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CONTENTS

A National Network of Biological-Agricultural Libraries, by Foster E. Mohrhardt and Blanche L. Oliveri 9

Overseeing and the Problem of Book Preservation in the Research Library, by Matt Roberts 17

Can Machines Teach the Use of the Library? by Harriett Genung 25

Academic Librarianship in Three Education Journals, by Harold E. Holland 31

An IBM 357 Circulation Procedure, by Patricia Ann Stockton 35

Head Librarians: How Many Men? How Many Women? by W. C. Blankenship 41

Classification and Cataloging of Spoken Records in Academic Libraries, by Christopher Barnes 49

Selective Dissemination of Information and the Academic Science Library, by Hansjoerg Kolder and Irwin F. Simpkins 53

Book Reviews

Typefounding in America, 1787-1825, by Rollo G. Silver, Robert D. Harlan 58

Harper's University: the Beginnings; a History of the University of Chicago, by Richard J. Storr, Edward G. Holley 58

Library Co-operation, by G. Jefferson, James Thompson 60

Manual of Procedures for Private Law Libraries, by Elizabeth Finley, B. Halevy 60

Selected Reference Books of 1965-66, by Eugene P. Sheehy 62
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A National Network of Biological-Agricultural Libraries

Efforts to gain systematic control of the entire range of biological and agricultural literature are reviewed. In view of the need manifest therein, an efficient network of biological-agricultural libraries is being developed to serve the science communities in those fields. MEDLARS is already operational, and NAL is now developing a network in the bio-agricultural fields. Problems in the way of its satisfactory establishment are discussed, and the elements of such a system are enumerated.

INTRODUCTION

The 1966 Conference of the American Library Association sat at the center of two concentric circles. The smaller or inner circle, covering greater New York, includes one of the most significant concentrations of books and libraries of all times—at least 30 million volumes. The New York public library, the Columbia University library, the ten to twenty other significant academic library collections plus more than one thousand outstanding special libraries provide a scope and depth of information that is in many ways incomparable. Our second circle, with a radius of 250 miles, encompasses the Harvard-Cambridge-New Haven area in the north and the Washington, D. C. metropolitan area library complex in the south. Within this larger area the number of volumes has doubled to more than sixty million and the range and depth of subjects have measurably increased. Sitting in the center of this library affluence we might assume that all is well in the scholarly library field and that practically any research worker’s needs can be met in this relatively confined geographical area. The director of the Columbia University library, Richard Logsdon, viewed with pride the strength of these collections in the greater New York area, and reported in candor last year:

But lest you be lulled into believing that all is well in the library world, let me now give the specialist reader’s view. With all of these resources, libraries are still falling short of meeting the full demands of readers, in these days of upgraded elementary and secondary curricula, new specializations at the college and university level, and the incredible expansion of research, particularly in the sciences. At Columbia, for example, I cannot think of a single field in which members of the faculty could not find us lacking in significant source material.1

We who work in the larger circle with a sixty to seventy-five million volume total recognized the fact that many of the needs of research workers, scholars and students are unmet by all of these collections.

As the horizons of interest of our scholars and students increase, and as the production of papers and publica-

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tions double in output with predicted regularity, most libraries have recognized their individual inability to meet even a share of their users' requirements.

We will have to redouble our efforts and rechallenge our ingenuity and imagination to maintain even our present levels of service. There are many nights when we go home from our libraries wondering if there are any boundaries to the quest for information. William O. Baker, one of our greatest scientists and research directors, says, "Unlike material consumption—of food, clothing, housing, even, perhaps, of automobiles—there is probably no limit to human needs for knowledge." ²

Many of us today are aware of the fact that new paths must be opened and new approaches developed in the field of librarianship. Librarians for several decades have been aware of the fact that the handling and servicing of publications has become a problem beyond the competence of conventional systems. It has only been in the last decade however, that scientists and research workers recognized these difficulties.

Librarians and scientists also know that individual efforts are no longer sufficient, and that regional and national programs are needed to handle successfully the requirements of research workers, students, and others.

**BIOLOGY AND AGRICULTURE**

The American Institute of Biological Sciences established in 1960 the Biological Sciences Communication Project to "study, define, and improve the flow of fundamental and applied biological information from the scientist producer to the scientist consumer."³

The project's proposals, particularly as they applied to the national scene, were probably too advanced and comprehensive for the early 1960's. Unfortunately, they were not put into operation. The project is now a part of George Washington University and still serves as an effective center for research, education, and special studies in the biological sciences communication field.

Looking for a broader base of biological representation, a new effort to inventory, evaluate, and systematize the national handling of biological information was initiated in a conference on communications for biology held at Cherry Hill, New Jersey, November 1965. The conference participants were carefully selected to cover comprehensively the whole field of biology, from the central core of basic, discipline-oriented biology to the mission-oriented and more applied fields of agriculture and medicine. Among the recommendations made at the meeting that apply particularly to librarians are the following.

IX. That biological vocabularies or thesauri including definitions and hierarchical structures be developed under the joint efforts of scientists, science information specialists and societies for use in indexing and handling of biological publications and communication . . .

X. That it be the responsibility of the federal government to insure acquisition and reasonable availability in the United States of all significant publications in biology from any part of the world.

A. Reasonable availability includes (1) prompt cataloging of publications, (2) an express announcement in English for all titles of publications collected, (3) plus selective dissemination of this title information. All services should be provided by utilizing existing organizations both public and private. The prime objective is to facilitate rapid transmission of copies of original documents to the individual through a local institution at minimal cost.

B. A Council at the national level should be urged to assume over-all responsibi-
ity for implementation of this program in cooperation with the appropriate biological organizations and societies. Specific delegation of broad subject areas should be made, utilizing as document sources the National Library of Medicine and the National Agricultural Library and recognizing outstanding specialized collections that have been developed at local institutions, such as exist in mammalogy, ichthyology, mycology, bryology, and photosynthesis.

XI. That library services to the biologist at the local level must be immediately strengthened and local libraries must be brought into the national planning at an early stage so that they can provide better services.

That academic and other research institutions recognize the need for adequately supported library service in developing all research programs, and that federal assistance for research include provision for libraries.4

In addition it was proposed that a network of libraries, data centers, documentation centers, and information centers be implemented to carry out the conference recommendations and meet the needs of biologists for information.

It is to librarians that the biologists have directed their request for aid. We are the specialists who are expected to provide solutions.

Library Networks—A National Responsibility

Today we can readily recognize the problems, identify broad needs, and subscribe to the idea of a national bio-agricultural network. The difficult problems arise in designing, organizing, and operating an efficient network of information services. Since the organization of the American Library Association almost a hundred years ago, libraries in this country have been utilizing most of the fundamental elements necessary for an effective network. We have a national interlibrary loan system, standardization of catalog cards through the Library of Congress, codes and rules for subject headings, storage centers, and arrangements for division of collecting responsibility in some subject fields. Yet each of these elements now in operation contains exceptions, limitations, and deficiencies that can be improved only by broader planning and better structuring.

Every current major study of libraries, information services, and communication has pointed to the federal government as a major factor in stimulating, supporting, and organizing networks for these services. As Adlai E. Stevenson pointed out in a discussion of science and technology:

Electricity had been harnessed fifty years in the United States before it was put to work on the farm. It was political will that put it there.

It was political initiative which built TVA, the Grand Coulee Dam, the super highways, years after we knew how.

It was a political trigger which started the huge programs of research in science in universities and private industry.5

Let us tap this political potential to serve us in network development!

J. C. R. Licklider, who has recently studied library potentials, also directs us toward federal interests.

What has the federal government's apparatus for scientific and technical information to do with "problems in information retrieval"? Three things: First, it has problems, large and deep, which it is mounting a vigorous effort to solve. Second, it offers to scientists and engineers a great and valuable informational resource that is much less well known and well understood than it should be among some of the people who could best use its help and who could best help it. And, third, the integration of national resources in the informa-


tion field must involve both the federal resources and the resources outside the government. . . .

In private conversation with me he has pointed out that:

The MEDLARS project at the National Library of Medicine, the network of state-based information centers to be established under the State Technical Services Act of 1965, the Atomic Energy Commission and National Aeronautics and Space Administration computer-based abstracting and indexing services, the new computer-based chemical information system of the Chemical Abstracts Service, and the numerous information evaluation and analysis centers are all examples of large-scale information transfer experiments which will lead to improved systems design and integration.

What have we established thus far? First, that individual libraries and even small groups of libraries are no longer adequate for the general needs of research workers, scientists, and students. Second, biologists and agriculturalists have now directly challenged us to find the techniques and methods to give them ready access to the totality of world information in biology. Third, within the tradition of American library experience we have the basic elements for a national network or system. Fourth, the role of the federal government in library support and stimulation has been well established during the past decade. Fifth, many government agencies now have specialized networks providing information which can be fed into the total biological-agricultural network. Where do we go from here?

The National Library of Medicine, through its MEDLARS project and other activities, already has in operation an experimental network for the broad health-centered fields. The National Agricultural Library is now developing the base for a broad nationwide biological-agricultural library network. Before outlining the steps already taken by the National Agricultural Library it is necessary to reemphasize certain guidelines that must be accepted by all of us if we are to progress rapidly in a shared, cooperative, effective national network.

Network Planning and Organization. A functioning national network for biological-agricultural information will require: (1) formalizing of agreements and arrangements between the participating libraries; (2) increased sharing of responsibilities; (3) increased cooperation in acquisitions; (4) standardization of procedures; (5) re-education of users.

Much of what we are referring to here has also been discussed in library circles under the rubric "compatibility."

Compatibility

Librarians are individualists. For almost one hundred years we have utilized various types of standardization and classification: subject headings, catalog card format, etc., yet each library introduces modifications and elaborations for its own particular needs. A national network for biology and agriculture will require us to review these individual modifications and determine which are necessary and which are merely traditional and perhaps outmoded. The standardization of our library activities leading toward a high degree of compatibility will cause the first feeling of uneasiness on the part of cooperating librarians. We object to being cogs in a machine or merely purveyors of packaged objects, but these objections are not necessary.

In a recent talk, William Welsh of the Library of Congress reminded us that—

Although standardization of certain elements of catalog card data has been realized since the advent of the LC printed card in 1899, maximum benefits to be derived from such standardization have not yet been achieved.

Despite evidence of increasing use of LC cards . . . there is also present more than a strong suspicion that many, if not most, libraries adapt the LC card to render it compatible with their system.

The era of automation creates the opportunity to re-examine the present bibliographical record and to produce a machine output of that record which will serve the needs for which libraries exist and hopefully, thereby, eliminate or markedly reduce the inefficiencies implicit in "adaptation."

The confrontation between librarians and computers is taking place today and the relationship between the computer systems and the librarians at the Library of Congress and the National Library of Medicine fail to show any impairment to library service through computer usage. The National Library of Medicine, with a computerized cataloging system now in operation, reports that both the users and librarians are well satisfied with the new services.

For the purposes of this paper and to eliminate a factor that can overshadow the fundamentals of network development, we will not involve ourselves with the problems of computer usage and mechanization of the system. These are tools that will be used as the system develops. At this time they are not the basic elements of the system.

ELEMENTS OF THE SYSTEM

If the Agriculture and Biological Sciences Subsection of ACRL should decide to assume responsibility for aiding in the development of a national biological-agricultural network, it will immediately be necessary to define the scope of the following elements:

1. A national plan. This would involve both immediate and long range activities.

2. Establishment of a responsible agent or center for the system.


4. Identification of financial support.

5. Delegation of responsibilities. There would be a need to formalize acquisitions policies, cataloging, services, and subject specialization.

Those who have studied the general needs and bases for library networks have stressed the importance of exploring new fields of service in addition to the conventional handling of books, journals, other published information and bibliographies. Since the local librarian under a standardized network system would be relieved of many routine concerns about limitations of acquisitions, cataloging, and the immediate availability of a wide range of subject information, new opportunities will be presented at the local and regional level for librarians to develop challenging projects. These could include indexing in depth for special fields, selective abstracting, preparation of state of the art or review papers, and the provision of more and better personal service to the clientele. In addition, opportunities would be open for libraries to handle a broader range of information including much unpublished information such as data, laboratory notes, unpublished symposia papers, etc.

NAL NETWORK PLANS

The National Agricultural Library’s plan for a network is being developed in three phases. First, coordination within the Department of Agriculture. Second, formalized cooperation with agricultural universities and experiment stations. Finally, cooperative arrangements with all other biological-agricultural information units.

The library’s coordinator of scientific and technical information works with counterparts in each agency of USDA. All department agencies make a pre-clearance check before preparing extensive bibliographies and translations and

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report to the library any studies, surveys, or projects involving vocabularies or research and development in scientific communication and documentation.

**Agricultural Vocabulary Project.** A basic authoritative agricultural/biological vocabulary for information storage and retrieval of published literature and unpublished research is well under way. This will serve the entire Department of Agriculture, the land-grant universities as well as other government-wide vocabularies which have interests in these fields. In November 1965 our first agricultural-biological subject category list was published. The list consists of fifteen major fields which are further divided into ninety-eight groups similar in structure to the COSA TI subject category list. This framework provides subject approaches for both published literature and unpublished research reports. Early this year we were fortunate in securing the cooperation of four land-grant institutions (Pennsylvania State University, Purdue University, Massachusetts Institute of Technology, and the University of Wyoming), each of which provided the services of a librarian to assist us in developing the basic vocabulary. Our next steps are evaluation and building the reference structure.

Scientists in each of the major disciplines covered by the vocabulary will now evaluate the terms and provide us with an approved basic list. At the same time we will be developing specialized lists such as taxonomic names and names of chemical substances. The basic vocabulary should be issued by June 1967.

**Library of Congress Classification Scheme.** Publication of the Dictionary Catalog of the National Agricultural Library, 1862-1965, made it possible for the library to change the classification scheme it had been using for the past one hundred years.

Correspondence with the land-grant institutions showed a trend in agricultural libraries toward using the Library of Congress classification scheme. Therefore, we changed to the LC schedules in January 1966. Now two of the national libraries are using the same subject classification.

**Future Plans.** We have now reached the point where we are making more extensive contacts with universities, experiment stations, and industrial installations in furthering the coordination of agricultural information.

We recently sent a questionnaire to all libraries of land-grant universities and experiment stations to gather preliminary data for developing an agricultural network. (1) We are trying to identify the state services which are provided to federal employees headquartered within the state. For example—are direct routing, lending, reference, or bibliographic services being provided USDA employees? (2) We want to find out which libraries will be willing to assume archival and national service responsibilities for state and county bureau publications, and for state, county, and municipal publications produced within their state. (3) We are also trying to identify various subjects or geographic areas for which libraries will assume similar responsibilities.

An additional activity essential to a network is an inventory of agricultural information resources throughout the country. Over three hundred and forty have been identified within the Department of Agriculture alone. Our attention is now directed to other governmental, academic, industrial, and historical institutions. This provides potential components of the network bases for referral activities. We hope to eliminate unnecessary duplication, to expand essential areas, and to tailor our future activities in accordance with recommendations received.

**Decentralization Concept.** We have two formal agreements already executed.
The University of California at Davis has assumed national responsibility for agricultural machinery catalog acquisition and servicing. The Tennessee Valley Authority has assumed national collection and servicing of publications on fertilizers.

The Davis agreement represents our first cooperative endeavor, and makes available the most comprehensive collection in the United States of agricultural machinery catalogs and related materials. The TVA agreement was a logical follow-up to the Department of Agriculture's termination of most fertilizer research and the TVA's national responsibility and capability for performing such research activities.

Both agreements provide for assumption of national responsibility for acquiring and disseminating pertinent information. They will provide national bibliographic, reference, and interlibrary loan services.

**OTHER ACTIVITIES**

The ultimate aim of the National Agricultural Library is to make possible the utilization of tapes provided from its mechanized system, and an interchange of tapes within the bio-agricultural network. The library's system is progressing on a phased basis.

The monthly and annual author indexes of the *Bibliography of Agriculture* were automated in August 1964. The programming and testing of the subject index system is underway, and will provide for the first time monthly subject indexes to the *Bibliography of Agriculture* in addition to the annual cumulation. Automation of the citations themselves, scheduled for 1969, will permit the preparation of periodic bibliographies on specialized subjects, selective dissemination of pertinent scientific information, and responses to demand searches.

The Pesticides Information Center, which is currently issuing a computer-produced permuted title index, will change over to the new computer-based system being developed by the Datatrol Corporation. The new Pesticides Documentation Center will include a retrieval system for special bibliographies and demand searches, with selective dissemination if warranted.

Eventually we hope to have on file and to service a user profile for any bio-agricultural institution in the country which desires selective dissemination to be made from the total mechanized system.

**DISCUSSION**

Several questions immediately arise as a result of this discussion and the summary of our program. First, we probably will have to determine who would be the initial participants in such a system. For practical purposes it would probably be best to limit the initial participants to land-grant universities and other major agricultural libraries, or to mount a smaller more varied pilot project.

Next a determination will have to be made concerning the extent of coverage and service. Since the network is primarily a practical device, a priority should be established for the types of materials to be handled in the system. For example how would we arrange priorities for the following:

1. Would it be best to begin the network for service on publications most used?
2. Or would it be preferable to specialize on those least used?
3. How about the publications that are hardest to identify and acquire? (For example, symposia and conference papers.)
4. What is the interest in publications that are hardest to handle because of their size and other factors?
5. Report literature?
6. Theses?
7. Newspapers?
8. Basic and comprehensive historical collections in subject fields?
9. Rare books?

These and others must be examined before we establish priorities.

A network arrangement can give valuable assistance in solving our serious storage problems. As long as we work independently or with highly informal and indefinite exchange and cooperative programs, each library is faced with a mounting problem of storage of publications. Under an effective national network system, however, we never need to concern ourselves, since we have a continuing certainty that someone holds responsibility and will have available for us the publications whenever they are needed.

INTERNATIONAL

As our circle widens we must look toward a truly international network. The National Library of Medicine is already furnishing its tapes to special libraries in various European countries and is exploring the possibility of contracting for bibliographic and abstracting aid abroad.

We in agriculture are greatly dependent upon services from other countries in bibliographic and abstracting fields. The Commonwealth Agricultural Bureaux furnishes the widest abstracting in agriculture. We also utilize abstracting and indexing services issued by the USSR, the Netherlands, France, Germany, and Japan. The nucleii for an eventual international system will be strong national agricultural-biological libraries, or in some instances regional organizations set up to provide expanded library services. In the agricultural field highly effective regional groups are now operating in Latin America, the Scandinavian countries, the “Socialist countries,” and in Great Britain. Other elements in the eventual network will be subject-oriented centers such as the International Rice Research Institute in the Philippines, which is already serving as an international center.

Leadership for the establishment of such an international system can be expected from the International Association of Agricultural Librarians and Documentalists, the Food and Agriculture Organization, and our own National Agricultural Library.

The World Congress of Agricultural Librarians and Documentalists, held in Washington last year with representatives from thirty-five countries, recorded its urgent wish to take the first steps toward an international bio-agricultural network. Each country is as eager to share its intellectual resources as it is to call upon those of other countries. We have a need, we have an interest, and we have an enthusiasm on the part of librarians and those they serve in every part of the world. The National Agricultural Library is ready to move today in the establishment of the first phase of both the national and international networks.
Oversewing and the Problem of Book Preservation in the Research Library

Oversewing, the principal method employed by the commercial bindery, is considered in relation to the problem of book preservation in the research library, along with other methods which the writer believes to be conducive to book preservation. The economic forces that have led to the decline of binding standards, the inadequacy of such standards in terms of the research library, and the responsibility of both librarians and binders in the quest for effective means of book preservation are considered.

In his delightful and informative book, The Enemies of Books, William Blades writes of binders, “Oh, the havoc I have seen committed by binders! You may assume your most impressive aspect—you may write down your instructions as if you were making out your last will and testament—you may swear you will not pay if your books are ploughed—’tis all in vain; the creed of the binder is very short, and comprised in a single article, and the article is the one vile word ‘Shavings.’”

One of the methods employed in binding and rebinding books and periodicals for the academic library has concerned the writer for some time, and has prompted this paper. This particular method may be described by the vile word “Oversewing”; and this one word seems to be the substance of the modern commercial binder’s creed—a baleful creed, in truth, and one that should deeply concern all academic librarians.

The preservation of books is a matter of vital importance to the research library. While it is true that information retrieval systems and the numerous types of microforms may make it easier to obtain information and require less storage space in the library, in many areas of scholarship there is still no adequate substitute for the printed book. The reader with book in hand enjoys a physical and intellectual freedom that no retrieval system or microviewer can give him.

The primary purposes of this paper are to describe the basic method used by the commercial bindery in binding and rebinding materials, to point out the disadvantages of this method, and to suggest other, superior methods of binding and why it is imperative that academic librarians unite in an effort to implement these methods. In addition, an attempt will be made to explain the economic conditions that have led to the present-day crisis in binding, and the role of librarians and binders in alleviating this crisis.

Binding Methods

Joining Sections. Of all the many steps involved in binding and rebinding, per-
haps the most important and least understood is the method employed in “joining” sections or leaves. While there are numerous methods of joining, oversewing, perfect binding, and the several forms of flexible sewing are the ones usually employed by craft and commercial binderies, and will be our concern here. Two of these, oversewing and perfect binding, are similar in that the sections are reduced to individual leaves by cutting or planing the back of the book. Flexible sewing, on the other hand, retains the original sections and, consequently, preserves the original structure of the book. On that basis alone it is inherently superior to either of the other methods. It cannot be overemphasized that once a book has been oversewn or perfect-bound, its basic structure is permanently altered. A book sewn on cords may be taken apart and sewn on tapes, if need be, and vice versa. The trouble and expense would be considerable, no doubt, but it could be done. But a perfect-bound or oversewn book cannot be taken apart and sewn on tapes or cords, or, in all likelihood, rebound again in any manner.

Oversewing. Oversewing is the principal method employed by commercial binderies in sewing the greatest number of books at the lowest possible price. The oversewing process entails removal of the old backstrip, glue and sewing. This usually is accomplished by removing the covers and planing or grinding down the back of the book. The leaves are then gathered together and given a very light coat of glue. A number of leaves about two millimeters thick is then positioned in the oversewing machine and sewn by a process that drives

heavy cords obliquely into the paper. The cords coming in from over and underneath interlock and, in turn, are interlaced by smaller threads at right angles. A second group of leaves is then placed above the first and the process is repeated. The first and final few groups of leaves are sewn several times in order to impart added strength to the front and back of the book. The final result is a book with sewing of enormous strength and tightness, and little flexibility.

The shortcomings of oversewing, while few in number, are decisive:
1. An oversewn book does not open easily and will not lie flat. 5
2. Oversewing presumes the destruction of the original sections, thus making further rebinding all but impossible.
3. The oversewn book has a greatly diminished inner margin. Aside from the obvious loss of proportion, lessening the inner margin may result in damage to, or partial concealment of, plates and illustrations.
4. A book that is tightly sewn and has little inner margin is difficult to photocopy and is frequently damaged in the attempt.
5. Paper that is even a little brittle will break due to the unyielding grip of oversewing.

Perfect Binding—The Minor Alternative. Perfect binding, which was developed after years of trial and error, is a misnomer of the first order. It is not true binding at all, and is most assuredly not perfect. The book is first prepared for binding by removing the old backstrip and sewing, if any existed. The leaves are then gathered together evenly and clamped into position. The book is

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5 This is an inconvenience to the reader and, consequently, a book that does not open easily may be forced open and one that does not lie flat may be bent back in an effort to improve its flexibility. This can do irreparable damage to a book, and, indeed, may be singled out as a leading cause of the destruction of innumerable oversewn books.
then ready for the machine. The leaves are warped to one side, a warm plastic adhesive is applied, and, finally, the back is covered with a heavy mull, or backstrip. The book is then cased. Warping allows the plastic to penetrate between the leaves, the greater the warp the greater the penetration. Perfect binding does have several advantages, most of which are relative to some other form of joining:

1. A perfect-bound book opens easily and lies flat.
2. Soft, spongy paper and relatively old, brittle paper are adaptable to perfect binding.
3. Perfect binding does not cause the removal of as much inner margin as oversewing.
4. It is one of the least expensive forms of rebinding.

It also has some notable disadvantages:

1. It is not as strong as either oversewing or flexible sewing.
2. Perfect binding reduces the inner margin.
3. A perfect-bound book is difficult to rebind again.
4. There is no proof that perfect binding is permanent.

In many cases perfect binding can be an adequate alternative to oversewing. It is best suited for inexpensive books, including some paperbacks, books printed on soft, spongy paper, and, finally, books with slightly brittle paper, which are not of sufficient worth to warrant more expensive binding.

Flexible Sewing—The Major Alternative. Flexible sewing is known to have existed as early as the tenth century, and "was the foundation on which fine binding was built and developed during the next thousand years." In this paper we have used "flexible sewing" as a generic term, and, historically, this is incorrect. Flexible sewing means specifically sewing on raised bands (or cords). Over the years other methods of sewing were developed in response to different needs, including the flat spine and hollow back, partly for decorative purposes, and, even hundreds of years ago, the need for an "economical" binding. Among these methods were sewing on raised tapes (or, simply sewing on tapes), and sewing on sawn-in cords. Thus, in the honorable craft of book binding, sewing implies the use of tapes or cords, and flexible sewing refers to a particular form. But in our time, and for our consideration, with oversewing and the like to contend with, it is convenient to refer to all sewing on tapes and cords as flexible sewing.

Sewing on Tapes. It is impossible here to describe in any detail the technique of flexible sewing; therefore the descriptions of sewing on tapes and cords given herein are intended only to illustrate the basic nature of the processes, and are not to be taken as lessons in sewing. Excellent descriptions of hand sewing are to be found in Clements, Town, and Vaughan.

The book is first taken apart and prepared for rebinding. The sections are then gathered, knocked up square at the head, and marked for tape positions and kettle-stitch grooves, or kerfs, as they are sometimes called. Grooves are then sawn into the sections at the kettle-stitch markings. The sections are then sewn to the tapes, with the sewing thread following the fold (gutter) of the section and emerging at each tape so as to pass behind it. The several tech-
niques of flexible sewing are well illustrated in Vaughan.\textsuperscript{14}

Sewing on Sawn-In Cords. Sewing on sawn-in cords is similar to sewing on tapes, the principal difference being that heavy cords, which lie in grooves “sawn-in” the folded edges of the sections, are used in place of tapes. Cord sewing is easier and faster than tape sewing because the needle need not puncture the paper or traverse a tape. Its lesser difficulty, however, is overbalanced by the slightly better flexibility and considerably greater strength of tape sewing.

Sewing on Raised Cords—Flexible Sewing. True flexible sewing differs from sewing on tapes and sawn-in cords in that the cords are raised above the sections and rest against them, and the sewing thread is looped completely around the cords, instead of merely passing behind them. Flexible sewing may be done on single or double cords, the former being more flexible, whereas the latter is more durable.

A book sewn on raised cords does not have the flexibility of one sewn on tapes or sawn-in cords, despite the name given the sewing, but it is much stronger. The difference in flexibility stems from the fact that raised cord books have solid backs, whereas books sewn by either of the other methods have hollow backs, which, in conjunction with the looser type of sewing, permits more throw-up in the spine, thus allowing the book to open more easily.\textsuperscript{15} Sewing on double raised cords actually approaches even oversewing in strength, and generally exceeds it in flexibility. Genuine flexible sewing, however, is far too expensive to be considered in rebinding general stack books. This is unfortunate, for no greater tribute may be paid any book than to sew it on raised cords.

Because the cost of raised cord sewing is prohibitive, the substitute methods of sewing on tapes and sawn-in cords must be our immediate concern. Both methods are far superior to perfect binding, and infinitely preferable to oversewing. Their advantages are numerous and impressive:

1. A book sewn on tapes or cords opens easily and lies flat.
2. The sewing is strong and durable.
3. Since most of the strain is carried by the cords or tapes, there is much less danger of the paper breaking. This is very important in the rebinding of books with brittle paper.
4. The sections are preserved, thus retaining the full inner margin of the book.
5. Because the cords or tapes can be continued beyond the limits of the book proper, and extended between boards and board paper, the book is less likely to lose its covers.
6. In the event a second rebinding becomes necessary, it is easily accomplished, because the book is not at all diminished by the first rebinding.

The single disadvantage of sewing on tapes or sawn-in cords is the relatively high initial cost.

Summary of Joining Methods. The only advantage oversewing has over any other form of joining is low cost, and a library that has a collection of permanent value will find even that advantage to be of dubious merit. While it cannot be denied that the initial cost of oversewing is considerably less than that of flexible sewing, the library that really believes it is saving money by permitting its books to be oversewn simply fails to see the problem in what Hawthorne called the calmly terrible light of logic. Oversewing is strong—very, very strong—and, in fact, in the long run its great strength becomes its greatest weakness. There are but few papers that can withstand the unyielding grip of oversewing over a great number of years, and none of them is economical enough to con-

\textsuperscript{14} Op. cit., p. 31.
\textsuperscript{15} Middleton, op. cit., p. 19.
sider seriously. The typical oversewn book is so tight and inflexible that simply opening it must eventually cause the paper to break. Once that happens there is no alternative but to replace the book, because a second rebinding would be difficult, if not impossible.

To temper the stinging retorts of irate binders at this point, it would be well to mention the few situations in which oversewing does have some place in the research library. Theses and other materials not made up in folded sections do not lend themselves to many other forms of binding. In addition, a library that must provide multiple copies for one purpose or another might consider oversewing as a temporary means of preservation, the theory being that the duplicates will be used intensively for a time and then discarded. Flexible sewing is too expensive to be considered for multiple copies. On the other hand, the first copy, the one the library will keep permanently, is surely worthy of something better than oversewing.

THE STATE OF BINDING TODAY

Unfortunately, today, to a great extent, books are accorded careless treatment. They are poorly made in the beginning, handled indifferently, and miserably rebound. The responsibility for such treatment lies directly and inescapably with publishers, librarians, and binders. It is not the purpose of this paper to delve into the responsibility of publishers; that would require a lengthy paper in itself. Our concern here is with binders, who are the executioners of the book, and librarians (or, more accurately, university budget determiners) who, knowingly or unknowingly, pass final judgment resulting in that execution. Before venturing into the question of responsibility, however, we must understand clearly what the current binding practices are, why they are that way, and how they may be improved. A convenient place to begin is with the commercial bindery, and the economic forces that direct it.

The modern commercial bindery is a product both of the high-speed printing press and of the rising costs of labor. Although machine binding dates well back into the past century, it was not until the advent of cheap paper and the power-driven press that binding took a sharp turn downward. The power-driven press unleashed a flood of books into the market, and, in conjunction with rising labor costs, compelled the binder to seek more and more sophisticated machinery for binding books. Had his customers been willing or able to pay the price for hand binding, the machine might not have made such inroads into the craft, but apparently they were not; and in any event, the rise of machine binding was to a certain extent unavoidable. It was an inevitable part of that series of industrial revolutions that have been both the blessing and curse of mankind.

Competing in a free market, the commercial binder must charge the lowest possible price for his services in keeping with acceptable business practices. In order to do this, he must bind books in sufficient numbers to assure efficient utilization of his plant, capital equipment, and labor force. Since labor is unquestionably the highest priced of the factors of production, binders have been forced to develop (or copy) binding machinery of ever increasing efficiency. By investing heavily in guillotines, oversewing machines, hydraulic presses, and the like, the binder is able to reduce his labor costs to the point where he can charge a competitive price and still realize a fair profit. Other binders, too, must obey the immutable laws of competition, install high-speed binding equipment, and so bring their own prices into line. Competition, as we can readily see, is much like a seething vortex, bringing into existence faster and

more efficient machinery, resulting in lower and lower prices, with less and less emphasis on hand craftsmanship. Eventually the hand binder is priced out of the industry—at that point it can no longer be called a trade—and he must either seek employment in a bindery specializing in high quality work in relatively small quantities, or give up his profession.

These are substantially the circumstances that have brought about the binding situation existing today. And who can say it is all the binder’s fault? Within his own frame of reference, and within the limits imposed upon him by others, mechanization is entirely defensible. The binder cannot be expected to stand alone and watch his business wither away solely in the service of an ideal. The use of an oversewing machine, for example, which is the fastest and most deleterious method of sewing a book, may not be entirely to the liking of the owner of a binding establishment, but, as long as his customers must pay (or insist on paying) minimal prices for their binding, or as long as they are indifferent to—or ignorant of—the irretrievable damage being done their books, the binder has no alternative but to submit to economic forces that are largely beyond his control, and employ labor-saving devices. No, the binder, while by no means entirely blameless, is more an accessory after the fact in the evil process of oversewing.

STANDARDS

The question fundamental to this discussion is whether or not the standards imposed on the commercial binder are adequate to insure the preservation of books in the research library. They may well be adequate for the public library, the school library, or the special library. But are they adequate for the research library? There is mounting evidence that they are not. The ruling philosophy of the research library is, or should be, that a book is acquired with the intention of retaining it forever. In the over-all sense, there is no such thing as a worthless book in the research library. Whether or not, in fact, they are retained permanently does not detract from the philosophy of permanence. This being the case, it becomes obvious that the binding standards for a research library must be oriented towards preservation in the long run. Proper binding alone cannot guarantee preservation, but it can and should be of a quality that will enable it to preserve the book as long as possible.

RESPONSIBILITY

Proper care and preservation of books is of vital importance if the academic library is to continue as the principal preserver of man’s accumulated knowledge. The unhappy day may come when the book is no longer essential; but that day is not now, nor is it in the foreseeable future. The truly maddening thing about the inadequacy of book preservation today is that the methods of effective preservation are known and have been known for centuries. What, then, stands in the way? Is it simply the low cost of oversewing as opposed to the relatively high cost of sewing on tapes? Is it the error of attempting to fit the requirements of one type of library to another type of library? Is it that the craft of bookbinding is so far along the road to oblivion that not enough craftsmen can be found who are able or willing to bind books properly, and that the present binding situation will persist until a satisfactory flexible sewing machine is designed? Let us examine each of these possibilities.

Sewing on tapes costs more than over-
Sewing, that is true; but it would seem that its undeniable superiority would warrant the added cost. A university that can afford to lavish tens of thousands on a pet project can surely afford to spend as much to preserve its book collection. If money is the only barrier, let it be remembered that we are not alone in this; the scholars of a millennium will praise us or condemn us for what we do now. Judgment, to be sure, must be exercised, for not every book is worth sewing on tapes. But, where possible, all are worthy of something better than the guillotine and subsequent oversewing.

Were the superiority of flexible sewing slight, or even only moderately great, one might understand its neglect; but the difference literally is between preservation and destruction. The decision should be between perfect binding and flexible sewing, and not between oversewing and nothing. An interesting analogy in this matter of cost can be drawn between superior binding and automated systems in libraries. When a particular automated system is proposed, it is usually pointed out that it can do more for the library than the old system, or that it can do better the things the old system was capable of doing. Seldom is it denied that the new system will cost more; it should cost more if it has more to offer. Why cannot the same argument be applied in the matter of binding? Flexible sewing costs more, but it has more to offer: a great deal more. It offers the preservation of the book collection!

The present binding standards seem more applicable to those libraries that do not have, and have no intention of maintaining, historical collections. A library that discards old editions in favor of new editions, that does not intend to keep more than say five years of a periodical title, or that weeds its collection of uncirculated books is in no way similar to the research library—academic or public. The binding requirements of the two are entirely different and their standards should and must be different.

It is sometimes said that even if librarians were able to pay for superior binding, the commercial binderies would not be willing to make the shift from machine to hand sewing. This is sheer nonsense. Providing they are able to realize a fair return on their investment, there is no reason why binders would be unwilling to cooperate. It would take time to amortize the percentage of machines that would no longer be needed, but this represents no insurmountable problem. It is also said that even if the money were available, not enough craftsmen could be found to meet the demand. Barring an over-all shortage of manpower, this simply is not true. A fairly long period of apprenticeship would be required to turn out the necessary journeymen, but the labor market is not so inflexible that workers could not be attracted in sufficient numbers, providing money was really available to allow charges for binding that would include a fair wage and just profit. Unfortunately, this “fair wage” would probably be so high as to make hand binding impractical, if not impossible. The crux of the matter, as always, is money. It can be spent for this, or it can be spent for that, but apparently it cannot be spent for both. So be it.

Assuming both money and manpower to be in short supply, and therefore hand binding out of the question, could a workable machine be designed that would sew books on tapes? A machine does exist that can sew on tapes, but it is limited in usefulness by being more or less restricted to a very narrow range of book sizes. The number of tapes on which a book must be sewn varies di-

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18 This is now under study. See Gladys T. Piez, “Library Technology and RTSD—Goals in Common,” Library Resources and Technical Services, X (Winter 1966), 16.
rectly with the length of the book. A volume five or six inches high may be sewn on two tapes (although three would be better), but one eight, ten, or twelve inches high must be sewn on three, four, or five tapes. What is needed is a machine that can sew a variety of book sizes on a varying number of tapes.

Fortunately, a number of responsible librarians are aware and do care about the problem of book preservation. But the interest of many more librarians is needed. Awareness is essential to progress, and those who do not know must learn. The binders cannot be expected to initiate the necessary changes, and it would be unfair to expect it of them. If enough librarians demand high standards of binding, eventually the money will be made available, the machines will be designed, and then, perhaps, there may still be hope for the book.
Can Machines Teach the Use of the Library?

The library at Mt. San Antonio College has experimented with the use of machines in teaching library usage to patrons. Five Videosonic machines were programmed to teach general information on the library and to give instruction in the use of periodical indexes and of card catalogs. Controlled study indicated that students who utilized the machines used the library more efficiently and sought services from staff members less frequently than students who did not utilize them. Despite several mechanical limitations, increased use of teaching machines for this purpose is indicated.

To give maximum assistance to the college student as an individual, is becoming increasingly difficult with the greater demands of larger enrollments in the junior colleges. Yet doing so is now more important that at any other time in the history of colleges and universities. It was for this reason that in 1963, the librarians and administration at Mt. San Antonio College began examining more closely the library orientation program.

A variety of traditional techniques combined with innovations had been used and improved each semester to acquaint new students with the library. The tour, illustrated lectures, informal question-and-answer periods over a cup of coffee, special lectures in the classroom, the generalized handbook, the specialized handbook, were but a few of the techniques used. Inevitably, when the time of reckoning arrived as students began actually to use library materials in context, follow-up was necessary. The peak periods appeared always to have certain points in common. Repetition, hour after hour, in answering mechanical routine questions on the use of materials, involved much directional and locational information. The same questions requiring the same answers in the explanation of very elementary techniques of library usage became the order of the day.

It appeared that some type of mechanical device might be able to answer the routine questions satisfactorily, and it was for this reason that the possibility of using the teaching machine was explored. A primary question, however, was: What media would be the most effective? Visual, audio, a combination of audio and visual, or audio and visual combined with a response in a multiple choice mode?

The discovery of a unit which appeared to provide all three of these requirements stimulated the request to the Council on Library Resources for a grant to study the performance of a teaching machine in the instruction of library usage. The machine suggested was the “Videosonic,” Model 102B500, which was expected to be ready for production by Hughes Aircraft Company, Videosonic Systems Division, in
the Fall of 1964. The grant which was received made possible a study from July 1, 1964, through June 30, 1965. An unforeseen delay in delivery of the units from the factory until January 1965, however, shortened by one semester the time allotted for the research. The college received the first machines from the production line, bearing serial numbers one through five, barely in time for their use at the beginning of the second semester.

In anticipation of the delivery of the machines, six weeks of intensive programming was undertaken during July and August preceding delivery. The librarians selected to write the script were chosen from the reference department. Each was asked to work alone at the beginning of the project, to incorporate the questions and answers which seemed the most important to his area in the previously established patterns involving assistance to students. Since each librarian represented one of four subject libraries (social sciences, humanities, biological and applied science, physical science and technology) variation in the subject range of questions was possible. Material was then combined, evaluated, and the best suggestions were selected for the final script. As might be expected, there was not unanimity among the librarians because of the differences in subject areas, and two separate scripts were finally written, one for social sciences-humanities, and one for the sciences.

Scope of the Study

Three areas were selected for the initial study: (1) general directional information in the use of the library; (2) specific routine directions in the use of periodical indexes; and (3) specific directions in the use of the card catalog with emphasis upon subject headings.

It was interesting to observe the framework of criteria which began to evolve as the project progressed. Having no rule of thumb to follow, it was generally agreed that programs should be kept short and limited to less than twelve minutes per subject. Information should be clear and concise, direct and adaptable to graphic description. Questions and answers should be used via the multiple choice mode at determined intervals. There should be enough variation within the program to hold the interest of the student. Selection of examples should be simple, clear, and relative to subject matter familiar to the student. Opportunity for response to the selection of answers to problems should be interspersed to test the student for his own direction and satisfaction.

With only five Videosonic units available, it was necessary to determine the distribution of the material for the machines. It was decided that one machine would be allocated to the central lobby available to students as they entered the building where they would be most likely to seek general information and assistance. One would be placed in each of the four subject libraries near the index tables and catalogs.

The machine in the central lobby was therefore programmed to answer general, directional questions. Those for the separate subject libraries were concerned with the use of periodical indexes and the subject catalog. As was previously mentioned, variations appeared to satisfy two major subject areas, social sciences-humanities, and the sciences.

Tape recordings were made using the question and answer method. Both a man’s and a woman’s voice were used to give variation. Colored slides were produced by the audio visual librarian to develop the script graphically.

At this point it is appropriate to describe briefly the machines themselves. They are compact, mobile units. The net weight is twenty-three pounds, the width 12½ inches, the height, 10½ inches, and
Can Machines Teach the Use of the Library?

They can easily be placed on a standing height card catalog reference table near an electrical outlet. A viewing screen in the front of each unit, 8½ inches x 6 inches, allows the viewer to see the 35mm projected slide. The choice of a headset or speaker permits the user to hear the tape recording which is synchronized with the slides in response to a low level tone, recorded on the tape. Slides progress automatically when the switch is turned on, except when the Multiple Choice Mode is used, at which time the user presses the “answer” button from a series of three alternatives. When the correct answer is given, the slides progress in sequence. The Airequipt magazine holds thirty-six 35mm slides.

**Range of the Experiment**

From the time the machines were installed until the completion of the experiment critical observations were recorded. Each staff member was charged with the responsibility of objectively reporting reactions of the students.

The first question of concern was: Would students notice and use the machines? They were used almost immediately after they were placed in the specified areas. Reports indicated that some of the usage stemmed from curiosity at the beginning, but that soon they were consulted for information. It appeared that students were less embarrassed to ask a question or reveal their insecurity when they could impersonally consult a mechanical device.

It was expected that after the first six weeks of the semester usage of the unit programed for “general” information would diminish and that this machine might then be programed to the more specialized information relative to the periodical indexes and the card catalog. Although usage declined, there was enough demand to warrant keeping one machine available throughout the semester for general information. In fact, the usage in the lobby the following semester made it necessary to keep at least two machines available. As the librarians began to rely on the use of the programed machines and developed a pattern of referral to them increased usage apparently resulted.

To determine more specifically how effective the machines might be, some rather simple controlled experiments were designed. Three sociology classes were selected. Two classes visited the library for a special lecture in the use of library materials. The Video sonic machines were available for assistance over and above the lecture. The third class neither came to the library for the orientation lecture nor used the Video sonic machines. A quiz consisting of twenty-five questions was designed to test the students and was given to all three classes.

Of the sixty-nine students visiting the library, twenty indicated that they had used the Video sonic machines. A study of the scores of the twenty students in comparison with those who did not use the machines showed that staff assistance was apparently needed less. For example, as is shown in Table 1, in answer to the question, “How did you know in which library you would find the book?” 57.1 per cent of those who indicated

<table>
<thead>
<tr>
<th></th>
<th>Sought information from staff member for library location (per cent)</th>
<th>Sought information for location of book (per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students using Video-sonic</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>Students who did not use Video-sonic</td>
<td>57.1</td>
<td>2</td>
</tr>
<tr>
<td>Students who neither had library lecture nor Video-sonic</td>
<td>67.7</td>
<td>6.4</td>
</tr>
</tbody>
</table>

TABLE 1
they did not use Videosonic said that they had asked a library staff member for information, whereas only 30 per cent of those who used Videosonic said that they had consulted library personnel. Of those who neither visited the library during the orientation lecture nor used Videosonic, 67.7 per cent indicated that they had asked a staff member for information. In other words, those who had the opportunity to gain information independently from the lecture and teaching machine apparently used less staff time in completing their assignments, an actual gain of 37.7 per cent.

The staff was very much aware of the fact that a sampling from a study as limited as this may not be conclusive or consistent. An examination of Tables 1-4, however, shows certain patterns of consistency which might encourage the use of such mechanical aids.

Further experimentation and observation will be important in answering many significant questions. For example: Would the machines be more effective placed in a separate room, such as a conference room, rather than close to index tables and the catalog? (One student commented that he would prefer being isolated while using the machines in order to concentrate better). How many machines would be needed in a library for effective use?

Many advantages can be readily detected in the use of a machine which is adaptable to various needs and situations. Programs can be changed to meet new demands by recording new tapes and using different slides, or by changing the sequence to fit the needs. It is not restricted to a specific type of library. Although this study was used in the junior college library, the effectiveness could apply to any institution. It can take the place of, or supplement, more elaborate mechanical systems such as closed-circuit and dial-access computerized systems. Its use is not limited to the library patron. It could also be programmed to train staff. For example, library pages could easily be instructed by its use, thus saving staff instruction time for routine directions. It could review staff duties for substitute personnel in cases of absence of regular staff. In

<table>
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<tr>
<th></th>
<th>Located information by use of author-title catalog (per cent)</th>
<th>Located information by use of subject catalog (per cent)</th>
<th>Located book by asking a staff member (per cent)</th>
<th>Went directly to book stacks without consulting catalog or staff (per cent)</th>
<th>Used location stamp on card in catalog (per cent)</th>
<th>Did not locate (per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students with lecture and &quot;Videosonic&quot;</td>
<td>50</td>
<td>35</td>
<td>20</td>
<td>5</td>
<td>50</td>
<td>5</td>
</tr>
<tr>
<td>Students with lecture only</td>
<td>28.5</td>
<td>36.7</td>
<td>6.1</td>
<td>0</td>
<td>40.8</td>
<td>28.5</td>
</tr>
<tr>
<td>Students who had neither lecture nor &quot;Videosonic&quot;</td>
<td>45.1</td>
<td>22.5</td>
<td>3.2</td>
<td>3.2</td>
<td>29</td>
<td>35.5</td>
</tr>
</tbody>
</table>

Note: Variability in findings is shown by this chart. The most desirable answer would have been to use the author-title catalog and then to observe location stamp on card. Students using "Videosonic" performed better in using author-title catalog and in observing information stamped on card, but in this instance more who had used Videosonic consulted a staff member than did the other groups, as contrasted with information in Table 1, where students using Videosonic consulted the staff members less than did the other groups.
Can Machines Teach the Use of the Library?

TABLE 3

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<thead>
<tr>
<th></th>
<th>Searched catalog under “T” (per cent)</th>
<th>Searched catalog under “O” (per cent)</th>
<th>Searched catalog under “S” (per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students with lecture and</td>
<td>0</td>
<td>65</td>
<td>15</td>
</tr>
<tr>
<td>Videosonic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students with lecture only</td>
<td>18.3</td>
<td>55.1</td>
<td>22.4</td>
</tr>
<tr>
<td>Students with neither lecture nor Videosonic</td>
<td>19.3</td>
<td>58.6</td>
<td>16.1</td>
</tr>
</tbody>
</table>

Note: The specific example programed on Videosonic was The old man and the sea. Apparently students using Videosonic were 7-10 per cent more efficient in their performance than were the other groups.

In other words, as a time-saving device it can be effective in many situations.

LIMITATIONS

There are, however, noticeable mechanical limitations which should be eliminated for better usage. The fact that it is a mechanical device, subject to mechanical failure, is the first hurdle with which to cope. Any device which is expected to perform from the time the library opens until it closes must provide certain features. Its component parts must withstand continuous operation. The Videosonic machines which were used in this experiment were not designed for this type of use, and as a result an electronics technician was continually being called to correct overheating of the unit, worn belts, and jammed programs.

Second, the number of control buttons on the panel necessary for operation frequently caused one of two problems: either they frightened the patron away because they looked too complicated, or they invited the mechanically inclined student to experiment by pressing buttons out of sequence. For a machine as sensitive as this one is to sequential activation, such usage is disastrous. To add to the problem, if the student did not report the fact that as a result of his experimentation the machine was not functioning, other patrons were unable to use it when they wished, and sometimes they would not bother to report either that it was not operating.

These problems can undoubtedly be solved by certain changes in the engineering design of the unit and certainly should be corrected for library use.

A greater problem, and one which will be expensive to correct, is the synchronization of tapes with slides for pattern retrieval. As now designed, each unit is limited to one program. The library patron, on the other hand, is not interested in moving from machine to machine in order to have answers for various subjects. He would like to be able to dial a number as simply as the telephone, on one unit, and receive either a quick answer to a specific question, or a more lengthy explanation for a procedure as occasions arise. What

TABLE 4

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<tr>
<th></th>
<th>Percentage of error relative to charge desk information (per cent)</th>
<th>Percentage of error relative to use of typewriters (per cent)</th>
<th>Percentage of error relative to use of storage lockers (per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students with lecture and</td>
<td>0</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Videosonic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students with lecture only</td>
<td>16.2</td>
<td>6.1</td>
<td>32.6</td>
</tr>
<tr>
<td>Students with neither lecture nor Videosonic</td>
<td>9.6</td>
<td>6.4</td>
<td>22.5</td>
</tr>
</tbody>
</table>

Note: With respect to general information about services within the building, the percentage of error for those using Videosonic was less with one exception (information regarding use of typewriters) than other groups.
the profession needs is a miniature, packaged, self-contained dial retrieval unit which can be placed in any part of the library; in other words, an inexpensive substitute for the more costly dial access installations, which will perform in accordance with library needs, and in addition will maintain the features of a teaching machine with the Multiple Choice Mode whereby the patron can evaluate his response in a learning situation.

At present the unit cost of the Video-sonic Model 102B500, which runs close to $700, will no doubt limit the number that will be obtained in the average library. Again, to be effective, patrons should not have to wait in line for a machine to answer their questions.

In spite of the mechanical limitations described, the principle of involving a mechanical device to relieve staff time of mechanical and repetitious answers is sound. Mt. San Antonio's technician is not discouraged, but rather he believes that experimentation with redesign or modification of this model, or the engineering of a new unit with a slightly different approach, might achieve the desirable results.
Academic Librarianship in Three Education Journals

In an attempt to determine the profile of academic librarianship presented in the periodical literature of higher education, articles on the subject were sought in three journals: The Journal of Higher Education, Liberal Education, and Higher Education. The first two each carried an average of 1.25 such papers annually, but Higher Education published somewhat fewer. Inadequate support, status for librarians, and poor institutional cooperation have been well presented, but the ninety-four papers found were repetitious. The author concludes that: 1) a mixed picture of librarianship results; 2) such papers are due more attention than they have had within the profession; and 3) librarians should write more for non-library journals.

Librarians sometimes feel that the rest of the academic world has had little awareness of the tremendous changes that have been taking place during the last few decades in the field of library service. Perhaps they are right, but the question arises—Have librarians made a serious attempt to communicate with others about their profession? More specifically, what sort of picture of librarianship has been presented to educators in the periodical literature of higher education? In the hope of supplying a partial answer to these and similar questions, a search was made for articles on academic librarianship in three of the best known journals devoted to college and university education: The Journal of Higher Education (vols. 1-36, 1930-65), Liberal Education1 (vols. 16-51, 1930-65), and Higher Education (vols. 1-20, 1945-64).2

1 Prior to 1961 Liberal Education was known as the Association of American Colleges Bulletin.

Mr. Holland is Chairman, Department of Library Science, Appalachian State Teachers College, Boone, North Carolina.

The Journal of Higher Education, appearing nine times a year, published a total of forty-five articles on libraries and librarianship in thirty-six years, or about 1.25 articles per year. This does not include, however, the excellent series of review articles by Maurice Tauber which have been appearing three times a year since April 1962. The forty-five articles have been written by forty-four different authors (including two "joint authors"), with only Carl M. White, Guy R. Lyle, and Robert Lightfoot, Jr. contributing more than one each. Eight authors (18 per cent) were not librarians: they were either professors, academic administrators, or members of other professions. The number of articles on librarianship published during a single year ranged from zero to five. Fourteen articles appeared during the decade 1930-39, eighteen during 1940-49, and ten during 1950-59.

During the same thirty-six year period Liberal Education, a quarterly, published a total of forty-four articles, written by thirty-six authors of whom nine (25 per cent) were non-librarians. Henry W. Wriston furnished four articles, and William Warner Bishop, Harvie
Branscomb, Stith M. Cain, Robert M. Lester, and Rodolfo O. Rivera two each. The annual production for this journal also ranged from zero to five. Twenty-two articles appeared during the 1930’s, nine during the 1940’s, and eight in the 1950’s.

Higher Education, published monthly during the school year by the US Office of Education, ceased publication with the issue for June 1964. It was essentially a carrier of news, notices, and reviews rather than a repository of articles, so that during its lifetime of twenty and one-half years it published only five full-scale articles on librarianship (about one article every four years). These were substantial articles however, including two by Willard O. Mishoff on library education (1948, 1952), an analysis of academic library statistics by Theodore Samore (1963), an article on library buildings by Ralph E. Ellsworth (1949), and one on the Midwest Interlibrary Center by Ralph T. Esterquest (1950). Since three of the five articles were written by library specialists at the Office of Education, the publication was obviously not a good outlet for articles by other librarians.

The Journal of Higher Education and Liberal Education have published almost the same number of library articles between 1930 and 1965. But Liberal Education, being published less frequently, must be judged the more generous in its space allotment. It has also seen in its pages more support of librarianship by non-librarians. On the other hand, The Journal of Higher Education has allowed a more consistent coverage year by year. The late Charles C. Williamson, one-time dean of the Columbia University school of library service, was a member of its editorial board from the very beginning of publication. Mae-

8 Higher Education has been superseded by American Education which began publication with an issue for Dec. 1964/Jan. 1965.

rice Tauber, Melvil Dewey professor of library service at Columbia, now serves as a corresponding editor.

The following list indicates, by means of rough (and in some cases arbitrary) groupings, the approximate rank order of subjects covered by the ninety-four articles:

Educational Functions of the Library:

JHE—Cowley 1936; Danton 1937; Lyle 1941; Hoole 1943; Mattis 1952; “One Who Knows” 1953; Wilson and Samson 1955.

LE—Gilchrist 1933; Hammond 1936; Bishop 1937; Wriston 1937; Branscomb 1937; Branscomb 1939; Lester 1940; Park 1946; Land 1946; Schulze 1948; Rush 1950; Knapp 1960; Chen 1960.

Reader Services (mostly instruction in use of the library):

JHE—Smith 1936; White 1937; Fenton 1938; Meyering and Pierson 1939; Wilde 1940; Seeger 1941; Garloch 1942; Young 1942; Schindler 1943; Buechler 1958.

LE—Wriston 1937; Jones 1946.

Librarians (including education, status, personal qualities):

JHE—Wilkins 1934; Falley 1937; Rossell 1940; Thompson 1943; White 1945.

LE—Snavely 1937; Diehl 1955; Vosper 1957.

HE—Mishoff 1948; Mishoff 1952.

Faculty and the Library:

JHE—Waples 1930; Barksdale 1942; Baker 1948; McMullen 1954; Lightfoot 1959; Lightfoot 1960.

LE—Wriston 1931; Wriston 1932; Barnett 1959.

Technical Services (selection, acquisition, cataloging of materials):

JHE—Brown 1931; Donohue 1942; Jackson 1943; Tauber 1961.
Librarians—and occasionally colleagues among faculty and administration—have attempted to depict academic librarianship with a commendable regularity and persistence. Such perennial problems as inadequate support, lack of academic status, and insufficient cooperation have been attacked with conviction and candor. Also on the positive side, it should be pointed out that the majority of the articles are straightforward, serious, and practical in their approach, with almost no attempts to ascend into rarefied, over-speculative atmospheres. Many of the articles are well written from the standpoint of both organization and content.

On the negative side, it must be confessed that the picture of librarianship offered by the ninety-four articles is repetitious. The academic world must surely be tired of hearing that librarians are educators and not mere custodians, that most students need instruction in use of the library, and that assignments of inconsiderate professors cause headaches for reserve book librarians. The (apocryphal?) college president who first proclaimed the library as the "heart of the college" should henceforth be anathema to librarians because of the endless series of remarks he thereby produced. Other clichés have become equally tiresome. Some of the articles are unbearably dull, particularly those that try (with varying degrees of success) to cover the entire field of librarianship. Far too many are dyspeptic in tone. Only those by Ellen Jackson, Robert Lightfoot, and Haynes McMullen stand out for their successful attempts at humor.

Three conclusions are in order.

First, the picture has been mixed. The spirit ranges from the apologetic to the defiant. A fairly wide variety of topics has been covered, but many vital areas of librarianship have been either poorly presented or ignored altogether. Others have been overworked. Although there have been numerous articles on instruction in use of the library, a non-librarian
who read all ninety-four articles would still have little comprehension of such basic things as library circulation and reference work. Much still needs to be said about such topics as the intellectual delights of work in the profession, the problems inherent in the classification and other organization of information, the challenges and opportunities afforded by newer media of communication, the solid developments in library technology, and the very bright prospects for the future.

Second, library school students must learn to include education journals in their searches and studies. Outstanding librarians have contributed to them. Non-librarians writing on library topics often provide freshness and perspective.

Third, librarians should publish more in education journals. It is obvious from even this short survey that such articles are welcomed by editors. They should be written without benefit of either esoteric jargon, martyr complex, or obvious chip-on-the-shoulder. Educators do not have time to read library journals; librarians have a responsibility to place articles where the educators will be reading.
An IBM 357 Circulation Procedure

This paper describes an IBM 357 circulation system for a medium-sized university library. Equipment needs are enumerated, necessary procedures are outlined, conversion requirements are delineated. The occasional need for integrated manual input is taken into account, and problems of cost are discussed. The role of a 357 program in a totally automated system is also commented upon.

The aim of this paper is to describe and comment upon the use of an IBM 357 system in a university library circulation procedure, in terms of planning, installation, cost, data processing routines, and circulation procedures.

Certain factors are assumed at the outset: first, that the university library in question has a collection of seven hundred thousand volumes and an annual budget of $1 million. Second, that punched student identification cards are already in use on campus; and finally, that shared time is available on a university-owned and -operated computer. System costs would rise sharply if the expense for either of the latter two items were to be borne by the library.

The 357 system is expensive to install and relatively so to operate, but once established it is rapid and accurate. It virtually eliminates the most notorious causes of error and disorder in a library circulation file—hand filing and pulling of cards and repeated transcription of call number information—since call number and borrower information are reproduced automatically from punched system inputs. Borrower participation in the charging process is, of course, completely eliminated.

One theory is that the cost of automation will at some point prove less expensive than continuing a manual system. This thesis is heartily endorsed by data processing firms, but since no automatic system has operated over a long enough period to make accurate cost comparisons, it remains a moot point.

In terms of service, however, there is no doubt that this system is superior to any manual or semi-automated procedure; it permits a volume of operation which would cause a manual system to break down. Therefore, accuracy, speed, and increased service, rather than economy, are benefits which may be anticipated from its installation.

The system is expected to provide certain end products: an accurate circulation file in correct call number order; rapid updating of that file; automatic processing of overdue books; capability to "hold" a book which was circulating when requested; and preparation of whatever library statistics are desired. As a corollary to these end products, there is access to the circulation file by borrower identification number, call number, or date due.

The components of the 357 configuration are as follows:

- 357 input station, model 6. Student badge and book card accepted as input. Its brushes sense the punch marks in the master book card and identification badge and convert them
into electrical impulses which are transmitted to the 358 control unit. It also sends date-due information from the 374 cartridge reader.

358 control unit. The little black box which acts as liaison between the input station and the 026 keypunch.

374 cartridge reader. Provides variable due date information. It accepts little square cartridges, each with numbers which slide up and down and can be locked in place. The cartridges fit into a slot in the upper portion of the 374. To change a due date, the old cartridge is slid out and the new slipped in.¹

026 keypunch. By grace of special controls, it accepts electrical signals from the 358 control unit and translates them into impulses which cause punches to be made in blank IBM cards.

In addition, an off-line computer is needed to update the circulation file and to process overdues. Punched card equipment could be used, but it is cumbersome, inefficient, and expensive.

The system accepts two inputs, the borrower identification badge and the master book card. The borrower card is made of plastic and is the size of a gasoline credit card. It contains a photograph of the borrower, his name and identification number printed in embossed machine readable language, and the identification number in machine language (punched). The identification number is the borrower's social security number prefaced by a single digit which identifies him as student, faculty, faculty spouse, staff or special borrower. Where possible identification cards should be produced by a central university office, not by the library. This spares the library the time and expense of processing one more document; besides, the ID cards can be used for other university purposes. The cards are of two types, permanent and temporary. Temporary cards have expiration dates stamped on their faces. Permanent cards are to be validated each semester or accompanied by a document which proves the current status of the borrower. Unless the card is valid, the borrower may not charge books.

The master book card is a plastic-coated IBM product; it contains the complete punched call number of the book, as well as signal punches which activate the card reader, badge reader, and cartridge reader and a check digit designating a valid transaction. The call number is printed at the top left of the card so that the circulation attendant may spot check it against the book in hand.

System output is dual: a yellow charge card which is retained by the library, and a pink return card which goes with the book and serves to remind the student of the date due. Each of these cards has punched into it the call number of the book, borrower identification number, date due, a validation punch, and a card identification punch.

**Conversion to 357 System**

Assuming that punched student cards are already in use, the first, most time-consuming, and most costly procedure is preparation of the master book cards. This should begin at least a year before the system is expected to begin operating. If the book cards are ready sooner, the system can begin operating earlier.

The first step is to code each shelf-list card onto a special sheet which can be mechanically scanned by a mark sense device. This coding may be done by student assistants. The sheets are

¹ The 372 manual entry keyboard may be used as an alternative to the 374. It rents for only $16.00 per month, as opposed to $20.00 for the cartridge reader plus $4.00 for each cartridge. The date due is set by screws under the face of the machine which must be reset each time the date due changes, making it impractical to have more than a single due date for all borrowers.
marked with machine readable pencil, circling the proper letters and numbers, and utilizing as many cards as necessary to differentiate between similar volumes with different dates, years, etc. The first card is filled in completely. Cards two through eight are numbered sequentially and left blank down to the appropriate spot (volume number, date, or part). After the sheets are complete they are marked sensed and a tape is produced from them. The tape is returned to the university and the university computer punches the book cards directly from it. The information has been recorded only once, drastically reducing transcription errors.

After the book cards have been punched they must be inserted in the books, producing the somewhat mixed blessing of a complete inventory. If a volume cannot be located the shelf list should be consulted; either the number has been coded incorrectly or the volume is missing.

Concurrently with preparation of the book cards an initial effort should be made to acquaint the staff with the new system: why it is being installed, etc. This will give staff members opportunity to offer constructive criticism before the system becomes operative.

Data processing programs should be developed during this period so that there will be ample time to review and revise them. Space requirements will also need to be examined and if necessary the location of the circulation area changed. For a library of this size at least four input stations are necessary. They may be set up as two systems, each system consisting of two input units back to back, joined by a 358 control unit and connected to an 026 keypunch. None of these machines is undersized and each needs a free work and repair area around it.

The machines are connected to each other and to a main transmission line by cable. Each station requires a 115 volt, 60 cycle, single phase power receptacle, grounded. As well, each cable connection to the main transmission line requires a junction box. A certain amount of cable is supplied by IBM. The library provides the rest in addition to the main transmission line, the electric outlets, and the junction boxes. All of the cabling and electric work must be installed and tested before the machines are installed.

Finally it remains to train the circulation staff in its new procedures and to review the system in detail with the entire staff. The system is then ready for operation.

**Circulation Procedures**

To charge a book, the student badge is inserted into the “badge read” portion of the 357 input station, the book card is placed in the “card read” portion of the same unit, and the correct cartridge is slipped into the 374 cartridge reader. With luck, the “in process” light will come on and transmission will begin. If the “repeat” light comes on, either the date due was not inserted properly, the keypunch is not ready to receive (no card in “read” position), or the keypunch stacker is full and needs to be emptied. If these three possibilities are investigated and the machine still does not work, it is time for a call to the IBM adjustment engineer. As the transmission is successfully completed, two cards are punched automatically by the 026 keypunch. The return card is placed inside the book with the master book card while the charge card may be left in the 026 stacker temporarily. Later these cards are dropped into the day’s circulation file, in no particular order. The borrower identification badge is returned to him with the book.

To discharge a book, the circulation attendant merely removes the return
card, drops it into the “return” file, and the book is ready to be shelved.

Each evening the circulation file is taken to data processing, where it is arranged in call number sequence by the computer. Overdues are prepared simultaneously, either daily or at X intervals. The outstanding file is processed, and the date on each card is compared with the current date. If the due date is earlier, the volume is overdue and that record is written onto a separate overdue tape. At the same time the computer causes an asterisk to be printed at the end of the original tape record. A second asterisk on the tape causes a phrase to be added to the overdue notice, “final notice; your next notice will be a bill.” The overdue tape is next matched against the appropriate address file (determined by the first digit of the borrower number), the fine is computed, and the notices are printed on continuous post-card stock, stamped, and mailed.

If the charge record already contains two asterisks, showing that two overdue notices have already been sent, a fines notice is processed and sent. Fines notices are produced in triplicate; one copy is sent to the borrower, one to the university registrar or controller, and the third to the library, where it is filed at the circulation desk by borrower number. When the fine is paid, that card must be pulled by hand and sent to the university authority to clear the student’s record.

When overdue books are returned and their fines paid at the desk, those return cards are held in a separate file. They are delivered separately to data processing each evening to be gang punched (an X in column 79) showing that their fines have been paid. The computer will not print fines notices for these volumes. If a book is turned in and a fine is not paid, no attempt is made to find out if it is overdue. The computer will automatically process the record and prepare the proper control cards.

**Manual Charges**

If the item circulating is not classified or if its master book card has been lost, it will have to be charged manually. For this purpose a manual charge set is used consisting of two parts, an original slip and a card-stock carbon. The form contains a space for the borrower name and identification number, date due, title and, if necessary, the call number of the book. Student name and number are imprinted on the charge set from the printed portion of the identification card by an electric Dashew machine. The date due and other information are filled in by hand.

If the item is unclassified (record, periodical) the title is written in the left hand portion of the charge set. The original slip is placed inside the item as a return slip. The card stock carbon is filed separately and sent to data processing each evening, to be punched and filed by title. This assures that overdue notices will be sent for non-classified items. When the item is returned its slip is removed, filed separately and sent to data processing, where a return card is produced to cancel the charge card and tape record.

If the item is classified and its book card is missing, the right side of the form is filled out—with the complete call number of the book. The left side (title) is left blank. The original slip goes with the book as a return slip; the card stock carbon is sent to data processing, which punches a new master card, a charge card, and a return card. The charge card is interfiled mechanically in the regular circulation file; the return card and master book card are filed together in a separate file specifically for cards of this type. When the book is returned, these cards must be hand pulled, the new master book card inserted in the
book, and the return card sent to data processing as usual to clear the charge card and tape.

**PERSONAL RESERVES**

When a borrower wishes to request a book which is charged out, he places a hold on the book at the circulation desk by filling out a manual charge set with his name and address, the call number of the book and the notation “hold.” The original slip of the charge set is either given to the borrower or discarded and the card stock goes to data processing, where it is matched against the record; “hold” is noted on the record by a special identifying punch. When the book is returned, those charge cards which have “hold” punches are sorted out separately and returned immediately to circulation. The book is retrieved, and the borrower is notified by the circulation staff that it is being held for him.

**COURSE RESERVE**

If reserves and circulation are combined, the same machines and personnel can be used for both. The merger goes hand in glove with an attempt to cut down on the number of books placed on reserve. Reserve books are numbered serially, 1-x. as they are processed for the reserve shelf. The borrowers request them by reserve number, which is obtained from IBM printouts, one set by author, another by professor. In charging reserves, the Dashew machine is used to imprint borrower information and date due; the number of the reserve book is printed by hand on the charge card (virtually any type of card will do) and the cards are filed by reserve number in a small file kept at the reserve section of the circulation area.

**PROJECTED COST**

It is virtually impossible to make a meaningful estimate of how much it will cost to put this system into operation. The most expensive element is preparation of the book cards, which is performed by student assistants; their wages will vary according to the location of the library. In addition, the salaries of circulation employees and of forms must be costed. Each individual library will have its own peculiarities; some items will be less expensive than expected, others much higher. Southern Illinois University library, which installed a 357 system, estimated that it cost $40,000, excluding salaries, to develop. The only really firm figures are machine rentals and IBM card costs:

**MACHINE RENTAL:**

- 357 input station, model 6 . . . . $35.00 per month
- 358 control unit . . . . $79.00 per month
- 207 cartridge reader $20.00 per month
cartridges, each . $ 4.00 per month
- 026 keypunch . . . . $60.00 per month
with necessary . . . . controls, additional . . . . . . . $30.00 per month

**IBM CARDS:**

$1.05 per 1,000 for quantities of 20,000 or more, printed on one side, any color.

Assuming circulation averages 1,500 per day: 3,000 cards per day 90,000 per month; $90.00 per month = $100.00 per month, minimum.

**357 SYSTEM IN THE CONTEXT OF A TOTALLY AUTOMATED SYSTEM**

“Integrated data processing” describes a system which tries to eliminate duplicate processing steps by capturing bibliographic information only once, at the time the item is ordered, and updating it as necessary.

A computer record would be created when the book was ordered; this record would be changed as bibliographic information was completed, a call number was assigned, etc. It would also
serve for circulation purposes: instead of scanning a card file to see if the book were charged the computer could be queried. This procedure would be immeasurably faster than the system herein described, unbelievably accurate, and staggeringly expensive. To date, no such system is operating successfully. It is perhaps only a matter of time until one is designed and does work; when that happens the 357 system could easily be tied into it.
Head Librarians: How Many Men? How Many Women?

Questionnaires were sent to 660 head librarians of American colleges in an effort to determine whether or not there are significant differences between the number and kinds of libraries directed by men and those headed by women. A total of 414 were returned. Results indicated that there are approximately as many male head librarians as female, but that more of the publicly supported libraries and more of the larger libraries are supervised by men. Men seem to take on administrative positions at an earlier age than women, but women tend to change positions less frequently. Furthermore, women seem to be more successful at eliciting financial support for their libraries than their male counterparts.

It is possible that many men hesitate to enter college library work because they feel that the profession is over-feminized and that most of the administrative jobs are held by women. Conversely, it is possible that many women believe that most head librarians' positions are filled by men and that administration-minded women have few opportunities to enter this area of librarianship. Accordingly, the purpose of this paper is to present some data which may help to form some tentative conclusions concerning the frequency that men and women may be found serving as head librarians in various types and sizes of colleges. Therefore, the central problem may be stated in the form of this question: Is there a difference in the percentages of men and women who are head librarians of colleges, when the institutions are grouped according to the nature of their financial support and by the size of their enrollments?

In order to collect the data, 660 questionnaires were mailed to selected head librarians of colleges of the United States. Of this number, 414 were returned. This number of returns was above average, being 62.727 per cent of the total number. Among the items included on the schedules were the following questions, which will serve as the bases for this report.

A. How long have you been the head librarian of your institution?
   (1) 1-5 yrs.?— (2) 6-10 yrs.?— (3) 11-15 yrs.?— (4) 16 or more?

B. Please check the total length of time that you have been a head librarian in all academic libraries with which you have been associated.
   (1) 1-5 yrs.?— (2) 6-10 yrs.?— (3) 11-15 yrs.?— (4) 16 or more?

Dr. Blankenship is Professor of Library Science in Wisconsin State University, Whitewater.

1 The term "colleges" is used in this report as it is defined in the "Standards for College Libraries," College and Research Libraries, XX (July 1959), 274—except that institutions were not included in the population, which: (a) do not pay their head librarians a salary, and/or (b) have enrollments exceeding five thousand students.
C. Is your age (1) 20-30? — (2) 31-40? — (3) 41-50? — (4) Over 50?

D. Sex: Male—— Female

E. Please check the percentage of the institutional budget that is allotted to your library. Please estimate the figure if you do not know exactly.

(1) Under 2 per cent— (2) 2-4 per cent— (3) 4-6 per cent— (4) Over 6 per cent

The data were coded and placed upon punched cards, which were verified for accuracy by a key-punch operator, and most of the information was abstracted by use of the card sorting machine.

Of the 414 head librarians who returned the questionnaire, the number of men and women was almost equally divided. The number and per cent of male and female respondents is listed in Table 1.

### TABLE 1
RESPONSES ACCORDING TO THE SEX OF COLLEGE HEAD LIBRARIANS

<table>
<thead>
<tr>
<th>College Head Librarians</th>
<th>Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>201</td>
<td>48.55</td>
</tr>
<tr>
<td>Females</td>
<td>213</td>
<td>51.45</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>414</td>
<td>100.00</td>
</tr>
</tbody>
</table>

In analyzing the data by comparing the returns from men and women head librarians when their colleges are classified according to type and size, the institutions were divided into five groups, which may be described in this manner:

Group 1 consists of publicly supported colleges which have enrollments ranging from 1,501 to 5,000 students.

Group 2 consists of publicly supported colleges which have enrollments ranging from 500 to 1,500 students. One college having an enrollment of less than 500 students is included in this group.

Group 3 consists of privately supported colleges which have enrollments ranging from 1,501 to 5,000 students.

Group 4 consists of privately supported colleges which have enrollments ranging from 500 to 1,500 students.

Group 5 consists of privately supported colleges which have enrollments of fewer than 500 students.

Table 2 indicates the number and per cent of the respondents according to groups in which the colleges were placed.

From the figures included in Table 2, it would appear that the majority of college head librarians are women; however, the difference is only 2.90 per cent. The figures would indicate also that men are more likely to be heads of publicly supported libraries than are women, since Table 2 indicates that from a total of 143 head librarians, 82 men (57.34 per cent) and 61 women (42.66 per cent) are the respondents which compose Groups 1 and 2. On the other hand, from the total of 271 head librarians included in Groups 3, 4, and 5, 119 men (43.91 per cent) and 152 women (56.09 per cent) are associated with privately supported colleges.

A further inspection of this table reveals that men are more likely to be head librarians of the larger colleges. For example, Groups 1 and 3 are composed of 114 head librarians who are associated with colleges having enrollments ranging from 1,501 to 5,000 students. Of this number, 72 (63.16 per cent) are men and 42 (36.84 per cent) are women. Conversely, the table indicates that the majority of the head librarians of the colleges having enrollments of 500 to 1,500 students are women. Groups 2 and 4 include 228 librarians; of these, 103 (45.175 per cent) are men and 125 (54.825 per cent) are women. The percentage of women is even larger in Group 5, which includes a total of 72 head librarians, who are associated with colleges having enroll-
How Many Men? How Many Women?

TABLE 2
RESPONSES ACCORDING TO THE TYPE AND SIZE OF THE COLLEGES WITH WHICH THE HEAD LIBRARIANS ARE ASSOCIATED

<table>
<thead>
<tr>
<th>Number of the Group</th>
<th>Number of Male Head Librarians</th>
<th>Per Cent of Male Head Librarians</th>
<th>Number of Female Head Librarians</th>
<th>Per Cent of Female Head Librarians</th>
<th>Total Number of Head Librarians</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50</td>
<td>66.67</td>
<td>25</td>
<td>33.33</td>
<td>75</td>
</tr>
<tr>
<td>2</td>
<td>32</td>
<td>47.06</td>
<td>36</td>
<td>52.94</td>
<td>68</td>
</tr>
<tr>
<td>3</td>
<td>22</td>
<td>58.72</td>
<td>17</td>
<td>41.28</td>
<td>39</td>
</tr>
<tr>
<td>4</td>
<td>71</td>
<td>44.375</td>
<td>89</td>
<td>55.625</td>
<td>160</td>
</tr>
<tr>
<td>5</td>
<td>26</td>
<td>36.11</td>
<td>46</td>
<td>63.89</td>
<td>72</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>201</strong></td>
<td><strong>48.55</strong></td>
<td><strong>213</strong></td>
<td><strong>51.45</strong></td>
<td><strong>414</strong></td>
</tr>
</tbody>
</table>

ments of fewer than 500 students. Of the 72 head librarians, 26 (36.11 per cent) are men and 46 (63.89 per cent) are women.

From the analysis of the information reported by the head librarians the following generalizations may be derived:

There is very little difference in the percentages of men and women who serve as head librarians in colleges of the United States.

There is a considerable difference in the percentages of men and women who serve as head librarians when the colleges are divided into groups according to the size of the enrollment.

In the paragraphs above, the central question of this study has been answered. Additional questions concerned with head librarians were included on the schedules, and in the following pages these data are analyzed when the respondents are grouped according to sex and (a) the length of time that they have served as head librarian in their present colleges, (b) the total length of time that they have been a head librarian in all academic libraries with which they have been associated.

TABLE 3
LENGTH OF TIME THAT THE RESPONDENTS HAVE BEEN IN THEIR PRESENT POSITIONS AS HEAD LIBRARIANS

<table>
<thead>
<tr>
<th>Length of Time (Yrs.)</th>
<th>Number of Male Head Librarians</th>
<th>Per Cent of Male Head Librarians</th>
<th>Number of Female Head Librarians</th>
<th>Per Cent of Female Head Librarians</th>
<th>Total Number of Head Librarians</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td>96</td>
<td>60.76</td>
<td>62</td>
<td>39.24</td>
<td>158</td>
</tr>
<tr>
<td>6-10</td>
<td>40</td>
<td>51.28</td>
<td>38</td>
<td>48.72</td>
<td>78</td>
</tr>
<tr>
<td>11-15</td>
<td>39</td>
<td>42.87</td>
<td>52</td>
<td>57.13</td>
<td>91</td>
</tr>
<tr>
<td>16+</td>
<td>25</td>
<td>30.49</td>
<td>60</td>
<td>69.51</td>
<td>82</td>
</tr>
<tr>
<td>No Answer</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>201</strong></td>
<td><strong>48.55</strong></td>
<td><strong>213</strong></td>
<td><strong>51.45</strong></td>
<td><strong>414</strong></td>
</tr>
</tbody>
</table>
TABLE 4

TOTAL LENGTH OF TIME THE RESPONDENTS HAVE SERVED AS HEAD LIBRARIANS IN ALL INSTITUTIONS

<table>
<thead>
<tr>
<th>Length of Time (Yrs.)</th>
<th>Number of Male Head Librarians</th>
<th>Per Cent of Male Head Librarians</th>
<th>Number of Female Head Librarians</th>
<th>Per Cent of Female Head Librarians</th>
<th>Total Number of Head Librarians</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td>59</td>
<td>54.62</td>
<td>49</td>
<td>45.38</td>
<td>108</td>
</tr>
<tr>
<td>6-10</td>
<td>51</td>
<td>60.71</td>
<td>33</td>
<td>39.29</td>
<td>84</td>
</tr>
<tr>
<td>11-15</td>
<td>43</td>
<td>53.75</td>
<td>37</td>
<td>46.25</td>
<td>80</td>
</tr>
<tr>
<td>16+</td>
<td>47</td>
<td>34.56</td>
<td>89</td>
<td>65.44</td>
<td>136</td>
</tr>
<tr>
<td>No Answer</td>
<td>1</td>
<td></td>
<td>5</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>201</td>
<td>48.55</td>
<td>213</td>
<td>51.45</td>
<td>414</td>
</tr>
</tbody>
</table>

(c) their approximate ages, (d) the geographical location of their colleges, and (e) the per cent of the collegiate budgets which are allotted to their libraries. The above topics will be examined in the order in which they are listed. Therefore, Table 3 indicates the tenure of the head librarians in their present positions.

From examining the data presented in Table 3 it appears that women tend to move less often than men since we notice that the number and per cent of male respondents steadily decreases as the number of years increases, whereas the opposite is true for women. When tenure is examined from the viewpoint of the total length of time that the respondents have been head librarians of all institutions with which they have been associated, however, the results are slightly different.

Table 4 indicates that there is a rising percentage of men in the six-ten year length-of-time group and a sharp drop in the percentage of women in this same group. Perhaps marriage and/or age have something to do with this. In any case, men who have been head librarians for ten years or less number 110 (58.33 per cent) from a total of 192 respondents. On the other hand, 126 (58.33 per cent) women are found in a total of 216 head librarians who have served in that capacity for eleven years. Percentages for the other periods of service may readily be determined from inspecting the table.

TABLE 5

APPROXIMATE AGES OF THE HEAD LIBRARIANS

<table>
<thead>
<tr>
<th>Ages of the Head Librarians</th>
<th>Number of Male Head Librarians</th>
<th>Per Cent of Male Head Librarians</th>
<th>Number of Female Head Librarians</th>
<th>Per Cent of Female Head Librarians</th>
<th>Total Number of Head Librarians</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30 yrs.</td>
<td>8</td>
<td>72.73</td>
<td>3</td>
<td>27.27</td>
<td>11</td>
</tr>
<tr>
<td>31-40 yrs.</td>
<td>57</td>
<td>77.03</td>
<td>17</td>
<td>22.97</td>
<td>74</td>
</tr>
<tr>
<td>41-50 yrs.</td>
<td>76</td>
<td>55.88</td>
<td>60</td>
<td>44.12</td>
<td>136</td>
</tr>
<tr>
<td>50+ yrs.</td>
<td>60</td>
<td>31.58</td>
<td>130</td>
<td>68.42</td>
<td>190</td>
</tr>
<tr>
<td>No Answer</td>
<td>0</td>
<td></td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>201</td>
<td>48.55</td>
<td>213</td>
<td>51.45</td>
<td>414</td>
</tr>
</tbody>
</table>
How Many Men? How Many Women?

From an inspection of Table 5, it would seem that men become heads of college libraries at a younger age than do women, since the number and percentage of women who are head librarians rises sharply after they reach forty years of age.

It was noted earlier that women tend to remain in a position for longer periods than men. Thus, it may be true that some women inherit the job of head librarian by virtue of a combination of capability and seniority rather than by actively seeking the position.

It seems to be well known in the library profession that if one wishes to become a supervisory or administrative librarian more quickly than might otherwise be the case, he must move. Thus, since women apparently do not change jobs as often as men, they do not become heads of libraries as quickly as men.

Table 6 is a more detailed presentation of the data. In this table, the respondents are grouped: (1) by the total length of time that they have been college head librarians, (2) by approximate ages, and (3) by sex.

In almost every age group there is a steady rise in the percentage of women head librarians; however, the correlation between men and women does not appear to be a perfect \(-1.00\). For instance, in the 16+ years group, the percentage of men head librarians is 50 per cent, whereas in the 50+ years group, the percentage drops to 32.1 per cent. It is true that there is a great deal of difference in the actual numbers of head librarians.

**TABLE 6**

<table>
<thead>
<tr>
<th>Total Length of Time as Head Librarians (Yrs.)</th>
<th>Ages of the Head Librarians</th>
<th>Number of Male Head Librarians</th>
<th>Per Cent of Male Head Librarians</th>
<th>Number of Female Head Librarians</th>
<th>Per Cent of Female Head Librarians</th>
<th>Total Number of Head Librarians</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td>20-30 years</td>
<td>7</td>
<td>70.0</td>
<td>3</td>
<td>30.0</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>31-40 years</td>
<td>28</td>
<td>73.6</td>
<td>10</td>
<td>26.4</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>41-50 years</td>
<td>19</td>
<td>47.5</td>
<td>21</td>
<td>59.5</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>50+ years</td>
<td>5</td>
<td>27.8</td>
<td>13</td>
<td>62.2</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>59</td>
<td></td>
<td>47</td>
<td></td>
<td>106</td>
</tr>
<tr>
<td>6-10</td>
<td>20-30 years</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>31-40 years</td>
<td>25</td>
<td>86.2</td>
<td>4</td>
<td>23.8</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>41-50 years</td>
<td>17</td>
<td>63.0</td>
<td>10</td>
<td>37.0</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>50+ years</td>
<td>8</td>
<td>29.7</td>
<td>19</td>
<td>70.3</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>50</td>
<td></td>
<td>33</td>
<td></td>
<td>83</td>
</tr>
<tr>
<td>11-15</td>
<td>20-30 years</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>31-40 years</td>
<td>4</td>
<td>66.7</td>
<td>2</td>
<td>33.3</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>41-50 years</td>
<td>26</td>
<td>61.9</td>
<td>16</td>
<td>39.1</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>50+ years</td>
<td>13</td>
<td>41.9</td>
<td>18</td>
<td>58.1</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>43</td>
<td></td>
<td>36</td>
<td></td>
<td>79</td>
</tr>
<tr>
<td>16+</td>
<td>20-30 years</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>31-40 years</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>41-50 years</td>
<td>13</td>
<td>50.0</td>
<td>13</td>
<td>50.0</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>50+ years</td>
<td>35</td>
<td>32.1</td>
<td>74</td>
<td>67.9</td>
<td>109</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>48</td>
<td></td>
<td>87</td>
<td></td>
<td>135</td>
</tr>
<tr>
<td>No Answer</td>
<td></td>
<td>1</td>
<td></td>
<td>10</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>201</td>
<td></td>
<td>213</td>
<td></td>
<td>414</td>
</tr>
</tbody>
</table>
TABLE 7
RESPONSES FROM MEN AND WOMEN HEAD LIBRARIANS ACCORDING TO THE LOCATION OF THE COLLEGE

<table>
<thead>
<tr>
<th>accrediting body of college</th>
<th>number of male head librarians</th>
<th>per cent of male head librarians</th>
<th>number of female head librarians</th>
<th>per cent of female head librarians</th>
<th>total number of head librarians</th>
</tr>
</thead>
<tbody>
<tr>
<td>north central</td>
<td>87</td>
<td>52.09</td>
<td>80</td>
<td>47.91</td>
<td>167</td>
</tr>
<tr>
<td>southern</td>
<td>52</td>
<td>45.61</td>
<td>62</td>
<td>54.39</td>
<td>114</td>
</tr>
<tr>
<td>middle states</td>
<td>32</td>
<td>45.07</td>
<td>39</td>
<td>54.93</td>
<td>71</td>
</tr>
<tr>
<td>new england</td>
<td>14</td>
<td>53.85</td>
<td>12</td>
<td>46.15</td>
<td>26</td>
</tr>
<tr>
<td>northwest</td>
<td>9</td>
<td>50.00</td>
<td>9</td>
<td>50.00</td>
<td>18</td>
</tr>
<tr>
<td>western</td>
<td>7</td>
<td>38.89</td>
<td>11</td>
<td>61.11</td>
<td>18</td>
</tr>
<tr>
<td>total</td>
<td>201</td>
<td>48.55</td>
<td>213</td>
<td>51.45</td>
<td>414</td>
</tr>
</tbody>
</table>

In the two age groups, but nevertheless the drop in percentage seems to be a sharp one.

What happens to these men? Do they tend to retire earlier than women? Do some of them leave college libraries to become associated with university libraries? Presumably, the life span of men and women engaged in library work does not vary from the national norm; therefore, is it possible that this is the cause for the lowered percentage of men in this age bracket? These are interesting questions, but these data cannot answer them.

In most age groups, however, within the four total length-of-service divisions of the table, there is a drop in the percentage of men who are librarians, which, as was mentioned previously, may indicate that men become head librarians at earlier ages than women.

It is also interesting to note the curve that is formed by the "Total Length of Time as Head Librarian" groups. The 1-5 years group includes 106 head librarians; the 6-10 years group includes 83 head librarians; the 11-15 years group includes 79 head librarians; and the 16+ years group includes 135 of the total of 414 head librarians.

The punched cards representing each college were coded according to type, size, and regional accrediting body. Therefore, when it was decided to determine the number of the respondents reporting from various geographical locations, it was a simple matter to do so. Table 7 contains this information.

Because of the wide range in numbers (although the percentage of returns according to regional accrediting associations did not vary excessively), it is difficult to make assumptions from these data. One observation that might be made is that since the South has many of the smaller private colleges, and since women are more likely to be head librarians in such colleges, this might account for the higher percentage of women in this group. No attempt will be made, however, to explain the difference in the percentages of men and women head librarians in the New England and Middle States, respectively, other than to say that, perhaps, the number of respondents may not be large enough to present a true picture.

Since one of the more important duties of a head librarian is getting an appropriation large enough so that a "quality" library may be provided to aid the college in achieving its educational objectives, the respondents were also
grouped according to the percentages of the institutional budgets which were allotted to their libraries.

It would appear that the ladies are slightly better at getting the money than are the men. One hundred and twenty-seven (53.37 per cent) of the 238 colleges which report receiving over 4 per cent of the institutional budget are headed by women. Conversely, 87 (56.86 per cent) of the 153 colleges which receive less than 4 per cent of the total college budget are headed by men. On the other hand, twenty of the women did not know, or did not have access to information concerning the amount of the college budget; whereas, only three men lacked this information.

Some of the more obvious generalizations, which according to the data appear to have a factual basis are summarized below:

1. **There are opportunities for administration minded people of either sex in librarianship.** Responses to 660 questionnaires totaled 414. Of this number, 201 (48.55 per cent) of the head librarians were men and 213 (51.45 per cent) were women.

2. **Men are more likely to be head librarians of publicly supported colleges.** Even though the percentage of head librarians of colleges is nearly equal, men are more likely to be head librarians of tax-supported colleges. There are 143 head librarians in the study that are associated with these institutions, and 82 (57.34 per cent) of this number are men.

3. **Men are more likely to be head librarians of larger colleges.** Included in this study are 114 head librarians associated with colleges having enrollments ranging from 1,500 to 5,000 students. Of these librarians, 72 (63.16 per cent) are men. The percentage of men head librarians decreases as the enrollments of the colleges decrease.

4. **Women head librarians tend to change positions less often than men.** Of 173 head librarians, who had been in their present positions for over ten years, 112 (64.80 per cent) were women. Of the 82 librarians, who had been in their present positions for over sixteen years, 60 (73.17 per cent) were women.

5. **Men tend to become head librarians at an earlier age than women.** Of the 85 librarians in the study who are under forty years of age, 65 (76.46 per cent) are men. If the age limit is raised to fifty, of 221 head librarians who range from twenty to fifty years of age, 141 (63.80 per cent) are men.

6. **Women appear equally as capable, as if not more capable than, men in getting funds for the library.** Two hundred and forty colleges reported receiving over 4 per cent of the institutional budg-

### TABLE 8

<table>
<thead>
<tr>
<th>Per Cent of Institutional Budget</th>
<th>Number of Male Head Librarians</th>
<th>Per Cent of Male Head Librarians</th>
<th>Number of Female Head Librarians</th>
<th>Per Cent of Female Head Librarians</th>
<th>Total Number of Head Librarians</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 2 per cent</td>
<td>9</td>
<td>60.00</td>
<td>6</td>
<td>40.00</td>
<td>15</td>
</tr>
<tr>
<td>2-4 per cent</td>
<td>78</td>
<td>56.52</td>
<td>60</td>
<td>43.48</td>
<td>138</td>
</tr>
<tr>
<td>4-6 per cent</td>
<td>92</td>
<td>45.87</td>
<td>109</td>
<td>54.13</td>
<td>201</td>
</tr>
<tr>
<td>Over 6 per cent</td>
<td>19</td>
<td>51.35</td>
<td>18</td>
<td>48.65</td>
<td>37</td>
</tr>
<tr>
<td>No Answer</td>
<td>3</td>
<td></td>
<td>20</td>
<td></td>
<td>23</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>201</strong></td>
<td><strong>48.55</strong></td>
<td><strong>213</strong></td>
<td><strong>51.45</strong></td>
<td><strong>414</strong></td>
</tr>
</tbody>
</table>
et as the library appropriation, and of this number 127 (52.92 per cent) were colleges which had libraries headed by women. This is a very small difference, but it does raise the question: Are women more adept at getting library appropriations than men? Equally important, however, is the fact that 153 (36.96 per cent) of the 414 college libraries receive less than 4 per cent of the institutional budget for the library and that 23 (5.5 per cent) of the respondents cannot ascertain the amount of the institutional budget.

Perhaps the chief value of this report lies in its indication that there are opportunities for both men and women, who want to be administrators, to be appointed as head librarians of colleges in the United States.
Classification and Cataloging of Spoken Records in Academic Libraries

There are at least eight satisfactory systems for assigning shelf locations to spoken-word phonodiscs in academic libraries. The advantages and disadvantages of each are considered. Problems are also discussed in the cataloging of such materials. Separate vs. integrated catalogs; color vs. other coding devices; LC vs. homemade catalog cards, are among topics explored.

A librarian who finds himself suddenly saddled with the job of establishing a usable collection of spoken-word phonograph and tape recordings may regard his chore either an albatross or an adventure. If he adopts the first attitude, there is little hope for him or for the collections; if the latter, it will be just that. The almost endless list of choices and decisions offers challenges to the stronghearted somewhat akin to those presented to Ulysses. And of all of them, the two which probably require the greatest amount of foresight are the classification and cataloging procedures to be used in his collection. This article will treat each of these separately.

Classification. Before choosing a classification system for a record collection, there are many things which the librarian must take into account. The fact that there are at least eight classification schemes, all of which seem to be used with equal satisfaction in different libraries, indicates that the physical and, perhaps, psychological aspects of the library, the librarian, and the collection have a substantial influence on the system finally employed.

Often, as with books, the larger the collection, the more involved the classification system becomes. The classification scheme in a collection of five thousand albums is likely to be far more complex than that used in a collection of five hundred albums. With the former, there is apt to be much more repetition of authors and titles, requiring as a result longer letter and number combinations.

Another factor to be weighed is the accessibility of the collection to its users. If the albums are shelved in open stacks, it is advisable that they be shelved in much the same arrangement as are the library’s books, for that is what the patrons are accustomed to. To shelve them by accession number or by publisher would make browsing a fruitless endeavor because the borrower interested in poetry would have to look over the entire collection to see what poetry was available.

On the other hand, if the patrons do not have access to the record stacks, it is obvious that a classification scheme designed for easy browsing would be totally wasted.

Academic libraries, as a rule, tend to look at their record collections as permanent or, at least, long-range investments. Desiring to protect them from the common ravages of circulation, these li-
Libraries usually regulate their use with the fiercest zeal. For this reason, it shall be assumed that the collection here under discussion is to be kept in closed stacks.

In a very small collection, up to 150 albums, an elementary system may be used whereby the records are given no call number at all but are simply shelved by the main entry on the catalog card.

Another easy classification scheme which can be successfully applied to a somewhat larger collection is the one in which the speed and size of the disc determine the call number. Used with an accession number, a call number such as "161-12-33" would designate the 161st twelve-inch, long-playing record added to the collection. In this case, the records would be shelved according to size.

The uncomplicated method of fixed location may also be used for a small and relatively static collection. In this system, a record or album would be given the number "7-12" if it were the twelfth disc from the left on shelf number seven.

A fourth system of notable simplicity which also allows for expansion involves the use of a physical-form letter (D for a disc and T for a tape) plus the accession number. Thus, you would give the call number "D 307" to the 307th disc acquired by the library, regardless of its speed or size.

If, for any reason, the librarian wishes to gather together all the works of a particular type and subdivide by author, a system can be utilized in which a form letter, such as P for poetry, is followed by a Cutter number. An example of this would be, for two poetry readings of Conrad Aiken, P A29 and P A291. If the collection includes tapes as well as discs, the physical-form notation can easily be added.

Similar to this, but slightly more involved, is the one which uses a classification number from Dewey. This system will bring together recordings of a like nature in addition to separating English poetry from French poetry, and so forth. In this scheme, the Aiken recording would be assigned the number 811. In a closed stack situation, however, the need for dividing nationality groups is usually negligible.

For the traditionalist, who will insist on complication at any cost, a system may be adopted which consists of Cutter numbers for both author and title. Above these two numbers, the physical form designation would be used. For example, the Aiken recording entitled, A Letter from Li Po, would be given the call number DISC. A29 L6

Anthologies could be divided into a "Z" category with "Z1" specifying poetry anthologies, "Z2" drama, "Z3" speeches, and so on. In this system, the recording entitled, Great American Speeches, would bear the number DISC. In the event that, say, poetry and drama are combined in a single anthology, the librarian would simply make a choice between the two and classify it under "Z1" or "Z2."

The classification scheme used in Cornell’s listening rooms is based upon the manufacturer’s serial number for any given disc or album. There is no effort to consolidate the works of any author or any particular literary genre into any one section of the closed stack area.

Within the manufacturer's group, the albums are arranged in sequence by the number which every record company gives its discs. For example, holdings in the Caedmon productions include Herbert Marshall reading Donne’s sermons (TC 1051), Robert Graves reading some of his own poems (TC 1066), and Cocteau’s play, The Human Voice (TC 1118). These recordings are shelved in
that order in the space devoted entirely to Caedmon discs.

Since Cornell's collection includes both discs and tape, the call number assigned to the Graves recording is DISC CAEDMON TC 1066.

It should be mentioned here that, besides the great simplicity of this system, there is the added advantage of having the same basic call number appear on the disc, the record jacket, the LC printed cards, all the manufacturers' catalogs, and the catalogs of Schwann and similar companies.

Dozens of other systems might be explored here, since the classification of phonodiscs seems to evoke the Muse of Originality, but at least one of the eight methods described above should prove most adequate to answer the needs of practically any library.

Cataloging. The cataloging of a library's collection of nonbook materials always requires special planning. In establishing a useful library of phonodiscs, it is usually discovered that their physical composition only serves to augment the problems of the catalog librarian.

Phonodisc albums, because they rarely have spines wide enough for the printing of clearly legible titles or call numbers, do not easily lend themselves to convenient and productive browsing for the potential listener. Indeed, the lack of a well-printed spine often inhibits speedy retrieval of the disc from the stacks and encourages shelving errors if extra care is not taken. By far, then, the easiest key to the use of the collection is the card catalog. As a result, the cataloger assumes a tremendous importance in the fruitful functioning of the collection.

In a closed stack situation especially, it is clear that the catalog must be well devised and supplied with an abundance of added entries if the collection is to be used to its fullest potential. Most of the early phonodisc libraries were cataloged simply, with from one to three cards for each album being filed into a special drawer set apart from the book catalog. These collections were truly the step-children of their respective libraries.

Actually, few libraries could, or would want to, boast of record holdings large enough to warrant equal status with their book collections. But a great many libraries now have, or are developing, phonodisc collections which not only deserve full and detailed cataloging, but which also demand integration within the general catalog as well, if they are to fulfill their potential role in the educational process.

The Library of Congress, with its comparatively recent introduction of the Music and Phonorecord supplement to its Catalog, is doing its share in bringing about the recognition of phonograph records as an educational as well as an entertaining medium.

Printed semi-annually, with annual and quinquennial cumulations, this supplement does for discs what the main section does for books, noting subject headings and added entries for all recordings which have been entered at the library. Because of their fairly extensive coverage, and because of the easy availability of LC cards, many libraries have switched, without a fight, from their own individualistic, and often inadequate, cataloging methods to the LC system, most of them using the LC cards.

When Cornell's listening rooms began operations, the LC cards were used whenever available. Later, however, it was decided that they included many things which were not needed and excluded many things that were felt to be necessary, such as complete analysis of all recordings, including multi-poem discs. The use of LC cards at Cornell was therefore discontinued. Other libraries will have to make up their own
minds on this point. It should be noted, for the music librarian, that LC’s music record coverage is far more comprehensive than its spoken-word coverage.

A second area of decision for the librarian is the allocation of the cards once they are prepared. In small collections a separate file is often maintained. At least one person doing research has found that only a minority of librarians advocate the placement of catalog cards for phonodiscs in the main catalog with their book cards. Those librarians, however, who have maintained an integrated catalog have found an increased use of their record collections. The ideal seems to be inclusion of phonodisc cards in the main book catalog as well as in a separate file located in the area where the records will be played.

In an integrated catalog it is advisable, when there is a work in both printed and recorded form, to place the cards for the recording in front of the corresponding book cards. Since many library patrons are not accustomed to seeking out phonodiscs, especially in the spoken-word field, they are much more likely to notice that there is a recorded version of the work they are seeking if the record card comes first. If the card for the disc were filed behind the book cards, the patron would probably never get to it but would stop when he got to the book card.

At this point, it should be mentioned that some librarians have found it expedient to use a system of colored catalog cards for phonograph record cataloging. The primary advantage of this practice is that it makes it immediately apparent that the card refers to a recording rather than to a book. Unfortunately, there is often a tendency to broaden the system so that, for instance, there is one color for musical recordings and a second for non-musical recordings; then another color is added for non-musical recordings in a foreign language, and so on. Eventually there are so many different colors that their usefulness as instant transmitters of specific information is almost completely negated.

Also, the experience in more than one library has been that after a year or two it is decided that the original reason for using a blue card, for instance, is not as important as it was thought to be. The library then returns to using only white cards and the resultant combination of white and blue cards meaning the same thing only creates confusion in the patrons who, understandably, assume that the cards mean different things.

These are a few of the problems that must be met and solved before a phonodisc collection may assume its proper role in the library’s over-all holdings. If solutions are not found at the outset, it will be more difficult to make the necessary adjustments when the collection reaches large proportions. And in this day of increasing production and excellence by phonodisc manufacturers, it is becoming increasingly difficult to maintain a record collection which is at the same time small and good.
Selective Dissemination of Information and the Academic Science Library

The meaningful discharge of academic duties requires the effective use of up-to-date factual and conceptual knowledge. The wealth of the material available and its perishable character necessitate an expeditious procedure for information sampling, storing, and retrieving at the individual level. The feasibility of such a procedure, administered by the science library, is explored. The discussion consists of three parts: The inherent inadequacies of biomedical bibliographic services to fill the need of an individual for current awareness; the magnitude and cost of a modest personal information system; and the potential supportive participation of the science library in the teaching and research activities of members of the university community.

Regular and significant contributions to the pool of universal knowledge are expected from the members of the academic community, but this privilege seems something of a liability because the accelerated pace of scientific research has generated such a wealth of publications that it is more and more difficult to keep abreast of developments even in a narrow field. It can be difficult sometimes to judge whether a scientific effort represents original work, and reliance is often placed upon the mere probability that research has been anticipated. In 1963 the number of journals with scientific value was estimated to be approximately thirty-five thousand. A substantial portion of the information published in these journals has a limited useful lifetime. Therefore, if a publication is to serve its purpose, it must find its audience quickly. The multitude of journals and the perishability of their contents make the need for an effective current awareness service most urgent. The purpose of this paper is to indicate mechanisms by which the science library could render a valuable service to teaching and research by establishing a current awareness service geared to the interests of individual members of the academic community. A brief discussion of a personal information system illustrates the direction of further developments.

No bibliographical service currently functions satisfactorily as a means of keeping individuals up to date, although several comprehensive services are available as retrospective searching devices. In biomedicine, for example, three major indexing and abstracting journals are available in English alone. Each of these journals, Biological Abstracts, Excerpta
Medica, and Index Medicus, now lists more than one hundred thousand publications annually. None of these journals, however, is prompt enough in reporting the literature to constitute an effective current awareness service. The listing in Index Medicus runs at least three months behind publication of the original report, the citations in Biological Abstracts are six months to one year late, and the abstracts in Excerpta Medica sometimes trail the original publication by two years. Current Contents might be considered an acceptable current awareness service but it lacks a subject approach to the content pages. Another disquieting factor in the evaluation of bibliographic services is the unpredictability of editorial acceptance of publications for inclusion. In 1965, Biological Abstracts listed 6,735 serial titles and contained 110,119 abstracts or titles. Assuming an even distribution, this would mean that fewer than seventeen titles per journal were editorially selected for inclusion. Excerpta Medica listed about forty-four publications per year for each journal covered in 1964, while the comparable figure for Index Medicus was sixty-three publications per journal. The inclusion ratios quoted constitute only a fraction of all papers published in the source journals used. This selectivity may be a desirable device for protection of the user from an inordinate amount of noise; but Oehlerts reported that 1,635 of the nearly five thousand journals on the “List of Serials Abstracted” in Biological Abstracts in 1960 were not represented by a single citation. Among the omitted titles were the Comptes Rendus of both the Académie des Sciences and the Société de Biologie. Nor did Oehlerts find any citations to Genetic, Bibliographia Genetic, Archiv für Protistenkunde, and Planta. Other research journals of like stature were represented by fewer than five citations. The difficulty of retrieval from bibliographic journals further diminishes the comfort derived from their services. Neither the permuted title index nor the conventional analytical index permit indexing in enough depth or specificity to develop confidence in finding the material that the editors have seen fit for inclusion. Martyn and Slater found in tests on retrievability that, at best, 85 per cent of publications found through the author index of Biological Abstracts were retrievable through the permuted title index. The Index Medicus analytical subject approach yielded, in a less comprehensive series of tests, a low of 5 per cent and a high of 70 per cent of the references known to have been included in that bibliographic journal. All this is not to say that bibliographic journals are without merit, but one should be reminded that they have grave limitations.

In order to compensate for the deficiencies of bibliographic journals, most academic teachers and scientists have to maintain a more or less elaborate personal information storage and retrieval system. The input may consist of books, reprints, personal communications, proceedings, minutes, graphs, etc. The information is retained in subsystems of varying form, like shoeboxes, folders, notched cards, or 3 x 5 in. cards and may be found in alphabetic order or under broad subject headings without sufficient subdivision. The multiplicity of subsystems reflects the variety and magnitude of the input. One of the authors has maintained a personal information

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9 Biological Abstracts, loc. cit.


Ibid.
system for the past fourteen years. Since 1959 this has been done systematically. The main input to the system originates from the regular examination of some eighty biomedical journals related to human physiology. The total file presently consists of 7,400 precoded 5 x 7 in. cards arranged in serial order. Each card represents a document, which may be a book, reprint, bulletin, specification sheet, manual, or a citation. Administrative material, correspondence, and audiovisual aids are not included in the system. The documents are kept in serial order, but separate from the filing cards.

Retrieval of information is accomplished by an author index consisting of about seven thousand entries and a coordinate index with about four thousand keywords. The system now demands approximately three hours weekly of the author's time for scanning and indexing of the source journals. The posting of new serial numbers on author or keyword cards and similar tasks are performed by a secretary. Out of approximately ten thousand publications examined in 1965, eleven hundred were added to the file. On the average, 124 articles were found to be published per source journal scanned. This represents a signal-to-noise ratio of 1:9; but it must be noted that those items retained are highly relevant. The average estimated cost per document retained in the whole manual system is $1.25, based upon a two-year sample of time and expense accounting. This figure includes the acquisition of some 350 books, about four thousand reprints, filing facilities, and prorated secretarial help. The figure does not include compensation for time spent by the author.

Presently a computer program is being written by J. C. Ziegler (Emory biomedical data processing and analysis center) for transfer of bibliographic information from this personalized system to tape for machine retrieval on an IBM 1410 computer. The computer-based system is expected to reduce the retrieval time considerably, especially when the coordination of several keywords is required. Five simultaneous searches for coordination of up to seven keywords each through the whole tape memory require about fifteen minutes. Updating with new information and elimination of obsolete information are standard procedures, as is the preparation of an alphabetic list of authors and keywords. On the other hand, the computer involvement diminishes the accessibility of the file since the computer is not always instantly available. A published figure for a general, non-individualized, computer-operated bibliographic information storage and retrieval system is $5 for each entry into the system, subject to variation with the number of entries and the number of searches. The information system outlined above has been a valuable aid to both teaching and research. The time and money invested are a small price for the current awareness aspect alone. In addition, there is no problem in compiling references for research projects or reading lists for single students or whole classes.

Certain objections can be raised against maintaining an extensive personal file. It may appear redundant to index material that will be included in one or more of the major bibliographic services, and it seems doubtful whether a single indexer can hope to cover more than a fragment of the great mass of relevant literature. The charge of redundancy has already been disposed of in the discussion of the deficiencies of three major indexing and abstracting journals. These services are too slow, too general in their indexing, and too unpredictable in their selection to render superfluous some supplementary personalized device. The justification for indexing a small fraction of the biomedical journals derives from ev-

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idence suggesting that the great bulk of significant publications is concentrated in comparatively few primary journals. Brown\(^8\) counted citations in seven leading journals of physiology and found that fifty-eight journals yielded 90 per cent of the citations; publications in chemistry clustered around even fewer journals. The citation count in six representative journals in chemistry revealed that thirty-eight journals produced 90 per cent of the citations. Circulation statistics reinforce the implications of the citation count. Fleming and Kilgour\(^9\) found that sixty-seven journals in the Yale medical library represented 50 per cent of serials borrowed and 262 titles accounted for more than 80 per cent of loans. An earlier study by Urquhart\(^11\) at the Science Library in London established that forty journals provided half the circulation. It is conceivable that the spread of primary information is not so narrow as the citation count and the circulation statistics would indicate. It does seem likely, however, that inspection of a relatively small number of well-chosen journals will retrieve a large fraction of the most important scientific publications pertinent to personal and specific interests.

Since current awareness is vital to the academic teacher and scientist as an individual and since both theoretical and empirical reasons indicate that a small scale, \textit{i.e.,} university-wide, service can be effective, the science library could enhance its value by providing a current awareness service. This service might take, as a first step, the form of a daily list of accessions, mailed to each participating member of the academic community. It might provide, as a second step, copies of the content pages of journals requested. If electronic data processing equipment is available, the library as a third step, might distribute weekly a permuted title index to the content of scientific journals received. A logical final step might be the establishment of a system known as Selective Dissemination of Information. This system requires that participants profile their research and teaching interests in terms of weighted keywords. The keywords can be authors' names, subject headings, names of organisms, reactions, or even citations. Each participant may submit as many profiles as are necessary to describe all aspects of his interests and needs. The publications in selected journals are indexed, using terms in the participants' profiles as a subject authority. The profiles of the participants are matched, by computer, against the profiles of the indexed publications. If a preselected level of correlation is obtained between the profile of the participant and the profile of a publication, an abstract is sent to the participant, who, in turn, is expected to furnish feedback on the actual relevance of the publication. The feedback results in a continuous revision of the user's profile and increases the ratio of relevant information to noise delivered by the system. This information system was devised by the late Hans Peter Luhn of IBM, who also wrote a program for it, which is available from IBM upon application. The system has proved itself in many non-academic environments, among them IBM itself, NASA, and the Ames Laboratories. One major difficulty arises with the maintenance of a Selective Dissemination of Information system, viz., finding and keeping capable indexers. Graduate students can be used effectively, but student help usually implies a fast turnover. The most practical way,
Selective Dissemination of Information / 57

and possibly the final step in improvement toward an individualized system at the university level, seems to be the direct participation of potential users. Each participant could make himself available for the indexing of five or six journals in his field of specialization. Judging from the Cranfield reports,¹⁴ this effort should require not more than five to six hours per month, and would seem a small investment for a hand-tailored service prepared competently and covering an area limited only by the number of participants and their diverse interests. With little more trouble and expense the library could maintain this system as a retrospective device for literature searches.

The progressive build-up through the steps discussed could be established and maintained by the academic science library. The service should improve markedly the signal-to-noise ratio at the input to a personalized information storage and retrieval system. Admittedly, this would be a departure from the traditional role of an academic science library, but special libraries have been attempting services like this for several years. The availability of computers, the growth of knowledge, and the accumulating emphasis upon research have combined to make it all but mandatory that the science library assume a more active role in the research process.

**Book Reviews**


In the five essays which make up this monograph Professor Silver has traced the early development and emergence of American typefounding. Although by 1769 there were sporadic attempts at typefounding, it was not until the Revolution had ended that any real interest in a domestic industry appeared. When that time arrived the persons best qualified to direct the fledgling industry were European emigrants. Thus, Professor Silver has chosen 1787—the year that a Scottish typefounder was first known to be active in this country—to begin his chronological coverage. By 1825, the year with which this study closes, American typefounding was firmly established.

The first chapter, "Typefounding as a Permanent Industry," focuses on the achievements of two other Scotsmen, Archibald Binny and James Ronaldson, who produced the first professional and cheap American type. Among the persons discussed in the chapter on "Some Minor Typefounders and Punchcutters" are the peripatetic Benjamin Franklin and his grandson, Benjamin Franklin Bache, who was trained by French typefounders. Unfortunately, neither established a permanent firm. Other minor typefounders were Francis Bailey of Philadelphia and Samuel Sower, whose Baltimore foundry turned out a large quantity of type from 1804 to 1820, including the popular "diamond." The third chapter, "Growth and Expansion," presents the achievements of such men as E. W. White, George and David Bruce, and William Hager. Hager enjoyed an international reputation in the industry as the owner of the Bruce Type Casting Machine. The final essays, "Inventions and Patents" and "The Importation of Type," are closely related, for the developments outlined in the former chapter were to have an influence upon the importation of type. Type continued to be imported throughout the entire period covered by this work because of the persistent preference of American printers for European type, particularly that of Caslon, Fry, and Wilson. As a means of partial re­dress American typefounders turned to tariffs, and a sympathetic government laid duties on imported type. By 1825, American typefounding was sufficiently developed and protected to begin a period of rapid growth, but that, as Professor Silver notes, is another story.

The book is handsomely printed and designed. The thirty-six plates include a good selection of specimen sheets; students of the history of American printing will find this feature particularly useful. The index is comprehensive.

We are often confronted with evidence of the contributions of these early typefounders. For example, much of the type used in the text of this work is Monticello, the linotype adaptation of Binny's elegant roman. One need look no further for another example than a recent issue of *Publishers' Weekly* (September 5, 1966, page 72). The Mergenthaler advertisement on that page notes, among other facts about the Monticello, that it has been used as the text face in eight of the fifty Books of the Year of the past five years. Other individual examples abound. It is to Professor Silver's credit that for the first time there is now available a comprehensive study of the contributions of early typefounders in America.

—Robert D. Harlan, University of California, Berkeley.


How anyone could write a dull history of Harper's University is difficult to understand, but Professor Richard J. Storr has done just that. As in apology for some criticisms which surely will be leveled by his disappointed readers, the author notes "the circumstances of its founding, the names of the persons associated with it,
and its ambitious plan were bound to attract the attention and fire the imagination of observers . . .” (page 399). He further notes that his primary objective has been to set possibilities against evidence contained in the documents and other materials that survive from the period before Harper's death. Storr's implication is that he will separate myth from reality.

The setting of possibilities against evidence is perhaps the book's greatest strength and also its greatest weakness. With thoroughness and in great detail the author sets down almost every facet of the University of Chicago's first thirteen years: the faculty, the curriculum, the students, the extracurricular activities, the deficit financing, and the interaction of major figures involved: William Rainey Harper, John D. Rockefeller, Frederick T. Gates, and Thomas W. Goodspeed. The documentation from original sources is plentiful and the quoting from Harper's official pronouncements and private letters is extensive. This makes the book read like a doctoral dissertation, which it is not.

Despite all this one often has the feeling that Storr has not gone far enough. Only after I had gone back and read the relevant chapters in Allan Nevins' biography of Rockefeller (1940, 1953) did I really begin to appreciate Storr. To cite one case which would interest the readers of this journal, Storr mentions the Berlin library on page 67 without any description of its nature. Again on page 247 the author notes that Chicago could not meet the payments. Many librarians will know that Harper bought the entire book stock of the Berlin book shop of S. Calvary & Co. early in the eighteen-nineties for a large sum of money, but will the general reader know it? The same is true in a discussion of the Bemis case on academic freedom. A couple of interpretative paragraphs on the aftermath (page 85) would have added much to the sense of completeness of the volume.

Yet my real quarrel with Storr is that the flesh-and-blood William Rainey Harper never quite comes through. There is a page of description by the novelist Robert Herrick (page 236) and three pages from one of Harper's seminar students (pages 161-

63) which indicate that he was indeed a giant of a man. Does one have to play down the colorful and interesting personalities and leave history devoid of a sense of excitement? Professor Nevins' Rockefeller biographies answer "no." One might well ask here why no one has ever tackled the biography of Harper?

One of the best parts of the book is undoubtedly Harper's agonizing relationship with the major donor. Despite the university's relative wealth, there was never enough money during the early years to fulfill Harper's promises to the scholarly stars he attracted to the Midway. Most university presidents serving new and rapidly expanding universities will have little difficulty identifying themselves with Harper's problem. This may well be Storr's major contribution. He notes, quite correctly, that "had Harper been a cautious administrator, the university might not have had a brilliant beginning in which to cement the loyalties of its supporters; and had its principal supporters been Philistines, the university might not have survived the crisis [of lack of funds] without losing its distinctiveness." However, neither the chief donor, John D. Rockefeller, Sr., nor his agent, Frederick T. Gates, show up very well in this book. Perhaps they should not, but the cause of disagreement between Harper and Rockefeller was one of fundamental point of view rooted deeply within Rockefeller's character. On the whole one could wish for more such evaluations as indicated in the quotation above.

Although there is a lot about religion, its total impact upon the "Baptist university" is not brought out as much as one could hope. Harper, was, after all, a distinguished Old Testament scholar and one of the few times Rockefeller expressed himself publicly he gave the Lord credit for his wealth and asked if, under these circumstances, he could withhold it from Chicago. The relating of graduate work at Chicago to that of other institutions leaves something to be desired, despite the author's earlier work in this field. While he notes that Harper's plan of affiliating the Midwestern colleges with the University of Chicago failed, he makes little of Chicago's impact on the emerging Midwestern
state universities which Rockefeller and Gates thought was profound—another example of telling too much yet not enough.

Academic librarians will be further disappointed at the lack of attention to the development of the university libraries. Data certainly was available in the McMullen (1949) and Archer (1954) dissertations for a few paragraphs on this topic.

Storr does mention the fact that Melvil Dewey was offered the librarianship but turned it down. In a flash of interpretation he adds, “Harper never did find a first-class university librarian—and this perhaps was his greatest and most puzzling failure as an academic organizer.” Harper’s failure may not be unrelated to the fact that money for books and equipment was often at a premium. A central university library, named for Harper, had to wait until after his death.

No doubt Chicago alumni will want this book, as will most university libraries. College librarians and those with only a mild interest in the history of higher education can pass it up without much trauma.—Edward G. Holley, University of Houston.

**Library Co-operation.** By G. Jefferson.


Library cooperation, forever extending and developing, is the kind of topic on which a new book is always welcome. Mr. Jefferson himself remarks that since the War there has been probably more talk about library cooperation than about anything else in librarianship. In a larger sense, of course, cooperation among libraries is all part of the current world mood; politically, economically, and socially, it seems a matter of enlightened fact that “United we stand, divided we fall.”

Quite apart from any of this, Mr. Jefferson’s admirable survey is welcome in its own right. Following a general history of library cooperation (in three parts: from the beginnings to 1931, from 1931 to 1945, and postwar developments), he describes the present British national network for interlending, with its two-tiered pattern of national central library/regional library bureaus interlending, and direct lending through the national central library of university and special libraries. His next group of chapters deals with cooperative acquisition, cooperative storage, and exchange and redistribution. He then turns his attention to scientific and technical literature, treating first the national schemes for its cooperative provision, and then the local schemes. Mr. Jefferson is aware that in cooperative ventures the needs and problems of the various types of library differ widely; hence he goes on to devote a chapter to special libraries, another to academic libraries, and finally one to public libraries. His remaining three chapters cover the tools of cooperation (such as bibliographies and union catalogs); international cooperation; and, in conclusion, plans and prospects for the future of library cooperation. He supplies a bibliography, the sections of which parallel his arrangement of chapters, and an index.

It is a pity that the American publishers of this book do not make clear in its title that Mr. Jefferson is really concerned only with British library cooperation. True enough, the Farmington Plan and the Scandia Plan and the activities of the Deutsche Forschungsgemeinschaft are described in the chapter on cooperative acquisition, and US schemes for cooperative storage are fully treated in the subsequent chapter; but this is only because acquisition and storage are such important aspects of cooperation, and Mr. Jefferson would not have been able to find much to say regarding either of these if he had confined himself to Britain’s less significant efforts.

Nevertheless, this book is a most creditable achievement. The material is succinctly marshalled and agreeably presented. The author is not concerned with exhortation or high-flying: just good sense, sound judgment, and above all, a conviction that “the interlibrary loan, like patriotism” is not enough, but that library cooperation must be regarded as having an everwidening connotation.—James Thompson, University of Glasgow.


This book is an introductory work for beginners and those with a little experience working in private law libraries. The em-
phasis is on procedures for law firm libraries, however the advice given seems equally applicable to law libraries of corporations and small governmental law libraries.

This manual is a very creditable and useful attempt at the impossible. The impossibility of complete success arises from the fact that the knowledge and experience of the audience to which the book is directed is so broad. “The usual procedure is to put a secretary or a law clerk in charge of the library or possibly to hire a recent library school graduate” (page ix). Consider the chapter on cataloging; for the library school graduate it is too simple; he could use much more help; for the secretary it may be too difficult. In most cases, the tendency has been to write for the real beginner and assume no library training; this seems a very wise choice since there are more specialist manuals for those who desire more detailed knowledge.

All the most important topics have chapters to themselves, and some on specifically legal subjects are very useful; e.g., legislative histories (Chapter 9), and memoranda of law; records and briefs (Chapter 12). But both these chapters show the strain of trying to write for an audience with quite disparate degrees of knowledge. Thus, although the description in chapter 9 of the legislative process is relatively simple, the standard legal research manuals would have to be consulted for more complete explanations. The example of a legislative history, however, is one of the most complete I have seen. This chapter contains a very useful appendix giving information as to calendar, mailing policy, etc., of all Congressional standing committees.

The appendices include bibliographies, list of publishers and dealers (highly selective), and library equipment suppliers (even more selective). This book should be put in the hands of all persons beginning careers in small law libraries.—B. Halevy, State University of New York, Buffalo. ■ ■
INTRODUCTION

This article continues the semi-annual series originally edited by Constance M. Winchell. Though it appears under a byline the list is actually a project of the reference department of the Columbia University Libraries, and notes are signed with the initials of the individual staff members.

Since the purpose of the list is to present a selection of recent scholarly and foreign works of interest to reference workers in university libraries it does not pretend to be either well balanced or comprehensive. Code numbers (such as A11, 1A26, 2S22) have been used to refer to titles in the Guide and its supplements.

GUIDES


The new Handbuch represents a complete revision and updating (to late 1965) of the 1958 edition (Suppl. 4A80). It remains a fairly selective, annotated bibliography of bibliographies (with some other closely related types of reference works included) concentrating on publications of Europe and the United States. While organization of this edition is basically that of the previous one, there are changes within certain sections (e.g., language and literature). The selection of individual items has obviously undergone thorough review: some entries have been dropped, others from the second edition are subsumed in the annotations, and there are, of course, many new entries.—E.S.


Approximately three thousand entries in the whole range of science and technology (UDC classes 5/6), plus references in the annotations to another one thousand items, are included in the first volume of the new Walford Guide. (Volume 2 is to deal with social and historical sciences, philosophy and religion; volume 3 with generalia, language and literature, and the arts.) As before, scope is international, with emphasis on British publications. It is an impressive compilation, treating as it does of many works in very specific areas of the pure and applied sciences, as well as the more general reference works in these fields. Not only has a vast number of new items been added, but reference is regularly made in the annotations to superseded works or to works of secondary importance, so that only a very few items from the earlier edition have been dropped altogether. Annotations are generally admirable, some are quite detailed, and in some instances citations to reviews are given. Finally, indexing in this edition appears to be much improved.—E.S.

LIBRARY CATALOGS

Selected Reference Books of 1965-66 / 63


These new publications represent efforts on the part of two of our national libraries to keep scientists, specialists, and librarians informed of new additions to their collections. Their scope and method of publication invite comparison.

Planned as a supplement to the Dictionary Catalog of the library (which is scheduled for publication in early 1967), the National Agricultural Library Catalog reproduces cards for all titles added during the preceding month. It does not, of course, supplant the Bibliography of Agriculture (Guide P233). Monthly issues are in three sections: a subject list under fifteen broad subject categories; an alphabetical main entry listing which cumulates quarterly; and a list of translated articles cataloged for the collection. Plans are being made to publish annual and quinquennial volumes, the latter to serve as permanent supplements to the Dictionary Catalog.

A computer produced publication, the National Library of Medicine Current Catalog supersedes the library's previous Catalog (Suppl. 2P60). Biweekly issues include complete catalog information for works added having an imprint date of the current or two preceding years; cumulations (each of which cumulates all entries from January to date of publication) include all titles added during the period, regardless of imprint date, excepting pre-1801 and Americana items. Main, added, and title entries are interfiled in the biweekly issues; a separate subject section is added in the quarterly cumulations. As many as three appendixes appear in each biweekly issue: a directory of publishers, a record of volumes added to previously cataloged sets, and (less frequently) a list of reprints already in the Library.—E.S.

ENCYCLOPEDIA


To judge from the first published volume, the latest edition of this standard Dutch encyclopedia is being entirely revised: many articles have been added, some deleted, and the others rewritten. Among the new subjects are technical or specialized terms in many fields, geographical locations, and biographies of notable people both living and dead. The many illustrations are almost all new, maps and charts have been redrawn, and photographs have been brought up to date. As in the past, many articles are signed, and some have bibliographies, the latter being up to date as of 1965 in this first volume. The twentieth and final volume, scheduled for completion in 1970, will contain an index.—S.R.

NEWSPAPERS & PERIODICALS


This is the first volume to be published in the new “Prior series” which is designed to provide index coverage in book form from 1851 to 1912. The volume is reproduced from existing indexes, originally printed for staff use (and previously available on microfilm), covering periods of three months to a year; they have not been cumulated. While dates of coverage are clearly marked at the top of each page, colored sheets of heavy stock between the years would have facilitated use.—E.S.


Scholars in many fields have long awaited publication of this index. Planned as a “multi-volumed work that would provide students of the age with a new and better subject index, a book review index, and an
author index" (Intro.d.) to magazines of the period, the completed project will provide more detailed and, in some respects, broader coverage than Poole's Index and the Nineteenth Century Reader's Guide. Work was begun with the author part as the most badly needed, and this first published volume deals with eight major periodicals: Blackwood's, Contemporary Review, Cornhill, Edinburgh Review, Home and Foreign Review, Macmillan's Magazine, North British Review, and Quarterly Review. The next volume, to be published in several years' time, will index another thirty journals.

The first volume alone is a monument of careful research and editing. Part A offers issue-by-issue tables of contents of the magazines, with identification of the contributors (since most articles were published anonymously) and references to the evidence for attribution. Bracketed information is frequently provided to identify the subject of an article, the book under review, etc., and citations are given to reprints of individual articles. Poetry is omitted. Part B, "Bibliographies of Contributors," furnishes an author approach, listing the articles of each contributor and referring to item number in Part A for the full citation. An index of initials and pseudonyms is also included.—E.S.

PHILOSOPHY


"Published under the auspices of the International Institute of Philosophy, with the aid of UNESCO."—t.p.

With the purpose of providing a directory "to serve as a guide to philosophy on a world-wide basis" (Pref.) the editors have assembled information on philosophical societies and organizations, institutions of higher learning and philosophical research, and philosophical publications. The directory is in two sections: Part I is a detailed list of philosophical organizations which are primarily international in character, and entries include a brief history and chief activities of the organization. Part II is arranged by country or region, and usually includes an introduction, a list of colleges and universities (with names of members of the philosophy faculties), institutes and research centers, philosophical associations and societies, philosophical journals, and publishers who specialize in philosophical works. The introductions (several pages in length for some countries, but not included at all for many others) are good survey essays on the history and character of philosophy in the various regions. Introductions are in English or French; other notes are in English, French, German, or Spanish.—C.S.

RELIGION


Of the many recent editions of the Bible, this work is probably best qualified to join the Oxford Annotated Bible as a scholarly one-volume reference work. It is a very readable version in a well-printed edition with numerous footnotes, marginal references, and introductory notes or essays on individual books or groups of books. It derives from the French version edited at the Dominican École Biblique de Jerusalem under the general editorship of Roland de Vaux, O.P., and known as "La Bible de Jerusalem" (1v. ed., Paris, Éditions du Cerf, 1956). The introductions and notes are "a direct translation from the French, though revised and brought up to date in some places—account being taken of the decisions and general implications of the Second Vatican Council." (Editor's Foreword) The translation of the biblical text, however, goes back to the original languages.—E.S.

FOLKLORE

Russkii fol'klor; bibliograficheskii ukazatel', 1917/1944. Leningrad: 1966. 682. 1r., 60k.

At head of title: Akademiia nauk SSSR. Institut russkoi literatury.

Although published five years later than the volume covering the years 1945-59 (Suppl. 4K50), this volume is chronologically the first of a bibliographic series on Russian folklore which will be continued
Selected Reference Books of 1965-66

I
by occasional supplements. The bibliography provides citations to monographic and periodical materials, newspaper articles, and items in anthologies which were published in the Soviet Union in Russian. This volume includes 5,140 entries in three main sections: (1) texts; (2) research studies, articles, and sketches; (3) educational and methodological literature, including bibliographic surveys. These major divisions are in turn broken down into subdivisions, each of which is arranged chronologically. Name and geographical indexes serve as keys to the contents.-E.L.

SOCIAL SCIENCES


Topically arranged, with emphasis on social institutions and conditions, this useful work might be considered a kind of supplement to John P. Davis' recently published American Negro Reference Book. It is a selective guide to references on an important phase of American race relations, coverage being concentrated on articles published from 1954 through 1965. Each major section of the work commences with scope notes; some entries are annotated; and an author index concludes the volume. This significant bibliography brings up to date older ones in the field, and future editions will be welcomed.-M.G.


Concerned with poverty, human resources and manpower development, this service provides information on research and action programs, policy trends, and their progress. Although there is emphasis on US activities, primary and secondary sources are international in scope, and over three hundred and fifty publications are regularly scanned for relevant material. Appearing bi-monthly, the form has been made flexible to allow for changing needs, and arrangement varies from issue to issue. Besides the major section of abstracts with subject and content analyses, features include reports on national and state legisla-

tion, working papers, reprints of articles, subject bibliographies, and a section of citations for which a brief annotation rather than a full abstract is provided. An index appears for the abstracts only; one for the annotated items would be welcome. The need for this publication is undeniable and, once better organized, it will be of great value.—M.G.


The Guide is intended to introduce the student and the librarian to the reference tools of political science and related disciplines. This first volume is devoted to general reference sources in social and political science, plus sections on political theory and ideology. (A second volume is to cover public administration, political parties, public law, international relations, and government documents.) Very brief, descriptive annotations are provided for most titles; the more general reference works are treated at greatest length. There is an author index, but unfortunately the broad subject arrangement is not supported by a detailed alphabetical subject index. This seems a considerable limitation on the usefulness of the guide, although the author expresses hope that the rather full table of contents will compensate.—L.B.

DICTIONARIES


Contents: Hinweise; Bd.1, Lfg.1, A-Abenteuer.

Memories of the problems of assembling and binding all the parts of the first edition (1854-1960; Guide M241, etc.) of this great work must not deter librarians from welcoming the beginning of a new edition. Work is proceeding jointly at the Berlin and Göttingen academies, and one hopes that the parts will appear in alphabetical
sequence. In addition to continuing the scholarly tradition of the earlier edition, and the obvious advantages of incorporating new research, the second edition offers a slightly larger page and considerably more readable typography.—E.S.


Indications are that this dictionary will be almost as widely (if, perhaps, less controversially) reviewed as was "Webster 3." Although a new work, it bears a distinct "family resemblance" to the American College Dictionary, using the same type-face and type-size, and incorporating various features of the smaller work: keys to etymology and pronunciation at the foot of the pages; personal and place names, titles of literary works, foreign words and phrases all included in the main body of the work, etc. Examples of usage are frequently given in RHD, but are not identified as being drawn from published sources. For libraries, up-to-dateness of vocabulary will be the real virtue of the work, but its relative inclusiveness and encyclopedic features (plus the atlas section, chronology, etc., which are superfluous in any but the smallest library) will have appeal for home purchase.
—E.S.

SCIENCE


This directory "contains the first comprehensive lists of research establishments in many countries and covers the research facilities of European industrial firms for the first time." (Publishers' Introd.) After a general section listing European agencies, arrangement is alphabetic by country for the nineteen West European countries included. Within each country two alphabetic lists appear: first, research centers, firms, laboratories; and second, universities. For each entry are given title, English translation (except for industrial firms), address, director of research and subject of research conducted or promoted. Each section is prefaced by a short essay on the organization of research in the country, with useful citations to two or three "further readings" on the subject. Two indexes—original language titles, and English equivalents—are found in volume two.—R.K.

LITERATURE

Akademiia nauk SSSR. Fundamental'naia biblioteka obshchestvennykh nauk. Sovetskoe literaturovedenie i kritika; Rossiia sovetskaia literatura (obshchie raboty); knigi i stat'ia 1917-1962 godov. Bibliograficheskii ukazatel'. Moskva; Nauka, 1966. 586p. 3r.,12k.

This is a bibliography of Russian literary history and criticism on the general aspects of Soviet literature; individual authors will be covered in a separate volume. Annotated entries based on personal inspection of the materials are given for monographs, essays in collections, articles of research and criticism, the prefaces and epilogues of books, reviews, published documents, memoirs, speeches, and bibliographies. Arrangement is classified, and there is a detailed index.—E.L.


Arranged in dictionary form, this single volume provides essential information on Shakespeare, his life and work, in a concise and highly readable manner. An all-embracing view of Shakespearean criticism is presented from his own time to the present, with even a section on computer scholarship. Entries for literary influences, forms, characters, trends, critics and historians, Shakespeare's contemporaries, festivals, and interpreters are included. Several articles are done in essay style and are signed with initials of noted scholars in the field. Entries for Shakespeare's individual works contain notes on the text, date, sources, stage history, and plot synopsis, plus critical comments, a bibliography of outstanding editions and critical writings, and selected quotations from various writers, with sources given. Numerous illustrations are included; cross-references are provided; and a selected bibliography rounds out this very useful contribution to Shakespeare studies.—M.G.
Dizionario enciclopedico della letteratura italiana. Direttore: Giuseppe Petronio.
Contents: v.1, A-Ca.

When completed in six volumes, this ambitious dictionary will be one of the major keys to a great literature. Modelled somewhat on Bompiani's work of world-wide scope (Guide R31), this set is restricted to the literature of one country and language. The first and largest section of the dictionary, comprising volumes 1-5, is to be a listing in one alphabet of major and minor Italian authors together with classical and foreign authors who have influenced Italian letters; politicians, princes, and popes who have patronized the literature; movements, cultural institutions, libraries, journals and magazines, and the language and terms of literary criticism. Author entries are composed of an expository or critical text followed by two bibliographies: a list of the definitive editions of the writer's work, and a list of books and articles about his work. A second section will be a title listing of all works cited in the articles, and will serve as a quick means of identifying the authors. Finally, the editors plan a third section as a general index. Here it will be possible to locate all references in the dictionary to a given author—his works, adaptations of works, his imitators and critics, his themes—indeed, everything that will help to build around the central article a more complete picture of the man and his influence. The handsome volumes are printed on good paper and illustrated in black and white.—H.M.

Harvard University. Library. Twentieth Century Russian Literature. Cambridge: Harvard Univ. Pr., 1965. 142, 139, 140p. $20. (Widener Library Shelflist, no. 3)

One of the first results of the Harvard library's experimentation in computer applications is the publication of three computer-produced portions of the Widener shelflist. Earlier issues dealt with the crusades and Africa. The present work covers the writings of twentieth century Russian literary authors, both Soviet and emigre. Only that section covering books by and about individual authors is included. There are three arrangements of the book's contents: by call number, by author, by date. Entry gives surname with initials, title, place and date. Typeface is "computer" upper case—small, but well-spaced and easy to read—and entries are rarely longer than one line. Updated editions and supplements are planned, and other portions of the shelflist are to be published.—R.K.


Arranged by broad subject areas, with a separate section for individual authors, this bibliography presents a comprehensive introduction to Canadian literature in English, bringing together widely scattered articles both on the state of the national literature and on its practitioners. Items are included, as stated, from 1806 through 1960, though most of the articles are from relatively recent years. The aim of the authors is to facilitate the study of the national literature, especially belles lettres. Given this specific goal, it seems regret-
table that they decided to omit all study of the flourishing French Canadian school and, except for such few items as turn up in the "general" section, the effect on a national literature of two strong languages. Within the stated scope, however, this is a useful point of departure in a field not well served by bibliographic aids, and it is a valuable and necessary companion to C. F. Klinck's *Literary History of Canada* (Toronto, 1965) which is also limited to Canadian literature in English.—B.R.

**Biography**


In order to help satisfy the demand for current information while avoiding the need for publishing new editions more frequently, Bowker is offering this new series of supplements to its biographical directory for the physical and biological sciences. To be used in conjunction with the base volumes of the still incomplete eleventh edition, the supplements will be published in a cumulative pattern (e.g., the first covers A-C; the second will cover A-G, etc.) and will include complete new biographies (1150 in Supplement 1), plus important new data such as changes in position, deceased notices, etc., for biographees in the main set. Criteria for inclusion are as for the base volumes. Four supplements are planned for the physical and biological sciences section; the last, covering through Z is scheduled for late 1967—presumably very soon after publication of the final volume of the main set for this area.—E.S.


"To bring together in convenient form all discoverable biographical information on the members of the medical profession in medieval Britain" (Introd.), the authors of this unusual register searched all major collections of printed source material of British medieval history, pertinent manuscript collections, Public Record Office documents, and local historical society publications. The result is a compilation of thoroughly documented biographies (each statement is carefully footnoted) from the earliest times to 1518. Arrangement is alphabetic by forename, with dates so far as known. Entries range in length from mere identification to thousand-word articles. The work is of value not only to the historian of medicine, but to anyone interested in medieval British culture. A list of books consulted, of abbreviations used, and a full index of names, places, and subjects enhance the book's reference worth.—R.K.


This welcome directory of contemporary scholars resident in the United States is designed to provide reliable information on clearly specialized professional personnel in Latin American studies, and by doing so, to encourage communication among scholars of related interests. Two groups are included in this selected list: "area" specialists, and those whose fields (e.g., economics, political science) are not limited by geography but "whose personal interest and linguistic abilities would make it feasible and desirable for them to undertake professional pursuits in Latin America." (Introd.) Entries, arranged alphabetically by name, give place and date of birth, major discipline, degrees, career, honors, research specialties, major publications, language knowledge, linguistic studies, and address.—R.K.

**History**


A classified list of 967 titles in Korean, Chinese, Japanese, and Western languages this is a companion to K. P. Yang's *Reference Guide to Korean Materials, 1945-1955* and to S. H. Lee's *Korea; a Selected Bibliography in Western Languages, 1950-1958.* Most of the titles listed are in the Korean
unit of the Library of Congress, and are of South Korean origin, but enough North Korean materials are meant to be included to answer basic reference needs. While the work includes government publications, professional and academic periodicals, as well as books, it is not intended to be exhaustive; it seeks merely to “provide basic information necessary for study of the present political, economic and social life of Korea.” (Intro.) Reference use is facilitated by separate author and title indexes and the standard romanization of alphabets throughout.—C.S.


This work is primarily a research guide to French historiography and, as such, it begins with two long essays: one on French historiography itself, and the second on historical research and the teaching of history in France. These are followed by a section which describes those institutions—schools, archives, libraries, museums, and research institutes—which are centers for historical scholarship in France; and a section on publications (including a description of the types of theses required in France), with an annotated list of French historical journals. The last half of the volume is devoted to a bibliography of historical monographs published by French historians from 1940 to 1964.—E.L.


These two volumes supersede and expand the bibliography by Leo Okinshевич and Cecilia Gorokhoff (Suppl. 4V150) issued by the Library of Congress in 1959 under the same title. The work now includes a total of 8,688 entries, topically arranged. Citations are given in transliteration, together with an English translation of the title. The bibliography covers writings in Russian and other languages of the Soviet Union on the “geographical and cultural area” of Latin America, and the works of Latin American authors translated into Russian. Subject matter includes not only politics, but literature and the fine arts as well, thus conveniently bringing together a wide range of material in one source.—B.R.


Mr. Pearson’s guide is not an extensive bibliography of Asian bibliographies, but rather an introduction to Oriental and Asian bibliography as a whole. It is thus divided into three main sections dealing with (1) the producers of the bibliographies; (2) the bibliographic controls (both in indigenous and European languages); and (3) the libraries housing outstanding collections on these areas. Only ninety pages are devoted to a discussion of the bibliographic tools themselves. The reference works and periodicals included deal mainly with the whole Asian continent; area studies are, for the most part, omitted. The work is intended for the librarian or library student in need of a general guide to Oriental bibliography; it is not suited to the needs of the intensive researcher in the field. There are author and subject indexes.—L.B.


This is a collection of surveys of twenty-four Asian areas (excluding Asian parts of the Soviet Union) arranged alphabetically. Background essays written by specialists are followed by sections giving general factual and statistical information on political, economic, social and cultural conditions of the individual countries. There are numerous illustrations and maps, and a reprint of a Time magazine article on discrimination and discord in Asia serves as a fairly objective introduction to the whole volume. Most of the information, however, can be readily found in encyclopedias and yearbooks, and it is questionable whether the advantage of having it brought together in this volume altogether justifies the price.—C.S.
The information he needs is in another library 2000 miles away. But he’ll have it in a few minutes.

Even the University of Virginia library, one of the major depositories of knowledge in the United States, doesn’t have everything. But it has supplemented its resources materially by the use of tele­typewriter service.

Now, when a firm or individual needs information from a book or journal, the request can be sent to the library which most likely has it. The required information can be sent back in a few minutes.

All major universities and research centers in Virginia are linked by teletype writer. Any library in the United States with teletypewriter exchange service can contact any other similarly equipped library to send or receive information.

To learn more about how Bell System facilities can expand your library facilities, contact our Communications Consultant in the field of education. He’s a specialist and knows your problems.
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IMPORTANT RUSSIAN INSTRUMENTATION JOURNALS

Available in Cover-to-Cover Translation

These four scientific and engineering journals have been judged by professionals in the instrumentation field to be the outstanding Soviet publications in instrumentation.

AUTOMATION AND REMOTE CONTROL
Monthly; mathematically oriented, emphasizing stability and optimization of automatic control systems.

INSTRUMENTS AND EXPERIMENTAL TECHNIQUES
Bi-monthly; devoted primarily to nuclear research and associated instrumentation.

MEASUREMENT TECHNIQUES
Monthly; covers measurement of physical variables plus test and calibration of measurement and recording instruments.

INDUSTRIAL LABORATORY
Monthly; devoted to methods of chemical analysis, physical investigation, and mechanical test.

BACK ISSUES

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<table>
<thead>
<tr>
<th></th>
<th>U.S.</th>
<th>Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARC</td>
<td>$60.00</td>
<td>$80.00</td>
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<td>IET</td>
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