,999	7	2	7	5	8	5	4
9,000-9,999	13	11	12	13	14	12	12
10,000-10,999	3	12	12	11	17	20	12
11,000-11,999	10	14	7	10	6	7	11
12,000-12,999	8	11	18	12	11	11	12
13,000-13,999	3	8	5	10	3	7	8
14,000-14,999	13	10	12	11	3	4	8
15,000-15,999	7	6	5	9	6	11	8
16,000-16,999	5	7	5	3	3	2	5
17,000-17,999	5	6	2	3	3	3	4
18,000-18,999	5	2	2	4	5	5	4
19,000-19,999	0	2	2	2	3	0	2
20,000-20,999	2	2	0	1	0	0	2
21,000-21,999	2	2	0	1	3	2	1
22,000-22,999	5	2	0	1	0	0	1
23,000-23,999	0	0	0	0	3	0	<1
24,000-24,999	0	0	0	0	3	0	<1
25,000-29,999	0	1	5	2	0	2	2
\$30,000 and over	5	1	2	1	0	0	1
	100%	100%	100%	100%	100%	100%	100%
Mean	\$14,400	\$13,800	\$13,500	\$13,500	\$12,800	\$12,400	\$13,500
Median	13,500	12,500	12,500	12,500	10,500	11,500	12,500

Note: There were fewer than 20 respondents from the Peoria; Bloomington-Normal; Champaign-Urbana SMSAs.



Table 4e. Salary Distribution in the West North Central Region

No. Respondents	St. Louis, Mo.— Ill. 41	Minneapolis— St. Paul 66	Kansas City; St. Joseph 28	Total West North Central 187
\$ 5,999 and under	2%	1%	0%	2%
6,000– 6,999	0	1	7	3
7,000– 7,999	0	6	4	4
8,000– 8,999	12	9	11	11
9,000– 9,999	10	6	25	12
10,000–10,999	5	14	4	11
11,000–11,999	15	11	21	12
12,000–12,999	7	11	7	9
13,000–13,999	10	14	7	9
14,000–14,999	5	8	7	6
15,000–15,999	12	3	0	6
16,000–16,999	5	3	4	3
17,000–17,999	5	3	3	3
18,000–18,999	0	1	0	1
19,000–19,999	0	3	0	2
20,000–20,999	5	5	0	3
21,000–21,999	3	0	0	1
22,000–22,999	0	0	0	1
23,000–23,999	0	0	0	0
24,000–24,999	2	0	0	1
25,000–29,999	2	0	0	<1
\$30,000 and over	0	1	0	<1
	100%	100%	100%	100%
Mean	\$13,600	\$12,700	\$11,000	\$12,500
Median	12,500	12,500	10,500	11,500

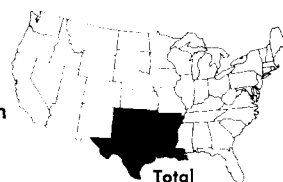


Table 4f. Salary Distributions in the West South Central Region

No. Respondents	Houston; Galveston— Texas City; Beaumont— Port Arthur 70	Dallas; Fort Worth; Sherman— Denison 28	Oklahoma City; Tulsa 20	Total West South Central 185
\$ 5,999 and under	1%	3%	0%	2%
6,000– 6,999	6	4	5	5
7,000– 7,999	10	6	5	5
8,000– 8,999	13	14	20	12
9,000– 9,999	8	11	20	7
10,000–10,999	12	14	10	11
11,000–11,999	7	11	10	11
12,000–12,999	9	14	5	8
13,000–13,999	4	7	0	8
14,000–14,999	20	0	5	9
15,000–15,999	4	4	5	6
16,000–16,999	2	0	5	2
17,000–17,999	2	7	6	3
18,000–18,999	0	7	0	2
19,000–19,999	3	0	0	1
20,000–20,999	0	0	0	1
21,000–21,999	1	4	10	2
22,000–22,999	0	0	0	0
23,000–23,999	1	0	0	1
24,000–24,999	0	0	0	1
25,000–29,999	1	0	0	2
\$30,000 and over	1	0	0	1
	100%	100%	100%	100%
Mean	\$12,300	\$12,000	\$11,600	\$12,600
Median	11,500	11,500	9,500	11,500

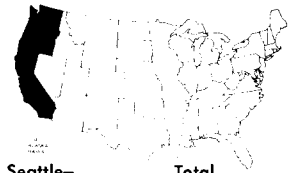
Note: There were fewer than 20 respondents from the New Orleans SMSA.

**Table 4g. Salary Distributions in the Mountain States Region**

No. Respondents	Denver; Colorado Springs; Pueblo 43	Total Mountain States 99
\$ 5,999 and under	0%	0%
6,000- 6,999	2	1
7,000- 7,999	5	2
8,000- 8,999	7	7
9,000- 9,999	7	9
10,000-10,999	12	12
11,000-11,999	19	13
12,000-12,999	14	16
13,000-13,999	9	9
14,000-14,999	5	5
15,000-15,999	7	6
16,000-16,999	5	7
17,000-17,999	2	4
18,000-18,999	2	3
19,000-19,999	0	1
20,000-20,999	2	1
21,000-21,999	0	2
22,000-22,999	0	0
23,000-23,999	0	0
24,000-24,999	0	1
25,000-29,999	2	1
\$30,000 and over	0	0
	100%	100%
Mean	\$12,600	\$13,100
Median	11,500	12,500



Note: There were fewer than 20 respondents from the Albuquerque SMSA.



**Table 4h. Salary Distributions in the Pacific Coast Region**

No. Respondents	San Diego 34	S.F.-Oakland; San Jose; Stockton; Vallejo-Napa; Sacramento 203	L.A.- Long Beach; Santa Barbara; Oxnard- Ventura 201	Seattle- Everett; Tacoma 65	Total Pacific Coast Region 569
\$ 5,999 and under	0%	0%	<1%	0%	<1%
6,000- 6,999	0	2	1	5	2
7,000- 7,999	6	<1	4	5	3
8,000- 8,999	6	5	6	20	7
9,000- 9,999	9	9	8	15	9
10,000-10,999	12	11	11	8	11
11,000-11,999	3	14	9	15	11
12,000-12,999	9	14	16	9	14
13,000-13,999	15	9	6	6	8
14,000-14,999	15	8	8	3	7
15,000-15,999	6	6	6	8	6
16,000-16,999	3	3	5	2	4
17,000-17,999	0	4	4	2	4
18,000-18,999	3	4	5	0	4
19,000-19,999	3	2	1	0	1
20,000-20,999	2	2	1	0	1
21,000-21,999	6	2	1	1	2
22,000-22,999	0	0	3	1	1
23,000-23,999	0	<1	1	0	1
24,000-24,999	0	1	<1	0	1
25,000-29,999	0	2	3	0	2
\$30,000 and over	2	2	0	0	1
	100%	100%	100%	100%	100%
Mean	\$13,900	\$13,700	\$13,400	\$11,200	\$13,400
Median	13,500	12,500	12,500	10,500	12,500

Note: There were fewer than 20 respondents from the Portland; Salem; Eugene SMSAs.



Table 4i. Salary Distributions in Canada

No. Respondents	Ottawa 33	Toronto 111	Montreal 61	Total Canada 250
\$ 5,999 and under	0%	0%	0%	0%
6,000-6,999	3	3	3	3
7,000-7,999	0	4	0	2
8,000-8,999	0	7	6	6
9,000-9,999	3	12	15	10
10,000-10,999	12	19	26	19
11,000-11,999	6	14	10	11
12,000-12,999	9	13	16	15
13,000-13,999	9	4	7	6
14,000-14,999	25	7	2	8
15,000-15,999	3	4	3	5
16,000-16,999	0	4	2	3
17,000-17,999	9	4	2	3
18,000-18,999	0	2	2	2
19,000-19,999	6	1	3	2
20,000-20,999	0	0	3	1
21,000-21,999	6	1	0	1
22,000-22,999	0	1	0	1
23,000-23,999	0	0	0	0
24,000-24,999	3	0	0	<1
25,000-29,999	6	0	0	2
\$30,000 and over	0	0	0	0
	100%	100%	100%	100%
Mean	\$15,300	\$11,900	\$11,900	\$12,700
Median	14,500	11,500	10,500	11,500

Note: There were fewer than 20 respondents from Victoria and Vancouver.

## Primary Employers

Table 5a shows the mean salaries in terms of the type of employer. Respondents employed by the federal governments (both U.S. and Canada) report the highest mean annual salaries (\$17,200) which is a 23% increase over the mean reported for federal governments in the 1970 survey. The mean for non-industrial employment (\$14,400) continues to be higher than either the mean for manufacturing industries (\$13,700) or the mean for non-manufacturing industries (\$12,400).

The distribution of members by institution or business served is presented in Table 5b.

## Job Responsibilities and Job Functions

The percentage of respondents who supervise are in Table 6a in three categories: professional, library technicians (para-professionals), and clerical. It is important to note that there were only 1,518 respondents to this question. Differing interpretations of the three categories supervised as well as in-

complete replies have precluded correlations between salary and the number of persons supervised. (Apparently the form of this question should be changed in future surveys and definitions of terms should also be included. Similar difficulties were found in interpreting these replies to the 1970 survey.)

There is a graduated increase in salary as job responsibility increases (Table 6b). Respondents who have general responsibilities in a one- or two-person library have a mean salary of \$11,400 (a 17% increase since 1970). A mean of \$16,400 (a 21% increase) is reported by persons who are heads of libraries. The highest mean by job responsibility is reported by the faculty of library schools (\$21,000\* when calculated on a calendar year basis for all respondents by adjusting the amounts reported by those respondents on an academic year basis).

\* Although this appears to be a 37% increase since 1970, some replies to the 1970 survey were not clear whether some faculty salaries had been reported for an academic year or on a calendar year basis.

**Table 5a. Mean Salaries by Type of Employer in Rank Order of 1973 Data**

	1967	1970	1973	Increase (1970-1973) \$(%)
Non-Industrial		\$12,200	\$14,400	\$2,200(18%)
Industrial				
Manufacturing	\$ 9,600	11,500	13,700	2,200(19%)
Non-Manufacturing	8,800	10,800	12,400	1,600(15%)
Not Otherwise Specified		12,600	15,000	2,400(19%)
<b>Mean</b>	<b>9,600</b>	<b>11,800</b>	<b>14,000</b>	<b>2,200(19%)</b>
<b>Non-Industrial</b>				
Federal Government (U.S. and Canada)	9,700	14,000	17,200	3,200(23%)
Academic/General Campus Library	*	*	14,300	
Public Library	9,300	11,500	13,700	2,200(19%)
Other Government (state, provincial, local, international)	9,400	11,700	13,600	1,900(16%)
Academic/Subject Dept. or Research Inst. ‡	9,700	11,800	13,500	1,700(14%)
Other Non-Profit	9,100	11,400	12,900	1,500(13%)
<b>Manufacturing Industry</b>				
Office, computing and accounting machines	10,700	13,800	15,200	1,400(10%)
Petroleum refining	10,100	12,400	14,800	2,400(19%)
Pharmaceuticals	10,400	11,800	14,700	2,900(24%)
Chemicals & allied products	9,700	11,600	14,000	2,400(21%)
Newspapers, publishing	9,300	11,500	14,000	2,500(22%)
Nuclear energy	9,700	12,200	13,900	1,700(14%)
Aircraft & parts, aerospace	10,500	12,400	13,700	1,300(10%)
Motor vehicles and equipment	9,900	11,900	13,600	1,700(14%)
Textiles, lumber, wood, paper, etc.	8,900	10,100	13,100	3,000(30%)
Metals & metal products	8,900	10,500	12,800	2,300(22%)
Other machinery, except electrical			†	
Other manufacturing	8,700	10,400	12,400	2,000(19%)
Electrical equipment & supplies	9,200	11,000	12,200	1,200(11%)
Rubber, plastics, glass, ceramics, etc.	9,200	10,500	11,800	1,300(12%)
<b>Non-Manufacturing Industry</b>				
Local services	10,200	12,900	13,800	900(7%)
Transportation, public utilities, communications	9,100	10,900	13,300	2,400(22%)
Commercial laboratories, business services, consulting services, engineering and architectural services	9,300	11,300	12,500	1,200(11%)
Other non-manufacturing	9,600	11,500	12,300	800(7%)
Advertising, marketing	8,200	9,700	12,000	2,300(24%)
Banking, finance, real estate, planning	8,000	10,400	11,900	1,500(14%)
Insurance	8,000	10,100	11,600	1,500(15%)
Mining, agriculture, forestry, fisheries	†	†	11,400	
<b>Self-employed</b>	*	*	†	
<b>In military service</b>	*	*	†	

\* Not separately identified in 1967 or 1970 survey.

† Insufficient replies for reporting validity.

‡ Salaries reported on an academic year basis have been converted so that all are calendar year equivalents.

**Table 5b. Type of Institution or Business Served**

	No. Respondents
<b>Non-Industrial</b>	
Federal government (U.S. or Canada)	435
Other government (state, provincial, local, international)	136
Public library	226
Academic institution:	
In a subject department or a research institute	483
In a general campus library	391
Other non-profit institution, organization, association, etc.	345
	2,016
<b>Manufacturing Industry</b>	
Textiles, lumber, wood, paper, etc.	22
Newspapers, publishing	101
Chemical & allied products	152
Pharmaceuticals	78
Petroleum refining	70
Rubber, plastics, glass, ceramics, etc.	39
Metals & metal products	45
Office, computing and accounting machines	41
Electrical equipment & supplies	42
Motor vehicles & equipment	27
Aircraft & parts, aerospace	79
Nuclear energy	23
Other manufacturing	100
	819
<b>Non-Manufacturing Industry</b>	
Mining, agriculture, forestry, fisheries	22
Transportation, public utilities, communications	81
Banking, finance, real estate, planning	120
Insurance	48
Advertising, marketing	47
Commercial laboratories, business services, consulting services, engineering and architectural services	115
Legal services	37
Other non-manufacturing	51
	521
<b>Self-employed, in military service, or not otherwise specified</b>	38
<b>Not employed</b>	59
	97
No response to question	36
Invalid response to question (usually multiple responses)	404
	440
<b>Total</b>	3,893

Note: "Other machinery, except electrical" is not separately reported because there were fewer than 20 respondents.

**Table 6a. Number and Category of Persons Supervised**

	Respondents Who Do Supervise*	
	1970	1973
Professionals	44%	46%
Technicians	39	36
Clerks	34	23

\* Total respondents to this question were only 1,518.

Job functions (Table 6c)—as distinguished from job responsibilities—show an unexpectedly high increase for Editors and Writers from \$10,600 to \$15,800 (a 49% increase), while Information Specialists have increased only from \$11,500 to \$13,400 (a 16% increase), and Systems Specialists have increased only from \$13,600 to \$15,100 (an 11% increase).

In the 1973 survey there is only a \$700 difference between the extremes of the means of the other six job functions (including "no specific function") as compared to the \$600 difference between the extremes of all these other means in 1970, and the \$3,000 difference in 1967. Commentary in the 1970 report noted that: "This change may indicate that the work of reference librarians, document librarians, catalogers, bibliographers, etc. is being recognized to be of equivalent importance." Apparently this trend continues, and the trend now may also include Information Specialists because the range of the extremes of the 1973 means is only \$1,000 when Information Specialists are included.

### Academic Background and Professional Experience

It is probably not surprising to find that salaries are proportional to the highest academic degree of the respondents (Table 7a). It is, perhaps, interesting to note that mean for holders of a Master's degree is equal to the overall mean of the survey (\$14,000).

A comparison of the 1967, 1970 and 1973 survey shows the percentage of respondents with degrees in library/information science as compared to respondents without a library degree (Table 7b). The 1973 salary distributions for these two groups are very similar (Table 7c); and the mean annual salaries are only \$100 apart. Mean salaries by the highest degree are compared in Table 7d. The mean salary for respondents with a

Table 6b. Salary Distributions by Responsibility

No. Respondents	Library School Faculty* 67	Head 1,141	Assistant Head 294	1973 Survey Respondents	Dept. or Unit Supervisor 527	Non-Administrative Position 494	General Responsibilities (in a one- or two-man library) 1,083
\$ 5,999 and under	0%	0%	0%	<1%	0%	<1%	1%
6,000- 6,999	0	1	1	2	2	1	4
7,000- 7,999	0	1	2	2	1	2	5
8,000- 8,999	0	2	5	6	3	7	12
9,000- 9,999	0	3	8	9	8	14	13
10,000-10,999	4	6	10	11	10	17	15
11,000-11,999	3	6	9	10	12	15	13
12,000-12,999	3	9	12	11	13	11	13
13,000-13,999	0	9	8	9	10	9	8
14,000-14,999	6	11	10	8	10	7	5
15,000-15,999	4	9	6	6	8	4	4
16,000-16,999	7	7	3	5	6	3	2
17,000-17,999	4	6	7	4	4	3	2
18,000-18,999	12	6	6	4	5	2	1
19,000-19,999	2	3	2	2	1	1	} 1
20,000-20,999	12	4	2	2	1	1	
21,000-21,999	6	4	1	2	2	1	
22,000-22,999	5	2	2	1	1	1	
23,000-23,999	2	2	1	1	1	<1	
24,000-24,999	9	2	1	1	1	<1	} 1
25,000-29,999	15	5	3	3	1	1	
\$30,000 and over	6	2	1	1	<1	0	0
	100%	100%	100%	100%	100%	100%	100%
Mean	\$21,000	\$16,400	\$14,600	\$14,000	\$13,700	\$12,400	\$11,400
Median	20,500	15,500	13,500	12,800	13,500	11,500	11,500

\* Academic year reports were converted to full-time equivalents.

Table 6c. Salary Distributions by Job Function

No. Respondents	Editor or Writer 20	Systems Specialist 39	1973 Survey Respondents	Information Specialist 464	No Specific Function 811	Bibliographer; Literature Searcher 135	Reader Service or Reference 670	Acquisitions or Cataloging 409	Documents or Reports 43	Abstractor or Indexer 51
\$ 5,999 and under	0%	0%	<1%	<1%	1%	0%	<1%	<1%	0%	0%
6,000- 6,999	0	0	2	2	3	1	1	2	0	2
7,000- 7,999	10	0	2	2	3	2	2	2	4	6
8,000- 8,999	0	2	6	5	7	9	7	8	5	16
9,000- 9,999	0	2	9	9	10	4	10	13	19	4
10,000-10,999	0	8	11	12	12	16	14	14	14	11
11,000-11,999	0	10	10	11	10	12	13	11	12	12
12,000-12,999	21	15	11	14	12	12	11	13	14	15
13,000-13,999	5	8	9	10	7	10	11	8	5	6
14,000-14,999	11	13	8	9	8	6	9	7	5	6
15,000-15,999	11	5	6	6	6	10	6	5	9	6
16,000-16,999	11	8	5	4	4	4	4	5	5	6
17,000-17,999	5	5	4	3	4	3	4	4	0	2
18,000-18,999	0	5	4	4	4	5	3	3	4	4
19,000-19,999	5	3	2	1	1	1	1	2	0	0
20,000-20,999	5	5	2	3	1	1	1	<1	0	0
21,000-21,999	11	5	2	1	2	2	1	1	2	0
22,000-22,999	0	0	1	1	1	1	1	0	0	0
23,000-23,999	0	3	1	<1	1	0	0	0	0	2
24,000-24,999	0	0	1	1	1	0	0	1	0	0
25,000-29,999	5	3	3	1	1	1	1	1	2	2
\$30,000 and over	0	0	1	<1	1	0	0	0	0	0
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Mean	\$15,800	\$15,100	\$14,000	\$13,400	\$13,100	\$13,100	\$12,700	\$12,700	\$12,600	\$12,400
Median	14,500	14,500	12,800	12,500	12,500	12,500	12,500	11,500	11,500	11,500

Note: There were fewer than 20 respondents as Translators.

Table 7a. Salary Distributions by Highest Academic Degree

No. Respondents	Doctorate 127	Master 2,473	1973 Survey Re- spondents	Bachelor 862	Some Courses But No Degree 199	No College 73
\$ 5,999 and under	0%	<1%	<1%	<1%	1%	2%
6,000- 6,999	0	1	2	3	5	3
7,000- 7,999	1	1	2	3	10	7
8,000- 8,999	2	6	6	5	11	21
9,000- 9,999	1	9	9	7	12	21
10,000-10,999	3	11	11	12	16	12
11,000-11,999	3	11	10	10	7	8
12,000-12,999	4	12	11	12	11	10
13,000-13,999	2	9	9	10	8	4
14,000-14,999	8	8	8	10	5	4
15,000-15,999	5	7	6	6	5	3
16,000-16,999	3	5	5	4	1	1
17,000-17,999	7	4	4	5	3	1
18,000-18,999	6	4	4	4	3	0
19,000-19,999	5	2	2	2	1	1
20,000-20,999	7	2	2	1	1	1
21,000-21,999	11	2	2	1	0	0
22,000-22,999	3	1	1	1	<1	0
23,000-23,999	2	1	1	1	1	0
24,000-24,999	6	1	1	1	0	0
25,000-29,999	15	2	3	2	0	1
\$30,000 and over	6	1	1	<1	<1	0
	100%	100%	100%	100%	100%	100%
Mean	\$20,800	\$13,900	\$14,000	\$13,600	\$11,600	\$10,900
Median	20,500	12,500	12,800	12,500	10,500	9,500

Table 7b. Respondents With and Without Library/Information Science Degrees

Degree	1967	1970	1973
Library/Information Science	67%	74%	81%
Other subjects only	33	26	19
	100%	100%	100%

Table 7c. Salary Distribution by Holders of Library/Information Science Degrees

No. Respondents	With Library Degree 2,803	Without Library Degree 659
\$ 5,999 and under	<1%	<1%
6,000- 6,999	1	3
7,000- 7,999	1	3
8,000- 8,999	5	6
9,000- 9,999	9	8
10,000-10,999	11	11
11,000-11,999	11	10
12,000-12,999	12	10
13,000-13,999	9	9
14,000-14,999	9	8
15,000-15,999	7	5
16,000-16,999	5	4
17,000-17,999	5	3
18,000-18,999	4	3
19,000-19,999	2	2
20,000-20,999	2	3
21,000-21,999	2	2
22,000-22,999	1	2
23,000-23,999	1	1
24,000-24,999	1	2
25,000-29,999	2	4
\$30,000 and over	0	1
	100%	100%
Mean	\$14,200	\$14,100
Median	13,500	12,500

Table 7d. Mean Annual Salary by Highest Degree

	Library Science	Subject Field
Doctorate	\$21,800	\$20,200
Master	\$14,000	\$15,400
Bachelor	\$14,500	\$13,600
Some Courses but No Degree	\$12,700	\$11,700
No College	—	\$10,800



Table 7f. Salary Distribution and Professional Library Experience

No. Respondents	1-5 Years 927	6-10 Years 734	11-15 Years 504	16-20 Years 409	21-25 Years 376	26+ Years 509
\$ 5,999 and under	1%	<1%	0%	0%	0%	<1%
6,000-6,999	2	1	1	1	<1	1
7,000-7,999	3	2	1	1	0	1
8,000-8,999	15	3	3	1	1	1
9,000-9,999	20	7	5	3	2	2
10,000-10,999	17	14	9	7	4	5
11,000-11,999	14	16	11	5	5	5
12,000-12,999	12	13	13	10	9	8
13,000-13,999	5	9	12	11	10	10
14,000-14,999	4	12	11	9	9	9
15,000-15,999	1	8	9	10	10	6
16,000-16,999	1	3	5	8	7	9
17,000-17,999	2	4	4	7	6	7
18,000-18,999	1	2	4	6	9	8
19,000-19,999		1	2	3	3	3
20,000-20,999		1	2	4	5	4
21,000-21,999		2	1	3	5	5
22,000-22,999		<1	1	2	3	4
23,000-23,999		<1	1	1	2	2
24,000-24,999		0	1	1	2	2
25,000-29,999		1	2	4	6	6
\$30,000 and over	0	<1	2	3	2	2
	100%	100%	100%	100%	100%	100%
Mean	\$11,000	\$13,300	\$14,400	\$16,200	\$17,000	\$16,900
Median	10,500	12,500	13,500	15,500	15,500	16,500

Bachelor's degree in library science is greater than the mean for those with a Master's degree in library science. This may probably be explained by considering the age of respondents with such a Bachelor's degree; a sub-analysis of the group shows that 59% are over 50 years of age and 78% are over 40.

When the disciplines (in which degrees are held) are compared (Table 7e), the highest continues to be law with a mean of \$18,700 (a 16% increase), followed by engineering at \$17,100 (a 29% increase) and earth sciences at \$15,200 (a 12% increase).

The progression of salary with years of professional experience is in Table 7f (Professional Experience). In the 5-year time interval (Total Professional Library and Other Professional Experience). In the 5-year time intervals reported, there is a continuous upward progression in both tables until the "26+ year" interval when a small decrease is noted; this may be related to the age factor (which is mentioned below) rather than any relation of "years of experience" as such.

There should, perhaps, be no surprise to find that as the basic annual salary increases,

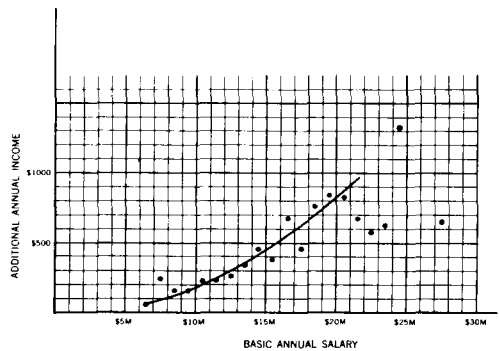


Figure 4. Additional professional income derived from consulting fees, honoraria, royalties, profit sharing, bonuses, etc.

so also does the additional incremental professional income derived from bonuses, profit sharing, royalties, honoraria, consulting fees, etc., up to a level of about \$20,000. Above that level there seems to be no discernible trend (Figure 4).

Almost one half (48%) of the questionnaires showed employment for 5 years or less



**Table 7g. Salary Distribution by Professional Library and Other Professional Experience**

No. Respondents	1-5 Years 549	6-10 Years 402	11-15 Years 261	16-20 Years 254	21-25 Years 251	26+ Years 379
\$ 5,999 and under	<1%	0%	0%	0%	0%	<1%
6,000- 6,999	3	1	1	2	1	1
7,000- 7,999	4	2	1	<1	0	1
8,000- 8,999	16	4	2	2	1	1
9,000- 9,999	23	8	6	2	2	1
10,000-10,999	21	16	11	6	4	5
11,000-11,999	12	17	10	6	6	4
12,000-12,999	11	13	13	11	8	8
13,000-13,999	4	8	12	11	10	10
14,000-14,999	3	12	11	9	10	10
15,000-15,999	1	9	11	9	11	7
16,000-16,999	1	2	6	9	6	9
17,000-17,999	1	3	3	7	4	7
18,000-18,999	<1	1	3	6	8	8
19,000-19,999	0	1	1	3	4	3
20,000-20,999	0	0	3	5	5	4
21,000-21,999	<1	2	1	2	4	5
22,000-22,999	0	<1	<1	1	3	4
23,000-23,999	0	1	2	1	2	1
24,000-24,999	0	0	2	1	1	2
25,000-29,999	0	<1	1	5	6	7
\$30,000 and over	0	<1	<1	2	2	2
	100%	100%	100%	100%	100%	100%
Mean	\$10,400	\$12,800	\$14,100	\$15,900	\$17,000	\$16,900
Median	10,500	12,500	13,500	15,500	15,500	16,500

**Table 7h. Mean Salaries by Number of Years with Present Employer**

No. of Years	Respondents %	Mean Salary
1 or less	13%	\$11,300
2	11	12,400
3	10	12,800
4	7	13,200
5	7	14,100
5 or less subtotal	48%	
6-10	19	14,500
11-15	11	15,200
16-20	8	15,000
21-25	6	16,600
25+	6	16,200
No Response	2	—
	100%	

**Table 7i. Mean Salaries by Number of Employers**

No. of Employers	Respondents %	Mean Salary
1	29%	\$12,100
2	26	13,400
3	16	14,400
4	11	15,500
5	7	15,900
6	4	16,600
7	2	15,900
8	1	15,900
9	1	18,000
10+	1	16,100
No Response	2	—
	100%	

**Table 7j. Library or Information Center**

Organizational Entity	Respondents %	Mean Salary
Library	80%	\$13,500
Information Center	8	14,900
Other	9	16,800
No Response	3	—
	100%	

**Table 8a. Age Distribution**

	1967	1970	1973
20-29	8%	10%	16%
30-39	21	18	21
40-49	32	32	27
50-59	30	29	27
60 or over	8	10	9
No Response	1	1	<1
No. Respondents	100%	100%	100%
	3,867	3,594	3,893
Mean Age	46	46	44

Table 8b. Salary Distributions by Age

No. Respondents	20-29 614	30-39 743	1973 Survey Re- spondents	40-49 1,009	50-59 992	60 and over 326
\$ 5,999 and under	1%	<1%	<1%	<1%	<1%	<1%
6,000- 6,999	3	2	2	1	1	2
7,000- 7,999	4	2	2	1	1	2
8,000- 8,999	16	5	6	4	3	3
9,000- 9,999	22	10	9	5	4	5
10,000-10,999	20	13	11	9	8	6
11,000-11,999	13	13	10	10	8	9
12,000-12,999	10	15	11	11	10	11
13,000-13,999	4	8	9	10	10	10
14,000-14,999	4	11	8	10	9	7
15,000-15,999	1	6	6	8	8	7
16,000-16,999		3	5	6	6	6
17,000-17,999	1	4	4	5	6	6
18,000-18,999		2	4	5	6	6
19,000-19,999		1	2	2	3	2
20,000-20,999		1	2	3	3	3
21,000-21,999		1	2	3	3	3
22,000-22,999			1	1	2	3
23,000-23,999	1		1	1	2	1
24,000-24,999			1	1	1	3
25,000-29,999			3	3	5	3
\$30,000 and over	0	1	1	1	1	2
	100%	100%	100%	100%	100%	100%
Mean	\$10,600	\$12,900	\$14,000	\$14,600	\$15,400	\$15,200
Median	10,500	12,500	12,800	13,500	14,500	14,500

with the present employer. Tabulation of mean salaries for increasing years with the same employer shows steady but not spectacular increases for additional seniority (Table 7h).

A tabulation of number of employers *vs.* mean salaries seems to indicate that higher salaries are reported by respondents who have worked for a number of employers (Table 7i). Because it was not possible to attempt any cross-correlation between Tables 7h and 7i, there can only be a tentative suggestion that, in general, each change of employer may result in a larger upward increment than does continuing years of employment at the same location. (Many other factors may be operative such as increasing retirement benefits, longer vacations, etc.)

The designation of the organizational entity where employed is shown in Table 7j. Efforts to correlate place of employment with highest library or highest subject degrees were inconclusive because of the intermix of such degrees in each of the categories. The only clear statement from the survey is that no respondent with a doctorate in library/information science is employed in an information center. The relative mean sal-

aries recorded in Table 7i for library, information center and other may be fortuitous; it was not possible to reach any acceptable characterizations of "other" by cross-correlations. A blurring of the concept that information centers are different from special libraries seems to be occurring as well as the concept that their professional staffs have different backgrounds or present responsibilities. For future surveys, definitions of terms are needed—if definitions can be developed which will have a general acceptance.

### Age and Sex

With regard to age (Table 8a) there appears to be a significant increase in the number of 1973 respondents in the 20-29 age group (16% as compared to 10% in the 1970 survey). Although the mean age in the survey has decreased only from 46 to 44, the overall age distribution seems to be approaching a more even distribution by decades. Whether this signifies that more persons are entering a career in special librarianship directly from the universities cannot yet be clearly determined.

Table 9a. Salary Distributions by Sex

No. Respondents	Male 847	Female 2,852	1973 Survey Re- spondents
\$ 5,999 and under	<1%	<1%	<1%
6,000-6,999	1	2	2
7,000-7,999	<1	2	2
8,000-8,999	3	7	6
9,000-9,999	3	11	9
10,000-10,999	6	13	11
11,000-11,999	6	11	10
12,000-12,999	9	12	11
13,000-13,999	5	10	9
14,000-14,999	8	9	8
15,000-15,999	8	6	6
16,000-16,999	6	4	5
17,000-17,999	5	4	4
18,000-18,999	8	3	4
19,000-19,999	3	1	2
20,000-20,999	5	1	2
21,000-21,999	4	1	2
22,000-22,999	3	1	1
23,000-23,999	3	1	1
24,000-24,999	3	<1	1
25,000-29,999	7	1	3
\$30,000 and over	4	<1	1
	100%	100%	100%
Mean	\$17,200	\$12,900	\$14,000
Median	16,500	12,500	12,800

Because years of professional work experience are usually expected to be proportional to age, it is not unexpected to find that the mean salary increases with increasing age (Table 8b). Both the 1967 and 1970 surveys showed a lower mean for "60 and Over" than for the "50-59" decade. A somewhat lower mean still appears in the 1973 survey for ages above 60. It would appear that the effects of low starting salaries 30 or more years ago (as well as personnel administration practices that may not have provided for adequate upward salary adjustments for older employees to parallel the greater increases for starting salaries) are gradually lessening. The changes from 1967 to 1973 suggest that this lessened effect may be more the result of older employees reaching retirement age rather than any commensurate salary realignments.

The \$12,900 mean annual salary for women continues to be only 75% of the \$17,200 mean annual salary for men. The \$12,500 median for women has decreased only from 77% to 76% of the \$16,500 median for men (Table 9a). Therefore, the sex bias reported in the 1970 survey continues at the same

Table 9b. Sex Distribution

	1967	1970	1973
Male	26%	20%	22%
Female	72	61	76
No Response	2	19	2
	100%	100%	100%
Female:Male Ratio	2.8:1	3.0:1	3.4:1
No. Respondents	3,867	3,594	3,893

level as in the 1973 survey. Stated in other words, the mean annual salaries for men and women have each increased by 18% from 1970 to 1973; and thus there has been no relative improvement in salaries paid to women. In both 1970 and 1973 the mean for males was greater than the overall mean, and in both years the mean for females was lower than the overall mean. (See also the cross-correlations of race and sex in the next section.)

The above observations are emphasized even more when one considers the sex ratio of the respondents. The ratio of female to male respondents shows a continuing increase from 1967 to 1970 to 1973 (Table 9b). This increasing female/male ratio is contrary to what has been stated from subjective observations of attendance at meetings and the like.

A cross-correlation between age and sex together with salary distributions is reported in Table 9c. Even in the 20-29 decade, the mean for males (\$11,600) is greater than the mean for females (\$10,500), but the mean for females is closer to the mean for males (90%) than in the older age decades. This relative sex bias increases through the 30-39 decade to the 40-49 decade (74%). The relative bias then remains the same (74%) in the 40-49, the 50-59, and the 60+ age groups.

To attempt to identify some of the factors that may contribute to the sex bias in salaries, several correlations of sex with job characteristics were determined.

There is a larger concentration (85%) of women in special libraries with a staff of only one- or two-persons. Similarly, there is a significantly larger concentration (84%) of women in positions identified as specific job functions. In both categories there are more women respondents than in the total survey (77% of the respondents who identified their gender). Conversely, there is a smaller percentage of women (71%) who reported administrative responsibilities than in the total

Table 9c. Salary Distribution by Sex and Age

No. Respondents Female:Male Ratio	20-29		30-39		40-49		50-59		60 and over	
	Male 65	Female 549	Male 190	Female 553	Male 302	Female 707	Male 223	Female 769	Male 60	Female 266
	8.5:1		2.9:1		2.3:1		3.4:1		4.4:1	
\$ 5,999 and under	0%	1%	<1%	<1%	0%	<1%	0%	<1%	1%	0%
6,000- 6,999	1	3	1	2	1	2	1	1	2	2
7,000- 7,999	2	4	1	2	0	2	0	2	0	3
8,000- 8,999	14	16	3	6	2	5	1	4	2	4
9,000- 9,999	23	22	3	13	0	7	1	5	1	6
10,000-10,999	14	21	8	15	4	10	4	9	5	6
11,000-11,999	14	13	11	13	4	12	4	9	7	10
12,000-12,999	12	10	14	15	8	13	6	11	5	13
13,000-13,999	3	4	7	9	6	11	3	12	3	11
14,000-14,999	8	4	15	10	8	11	5	10	2	8
15,000-15,999	2	1	7	6	10	7	6	9	7	7
16,000-16,999	0	1	5	3	8	4	7	6	0	7
17,000-17,999	0	<1	5	3	5	5	7	6	3	7
18,000-18,999	2	0	4	1	11	3	9	5	8	6
19,000-19,999	0	0	3	1	3	2	5	2	7	1
20,000-20,999	3	0	2	1	7	1	5	2	7	3
21,000-21,999	0	0	3		1	6	1	6	3	3
22,000-22,999	1	0	1	1	2	1	4	1	8	2
23,000-23,999	0	<1	2		1	2	1	4	1	3
24,000-24,999	0	0	<1	1	2	1	4	<1	7	1
25,000-29,999	1	<1	2	<1	7	1	13	2	12	1
\$30,000 and over	0	0	3	0	4	0	5	<1	7	<1
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Mean	\$11,600	\$10,500	\$15,000	\$12,200	\$17,800	\$13,300	\$19,300	\$14,300	\$19,300	\$14,300
Median	10,500	10,500	14,500	11,500	16,500	12,500	18,500	13,500	19,500	13,500

survey. The number of women employees in the institutional category with the highest reported mean (i.e., federal governments) is somewhat lower (74%) than in the total survey.

	Female/Male Ratio
Respondents with General Responsibilities (in a one/or two person library)	6.5:1
Respondents with Specific Job Functions (abstracter, indexer, acquisitions, cataloging, bibliographer, literature searcher, documents or reports, editor or writer, reader service or reference)	5.2:1
<b>Overall Ratio for 1973 Survey</b>	<b>3.4:1</b>
Employed by Federal Governments (U.S. or Canada)	3.0:1
Administrative Responsibility (head, assistant head, department or unit supervisor)	2.5:1

## Race

A new question was added to the 1973 survey in an attempt to determine relative racial representation and also to determine if there was any appearance of race bias. The racial distribution of the respondents is in Table 10a.

Because all respondents (regardless of race) did not report their salaries (as has been noted before) the total respondents in Table 10b (salary distribution by race) is less than the numbers reported in Table 10a. Although the mean for all non-white respondents is below the overall survey mean, the mean for black respondents is above the overall mean and the mean for Asian respondents is below the mean for all non-white respondents. In an attempt to find an explanation for this difference, cross-distributions of race *vs.* age are reported in Table 10c. The age distribution for blacks more closely resembles the overall age distribution than does that for Asian respondents. The ages of the Asian respondents cluster at the younger ages where the salaries are, in general, lower.

The sex ratio for non-white respondents shows a higher ratio of women to men than the total survey:

	Female/Male Ratio
Blacks	5.5:1
Asians	4.8:1
<b>Overall Ratio for 1973 Survey</b>	<b>3.4:1</b>

**Table 10a. Race Distribution of Respondents**

White	3,677(94.5%)
Black	56(1.4%)
Asian	78(2.0%)
Other (inclgd. North American Indian, Eskimo, Spanish-speaking)	11(0.3%)
	138
No Response to Question	71( 1.8%)
<b>Total</b>	<b>3,893</b>

A cross-correlation between race and sex shows that there is almost parity for salaries of black males and black females, while the ratio of mean salaries for Asian males and Asian females is almost the same as the ratio for the total survey (77% *vs.* 75%). The mean salary of black female respondents appears to be significantly higher than the overall mean for females; while the mean salary of Asian female respondents appears to be significantly lower than the overall mean for females.

	Mean Salaries	Female/Male Ratio of Mean Salaries
Blacks		
Males	\$15,600	} 0.93
Females	14,500	
Asians		
Males	15,300	} 0.77
Females	11,800	
Overall 1973 Survey		
Males	17,200	} 0.75
Females	12,900	

It is, perhaps, not appropriate to attempt to draw any firm conclusions from these cross-correlations of race and sex because the number of non-white respondents is a very small fraction (138 or approximately 3%) of the total respondents.

Although non-white respondents are reported in all regions, larger numbers are reported in the Middle Atlantic Region (especially in New York), the South Atlantic Region (especially in Washington, D.C.) and the East North Central Region (especially in Chi-

Table 10b. Salary Distribution by Race

No. Respondents	1973 Survey Re- spondents	White 3,555	Total Nonwhite 138	Black 54	Asian 73
\$ 5,999 and under	<1%	<1%	0%	0%	0%
6,000-6,999	2	2	4	4	5
7,000-7,999	2	2	2	0	3
8,000-8,999	6	6	4	4	4
9,000-9,999	9	9	9	0	15
10,000-10,999	11	11	15	15	14
11,000-11,999	10	10	10	7	11
12,000-12,999	11	11	13	5	16
13,000-13,999	9	9	11	15	10
14,000-14,999	8	8	10	13	7
15,000-15,999	6	7	4	5	3
16,000-16,999	5	5	2	5	0
17,000-17,999	4	4	4	7	3
18,000-18,999	4	4	4	4	4
19,000-19,999	2	2	1	2	0
20,000-20,999	2	2	2	2	3
21,000-21,999	2	2	2	4	0
22,000-22,999	1	1	1	4	0
23,000-23,999	1	1	1	2	1
24,000-24,999	1	1	1	2	1
25,000-29,999	3	2	0	0	0
\$30,000 and over	1	1	0	0	0
	100%	100%	100%	100%	100%
Mean	\$14,000	\$13,900	\$13,200	\$14,600	\$12,300
Median	12,800	12,500	12,500	13,500	11,500

Table 10c. Race vs. Age

	1973 Survey	Black	Asian
20-29	16%	13%	27%
30-39	21	30	38
40-49	27	30	25
50-59	27	25	8
60+	9	2	2
	100%	100%	100%

icago). The regional distributions of blacks and Asians, when considered separately, are somewhat different. The highest number of black respondents are in the Middle Atlantic, South Atlantic and East North Central Regions while the highest number of Asian respondents are in the Pacific and Middle Atlantic Regions.

### Membership in Professional Organizations

A concern often mentioned by SLA members is whether Association dues are paid in whole or in part by the employer. These replies are in Table 11a. This attempt to

relate mean salary to the fraction of dues which are paid by the employers may not be conclusive because all respondents to this question did not report their salary level.

The other associations for which membership was reported are listed in Table 11b.

The number of other associations in which membership is also maintained per respondent is in Table 11c. The number of memberships per respondent seems to show a distinguishable relationship: the higher the mean salary the more memberships are reported. However, only 61% (2,431) of the returned questionnaires could be used for Table 11c because of: a) the number of non-

Table 11a. SLA Dues Paid by Employer

% Dues Paid	# Respondents
100%	1,403
Other amounts	38
0%	2,411
No response	104
	3,956

**Table 11b. Membership in Other Associations**

	1959	1970	1973
<b>No. Respondents</b>	<b>2,311</b>	<b>3,594</b>	<b>3,956</b>
American Association of Law Libraries	1%	2%	3%
American Library Association	17	28	24
American Society for Information Science	2	20‡	18
Canadian Library Association	3	3	3
Catholic Library Association	*	1	1
Church & Synagogue Library Association	†	†	<1
Medical Library Association	17	10	9
Music Library Association	*	<1	<1
Theatre Library Association	*	<1	<1
Other National Associations	38	21	17
No Additional National Associations	(?)	39	17

\* Not mentioned in 1967 report.

† Organized after the 1967 and 1970 survey.

‡ Both SLA and ASIS published membership directories as of Jun 30, 1970. The 1970 SLA Salary Survey was conducted in January 1970. An "eyeball" comparison of the two directories showed 712 names that appeared in both. In the 1970 Salary Survey, 709 SLA members also reported ASIS membership. Thus almost 100% of the respondents reporting membership in both organizations had apparently returned the 1970 SLA Salary Survey, although the overall return of the 1970 SLA survey was 60%. Because the two organizations have not published their post-1970 directories as of the same date, it has not been possible to use this independent criterion in relation to the 1973 survey response.

Note: The percentage figures cannot be added because of multiple memberships.

**Table 11c. Other Association Memberships**

# Other Associations	% Respondents to Question	Mean Salary
0	25%	\$12,500
1	55	14,600
2	17	16,500
3	3	18,300
4	<1	
5+	0	
	100%	

responses; and b) the number of respondents who misunderstood "Other Associations" (that is, other than those specifically listed).

**Unemployment**

The 1973 Salary Survey included new questions to attempt to define the number of respondents unemployed and the periods of unemployment during the 27 month period from Jan 1, 1971 through Mar 31, 1973. The employment status of respondents on the survey date (Apr 1, 1973) is in Table 12a.

For the period, Jan 1, 1971-Mar 31, 1973, a total of 472 respondents (12%) reported some period of unemployment (Table 12b), but of these 472 only 126 reported that they had been "terminated by employer" (3% of the total respondents or 27% of the unem-

**Table 12a. Employment Status on April 1, 1973**

Full-Time Employed	3,723
Part-Time Employed	57
Retired	12*
Not Employed & Not Seeking	30
Unemployed & Seeking	41
No Response to Question	10
Invalid—Conflicting responses	20
<b>TOTAL</b>	<b>3,893</b>

\* These respondents apparently had not converted their SLA membership category to "Retired Member" because the Survey Questionnaires had not been mailed to Retired Members.

**Table 12b. Employment Status on Jan 1, 1971 through Mar 31, 1973**

Not unemployed Jan 1, 1971-Mar 31, 1973	2,970
Unemployed for some period between Jan 1, 1971 and Mar 31, 1973:	
Terminated by Employer	126
Terminated on respondent's initiative	244
No reason reported	102
	472
No Response to Question	386
Invalid—Conflicting responses	65
<b>TOTAL</b>	<b>3,893</b>

**Table 12c. Periods of Unemployment, Jan 1, 1971-Mar 31, 1973**

No. of Months Unemployed	No. of Respondents
1	44
2	41
3	54
1- 3	139
4- 6	91
7- 9	54
10-12	43
13-15	13
16-18	12
19-21	22
22-24	12
25-27	19
No Response to Time	67
<b>TOTAL</b>	<b>472</b>

**Table 12d. Location of Unemployed Respondents**

Middle Atlantic (New York 59)	123
Pacific (San Francisco 37; Los Angeles 30)	92
East North Central (Chicago 29)	85
South Atlantic (Washington, D.C. 29)	62
New England	34
Canada	29
West South Central	22

employed respondents). Of the 472 reporting unemployment, 244 reported that their employment had been terminated on their "own initiative" (6% of the total respondents or 52% of the unemployed respondents).

Of the 472 respondents who reported that they had been unemployed, 230 (49%) re-

ported periods up to 6 months with 139 (29%) reporting periods of unemployment up to 3 months. Only 19 (4%) reported that they were unemployed for the entire 27 month period (Table 12c). In the absence of additional probes in the questionnaire further analysis has not been possible.

A sub-analysis of respondents who reported any period of unemployment in the designated 27 month period is in Table 12d by Census Region and SMSA when there are more than 20 respondents from an SMSA or a Region.

## References

1. Special Libraries Association Personnel Survey 1959. *Special Libraries* 51 (no.3): 133-157 (Mar 1960).
2. A Study of 1967 Annual Salaries of Members of the Special Libraries Association. *Special Libraries* 58 (no.4): 217-254 (Apr 1967).
3. SLA Salary Survey 1970. *Special Libraries* 61 (no.6): 333-348 (Jul/Aug 1970).
4. SLA Salary Survey 1973 (Preliminary report). *Special Libraries* 64 (no.9): 381 (Sep 1973).
5. ALA Salary Survey: Personal Members. *American Libraries* 2 (no.4): 409-417 (Apr 1971).
6. *Salaries of Scientists, Engineers and Technicians: A Summary of Salary Surveys*. Washington, D.C., Scientific Manpower Commission, Aug 1973. viii, 102p.
7. *American Science Manpower, 1970*. Washington, D.C., National Science Foundation, Oct 1971. NSF 71-45.

## Appendix A. 1973 SLA Salary Survey Questionnaire

### 1. Geographical area of employment

U.S. (including APOs, P.R., V.I.)

First 3 digits of ZIP    (6-8)

Indicate the geographical area in which you are employed by checking either: (1) the metropolitan area or (2) the geographical census region if your metropolitan area is not listed. Do not check more than one box.

**NEW ENGLAND**  11-1

(Me., N.H., Vt., Mass., R.I., Ct.)

Boston; Lowell; Brockton  -2

Hartford; Springfield-Chicopee-  -3

Holyoke

New Haven; Bridgeport; Norwalk; Stamford  -4

**MIDDLE ATLANTIC**  12-1

(N.Y., N.J., Pa.)

New York, N.Y. (NYC, Nassau, Suffolk, Westchester & Rockland)  -2

Newark, N.J. (Essex, Morris & Union); Jersey City; Paterson-Clifton-Passaic; Middlesex;  -3

Somerset  -3

Philadelphia, Pa.-N.J.; Trenton, Reading; Lancaster  -4

Albany-Schenectady-Troy  -5

Syracuse; Utica-Rome  -6



Buffalo; Rochester, N.Y.	<input type="checkbox"/>	-7
Pittsburgh; Johnstown; Altoona	<input checked="" type="checkbox"/>	-8
<b>SOUTH ATLANTIC</b>	<input type="checkbox"/>	13-1
<hr/> (Del., Md., D.C., Va., W.Va., N.C., S.C., Ga., Fla., P.R.)		
Baltimore, Md.; Wilmington, Del.-N.J.-Md.	<input type="checkbox"/>	-2
Washington, D.C.-Md.-Va.	<input type="checkbox"/>	-3
Richmond, Va.	<input type="checkbox"/>	-4
Durham; Raleigh	<input type="checkbox"/>	-5
Atlanta	<input type="checkbox"/>	-6
<b>EAST SOUTH CENTRAL</b>	<input type="checkbox"/>	14-1
<hr/> (Ky., Tenn., Ala., Miss.)		
Knoxville; Nashville	<input type="checkbox"/>	-2
Huntsville; Birmingham; Tuscaloosa; Gadsden	<input type="checkbox"/>	-3
<b>EAST NORTH CENTRAL</b>	<input type="checkbox"/>	15-1
<hr/> (Ohio, Ind., Ill., Mich., Wis.)		
Chicago; Gary-Hammond-East Chicago	<input type="checkbox"/>	-2
Cincinnati; Dayton	<input type="checkbox"/>	-3
Cleveland; Akron; Canton; Youngstown-Warren	<input type="checkbox"/>	-4
Detroit; Flint; Kalamazoo; Jackson; Ann Arbor	<input type="checkbox"/>	-5
Milwaukee; Racine	<input type="checkbox"/>	-6
Indianapolis; Lafayette-West Lafayette; Anderson-Muncie	<input type="checkbox"/>	-7
Peoria; Bloomington-Normal; Champaign-Urbana	<input type="checkbox"/>	-8
<b>WEST NORTH CENTRAL</b>	<input type="checkbox"/>	16-1
<hr/> (Minn., Ia., Mo., N.D., S.D., Nebr., Kan.)		
Kansas City; St. Joseph	<input type="checkbox"/>	-2
Minneapolis-St. Paul	<input type="checkbox"/>	-3
St. Louis, Mo.-Ill.	<input type="checkbox"/>	-4
<b>WEST SOUTH CENTRAL</b>	<input type="checkbox"/>	17-1
<hr/> (Ark., La., Okla., Tex.)		
Oklahoma City; Tulsa	<input type="checkbox"/>	-2
New Orleans	<input type="checkbox"/>	-3
Houston; Galveston-Texas City; Beaumont-Port Arthur	<input type="checkbox"/>	-4
Dallas; Fort Worth; Sherman-Denison	<input type="checkbox"/>	-5
<b>MOUNTAIN</b>	<input type="checkbox"/>	18-1
<hr/> (Mont., Idaho, Wyo., Colo., N.M., Ariz., Utah, Nev.)		
Albuquerque	<input type="checkbox"/>	-2
Denver; Colorado Springs; Pueblo	<input checked="" type="checkbox"/>	-3
<b>PACIFIC</b>	<input type="checkbox"/>	19-1
<hr/> (Wash., Ore., Calif., Alas., Haw.)		
Seattle-Everett; Tacoma	<input type="checkbox"/>	-2
Portland; Salem; Eugene	<input type="checkbox"/>	-3
S.F.-Oakland; San Jose; Stockton; Vallejo-Napa; Sacramento	<input type="checkbox"/>	-4
L.A.-Long Beach; Santa Barbara; Oxnard-Ventura	<input type="checkbox"/>	-5
San Diego	<input type="checkbox"/>	-6

<b>CANADA</b>	<input type="checkbox"/>	20-1
<hr/> (All provinces & territories)		
Montreal	<input type="checkbox"/>	-2
Ottawa	<input type="checkbox"/>	-3
Toronto	<input checked="" type="checkbox"/>	-4
Victoria & Vancouver	<input type="checkbox"/>	-5

**OTHER COUNTRIES**  21-1

2. Age Group

Under 20	<input checked="" type="checkbox"/>	22-1
20-29	<input type="checkbox"/>	-2
30-39	<input type="checkbox"/>	-3
40-49	<input type="checkbox"/>	-4
50-59	<input type="checkbox"/>	-5
60 & over	<input checked="" type="checkbox"/>	-6

3. Sex

Male	<input type="checkbox"/>	23-1
Female	<input type="checkbox"/>	-2

4. Race

White	<input type="checkbox"/>	24-1
Black	<input type="checkbox"/>	-2
Asian	<input type="checkbox"/>	-3
N. American Indian, Eskimo	<input checked="" type="checkbox"/>	-4
Spanish speaking	<input type="checkbox"/>	-5
Other	<input type="checkbox"/>	-6

5. Employment Status on April 1, 1973

Full-time employed	<input type="checkbox"/>	25-1
Part-time employed	<input type="checkbox"/>	-2
Retired	<input type="checkbox"/>	-3
Not employed & not seeking employment	<input type="checkbox"/>	-4
Not employed, and seeking employment	<input type="checkbox"/>	-5

6. Unemployment Between January 1, 1971 and March 31, 1973

	Yes	No
a. Were you unemployed for any portion of this period?	<input type="checkbox"/> 26-1	<input type="checkbox"/> 26-2
b. Was your employment terminated		
By your employer?	<input type="checkbox"/> 27-1	<input type="checkbox"/> 27-2
On your own initiative?	<input checked="" type="checkbox"/> 28-1	<input type="checkbox"/> 28-2
c. How many months were you unemployed?	<input type="text" value=""/>	(29-30)
	Insert number (0 to 27)	

7. Check one category in each column (A&B) corresponding to your Basic Annual Salary and to your Gross Annual Professional Income (as of April 1, 1973)

- A. Basic Annual Salary associated with your principal full-time professional employment (before deductions for income tax, social security, retirement, etc.) but not including bonuses, overtime, or other payments for professional services. (Do not include subsistence allowances.)
- B. Gross Annual Professional Income from all professional activities (Item 7A) plus regular bonuses, profit sharing, royalties, honoraria, consulting fees, other fees, etc.)

	A	B
Unemployed on April 1,		
1973	<input type="checkbox"/> 31-1	<input type="checkbox"/> 32-1
\$ 5,999 and under	<input type="checkbox"/> -2	<input type="checkbox"/> -2
6,000- 6,999	<input type="checkbox"/> -3	<input type="checkbox"/> -3
7,000- 7,999	<input type="checkbox"/> -4	<input type="checkbox"/> -4
8,000- 8,999	<input type="checkbox"/> -5	<input type="checkbox"/> -5
9,000- 9,999	<input type="checkbox"/> -6	<input type="checkbox"/> -6
10,000-10,999	<input type="checkbox"/> -7	<input type="checkbox"/> -7
11,000-11,999	<input type="checkbox"/> -8	<input type="checkbox"/> -8
12,000-12,999	<input type="checkbox"/> -9	<input type="checkbox"/> -9
13,000-13,999	<input type="checkbox"/> -0	<input type="checkbox"/> -0
14,000-14,999	<input type="checkbox"/> -A	<input type="checkbox"/> -A
15,000-15,999	<input type="checkbox"/> -B	<input type="checkbox"/> -B
16,000-16,999	<input type="checkbox"/> -C	<input type="checkbox"/> -C
17,000-17,999	<input type="checkbox"/> -D	<input type="checkbox"/> -D
18,000-18,999	<input type="checkbox"/> -E	<input type="checkbox"/> -E
19,000-19,999	<input type="checkbox"/> -F	<input type="checkbox"/> -F
20,000-20,999	<input type="checkbox"/> -G	<input type="checkbox"/> -G
21,000-21,999	<input type="checkbox"/> -H	<input type="checkbox"/> -H
22,000-22,999	<input type="checkbox"/> -J	<input type="checkbox"/> -J
23,000-23,999	<input type="checkbox"/> -K	<input type="checkbox"/> -K
24,000-24,999	<input type="checkbox"/> -L	<input type="checkbox"/> -L
25,000-29,999	<input type="checkbox"/> -M	<input type="checkbox"/> -M
\$30,000 and over	<input type="checkbox"/> -N	<input type="checkbox"/> -N

8. Is salary reported in Item 7A above  
For calendar year (11-12 months)?  33-1  
For academic year (9-10 months)?  -2

9. What type of institution or business is served by the library in which you are employed? Check only one box in 9a-9k.

- a. Federal government (U.S. or Canada)  34-1
- b. Other government (state, provincial, local, international)  -2
- c. Public library  -3
- d. Academic institution:  
In a subject department or a research institute  -4  
In a general campus library  -5
- e. Other non-profit institution, organization, association  -6
- f. Manufacturing industry  
Indicate the primary product or service of your parent organization or of your corporate division:
- |   |                               |
|---|-------------------------------|
| Textiles, lumber, wood, paper, etc.       | <input type="checkbox"/> 35-1 |
| Newspapers, publishing                    | <input type="checkbox"/> -2   |
| Chemical & allied products                | <input type="checkbox"/> -3   |
| Pharmaceuticals                           | <input type="checkbox"/> -4   |
| Petroleum refining                        | <input type="checkbox"/> -5   |
| Rubber, plastics, glass, ceramics, etc.   | <input type="checkbox"/> -6   |
| Metals & metal products                   | <input type="checkbox"/> -7   |
| Office, computing and accounting machines | <input type="checkbox"/> -8   |
| Other machinery, except electrical        | <input type="checkbox"/> -9   |
| Electrical equipment & supplies           | <input type="checkbox"/> -0   |
| Motor vehicles & equipment                | <input type="checkbox"/> -A   |
| Aircraft & parts, aerospace               | <input type="checkbox"/> -B   |
| Nuclear energy                            | <input type="checkbox"/> -C   |
| Other manufacturing                       | <input type="checkbox"/> -D   |

g. Non-manufacturing industry

Indicate the primary product or service of your parent organization or of your corporate division:

- |   |                               |
|---|-------------------------------|
| Mining, agriculture, forestry, fisheries  | <input type="checkbox"/> 36-1 |
| Transportation, public utilities, communications  | <input type="checkbox"/> -2   |
| Banking, finance, real estate, planning   | <input type="checkbox"/> -3   |
| Insurance   | <input type="checkbox"/> -4   |
| Advertising, marketing  | <input type="checkbox"/> -5   |
| Commercial laboratories, business services, consulting services, engineering and architectural services | <input type="checkbox"/> -6   |
| Legal services  | <input type="checkbox"/> -7   |
| Other non-manufacturing   | <input type="checkbox"/> -8   |
| h. Self-employed  | <input type="checkbox"/> 37-1 |
| i. In military service  | <input type="checkbox"/> -2   |
| j. Not otherwise specified  | <input type="checkbox"/> -3   |
| k. Not employed   | <input type="checkbox"/> -4   |

10. Is the organizational entity in which you are employed called a:

- a. Library  38-1  
b. Information Center  -2  
c. Other  -3

11. Do you supervise other members of the library staff? Check the number of professionals (librarians, abstractors, etc.) and the number of technicians and the number of clerks you supervise.

	Library			
	Professionals	Technicians	Clerks	Total
Zero	<input type="checkbox"/> 39-1	<input type="checkbox"/> 40-1	<input type="checkbox"/> 41-1	<input type="checkbox"/> 42-1
One	<input type="checkbox"/> -2	<input type="checkbox"/> -2	<input type="checkbox"/> -2	<input type="checkbox"/> -2
Two	<input type="checkbox"/> -3	<input type="checkbox"/> -3	<input type="checkbox"/> -3	<input type="checkbox"/> -3
3-5	<input type="checkbox"/> -4	<input type="checkbox"/> -4	<input type="checkbox"/> -4	<input type="checkbox"/> -4
6-10	<input type="checkbox"/> -5	<input type="checkbox"/> -5	<input type="checkbox"/> -5	<input type="checkbox"/> -5
11-15	<input type="checkbox"/> -6	<input type="checkbox"/> -6	<input type="checkbox"/> -6	<input type="checkbox"/> -6
16-20	<input type="checkbox"/> -7	<input type="checkbox"/> -7	<input type="checkbox"/> -7	<input type="checkbox"/> -7
21 or more	<input type="checkbox"/> -8	<input type="checkbox"/> -8	<input type="checkbox"/> -8	<input type="checkbox"/> -8

12. Indicate your primary responsibility. (Check only one box):

- a. General responsibilities (in a one- or two-man library)  43-1
- b. Administrative Responsibility  
Head  -2  
Assistant Head  -3  
Dept. or Unit Supervisor  -4
- c. Non-Administrative Position  -5
- d. Library School Faculty  -6
- e. Self-Employed (consultant, etc.)  -7
- f. Not employed in a library  -8

13. Indicate your specific job function (Check only one box):

- a. Abstractor or indexer  44-1  
b. Acquisitions or cataloging  -2  
c. Bibliographer; Literature searcher  -3

- d. Documents or reports  -4
- e. Editor or writer  -5
- f. Information specialist  -6
- g. Reader service or reference  -7
- h. Systems specialist  -8
- i. Translator  -9
- j. Other  -0
- k. No specific function  -A

- Foreign languages  68-1
- Law  69-1
- Liberal arts  70-1
- Physical sciences  71-1
- Philosophy and religion  72-1
- Social sciences  73-1
- Other  74-1

14. Number of Employers worked for full-time since entering the Library/Information field

- |   |                          |      |            |                          |    |
|---|--------------------------|------|------------|--------------------------|----|
| 1 | <input type="checkbox"/> | 45-1 | 6          | <input type="checkbox"/> | -6 |
| 2 | <input type="checkbox"/> | -2   | 7          | <input type="checkbox"/> | -7 |
| 3 | <input type="checkbox"/> | -3   | 8          | <input type="checkbox"/> | -8 |
| 4 | <input type="checkbox"/> | -4   | 9          | <input type="checkbox"/> | -9 |
| 5 | <input type="checkbox"/> | -5   | 10 or more | <input type="checkbox"/> | -0 |

15. Number of Years with Present Employer

- |           |                          |      |              |                          |    |
|-----------|--------------------------|------|--------------|--------------------------|----|
| 1 or less | <input type="checkbox"/> | 46-1 | 6-10         | <input type="checkbox"/> | -6 |
| 2         | <input type="checkbox"/> | -2   | 11-15        | <input type="checkbox"/> | -7 |
| 3         | <input type="checkbox"/> | -3   | 16-20        | <input type="checkbox"/> | -8 |
| 4         | <input type="checkbox"/> | -4   | 21-25        | <input type="checkbox"/> | -9 |
| 5         | <input type="checkbox"/> | -5   | More than 25 | <input type="checkbox"/> | -0 |

16. Degrees (Check all applicable)

	Subject Field	Library/Info Science
Doctorate	<input type="checkbox"/> 47-1	<input type="checkbox"/> 54-1
Master	<input type="checkbox"/> 48-1	<input type="checkbox"/> 55-1
Bachelor	<input type="checkbox"/> 49-1	<input type="checkbox"/> 56-1
Associate	<input type="checkbox"/> 50-1	<input type="checkbox"/> 57-1
No Degree		
More than 100 credits	<input type="checkbox"/> 51-1	<input type="checkbox"/> 58-1
99 or less credits	<input type="checkbox"/> 52-1	<input type="checkbox"/> 59-1
No College	<input type="checkbox"/> 53-1	<input type="checkbox"/> 60-1

17. Indicate the subject field in which you hold your degrees.

- Biomedical sciences  61-1
- Business, commerce or economics  62-1
- Earth sciences  63-1
- Education  64-1
- Engineering  65-1
- English and journalism  66-1
- Fine and applied arts (art, architecture, music, speech)  67-1

18. Record the number of years of professional library experience and other professional experience you have had since receiving your Bachelor's degree.

	Prof. Library Experience	Other Prof. Experience
Insert Arabic Numerals here nearest whole number)	<input style="width: 50px; height: 30px;" type="text"/>	<input style="width: 50px; height: 30px;" type="text"/>
	(75-76)	(77-78)

19. Association and Society Memberships.

Check the appropriate boxes for each Association and Society of which you are a personal member. For write-ins include only national and international organizations; use identifying words in full:

- None  79-1
- American Association of Law Libraries  80-1
- American Library Association  81-1
- American Society for Information Science  82-1
- Canadian Library Association  83-1
- Catholic Library Association  84-1
- Church & Synagogue Library Association  85-1
- Medical Library Association  86-1
- Music Library Association  87-1
- Theatre Library Association  88-1

Other  89-1 \_\_\_\_\_

20. Are your SLA dues paid by your employer?

- 100%  90-1
- 75%  -2
- 50%  -3
- 25%  -4
- 0%  -5
- Other  \_\_\_\_\_% (91-92)

## Appendix B. Comparison of 1970 Surveys by SLA and ALA

A survey of personal members of ALA in Oct 1970 was conducted by the ALA Library Administration Division (5). The 1970 SLA survey was conducted in Jan 1970. It is interesting to note that there was a 68.4% response to the ALA survey which asked that the *actual* salary be reported, while the SLA response was 60% with salary information reported *only* in salary intervals.

Because many questions regarding different categories were used in the ALA and SLA questionnaires, a total comparison is not possible. However, it is of interest to consider those categories of the two surveys which have comparable intent and response. From such categories it appears that the salaries reported in both surveys are at essentially the same level. The average of the dif-

**Table B-1. Response, Median Salary & Mean Salary**

	SLA	ALA
Questionnaires mailed	5,975	25,993
Usable responses	3,594(60%)	12,581(68.4%)
Full Time Employment Salary		
Median	\$11,800	\$11,758
Mean	11,000	10,920
Range*	\$7,000-\$19,700	\$7,200-\$20,300

\* The range in this table is from the 5th percentile to the 95th percentile. This range is in the ALA report; although range in terms of percentiles was not included in the SLA report, such values were recovered from original data.

**Table B-2. Salary vs. Sex**

	SLA	ALA
<b>Male</b>		
Respondents	741	2,778
Mean Salary	\$14,600	\$14,471
Median Salary	13,500	13,500
<b>Female</b>		
Respondents	2,183	9,030
Mean Salary	\$10,900	\$10,874
Median Salary	10,400	10,400

Note: Some respondents in both surveys did not reply to the item to identify sex.

**Table B-3. Selected Responsibilities**

	SLA	ALA
<b>Head</b>		
Respondents	1,271	2,786
Mean Salary	\$13,600	\$13,845
Median Salary	12,600	13,000
<b>Assistant Head</b>		
Respondents	319	869
Mean Salary	\$12,300	\$12,475
Median Salary	11,400	11,600
<b>Department or Unit Supervisor</b>		
Respondents	504	1,873
Mean Salary	\$11,900	\$11,865
Median Salary	11,400	11,400
<b>General Responsibilities*</b>		
Respondent	931	2,389
Mean Salary	\$ 9,700	\$10,047
Median Salary	9,400	9,718

\* A footnote in the ALA report states "member of a relatively small library staff whose duties are extensive rather than specific."

**Table B-4. Job Function**

	SLA	ALA
<b>Acquisitions</b>		
Respondents	560	159
Mean Salary		\$10,010
Median Salary	\$10,400	Not reported
<b>Cataloging</b>		
Respondents	10,000	663
Mean Salary		\$10,004
Median Salary		Not reported
<b>Reference</b>		
Respondents	727	716
Mean Salary	\$10,600	\$ 9,593
Median Salary	10,200	Not reported
<b>Information Specialist (SLA)/Subject Specialist (ALA)</b>		
Respondents	414	164
Mean Salary	\$11,500	\$10,799
Median Salary	10,900	Not reported

**Table B-5. Highest Academic Degree**

	SLA	ALA
<b>Doctorate</b>		
Respondents	119	420
Mean Salary	\$17,500	\$18,513
Median Salary	17,000	17,750
<b>Master</b>		
Respondents	2,275	11,201*
Mean Salary	\$12,200	\$11,928*
Median Salary	11,400	11,129*
<b>Bachelor</b>		
Respondents	1,095†	1,077
Mean Salary	\$10,700†	\$ 9,563
Median Salary	10,000†	9,000

\* Calculated from 4 separately identified categories in the ALA report: M in LS, MA, M in LS & MA, and BLS (5th year).

† The SLA report combined "Bachelor's or less."

ference of categories in this Appendix is \$378. Because *neither* survey attempts to determine a *variance* for its means and medians and because the SLA survey rounds dollars to the nearest \$100.00 while the ALA survey reports to the nearest \$1.00, it is quite conceivable that the differences noted are within the limits of accuracy of each survey. In only three areas are there differences of more than \$1,000: a) mean salary for reference, \$1,070 higher in the SLA report; b) mean salary for respondents with the doctorate, \$1,013 higher in the ALA report; and

c) mean salary for respondents with a Bachelor's degree (excluding the 5th year BLS), -\$1,137 higher in the SLA report.

If the ALA median salary (\$11,758) were rounded to the nearest \$100, it would *coincide* with the SLA median (\$11,800). There is an apparent difference of \$80 in the means (SLA \$11,000 and ALA \$10,920) but see the comment in the paragraph above.

Exactly the same sex bias is reported in both surveys: the mean for women is 75% of the mean for men, and the median for women is 77% of the median for men.

The ALA survey reports salaries for categories by types of library. For the 412 respondents from special libraries, the median in the ALA report (\$11,000) is identical with the SLA median. The ALA mean, however, is \$12,084 or \$284 higher than the SLA mean (\$11,800). This difference may be explained by reference to Table 11c (p. 620) where membership in more than one association is directly related to higher salaries.

There is a real difference between the 1,046 SLA members who reported ALA membership and the 412 ALA respondents who reported employment in a special library. Even when the approximately 60% response figures are invoked, a large discrepancy still remains. Therefore, one is led to the conclusion that the SLA survey is a survey of SLA members and the ALA survey is a survey of ALA members—rather than either being surveys of “types of libraries.” There may also be a suggestion that an individual respondent may react differently to different questionnaires.

The need for terms with definitions that are clear-cut and not open-ended is emphasized in the comparison of the two surveys. This is especially important for academic, public and government libraries so that the data reported to SLA by respondents from specialized branches or departments in such libraries can be related to the total respondent populations from such libraries.

### Appendix C. Comparison of 1970 Surveys by SLA and the Scientific Manpower Commission Report

Perhaps the comparison of an SLA Salary Survey with the salary survey of other professions is as important as a comparison of the salaries of other librarians.

In August 1973 the Scientific Manpower Commission (SMC) published its summary of salary surveys for scientists, engineers and technicians (6). The SMC report is a compilation of salary surveys conducted by a number of professional scientific and engineering societies, educational associations, federal agencies, magazine publishers and other professional associations. No library surveys are included in the SMC report (the only reference to library work is beginning salary offers to “women bachelor's degree candidates” in 1972/73 for “library & related work” as “library internes” as compiled by the College Placement Council (Ref. 6, p.63-64).

The SMC report assembles the results of many different surveys made in different years and with different bases for presentation of the statistical data. Therefore SMC has not (or could not) correlate the results of different surveys. Similarly, many of the surveys reported by SMC cannot be compared with an SLA Salary Survey.

Comparisons are, however, possible between the SLA 1970 Salary Survey and certain 1970 surveys presented in the SMC report (Ref. 6, p.23-28, 67-71), especially the National Science Foundation's 1970 manpower survey.\* The NSF Survey reports 15 disciplines which include Anthropology, Economics, Linguistics, Political Science, Psychology, Sociology, and Statistics as well as those disciplines which are more commonly considered “scientific”: Agricultural Sciences, Atmospheric & Space Sciences, Biological Sciences, Chemistry, Computer Science, Earth & Marine Sciences, Mathematics, and Physics.

Comparison of the 1970 NSF and SLA surveys (Tables C-1—C-4) shows that all SLA categories have a much lower median than the NSF categories (from \$1,300 less to \$6,000 less) with one exception: the median

\*The NSF report had been issued biennially through 1970 from surveys of the “National Register of Scientific and Technical Personnel.” Because the Register was discontinued after 1970, no later data will be available from this source.

Table C-1. Type of Employer (Ref. 6, p.24)

	NSF 1970	SLA 1970	Difference 1970	SLA 1973
All	\$15,000	\$11,800	-\$3,200	\$14,000
Federal Govt.	16,100	14,000	- 2,100	17,200
Other Govt.	13,000	11,700	- 1,300	13,600
Non-Profit Org.	16,400	11,400	- 5,000	12,900
Industry & Business	16,700	Mfg. 11,500 Non-mfg. 10,800		Mfg. 13,700 Non-mfg. 12,400
Educational Institutions	15,500	~11,900	- 3,600	~14,500

Table C-2. Highest Academic Degree (Ref. 6, p.25)

	NSF 1970	SLA 1970	Difference 1970	SLA 1973
All	\$15,000	\$11,800	-\$3,200	\$14,000
Doctorate	16,500	17,500	+ 1,000	20,800
Master	13,500	12,200	- 3,300	14,000
Bachelor	13,900	11,800	- 2,100	13,600
Less than Bachelor	14,000	10,700	- 3,300	11,600

Table C-3. Age (Ref. 6, p.26)

	NSF 1970	SLA 1970	Difference 1970	SLA 1973
All	\$15,000	\$11,800	-\$3,200	\$14,000
20-29	10,500	9,200	- 1,300	10,600
30-39	13,900	11,200	- 2,700	12,900
40-49	17,400	12,300	- 5,100	14,600
50-59	18,500	12,500	- 6,000	15,400
60+	18,200	12,400	- 5,800	15,200

Table C-4. Census Regions (Ref. 6, p.27)

	NSF 1970	SLA 1970	Difference 1970	SLA 1973
All	\$15,000	\$11,800	-\$3,200	\$14,000
New England	15,000	11,500	- 3,500	13,300
Middle Atlantic	16,000	11,900	- 4,100	14,200
South Atlantic	16,000	13,500	- 2,500	15,900
East South Central	14,500	12,300	- 2,200	14,400
East North Central	14,500	11,600	- 3,900	13,500
West North Central	14,000	11,100	- 2,900	12,500
West South Central	14,600	10,800	- 3,800	12,600
Mountain States	14,000	11,200	- 2,800	13,100
Pacific Coast	15,000	11,900	- 3,100	13,400

Note: Because the NSF Survey is for the U.S., there are no data for Canada.

for holders of the doctorate in the SLA survey is \$1,000 higher than the median in the NSF survey. Just as a drop in median for the 50-59 year decade has been noted in the SLA survey, a similar drop is noted in the NSF survey.

By and large, lower medians for the census regions appear in the SLA survey (Table C-4). A separate comparative table for Standard Metropolitan Statistical Areas is not presented here.

The sex bias revealed in the NSF survey is essentially the same (76%) as the 75% in the SLA survey (i.e., the ratio of the median salary for women to that for men). The ratio of women to men in the two surveys is very different:

NSF	1:11
SLA	3:1

To determine if there is any apparent closing of the gaps between the two 1970

**Table C-5. Overall Comparison of NSF and SLA Surveys**  
(Ref. 6, p.23,67,71)

	NSF 1970	SLA 1970	Difference 1970	SLA 1973
<b>Median</b>	\$15,000	\$11,800	-\$3,200	\$14,000
<b>Range of Medians*</b>	\$12,500-16,900			
<b>Males</b>				
<b>Median</b>	15,200	14,600	-600	17,200
<b>Range of Medians*</b>	12,800-17,100			
<b>Females</b>				
<b>Median</b>	11,600	10,900	-700	12,900
<b>Range of Medians*</b>	9,400-13,400			

\* The range of medians is for the 15 disciplines listed in the text.

surveys, data from the 1973 SLA survey have been inserted in Tables C-1—C-5. The 1973 SLA salary medians are still less than the 1970 NSF salary medians by amounts ranging from \$1,000 in the overall median to as high as \$3,100 for the 50-59 year age decade. But there are five specific groups in which the 1973 SLA medians have caught up to and exceeded the 1970 NSF medians: Federal Government, Other Government, holders of doctorates and Master's\* degrees, and the 20-29 year decade.

In the SMC report the only reference to library salaries is to "library related work" in a table of "average monthly salary offers to women's bachelor's degree candidates" (Ref. 6, p.63-64) from a College Placement Council report. The amount reported for 1972/73 is \$516 a month or \$6,192 a year. This is the only woman's occupation listed which showed a decrease (97.5%) rather than increase in the amount offered in the preceding year, 1971/72. By consultation of accompanying charts, the patient reader can

\* A peculiarity noted in the 1970 NSF survey is that the median for Master's degrees is less than the median for Bachelor's degrees, which in turn is less than the median for "less than Bachelor's degree" (Table C-2).

learn that the positions described as "library related" are *library internes!* It would appear that the College Placement Council is unaware of fifth year library school graduates.

A tabulation by the National Education Association (Ref. 6, p.90) of "median salaries of faculty deans of separately organized schools or colleges" may not be directly germane to an SLA Salary Survey. But the table should be significant to the library profession because the NEA has not included *deans of library schools* in its list of deans of 15 kinds of independent schools or colleges which exist in universities and which range alphabetically from Architecture to Veterinary Science.

Many other surveys of other professions in the SMC document (6) cannot be directly compared with either the 1970 or 1973 SLA Salary Survey because the data are reported for other years or are reported in different terms (for example, percentiles). The total impression made by the SMC document is that librarianship is one of the lowest paid of the so-called professions. Perhaps, this comparison alone suggests the need for directed and purposeful activity by library associations, by library school educators and—especially—by those librarians who are themselves employers of other librarians.

Appendix D was received too late for inclusion here. A discussion of the American Management Association Survey 1973 will appear in the Jan 1974 SL.

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ERRATA

- Nov 1972, p.541, col. 2, top ..... The Roman Numerals are given in the example as I, II, III. They should have been listed in the reverse order.
- Jan 1973, p.58, col. 2 ..... ITT should be IIT.
- Mar 1973, p.160, col. 1, top ..... The Employment Clearinghouse will be operated in Pittsburgh, not in Boston.
- Jul 1973, p.305, col. 1 ..... The heading, "Income and expenditure," should read, "Excess income over expenses."
- Sep 1973, p.381 ..... The mean and median salaries and salary distribution are incorrect as stated. These numbers are corrected in the full report of the SLA Salary Survey beginning on p.594.
- Nov 1973, p.497 ..... The author note should read: "Dr. Pauline M. Vaillancourt is associate professor and Dr. Lucille Whalen is professor and associate dean, School of Library and Information Science, State University of New York, Albany.
- Nov 1973, p.532, col. 2 ..... Dr. Thomas Belden is chief historian (not chief librarian), U.S. Air Force.

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