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Automation—Using Computers for Classification, Catalogs, Acquisitions, and Indexes

How to Conduct User Studies

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M. M. Oblander

Special Libraries

OFFICIAL JOURNAL
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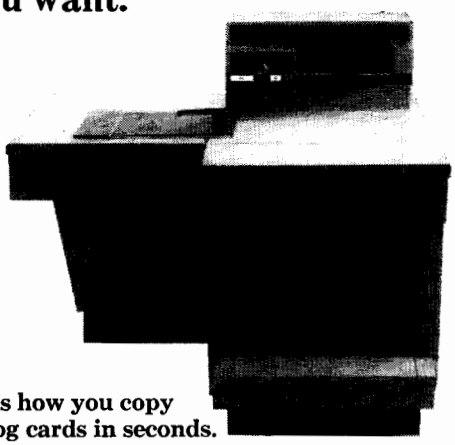

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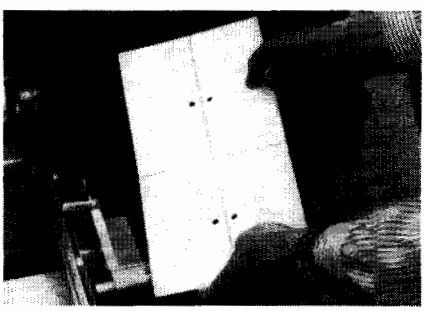

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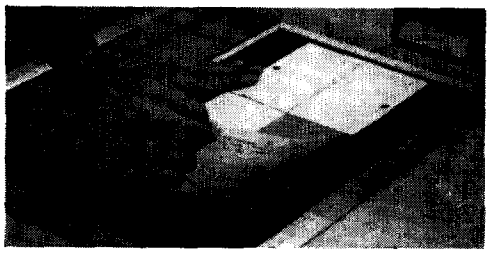

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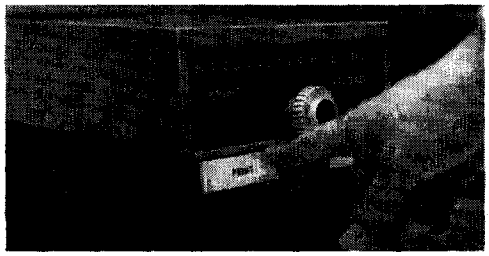

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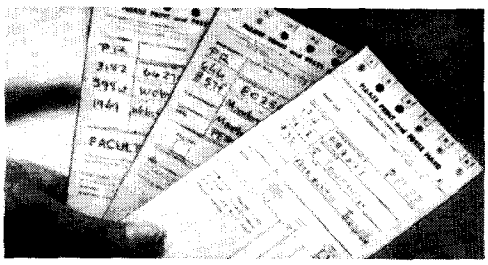

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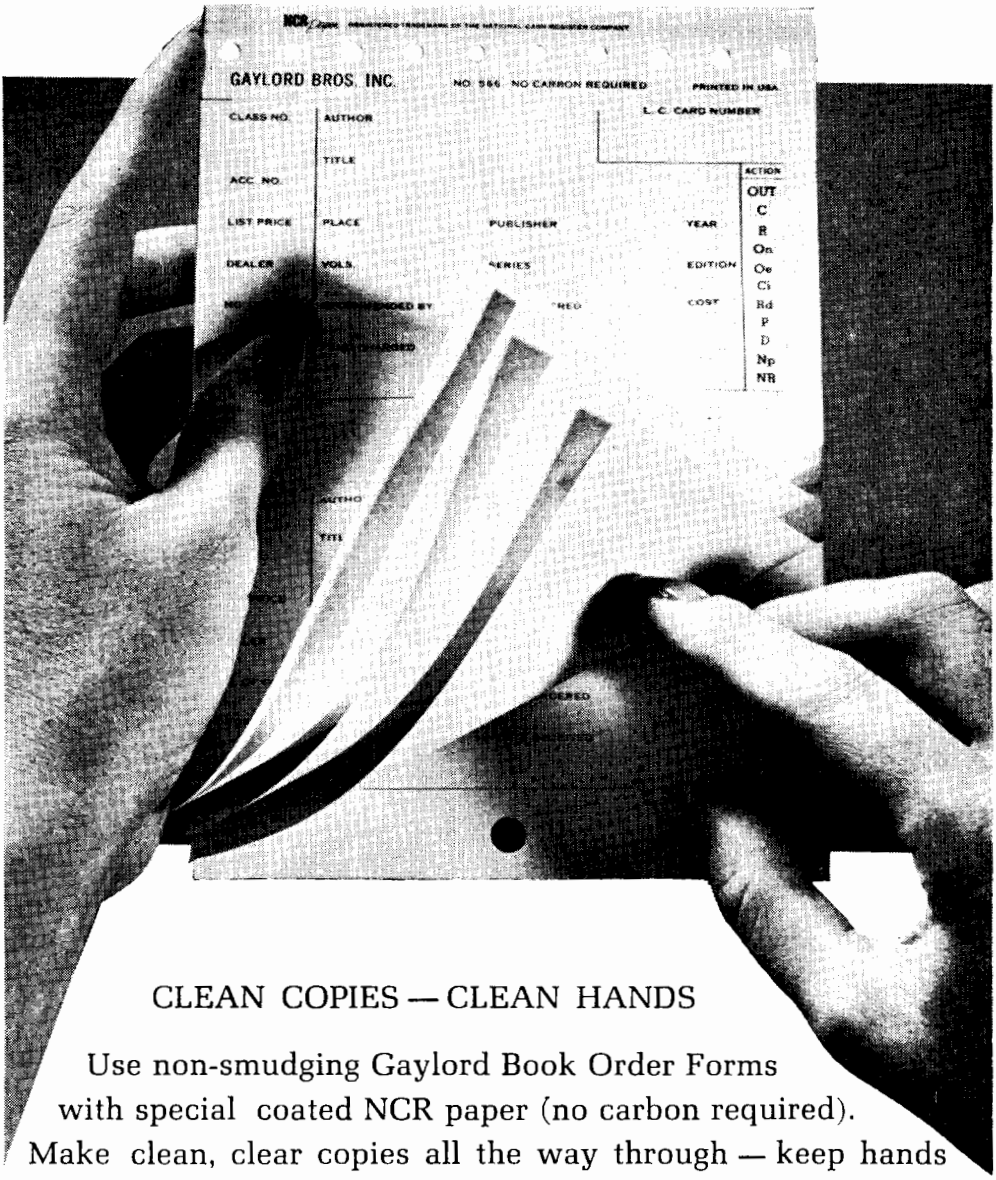

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A proposal is advanced, consisting of four elements: *1)* a simpler classification scheme—the DDC, *2)* simplification of the Cutter numbering system, *3)* a system of subject headings appropriate to the particular library, rather than a large universal list, and *4)* use of a small digital computer to prepare automatically catalogs, shelf lists, indexes, and similar listings in lieu of a 3 x 5 card catalog. The advantages are, in addition to those accruing to any simplification process, that the intellectual effort of the library professionals is focussed more directly on the needs of the specific library and the results of this intellectual effort are more readily available to the library's patrons.

Cutting Complexities with Occam's Razor

ALLAN D. PRATT

WILLIAM OF OCCAM (or Ockham), 14th century English scholar, propounded the philosophical rule that "entities should not be multiplied unnecessarily." This rule has become known as Occam's Razor. It is the thesis of this article that, for a large group of small technical libraries, many current library practices have indeed multiplied entities unnecessarily and that many of these can be eliminated with a consequent reduction in time and cost. A proposal, based on the use of a small digital computer, is advanced for effecting this elimination; it also suggests a different method of gaining subject access to the book collection in a small library.

Mr. Pratt is in the Systems Development Division of the San Jose Laboratory of International Business Machines Corporation, San Jose, California.

This proposal is aimed specifically at technical libraries that *1)* have small book collections (on the order of from 3,000 to 30,000 volumes), *2)* maintain small (one to three man) professional staffs, *3)* do original cataloging of a significant portion of their new acquisitions, and *4)* have access to a computer with magnetic tapes (presumably on a shared basis, as few libraries can justify a computer for their exclusive use).

Function of Book Collection

In many technical libraries, the literature of prime importance is the technical report, followed at some distance by the periodical article, with the book third. This is not to say that the book is no longer significant in the technical library but rather that the nature of its significance has changed. A user does not go to the book collection to find the latest results. Unless he is using the reference collection, he does not go to books with precise questions requiring specific answers. Instead, he goes to the collection for

general familiarization and background knowledge or to review once-familiar, but now half-forgotten, knowledge. The specialist goes to books for information outside his specialty.

In the majority of cases, an inquirer wants to know either, "What do you have on such-and-such?" or "Do you have this book by so-and-so?" The inquiry is answerable either by directing the inquirer to the appropriate general section of the collection or by recourse to descriptive cataloging information. In neither case is a particularly detailed subject approach to the book collection necessary.

The question then arises, "Is the effort expended on the subject analysis of the book collection really justified?" All the vast *armamentarium* of the cataloger—the authority lists, the complex cross-reference networks, the classification systems with sub-class within sub-class—is directed at subject control of books. But is this kind of control really necessary in a technical library, particularly if books are not the primary information resource? Perhaps entities have indeed been multiplied beyond necessity in these areas.

Classification Systems

It is generally accepted that, in any open stack library, some sort of classified arrangement of books on the shelves is necessary. The question is, "What kind and how much?" The Library of Congress Classification system (LCC) is widely used in technical libraries rather than the Dewey Decimal Classification system (DDC). The usual reason for favoring LCC over DDC is that LCC offers a more detailed and accurate breakdown in highly specialized areas. This is indisputably true. However, of what real benefit, to either the library staff or the library patron, are these more detailed breakdowns? A classification system, of whatever design, is not in general used by patrons for access to specific subjects; he uses the call number almost exclusively as a book-finding tool. It is the exceptional library that will even make its classification structure available to a patron so that he could use it as a subject guide if he wanted to. Shelf classification is necessary so that patrons may browse among the books on the shelves. However, the very word "browse" implies that he is not in search of a highly specific topic. Instead he is ranging more or less widely over a given area. Detailed class numbers are therefore of little assistance to him.

LCC, a system designed for a multi-million volume library, is clearly over-designed for the small technical library. While the small library may indeed have intensive depth in a particular area, for which LCC has specific class numbers while DDC does not, who uses these specific numbers? Surely not the patron, and quite probably not the librarian. Under these circumstances, LCC has certainly multiplied entities unnecessarily.

DDC is an attractive choice for use in small technical libraries because its entities are not so multitudinous as LCC. This relative simplicity has advantages from several points of view. First, the system is simpler for the patron to memorize and use, particularly since he is more likely to be familiar with it. Second, it has fewer classes and subclasses than LCC, which makes the cataloger's job simpler. Since there are fewer possibilities to consider in classifying a book, the decision-making process is less complex and thus less time-consuming. Third, the DDC notation scheme, meaningful both within and across subject classes, can be used as a powerful device for arranging the file to meet various needs, as will be described later. Finally, it is much more amenable to machine processing than is LCC, which has multiple punctuation, interpolated numbers and letters, and a highly variable arrangement. As Shaw[1] has pointed out, "Since any allegedly lovely logic or arrangement of the symbols means nothing to the computer . . . the important thing in talking to the machine is to make our words short enough so that the machine can cope with them without unnecessary overloading of the mechanism." On this count, DDC is preferable to LCC by far, since the computer can manipulate it much more effectively.

Cutter Numbers

Cutter numbers are designed to serve two purposes. First, they are chosen to insure that each volume has a book number—classification number and Cutter number (with volume, edition and copy number as required)—distinct from every other volume in the collection. In many instances this book

number serves both as a shelving guide and as a circulation control number. Second, Cutter numbers provide a fairly good, sometimes exact, arrangement by author's surname within a given class number. Outside a single class number, however, they do not provide much more than an arrangement by last initial only, as the Cutter number for the same author may be different in different class numbers. (This is the case with current Library of Congress practice.)

To achieve the second objective, that of insuring an alphabetical arrangement by surname within class number, it is usually necessary for the cataloger to check the Cutter tables to determine a probable number and then to check the catalog to insure that the number does not duplicate one already in use. This is a time-consuming clerical job, subject to error because the catalog is frequently not current.

It is to this second point that Occam's Razor will be applied. What really important or useful function is served by arranging books alphabetically by author within class number? If there is a useful function, is it worth what it costs? It brings together on the shelf all books by a given author on a particular subject, but how significant is this? Certainly, in collections of *belles lettres,* poetry, and the like, it is important. One would not care to find a dozen editions of Keats scattered all through an extensive section of 821's—but this is essentially a form division, not a subject classification.

Within a true subject classification, it would not appear too disastrous if two books by the same author were shelved two or three books apart or even on adjacent shelves. The concept of keeping all of an author's works on a given specific topic together on the shelf is relatively fallacious in any case, because if the technical library is performing efficiently, a significant portion of its collection is in the hands of its patrons, not on its shelves.

Given the assumption that strict alphabetic arrangement by author within classification number is not essential, it is possible to let the computer generate a pseudo Cutter number automatically. The cataloger need indicate only the appropriate initial. The computer would number each title sequentially within initial letter. Thus, the first book by an author whose name begins with A is given Cutter number A1, whether his name is Abel or Axminister; the second, A2, and so on. For authors' names beginning with B, the sequence is the same, B1, B2, B3, and so forth. Using a four-digit Cutter number, instead of the customary three, this scheme allows 9999 numbers for each letter of the alphabet; a theoretical capacity of just under 260,000 volumes. Authors' initials are obviously not distributed evenly over the alphabet, but this is not critical. While S is the most frequent initial letter of surnames, it approximates only 10 per cent of the total. Therefore, by the time one has classified 9999 S titles, a total close to 100,000 volumes will have been processed.

Thus, assigning the Cutter number becomes merely a matter of determining the correct initial. The computer assigns the remainder of the number. Second and subsequent editions of the same work would, of course, be given the same number as the first edition, by the cataloger. They would be distinguished by "2nd ed," or some other appropriate notation, as is the usual practice now.

This approach has the additional advantage of providing a short number for circulation control if desired. Since the classification number does not contribute to the uniqueness, it is not needed for circulation. The maximum of five characters of the Cutter number alone uniquely identify each title. Only the addition of copy, edition, or volume number, as required, is needed to distinguish each book from every other one.

Subject Headings

Subject headings, obviously, are the principal means of gaining subject access to the book collection. It is usually current practice in technical libraries to adopt a published list, such as the *L. C. List of Subject Headings,* and to supplement it with locally established terms if necessary. This presents an interesting contrast. WITHIN the technical library's prime area of interest, the *L. C. List* is not adequate, because the terms are obsolete, because it does not reflect the particular viewpoint of interest to the library, or because of some other reason; thus the local supplement is developed. On the other hand, OUTSIDE the library's area of interest, the *L. C. List* is another instance of entities

multiplied unnecessarily. There are tens of thousands of LC headings of no conceivable use to a typical technical library. It is false to say that these extraneous headings are unimportant because they can be ignored by the library at no cost.

In the first place, the *L. C. List* is expensive to buy; in the second place, it is a time-consuming, tedious process to winnow through the multi-thousand-page volume and its numerous supplements to find the desired heading. Even if LC headings are simply copied from LC cards or proof sheets, these books of only peripheral interest to the library are scattered under a relatively large number of specific headings.

It is true that a library cannot concentrate only on a particular area of interest, at the expense of all others, because the focus will shift from time to time. However, the general area will remain the same. While interest may shift from vacuum tubes to transistors, say, it is hardly conceivable that it will shift from electronics to economics.

It is therefore proposed that the emphasis on book-cataloging in the technical library be shifted from the use of a large, universal list of headings to the use of a much shorter, highly specific list, dealing only with the areas of actual interest. The subject identification of books outside the focus of the library can be handled in a much less costly way.

The Cataloging Method

Specifically, this change in subject heading practice can be accomplished through the use of a modification of the KWIC index, or permuted-title technique. Recent improvements in the KWIC technique have permitted the following capabilities: *1)* ability to add subject headings at the discretion of the cataloger, *2)* ability to treat chapter headings as titles, so that they can serve as a form of analytic entry, *3)* ability to force words or phrases in the title to print selectively as indexing points, or to prohibit them from doing so, at the cataloger's discretion, *4)* ability to add "see also" references, *5)* ability to print not just a single-line entry but the full bibliographic citation, in conventional indexing format, with the indexing word offset in the left margin, and *6)* ability to print in varying line lengths, to accommodate different needs, e.g., 3 x 5 cards or full page formats. Several variations of KWIC index programs to perform the functions described above are available from various computer manufacturers. In general, the programs require a digital computer with a minimum of four magnetic tapes and a core memory capacity on the order of 8,000 characters. The only additional programming required would be the writing of a program to generate the Cutter number and another to handle the selective printing described in the following paragraphs. Neither of these programs would be particularly difficult for a reasonably experienced programmer to write.

Keeping in mind the ability to be selective, let us consider a technical library in which descriptive cataloging is done in the usual way but in which classification and subject headings are handled somewhat differently. After verifying the descriptive cataloging and determining the correct Cutter initial, the cataloger would then assign the DDC number. Turning to subject heading problems, the cataloger would examine the book from his own library's viewpoint. If it is peripheral to that viewpoint, he may assign no subject headings, letting the KWIC program extract terms from the title. If the title is too general, he may assign a few descriptive terms *ad lib,* without recourse to an authority list. On the other hand, if the book bears directly on the library's interests, he may select from the title words that must be index entries, add several headings from a selective list reflecting current interests, and indicate several part or chapter headings that should be KWIC-indexed as well.

Thus the cataloger can assign subject headings in a way that meets the needs of his library. He is able to apply his knowledge of subject heading practice and his knowledge of his library's needs in a selective and intelligent manner, spending more time and effort on those items that really warrant it. Conversely, he is also able to catalog items of lesser interest with a minimum expenditure of effort.

A typist can then translate the cataloger's efforts into machine readable data, for input to a computer. A device that produces machine readable data and a typed copy at the same time is preferable, e.g., Friden Flexowriter, IBM 870 system, or the like.

The Computer Processing

Given a body of machine readable data representing newly cataloged books, the computer would first assign the Cutter number as described above. Each title now has a unique call number. This call number, since it is unique, will serve as the "record number," in programmer's parlance. Thus the principal computer file is equivalent to the shelf list. This may be printed in book style or may be printed on 3 x 5 cards so that interfiling is possible. More important, indexes with very interesting properties can be prepared if the data are processed through a permuted title index program.

Of course, the entire book collection can be indexed in this way. More intriguing, however, are possibilities for selective listings at selective intervals. By controlling the computer's printing, based on the classification number, one can produce indexes to parts of the collection to meet special purposes. By printing only entries with classification numbers whose first and second digits are 53, an index of the physics books only can be produced. Selectively printing 5 records produces an index of all science books, while 537 produces an index to electricity and electronics. Author indexes for the corresponding sections may be produced in the same manner. Other forms of selection are also possible, e.g., the form divisions. Printing only records with the number .02 will result in a listing of all handbooks, .03, in a listing of encyclopedias and dictionaries, and so on. Similar means can be used to produce indexes and/or shelf lists of reference books or other special collections.

Extending this concept one step further, the librarian might produce a series of individual indexes for every section of the collection. One could prepare an index to all titles from 000 to 299, another from 300-399, another for 400-499, perhaps one for only 500-509, another for 510 alone, another for 521.4 and so on, each with author indexes. These index volumes might be shelved at the beginning of each appropriate section of shelving, thus replacing the card catalog. Multiple copies can be kept at the desk or distributed to departments. Furthermore, the updating of these indexes can be similarly controlled. Rather than completely republishing an updated version of every index at fixed intervals, one may selectively reprint each individual index after a given number of additions has occurred. For example, a technical library might add 50 volumes to the 510 series while adding only two or three to the entire 300 series. The computer can be instructed to print an updated index to a given section after, say, 50 additions, thus reprinting only the active sections of the collection rather than all of it.

Another possibility is to print only new additions to the master file. This results in an announcement bulletin, already arranged by DDC number. Subject and author indexes to the bulletin can be produced as well.

Cost

It is difficult, for a number of reasons, to generalize about the cost involved in this proposed approach. Such variables as the cost of computer time at a given location, the number of the copies of the catalog required, the complexity and depth of the indexing required, and similar factors must be determined individually. A report by Hayes and Shoffner[2] presents formulas and guidelines for estimating some of the costs involved in producing book catalogs. Wilkinson[3] has published data indicating that the production of six copies of a book catalog, via computer, is cheaper than producing one card catalog by conventional means. Bauer[4] has described a modified KWIC indexing system for cataloging books and reports in the technical library. A printed index is produced, in addition to other statistical reports. Bauer estimates a monthly saving of about $600 when this system is in operation.

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ALPHA is an automated literature processing, handling, and analysis system developed for RSIC. The article describes the book ordering and receiving module of ALPHA. The method used is unique—there is one-time recording of information at the earliest time. The method eliminates duplication of filing and from initial keying of information, cards are prepared for ordering, receiving, cataloging, and distribution. Basic equipment employed is an electronic typing calculator, which makes the method applicable to small special libraries. Also described is the step-by-step processing required and the resulting computerized reports.

Automated Book Ordering and Receiving

E. F. MILLER, B. W. LEE, and J. D. NILSSON

APRIL 1965 was a typical month for book orders at Redstone Scientific Information Center (RSIC). Over 1,000 book titles, in 1,300 copies, were placed on order. All were immediately accounted for, and reported on, through RSIC's automated ALPHA System.

The ordering and receiving method used is unique in that information is recorded only once and at the earliest possible time. This method offers the following features: *1)* it eliminates duplication of filing in ordering and receiving and *2)* from the initial keying of information, cards are prepared for use in ordering, receiving, cataloging, and distribution.

Streamlining the ordering and receiving functions is only one facet of the ALPHA (Automated Literature, Processing, Handling, and Analysis) system being developed[1] for RSIC. The over-all system includes procedural techniques for handling all of the various bibliographic entities (documents and periodicals as well as books).

RSIC is a cooperative effort of the Army Missile Command and the George C. Marshall Space Flight Center, NASA. Both agencies are located at Redstone Arsenal near Huntsville, Alabama. More than 65 personnel handle 100,000 books, 600,000 reports, 350,000 microfilms, and 6,000 motion pictures. RSIC includes the nation's largest collection of aerospace and missile data, and RSIC's activities support 30,000 employees working on national missile and space programs at Redstone Arsenal.

Since the ALPHA system circulation module is similar to that described in a previous article,[2] this discussion concerns only automated ordering and receiving.

Basic Equipment Employed

The basic machine used in the ordering and receiving module of the ALPHA system is the IBM 632 electronic typing calculator. This type of machine is a small but powerful tool for a library. It produces typewritten copy on a typewriter, reads punched cards, and simultaneously punches and prints information onto cards. Information is accepted by the ALPHA system by manual operation of the typewriter, from punched cards, via paper tapes, from information already in the computer memory of the typing calculator, or by a combination of all of these.

1. The ALPHA System is being developed and designed by General Electric Company under Contract DA-01-021-AMC-242(Z).

2. HAZNEDARI, I., and VOOS, H. Automated Circulation at a Government R&D Installation, *Special Libraries*, vol. 55, no. 2, February 1964, p. 77-81.

The authors are working in the Huntsville Operation of the Information Systems Division of General Electric Company. The system they describe, designed by Miss E. F. Miller, was displayed in the Documentation Division's exhibit of information storage and retrieval techniques at the Special Libraries Association Convention in Philadelphia in June 1965.

Primarily because of the high quantity of data processed and the availability of the equipment, the ALPHA system also uses the IBM 7010 and peripheral IBM 1401 computers of Redstone Arsenal's Army Computation Center. However, with a sacrifice in processing time and with some manual filing, a typing calculator could be used successfully for automated ordering and receiving without the computers. The cost of a typing calculator alone is such that even a small special library can afford one. More important, a nominal system designed around a typing calculator can grow with a library after initial installation by the addition of features to increase speed and flexibility.

The typing calculator in the configuration used for the entire ALPHA system rents for $395 per month. Simpler configurations from a variety of manufacturers rent for less. Cost of supplies is nominal.

How the System Works

The ALPHA system eliminates costly and time-consuming manual effort involved in library acquisitions by automatically handling or preparing most of the documents required. At RSIC, book orders have tripled since the installation of the system but are being handled more efficiently by the same number of library personnel who handled them prior to the ALPHA system. In addition, the system maintains accurate and quickly available history and cost records and provides timely and flexible user services throughout the library processing cycle.

When a patron request card is received in the circulation section, the circulation librarian determines if: *1)* the item requested is not available for circulation, *2)* the item is not on order, *3)* the item cannot be recalled, *4)* the item is not flagged as reserve, and *5)* the item is not outside the scope of RSIC. When all of these conditions are met, the circulation librarian adds to the request card any other information readily available, such as LC classification number, complete title, author, and so on. Then the request card is forwarded to the acquisition section.

The first step in the processing cycle for the acquisition section is to determine exactly what is wanted. The acquisition librarian's decision is based on normal new-title selection procedure or on a specific request by the patron. Once it is decided to add the book to the holdings, the librarian completes the original request card by adding the publisher, address, quantity to be ordered, unit cost, LC card number, and the vendor. Request cards are grouped by vendor and placed in the to-be-ordered file.

Daily, the typing calculator operator prepares the purchase orders, one for each vendor. The purchase order itself is simply a pin-fed multipart continuous form. The use of the continuous form reduces significantly the time taken to insert and align paper in the typewriter.

The heading on the purchase order is prepared automatically by inserting into the typing calculator a small deck of keypunched cards that contain information about the vendor (name, purchase order number, vendor's address, and so forth). The typing calculator automatically reads this information and types it in the proper area at the top of the form.

Using a request card as a source document, the operator types, in the proper order, the information required for ordering a requested item. The typing calculator automatically spaces for the operator. The operator then types, to the side, where information does not appear on the purchase order, any additional information required for the order, such as requesting-patron identification. The result of this one-time typing is the completed entry of a requested item on a purchase order, plus a set of ordering input transaction cards automatically created by the typing calculator. These cards are used by the computers to update the appropriate computer files. (See Figure 1.)

Later, from the updated files, the computers will produce other cards to facilitate receiving, cataloging, and distribution of the item. Although the computers accept the ordering transaction cards as input and produce the other cards as output, a system simpler than ALPHA built around only the typing calculator could produce the receiving, cataloging, and distribution cards directly from the calculator. A change in card format and some manual filing are all that would be required. In either case, only one-time typing of information is required.

Another time-saving advantage of the machine is that it automatically extends and

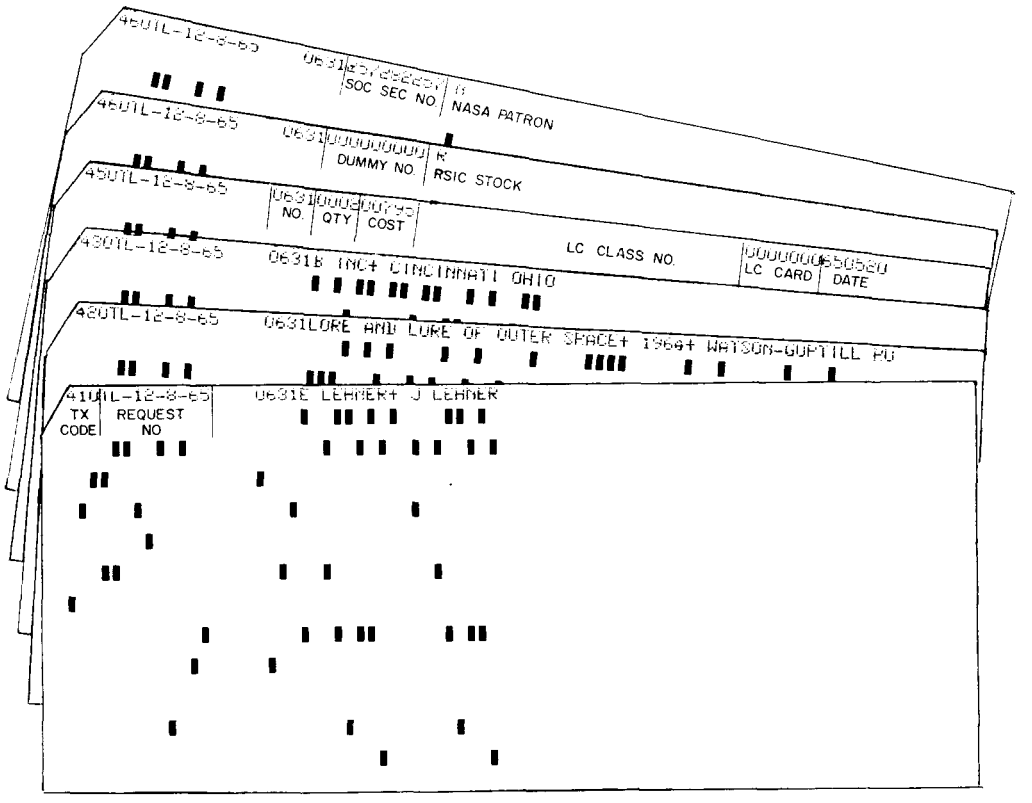

Figure 1: Ordering Input Transaction Cards

totals the amount of each purchase. If a monetary limitation has been imposed, the operator may check at any time to see if the limit has been reached. The operator may also key in the next item to see if it will overextend the amount without disrupting any total that has been accumulated. Such trial balances are typed to the side of the purchase order.

When ordering is complete, the operator forwards the purchase order and the keypunched ordering cards to the librarian in charge of the ordering and receiving section for checking. Copies of the purchase order are separated and distributed to the vendor, purchasing department, and accounting office. The punched cards are forwarded to the computation center.

The ordering and receiving section receives an *On Order and Received Report* (See Figure 2) weekly, with daily supplements, from the computation center. Copies of the *Report* are sent to the acquisition and circulation librarians. The *Report* is arranged by title, which is used at RSIC in place of a main entry arrangement, and it reflects the status of all titles that have been ordered or received but not yet cataloged. Decks of punched and printed cards (See Figure 3), each representing an item ordered, accompany the *Report*. The cards are used for receiving, cataloging, and distributing the book when the order has been filled. Each item on the *Report* is cross-referenced to its cards by an arbitrary number assigned to it automatically by the computer. The cards are placed in numerical sequence by the computer and are filed according to these numbers without any manual sorting or rearrangement.

As each book is received from a vendor, it is checked against the *On Order and Received Report*. After verification, the receiving, cataloging, and distribution cards are pulled from the file. Receiving information, such as quantity, price, date received, and so on, is written on the receiving cards, which are then forwarded to the typing calculator operator for keypunching and finally to the computation center for processing.

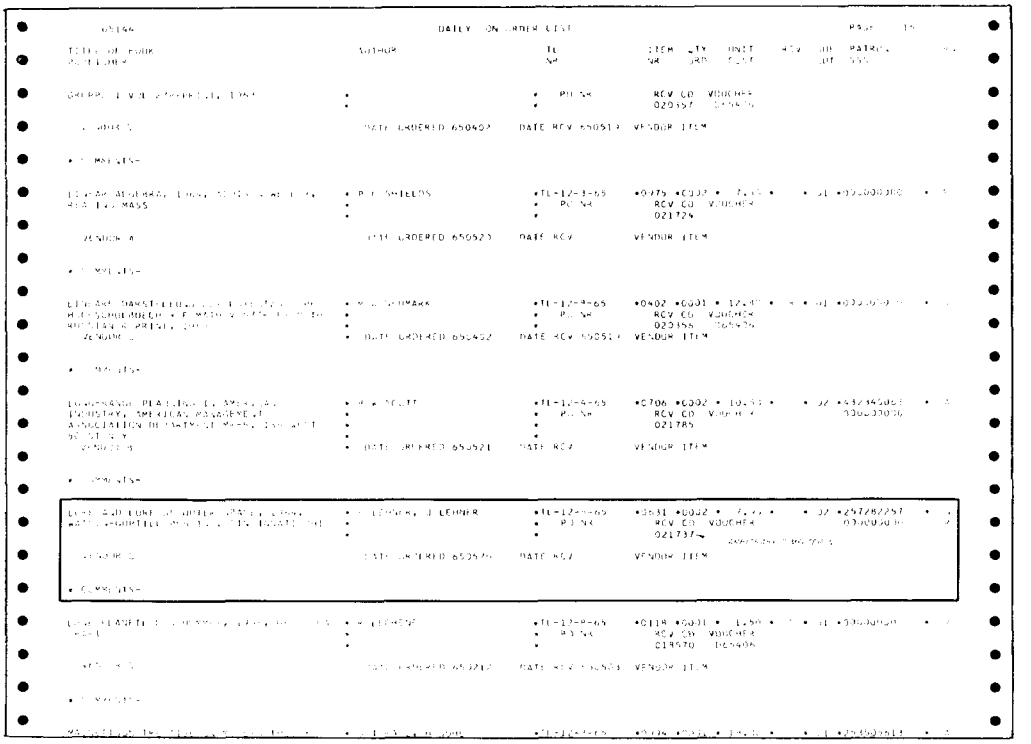

Figure 2: Part of an "On Order and Received Report" Page

Catalog and patron mailing cards are placed in the book and travel with it to the cataloging section. The cataloger is able to tell by the absence or presence of an LC classification number on the catalog card whether the item is a new title or an additional copy of a title already in the collection. When the book has been cataloged, the catalog card is forwarded to the computation center for processing.

The distribution card follows the book to the circulation desk, where the book is checked out to the patron whose name appears on the card. Information on the distribution card includes the patron's name, mailing symbol, and building number. The card is taped to the book and both are mailed to the patron. This action completes the ordering, receiving, cataloging, and distribution cycle.

Computer Processing

When input (ordering, receiving, and cataloging) cards reach the computation center, they are processed as follows. An ordering input transaction card builds a new record on the master on-order file. This record contains fields for a request number, item number, purchase order number, author, book title, publisher, publisher address, quantity ordered, unit cost, LC classification number, LC card number, patrons' social security numbers, patrons' agencies, date of order, and any comments that the acquisition librarian wishes to record at the time the order is placed. Each time a new item is placed on the master on-order file, cards are prepared for receiving, cataloging, and distribution.

A receiving card contains the receiving transaction code, request number, item number, quantity ordered, date of order, and receiving card file number. When matched with the appropriate master on-order record, the receiving card adds to the master file information such as the quantity received, date received, total cost minus discount, voucher number, and type of item received. After processing a receiving card, the *On Order and Received Report* reflects the matching item as ordered and received but not yet cataloged.

A catalog card contains a code to permit differentiating between a new title and one

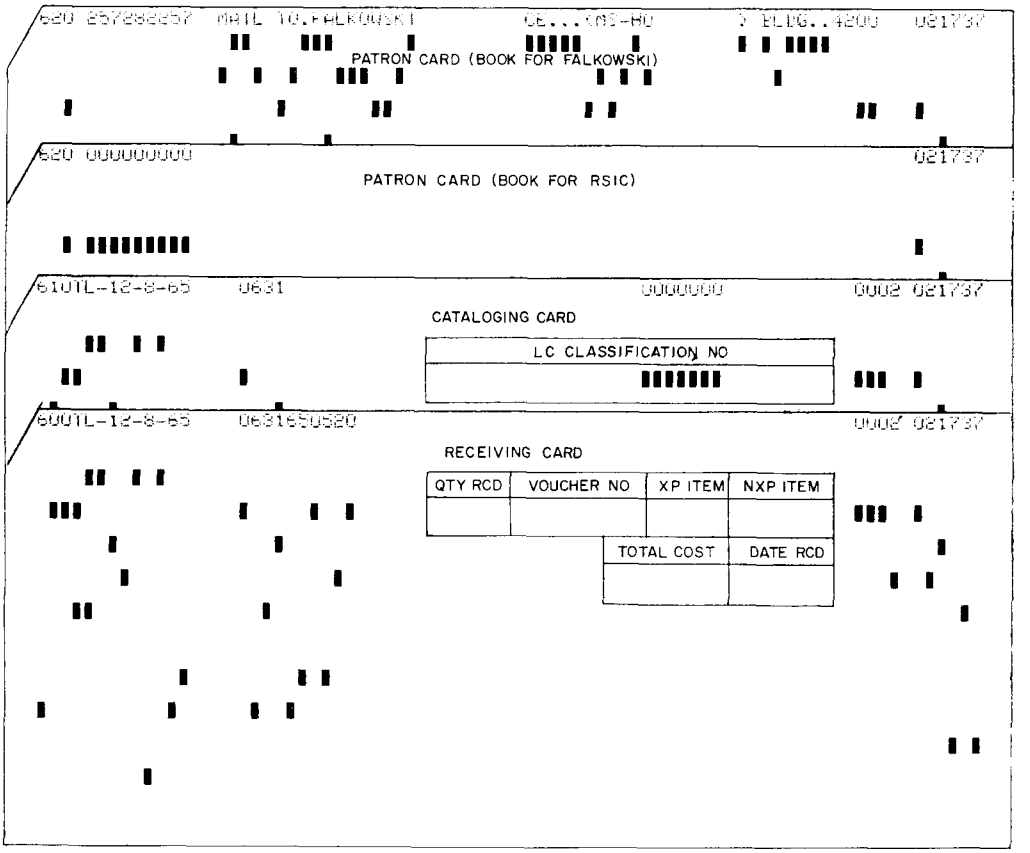

Figure 3: Order Output Transaction Cards

already in the collection, the request number, item number, LC classification number if the title is already in the collection, date of order, quantity on order, LC card number if a new title, and the receiving card file number. When the cataloging card is processed against the master on-order file, the matching on-order record is dropped from the on-order master. The record that was dropped then becomes input to the next module—cataloging—of the ALPHA system.

As might be expected with an automated system, several reports are automatically produced as by-products of the updating of the master on-order file, in addition to the *On Order and Received Report.* These reports may be produced daily, weekly, monthly, or upon special request. Examples are the voucher register, financial report, cancellation record, and workload summary.

The ordering and receiving module of RSIC's ALPHA system has necessarily been described only briefly here, but it does a great many things, from routine paper work to information retrieval. RSIC Director Fred Croxton has described the ALPHA system as a comprehensive plan for total automation of non-intellectual activities and functions of a large information center. The system is also readily adaptable to libraries throughout the United States, and is being considered for Army-wide utilization.

Brigham Young Library School

A Graduate Department of Library Science with a program leading to a Master of Library Science degree will be initiated at Brigham Young University, Provo, Utah, in the fall of 1966. The school will prepare students for professional service in school, college and university, public, and special libraries. H. Thayne Johnson is the newly appointed Director. Further details may be obtained from Mrs. Hattie M. Knight, Assistant Director.

Automation is a library tool. Its techniques can be applied to the organization of library materials, to the dissemination of information, and to retrospective searching or information retrieval. Periodical handling, cataloging, abstract and bibliographic bulletins, and indexing of special segments of the collection for information retrieval are all logical areas for automation, given the present developmental level of both libraries and the machine. The intellectual disciplines and analysis techniques of automation may be applied to analyzing libraries and their operations for more efficient service without, as well as with, automation.

Automation and Libraries

ELIN B. CHRISTIANSON

LIBRARY AUTOMATION has two areas of implication for special librarians. The first area is the actual application of automation and the resultant information we derive from its use. The second area is in the intellectual implications of automation.

There are three areas of library activity to which automation can be applied. These are: *1)* organization activities, *2)* dissemination of current information, and *3)* retrospective searching or information retrieval. These areas overlap, of course; automation of organization provides dissemination or information retrieval. There are any number of systems now in operation that are designed to increase the capacity and efficiency of library operations in these areas. They range from relatively simple card systems, requiring little or no special equipment, to sophisticated ones, using computers. The actual equipment used is of secondary importance; the greatest impact is in the potential automation offers.

The large number of periodicals most special libraries handle makes them a logical area for automated organization. Such routine clerical tasks as subscription renewals, checking in, and circulation can be carried out more efficiently with great savings of time and effort. (When an automated periodical system includes media and media research information as well as library data, it adds even more to the library's function as an information center.)

There are many systems designed to replace traditional library catalogs and cataloging procedures. Although much of the material in some special libraries is too ephemeral or marginal in probable use to warrant extensive processing, automation may provide an economic way to index ephemera. Automation may be very profitably applied to materials that are cataloged, to special groups of materials, and to research reports or periodical indexes.

Automation of these organizational activities will enable librarians to perform more efficiently in disseminating current information and retrieving information. In the area of disseminating current information, such services as bibliographies, abstracts, regular acquisitions lists, and the like which are prepared to keep management informed on current publishing can be offered because they can be produced as by-products of automated cataloging and indexing systems.

It is possible, with automation, to develop an efficient and effective selective information dissemination system. Such a system matches individuals' interest profiles with a document profile and matches a document with the people most likely to be interested in it. Librarians do this on a limited basis now, but they simply can't carry enough in-

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Mrs. Christianson is Librarian at the J. Walter Thompson Company in Chicago. *This is a condensed version of a paper she presented to the Advertising and Marketing and Publishing Divisions at the 56th Special Libraries Association Convention in Philadelphia, June 9, 1965.*

dividual interests around in their heads so that instant matching takes place when they see an article. However, with computer tape or punch cards or whatever device is remembering interest profiles for them, all librarians need provide are document profiles, and it becomes possible to keep each person in the organization aware of current information in his fields of interest. Some computer firms have created interest among businessmen in such programs by offering systems providing selective dissemination of information.

In the area of automated information retrieval, as in other aspects of library automation, there is only partial automation because of the current state of development of libraries, of machine system capabilities, and of information retrieval techniques in the non-scientific areas. However, as each of these areas develops, the possibilities for automation increase.

The value of automation for information retrieval lies in the increased efficiency the automated system offers in both the input and the search sectors. Where human memory cannot cope with all available information, and current cataloging and indexing techniques are too time-consuming and unwieldy to record in depth, automated retrieval systems can make a real contribution by adding to, not robbing us of, traditional library tools.

Perhaps the proper place to start would be with a segment of the collection that is not being used fully now because of the drawbacks inherent in traditional organization methods. For instance, an automated catalog or index could cover a company's own research. This is one of a company's most valuable assets, as it represents the collective experience of the company and is an area management is most interested in utilizing. Proceedings and speeches could be quickly indexed and searched by an information retrieval system, while librarians can't take the time to analyze and use them fully now. Any one of us, right now, can start such a system with a segment of our collection. Once the system is set up, other materials can be added easily.

Finally, automation will reach libraries by way of cooperative services that are now or will be available to our companies. A teleprinter could be located in the library, and we could query it just as we check *Reader's Guide* or *Business Periodicals Index* for articles relevant to the problem at hand.

Library automation also holds intellectual implications. The subject disciplines upon which automation is founded are not customarily thought of as being relevant to librarianship. Library educators are now suggesting that logic, linguistics, mathematics, theory of information, and systems engineering, not to mention computer programming, must find places in library education. Where does this leave us library school graduates? We can't even go back to grade school because we don't understand the new math or the initial teaching alphabet!

But just as we will undoubtedly have to relinquish the technicalities of automation to those who have the necessary background, there is much we can contribute from our own experience and there is much about automation we can assimilate because we do have a traditional library education. We are used to grouping knowledge and information and making sub-classes of such groups. We are already accustomed to defining terms and selecting terms to act as standard headings. When we talk about subject headings and sub-headings and classification schemes, we are discussing the sets and sub-sets of mathematical theory. We are versed in the practice of organizing knowledge—to adapt to automation we need only step back to the theory behind our practice of organizing knowledge.

Our training as librarians enables us to grasp new ways of thinking by recognizing that many of these "new" disciplines underlie many library disciplines. What automation forces us to do is place a greater intellectual discipline on our patterns of thinking and to think back to "how" and "why" we do things rather than remembering "such and such is the case and done in this way."

The aim of new library education is to make librarians planners and designers of libraries and information systems rather than operators. We can be planners and designers too—automation will make us think better than ever. We can use these new disciplines, not only to work with automation, but also to get a fresh overview of our libraries and their functions.

The purposes of a user requirements survey in a special library are discussed and a sequence of steps outlined. These steps include the following considerations: who should conduct the study, the subdivision of library functions to be evaluated, the centralization-decentralization issue, and the enlistment of administrative support. Three major methods—the questionnaire, the diary, and the interview—are evaluated and examples of each method are given. The comparison of these methods leads to the conclusion that if possible all be used in combination. Techniques of analyzing the data are presented, and the importance of communicating the findings to the users is emphasized.

Conducting User Requirement Studies in Special Libraries

CAROLE E. BARE

PERIODICALLY it is necessary to canvass the user population of a special library to determine whether the objectives of the library are being met. Some sort of feedback system must be set up; a study of the requirements of the library's users can be made. Three methods of conducting user requirement studies are presented here.

The prime purpose of a user requirement study is to provide information on how accurately the librarians and administrators have interpreted various users' needs. Also, it shows users that it is their privilege as well as their responsibility to help the library meet their own informational requirements. Through periodic surveys, communication channels between users and the library may sufficiently open up so that users who don't know precisely what they want from a library become more aware of and more able to express their needs.

First Steps in Developing a Survey

The question of who should be involved in the survey and what areas should be covered must be discussed, first of all. Librarians and administrative personnel can be direct investigators or can participate indirectly. There are advantages and disadvantages to either procedure. Users may express attitudes more openly if a neutral team administers the study. However, administrative and library personnel must be intimately involved in tailoring the study and interpreting the findings to the user group and make their own decisions on how the services should be modified.

The following areas should be covered in a library user requirement survey: content, communication channels, delays, special features, and centralization vs. decentralization.

To evaluate users' satisfaction with the content of the library these library functions should be covered: anticipation of future needs, scope, and up-to-dateness of acquisitions and announcements. To evaluate the personal communication channels between library personnel and the user, the survey may have to elicit responses about how well the following services are performed: clarification of requests, recommendations of specific written materials or sources in response to an inquiry (this includes bibliographies that provide suggestions for alternatives if the most pertinent references cannot be obtained immediately), referral to resource persons,

Dr. Bare is an Assistant Professor in the Department of Education at the University of California, Los Angeles. She has conducted a user study at a large special library and will make the results available upon request. A note appended to her manuscript stated: "Only a few library user requirement studies have been conducted, and little has been published in this area. However, existing materials can be used if they are tailored to the special needs of each library."

and notification of whether or not material requested can be obtained or how well delays are estimated and communicated to the user. Special features such as abstracts, catalog format, location of the library, and microfilm utilization may also have to be evaluated.

If the centralization-decentralization issue applies, the following questions should be answered: where should the major library be located; what are the physical facilities with respect to noise, lighting, and browsing; should smaller special information centers be provided or encouraged; and what should their relationship be to the central library service?

The first step in conducting a survey is to enlist administrative support in the form of a cover letter indicating that the administration not only welcomes opinions but also urges users to participate.

Three major methods have been used to assess user requirements in scientific and technical libraries—the questionnaire, diary, and interview. The advantages and the disadvantages of each method point to the conclusion that the three methods are best used in combination. The optimal combination will depend on the nature of the particular organization.

Two types of pretesting the three techniques are possible. The opinions of administrative and library personnel and of several users on the content and format of the questions to be asked is most valuable. Therefore, the over-all plan, the specific items, and the format should be submitted to librarians and administrators for criticisms. The second pretesting method is to try the techniques out on a small group of users.

Questionnaire Method

It is important to keep questionnaires short so that present and potential users can give their opinions with a minimum of time and effort. The following questionnaire characteristics help to insure widespread participation:

1. Clear instructions and an explanation of purpose. The majority of questions should only require a "yes" or "no" response or the use of a rating scale containing an even number of scale intervals or points. Thus the rater must take a position for or against an issue and cannot choose the mid-point of the scale and remain "undecided."
2. A few open-ended questions requiring brief narrative statements should be included and/or a few lines for comments can be provided for the yes/no or scaled questions.
3. A few questions can be included that ask for estimates of average frequency or a percentage of occurrence.

The example below combines all three formats:

Are you now using, formally or informally, your library (or information center)?

Yes-1 _____

No-2 _____ _____

If so, to what extent has the information center been useful?

1 not useful	2 somewhat useful
3 quite useful	4 extremely useful

If useful, elaborate briefly on reasons:

_____

_____

_____

It is desirable to include the total present and potential user population in a questionnaire survey because frequently clerical personnel, who may not use the library services directly but who facilitate use for scientific and technical personnel, know a great deal about the services. Their opinions should be included, but their status and function should be coded as one of the variables for the analysis of the data. Other demographic data should be collected on the respondents: type of scientific and technical work, type of responsibility (e.g., supervisory, teaching, learning), amount of experience, age, sex, length of time at present job, academic background, and so on.

Diary Method

A daily record sheet on which individual information retrieval transactions are to be tallied can be given to any type of library user. The content of the questions on which

daily records are kept can include a range of items covering an evaluation of each contact with the library to the charting of how a user's information need was fulfilled, e.g., "Found material in own office," "Sent to another library," or "Colleague supplied information."

It is important that the instructions be clear and that participants are visited or monitored periodically, so that questions on how to fill out the daily record sheets can be answered, and uniformity of recording can be achieved. The majority of questions should be answerable by a check mark, but a few open-ended questions or space for comments should be provided, for example:

How soon is information needed?

1	2	
a At once	Up to 2 days	
3	4	
3-12 days	More than 13 days	

1	2	
b Received when expected	Later than expected but still useful	
3	4	
Not soon enough to be very useful	Much too late	

Actions taken:

a Found material in my own office	Yes-1 No-2	
b Colleague supplied relevant information	Yes-1 No-2	
c Requested assistance from library	Yes-1 No-2	
d Query answered by library	Yes-1 No-2	
e Query answered by outside source	Yes-1 No-2	

Interview Method

This technique provides the most intensive look at user opinions, since it is possible to ask the reasons why opinions are held or why a certain process is preferred. Critical incidents and suggestions for correcting shortcomings can be elicited and explained fully by an interview.

The interview should be scheduled in advance and should probably not last over 45 minutes. At the time the appointment is scheduled and again at the beginning of the interview, the purpose of the interview should be stated as well as the interviewer's willingness to limit himself to the time the interviewee feels he can spare. Good use can be made of an interview schedule, i.e., an outline of topics to be covered in addition to issues and topics the interviewee wishes to bring up. The topics are the same as those mentioned for coverage in a questionnaire. However, it may be best to start the interview in an unstructured manner and then proceed to the data on the schedule.

After a brief statement of the purpose of the interview, i.e., that information is being sought on the information needs of scientific and technical personnel and on their requirements for library services, the interviewee should be encouraged to comment on anything in these two areas that comes to mind. If, during this open-ended phase, the interviewee provides information on any topics on the interview schedule, these topics can then be omitted from the second more structured phase during which specific questions are asked about library services and information needs. A mock-up of different indexes, such as KWIC, subject, title, author, or document series indexes, can be presented to elicit preferences for the library catalog organization.

Evaluation of the Three Methods

An evaluation of the relative effectiveness of these three techniques depends partly on the specific objectives of the user requirement study. If a large organization is being served and the results of the study are to provide clear guidelines for specific items in a large budget, it is advisable to use all three methods so that questionnaire findings are interpreted and supported by the more specific findings of the diaries and interviews.

The advantage of a questionnaire is its more complete coverage of users. Most surveys have a return rate of about 60 per cent, and the opinions expressed are therefore more representative of the present and potential user group. Questionnaire findings can be analyzed for particular needs of special work groups and for differences of opinions between special user groups. The disadvantages of a questionnaire are the advantages of the two other techniques—the diary and the interview—for the responses

to questionnaire items represent opinions in considerable less depth and therefore do not form as specific a base for the creation of services that could satisfy a majority of user requirements.

The advantages of depth and specificity afforded by interview and diary methods are somewhat offset by several disadvantages. The diary is the greatest burden for a user. While he observes his information-gathering habits closely, he may alter his usual pattern or he may recall his procedures only very selectively. The diary method, when employed for all kinds of surveys, has frequently yielded poor returns. However, the diary can be kept extremely simple and clerical help can be provided; it represents the most specific datum that can be obtained.

To fulfill most user requirements this degree of specificity may not be as important as the intensity and scope of information obtained by an interview. The weakness of the interview method is the cost of time of well-trained interviewers.

Depending, of course, on the particular purposes of the special library, the most successful pattern for a user requirement survey is to cover the total user population by questionnaire, to give out and monitor a few diaries, and to conduct 15 to 35 interviews. It may be feasible to start with the interviews and construct the questionnaire from the interview findings.

Analysis of Data

Classification schemes must be constructed for categorizing and quantifying the responses to the open-ended questions. The responses to questions should be rated by at least two independent raters in terms of their appropriate categorization, and if discrepancies occur, a third rater can provide resolution of the differences.

Once all the data have been converted to scores, computer analysis can be of considerable help. Frequency distributions, correlations, analyses of variance, and other statistical methods are best if the number of respondents is large. Frequently diary and interview returns can be summarized in simple tables without the aid of a computer since, especially if the number of respondents is small, the data only serve to supplement the questionnaire survey findings.

It is essential that the analysis and interpretation of the data be communicated to participants in the study as soon as possible to insure their continued interest and to promote the users' feeling of a joint responsibility for the success of the library's services. Through such studies and the feedback of results the user will think more clearly about his needs and will become more sophisticated in his responses. Therefore the study should be repeated periodically. User requirements studies can represent an accurate and open communication channel between users and the library and can contribute to the mutual understanding of the problems of both groups.

Sci-Tech Division Officer Candidates

The Science-Technology Division Nominating Committee has presented to the Division Executive Committee the following slate of candidates for election this spring:

CHAIRMAN

Frances M. Stratton, Lederle Laboratories, Pearl River, New York

VICE-CHAIRMAN

Jerome Anderson, System Development Corporation, Santa Monica, California

J. Arthur Freed, Los Alamos Scientific Laboratory, Los Alamos, New Mexico

TREASURER

Rita Goodemote, Schering Corporation, Bloomfield, New Jersey

Elizabeth B. Howard, Oak Ridge National Laboratory, Oak Ridge, Tennessee

The report is published here to fulfill a by-law requirement of the Division and to permit Division members to submit petitions for other nominations if they desire to do so. Such petitions should reach Nominations Committee Chairman, Gertrude Bloomer, William S. Merrill Company, Cincinnati, Ohio, by March 30, 1966.

Future reports of this Committee will appear in *Sci-Tech News*.

In developing its Streamed Information System Imperial Oil Limited decided to remove an interpretative step from the conventional coordinate-index search process. This entailed giving serious consideration to total output volume and led to the introducing of a feature Imperial calls output control. It also has had a salutary effect on search strategy, allowing the searcher to "beam in" on the most specific concept of the search question.

Computer-Produced Indexes in a Double Dictionary Format

J. W. CHERRY

As PEOPLE who have been exposed to manual forms of coordinate indexes know, coordinated search—whether the system depends on conventional cards, peek-a-boo devices, or double dictionaries—leads to the location of a number that represents a document. However, unless the documents in the collection are filed by these numbers (thereby sacrificing browsability), a number has to be translated into information, i.e., the title, author, and so on, before a document can be retrieved.

It was this translation step—the conversion of a number to more meaningful information—that Imperial eliminated. Before I discuss how this was done, however, it might be worthwhile to outline what Imperial's Streamed Information System does, so that subsequent remarks can be assessed in their proper context.

The Technical Information Services Department of Imperial's Western Producing Region provides "in-house" information service to a staff of about 400 technical and scientific personnel. Approximately 16 per cent of these people are engaged in research; the rest are concerned with everyday oil exploration and producing operations. They operate out of five major centres, two of which are located over 400 miles from the regional office where the Department is housed.

The Streamed Information System, of which the indexes to be discussed form an intrinsic part, was designed during late 1962 and early 1963, and successive stages have been operative since January 1963. It was introduced to help hold staff constant in the face of rising demand for service. In that aim it has been singularly successful.

Today this system has over 11,000 documents under control. New documents are being added at a rate of more than 300 per month. In addition, we have been able to organize the indexing so that we can feed into the system each month large batches of backlog material we had never had time to index or even catalog while using conventional methods.

Indexing Process and By-products

As its name implies, the system—in both its manual processing and computer manipulation—emphasizes "streaming."* It accepts as a "document" literally anything that contains information. Books, company-originated technical reports, published papers, technical memos, maps, slides—just as long as they contain information worth retrieving—all qualify as documents.

When a document enters the information centre it has an "indexing source document" attached to it. The original document and indexing source-document stream through the information centre from person to person until (generally three people "down-stream")

The author is the Manager of the Technical Information Services Department of Imperial Oil Limited, Western Producing Region, Calgary, Alberta, Canada.

* Full details of the entire system can be found in my two papers: Automation and Information Retrieval, Computing & Data Processing Society of Canada Conference, 4th, May 11-12, 1964, *Proceedings*, p. 9-22 and A Computer-Assisted, Industry-Oriented Information-Retrieval System, *Canadian Library Association, Occasional Paper No. 48*, June 1965, p. 30-50.

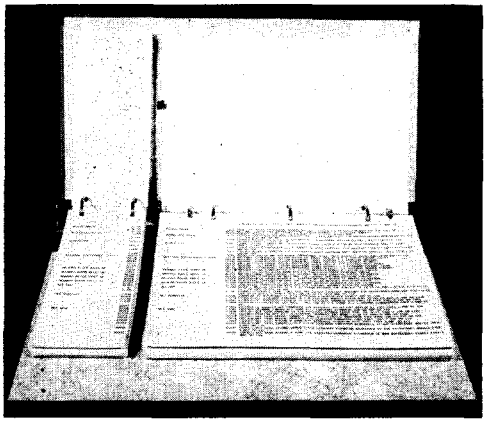

Figure 1: Double Dictionary-type Index

the original document is shelved or filed and the indexing source-document moves to the card-punch room. Each person in the stream edits the data already entered on the indexing source-document and adds new data according to his competence. Repetitive work is cut to a minimum. Only one indexing source-document is produced for any document. Processed and manipulated, these source-documents produce all the various housekeeping tools needed in normal library or information centre operation. At the same time the total information bank is put on magnetic tape, ready for machine search when volume or demand make this step economically justifiable.

Among the housekeeping tools produced regularly as output from the system are *a)* the information centre's bi-weekly accession list—*Library News, b)* a book catalogue, which is brought completely up to date every three months, *c)* deep indexes to the total collection or discrete parts of it, and *d)* three inventory lists: one lists all the documents in the system by document number, another lists them all alphabetically by title, and a third records all the various indexing work and decisions applied to each document.

The Streamed Information System relies heavily on special indexes. These indexes, which we call Concept, Author, and Title (CAT) or Subject, Author, and Title (SAT) indexes according to their depth, are computer-produced, thesaurus-controlled coordinate indexes of the double-dictionary type. These two levels of indexing represent an attempt to deal with the relevancy vs. recall problem.

A typical CAT index is shown in Figure 1. Figure 2 shows a close-up of two pages from it. The left-hand, extremely narrow page has two columns; on the left is a series of concepts and/or authors' names arranged alphabetically; on the right is a list of document numbers from which the concepts and/or authors' names have been selected. The right-hand, much wider page has two columns absolutely identical to those of the left-hand page. Here, however, each document number is followed by a full print-out of the document's title, its authors' names, and enough bibliographic reference to show what kind of document it is and where it is stored in the library.

A CAT or, for that matter, a SAT index can be searched by matching concepts as if it were a conventional double dictionary. It has, however, one great advantage over the

CONCEPT, AUTHOR, TITLE (CAT) INDEX – PUBLISHED LITERATURE ON ATHABASCA OIL SANDS PAGE 057

DRILLING	00102	DRILLING	00102 RESULTS AND SIGNIFICANCE OF DRILLING OPERATIONS IN THE ATHABASCA BITUMINOUS SANDS CAN INST MINING MET TRANS 1947 V 50 P 298-324
	00320		00320 PROPOSED MINING METHODS OIL IN CANADA 1951 V 3 NO 50 OCT 15 P 36 37
	00321		00321 OUTLINE OF DRILLING PROGRAM OIL IN CANADA 1951 V 3 NO 50 OCT 15 P 32
	00327		00329 CORING BITUMINOUS SAND OIL IN CANADA 1951 V 3 NO 50 OCT 15 P 34 50
	00355		00355 ATHABASCA BITUMINOUS SANDS ALBERTA RES COUN CONTRIB 24 MAR 1951
	00358		00358 THE BITUMINOUS SANDS OF ALBERTA ENGINEERING 1953 V 175 P 229-231, 263
	00417		00417 THE ATHABASCA OIL SANDS ASPG OIL FIELDS OF ALBERTA 1960 P 39-49
	00418		00418 CURRENT EXPLORATORY TECHNIQUES IN THE ATHABASCA BITUMINOUS SANDS AREA CAN INST MINING MET BULL 1960 V 53 NO 576 P 245-249
	00467		09467 PRELIMINARY REPORT ON THE BITUMINOUS SANDS OF NORTHERN ALBERTA CAN DEPT MINES BRANCH 1914 REPT 281
DRILLING EQUIPMENT	00048	DRILLING EQUIPMENT	00048 BITUMINOUS SANDS OF NORTHERN ALBERTA – *EXPERIMENTAL DRILLING AND PAVING OPERATIONS 1927* CAN DEPT MINES MINES BRANCH INVEST OF MINERAL RESOURCES AND THE MINING INDUSTRY 1927 REPT 634
DRUMLINS	00056	DRUMLINS	00056 THE PLEISTOCENE GEOLOGY OF THE CREE LAKE REGION SASKATCHEWAN ROY SOC CAN TRANS 1939 SER 3 V 33 SECT 4 P 101-109
DUNNING H N	00369	DUNNING H N	00369 A GEOCHEMICAL INVESTIGATION OF THE ATHABASCA BITUMINOUS SANDS ECON GEOL 1966 V 55 NO 4 P 797-804
ECOLOGY	00269	ECOLOGY	00269 FORAMINIFERA OF THE UPPER MCMURRAY AND BASAL CLEARWATER FORMATIONS ALBERTA RES COUN 1956 REPT 77 GEOLOGY OF MCMURRAY FORMATION PT I P 9-29
	00273		00273 MIDDLE ALBIAN FORAMINIFERA FROM ATHABASCA AND PEACE RIVER DRAINAGE AREAS OF WESTERN CANADA ALBERTA RES COUN 1956 REPT 78

Figure 2: Sample Facing Pages of the Concept, Author, Title (CAT) Index

conventional double dictionary. Having found a common number, the searcher is led directly to information about the document—what it is called, who wrote it, and where it can be found. The interpretative step has been removed.

Controlling Size of Indexes

When we designed the system we knew we were avoiding this step at the expense of increasing total volume. We had to list document numbers in a single column instead of in ten columns as in conventional double dictionaries. In addition, every time a concept was printed, it had to be followed with up to two lines (188 characters) of information. A calculation made during the preliminary stages of the system's development suggested that a collection of 5,000 technical reports, indexed to a depth of 40 concepts per report, with photographic reduction to 8½ x 11 inches, might print out into 2,500 pages.

Our first thoughts about additional volume were somewhat pragmatic. We knew that the Manhattan section of the New York telephone directory contained 1,803 pages and that even if people didn't like it, they certainly used it. Volume, we said, need not bother us, provided it is a useful volume and is working for us. As far as the information centres were concerned, we felt the gain in retrieval time was worth the additional page volume we were building into the system.

Our second thoughts were a little more cautious. Within certain limits, we do not care whether our technical people ever come into the information centres—just so long as they make use of the information housed there. As a consequence, we have always been fascinated by "on the desk" information-retrieval aids. When one thinks along these lines, volume *does* become a concern.

We therefore built into the system a safety factor we call output control. Output control enables us to print out Concept, Author, and Title or Subject, Author, and Title indexes to our indexed collection, by document type, by discipline, by issuing company, or by any combination of these. Thus, we can produce a book catalogue to our total holdings or to our holdings of any discipline. By the same token we can print out a deep index to all company-originated geological reports or to just the geological reports originated by the Peace River District. Finally, this control enables us to produce indexes to special collections, such as the recent index* to the papers published by the Alberta Society of Petroleum Geologists through the last ten years. Output control can be regarded as one of the design features the development of our new double dictionaries forced us to adopt. When we developed this feature we really had no conception of how extremely useful it was going to prove.

There is a principle involved here that warrants some comment. Output control will become increasingly important in the future when, with a greatly increased number of documents under control, we move to machine search. If, in a total collection of, for example, 100,000 documents, only 1,000 apply to the field of well logging, why search all 100,000 for the answer to a question which, by definition, can only be answered by a discrete number of documents inside the 1,000 that deal with well logging? Our computer people sum it up this way: "Output control," they say, "leaves the information bank in optimum arrangement for machine search."

Searching Techniques Improved

One of the more unexpected and quite fascinating results of adopting these new double dictionaries is that they have notably reduced the need for deliberate coordinate search. I use the word "deliberate" deliberately. Just as the total benefits of our output control feature did not strike us till we had our system fully operative, there is a great deal of serendipity about this aspect of the operation, too.

This one we should have foreseen, however. When one considers, analytically, all the concepts involved in any coordinate search, there is always one concept that is more specific than all the others. (Even in as broad a field as "sex and the single girl," "single girl" is probably more specific than "sex".) We have found that a very large

* *Concept-Author-Title Index of the Bulletin of Canadian Petroleum Geology* (formerly *Journal of the Alberta Society of Petroleum Geologists*), May 1953-December 1962. Calgary: Alberta Society of Petroleum Geologists, April 1965.

percentage of searches can be answered by "beaming in" on the most specific concept of the search and scanning the titles printed out after it in the CAT indexes.

This is an actual operating fact, but I think there are a few things about it that bear remembering. First, its success is directly proportionate to the information the author has recorded in his title. That is why I emphasized deliberate coordination in this feature of our indexes. What the searcher is doing in following this kind of search strategy is in fact mental coordination—coordinating the most specific concept of the search with the concepts in the titles and deciding if they satisfy the search parameters.

Second, this type of search is possible because the indexers record information as well as data. The "beaming in on the most specific" kind of search strategy could be used to search a conventional double dictionary. However, it would lead to a set of numbers from which the "noise" could be filtered only by either matching with another concept or going through the "translating step," i.e., converting data to information.

Conversion to Machine Searching

In conclusion, I would like to make another major point about these indexes and machine search. Sooner or later those of us responsible for providing industry with refined information, whether we call ourselves special librarians, information scientists, or whatever, are going to have to turn to the computer for help with our daily tasks. Just when we will have to do this will be decided by pure economics, and these economics will be influenced by three major features—the volume of information to be controlled, the demand for information from this volume, and the value put on retrieval time.

Before any unit can economically justify a move to machine search, it has to have an extremely large volume of information under control. It is worth noting that to date no one has come up with an economically feasible way to automate the indexing process. So, before the move to machine search can be made, a tremendous indexing effort must be carried out. And this effort is expensive.

Against this background, Imperial's route to machine search has two things to recommend it. The indexes it produces as by-products in creating its information bank pay for the creation of this bank. The indexes themselves provide a day-by-day test of the indexing effort. When for any reason this falls short, it is a comparatively simple task to correct it. My final point is that these indexes are a proving ground for our information bank. As such they have a tremendous value. They will allow us to move into machine search when it becomes economically justifiable, confident that we can retrieve the information we want when we want it.

MESSAGE FROM LILLIPUT

It takes a Lilliputian to read the fine print in the Congressional Record, but the occasional grain in all that chaff is not a mote in the eye; it can be a tasty morsel to be contemplatively chewed at leisure.

A word of warning to the Honorable John E. Fogarty of Rhode Island* and the editorial writer of the New York "Times" whom he paraphrases. Bibliographic birth control as a desiderata for ameliorating the problems attendant to the information explosion was originally proposed by G. E. Randall in a talk given the Documentation Committee of AGARD at Cranfield, England, in 1957.

If exercised and implemented, the suggestion has intriguing possibilities. With a decrease in publications, the librarian shortage might convert into a surplus of talent that could be channeled into cataloging. Not only would new items be promptly descriptively cataloged, but there might even be the manpower to provide sufficient analytical cataloging to satisfy the most fastidious of reference librarians.

A diminution of unnecessary publications would quiet the incessant demand for increased university library space. The Federal Government could be relieved of some of the pressure for support of expanded library facilities. The publisher, relieved of the necessity of reprinting that which had previously been published, could stand to weighten his coffers by extended runs of the new.

The poet, the dramatist, the novelist would suffer no more than now. Originality and novelty, as well as those other attributes that make for success in the arts, would not be penalized.

However, it might have a deleterious effect to the academic community who are warned "publish or perish."

B. LITTLE

* See "Congressional Record," March 23, 1965, p. A1368.

A Computer-Prepared Book Catalog for Engineering Transparencies

MORTON N. WASSERMAN

COMMUNICATION Systems Incorporated (CSI), a subsidiary of Computer Sciences, Inc., was organized in March 1959 (as ITT Communication Systems, Inc.) to answer a defense need for an organization capable of assisting the military in the conceptual planning, development, and integration of its world-wide AIRCOM 480L communication facilities. Since its conception, CSI has broadened its base of operations to include research studies for other military organizations and agencies, including systems analysis and development of a simulation program for the Defense Communications System (DCS). As background for its systems engineering planning, CSI amassed a large spectrum of scientific information ranging from technical reports describing recent technological developments and state-of-the-art studies, to engineering transparencies illustrating vital communication networks and specific equipment site locations on a world-wide basis. (Transparencies are illustrations drawn or photographed onto a clear sheet of acetate film, which is then glued to a cardboard template for structural rigidity. They are intended for projection onto a motion picture screen via an overhead projector. They are extremely useful as visual supplements to communication studies during systems presentations to our customers.)

As the organization expanded the scope of its activities and the number of transparencies increased, bibliographic control of the information content diminished. Arranged by engineering drawing number, transparencies were located by prior knowledge of the assigned drawing number, the engineer's name supervising the original art work, or the memory of drafting personnel. While the retrieval of information from transparencies has not generated as much "heat" as the retrieval of other technical information, a system study and the accompanying transparencies may take months of research and upon completion represents an important segment of our information data base. The failure to retrieve all the desired information quickly diminishes our capability to answer customer needs quickly and causes needless expenditure of money in duplicating prior work.

Mr. Wasserman is Supervisor of the Information Center of Communication Systems Incorporated (subsidiary of Computer Sciences, Inc.), Paramus, New Jersey.

After consultation with drafting and engineering personnel, it was decided to prepare an index to these transparencies using the same computer program and specialized techniques developed to document our technical reports literature.* This index utilizes the book catalog technique of presenting information. Book catalogs are especially valuable in research libraries as they allow the researcher to do his own browsing and thus to gain stimulating ideas in areas unrelated to his own specialty.

The primary reason our computer program is excellent for information retrieval is that the number of alpha numerics per field is unrestricted. This is known as a "variable length file" and differs from a "fixed field file," where each item is restricted to a specific number of spaces that requires coding, symbols, or abbreviations.

In preparing transparency data for processing, each retrieval concept, i.e., author, title, or subject, is broken into segments called "fields." Each field is numbered and is consistent from item to item. For example, field 001 always contains the engineering drawing number, field 002 always contains the title, and so on (see Figure 1).

While indexing the transparency, bibliographic data are entered on the cataloging

* WASSERMAN, M. N., and ISERT, I. L., *Computer Techniques and Library Processing*. Paramus, N. J.: ITT Communication Systems, Inc., 1963.

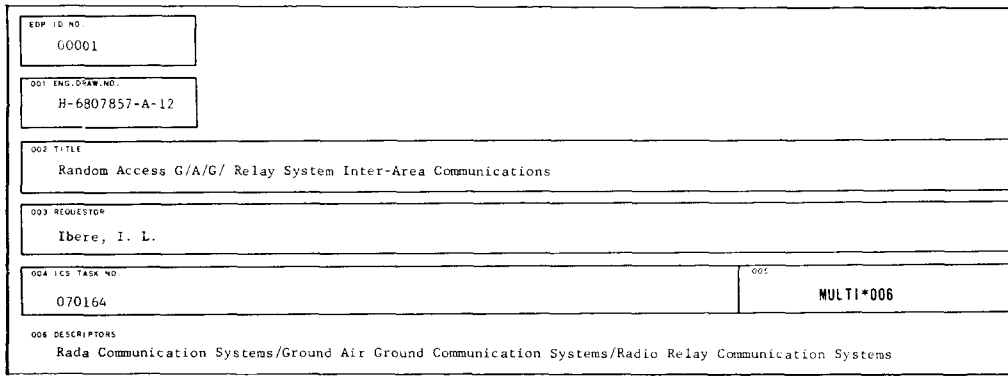

Figure 1: Transparency Cataloging Form

form. This form was designed to expedite the keypunching operation and insures that all cataloging fields are included. The occurrence in field 005, Figure 1, of the term "multi*006" allows the generation of an unlimited number of items from the descriptor field—in this case, the number of descriptors listed in field 006, separated by the system reserved symbol, the slash (/). This is the key to the automatic generation of descriptors, as the item is placed in the computer for sorting as many times as there are descriptors. There is no limitation to the number of descriptors that may be assigned to a transparency.

Figure 2 illustrates a representative page from the subject index. Under each subject the engineering drawing number and the title of the transparency are noted. In addition to the subject index, a separate index is produced allowing retrieval by title, name of engineer who supervised the original art work, and CSI task number under which the transparency was prepared. A hard copy black-and-white photograph arranged by engineering drawing number accompanies each index for visual verification of each item.

As transparencies are indexed under specific descriptors applicable to their information content, "see also" and "see" references are included to guide the user to the next generic class and to combine synonymous entries under a single descriptor. These references are printed directly under the descriptor to alert the user to other applicable descriptors in the index.

Input into the computer is either from IBM punched cards or paper tape prepared by a tape typewriter. In utilizing punched cards, all available spaces on the card are utilized. Punch positions 1 to 5 on each card list the electronic data processing number (EDP) of the transparency. Punch positions 6 and 7 list the card sequence number for that transparency series. Thus, columns 1 to 7 of each card are reserved, and column 81 of the first card is continued on column 88 of the second card. Omitted fields are not referenced. A single dollar sign ($) indicates the end of a field, a double dollar sign

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RADA COMMUNICATION SYSTEMS
    H-6807857-A-12      RANDOM ACCESS G/A/G RELAY SYSTEM INTRA-AREA COMMUNICATION
    H-6807869-A-12      RADA TRANSPONDER
    H-6807937-C-12      ARFA EXTENSION TRANSPONDERS
    H-6808850-A-12      RADA TRANSPONDERS
    H-6808859-A-12      RADA CHARACTERISTICS
    H-6808860-A-12      RADA CHARACTERISTICS
    H-8607954-B-12      RADA CHARACTERISTICS

RANDOM ACCESS DISCRETE ADDRESS COMMUNICATION SYSTEMS
                        SEE RADA COMMUNICATION SYSTEMS

RECEIVERS
                        SEE SATELLITE RECEIVERS

SAC
    H-680757-A-4        SAC BASES
```

Figure 2: Section of a page from the Computer-Prepared Index

($$) the completion of that transparency.

In using punched paper tape, no limitation of the number of alpha-numerics per line exists. Initially, the EDP number is included in punch positions 1 to 5 and thereafter the EDP number and card series number are omitted. During the conversion from punched paper tape to magnetic tape, a secondary program arranges the data as if it were submitted on punched cards; that is, the program automatically counts the number of alpha-numerics, inserting the EDP number and card series number as required.

Initial response to this index has proved excellent. This system has simplified our searching and saved many man hours in locating and obtaining the proper transparencies from our vast data base.

Soviet-United States Special Librarians Exchange

Seven technical information experts from the Soviet Union arrived in New York City on January 15, 1966, to begin a 25-day study of special libraries and information centers in the United States. Their trip, which is being sponsored by Special Libraries Association, is one of a number of scientific and technical exchange programs agreed to by the United States and the Soviet Union during 1965-66. The U.S.S.R. State Committee on Science and Technology will sponsor a reciprocal exchange in Moscow and Leningrad for a party of seven SLA members beginning February 21, 1966. John P. Binnington, Head, Research Library, Brookhaven National Laboratory, Upton, New York, will serve as Exchange Leader for the United States during both tours.

The seven visiting Russians are: Nikolai B. Arutyunov, Chief of the Administration of Scientific and Technical Information and Dissemination of the U.S.S.R. State Committee for Coordination of Scientific Research; Arkadii I. Cherny, Research Worker at the All-Union Institute for Scientific and Technical Information; V. S. Chernyavsky, Senior Scientific Worker and Mathematician at the All-Union Institute for Scientific and Technical Information; D. S. D'Yakov, a member of the U.S.S.R. State Committee on Electric Equipment; G. A. Lebedev, Senior Scientific Worker at the Academy of Sciences, U.S.S.R.; Alexander Ivanovich Mikhailov, Director, All-Union Institute for Scientific and Technical Information, and A. G. Yershov, Member of the U.S.S.R. State Committee on Science and Technology. L. Markoff-Moghadam of the U. S. Department of State will act as interpreter.

Their itinerary will include one-day visits to: Minnesota Mining and Manufacturing Company, St. Paul; General Motors Corporation Research Library, Warren, Michigan; Western Reserve University and Documentation Center, Cleveland; Battelle Memorial Institute and Chemical Abstracts Service, Columbus; Goodyear Tire and Rubber Company, Akron; Franklin Institute Library and Institute for Scientific Information, Philadelphia; Library of Congress, Clearinghouse for Federal Scientific and Technical Information, Library of the National Bureau of Standards, Library of the U. S. Patent Office, Information for Industry, and National Library of Medicine, all in Washington, D. C.; Thomas J. Watson Research Center, IBM, Yorktown Heights, New York; and School of Library Service, Columbia University, New York City. During their travels they will be entertained by several local Chapters of Special Libraries Association.

The SLA delegation that will study and observe procedures and techniques in Soviet technical libraries and information centers will include in addition to Mr. Binnington: William S. Budington, The John Crerar Library, Chicago; Mrs. Irma Johnson, Charles Hayden Memorial Library, Massachusetts Institute of Technology, Cambridge; Dr. F. E. McKenna, Air Reduction Company, Inc., Murray Hill, New Jersey; Gordon E. Randall, Thomas J. Watson Research Center, IBM, Yorktown Heights, New York; and Winifred Sewell, National Library of Medicine, Washington, D. C. Boris Gorokhoff of Washington, D. C., who is an expert on the Soviet information complex, will serve as interpreter. The group will fly to Europe from Washington on February 17 and will return from Moscow on March 16.

CURRENT CONCENTRATES Of The Library World

Documentation and Dissemination of Research and Development Results

1. The strongest recommendation this committee (Select Committee on Government Research) can make, therefore, is for a coordinated effort in attacking the problem with a determination that the solutions proposed will involve a concentration of responsibility and authority.

There must be one central source capable of enforcing cooperation by all agencies with each other and with that source. The Committee on Scientific and Technical Information (COSATI) of the Federal Council for Science and Technology, might prove to be such a source; but, if it has the teeth to enforce such cooperation, the select committee is not satisfied that it has shown them yet. A possible solution might be for the White House Office of Science and Technology to implement decisions based on COSATI recommendations, the former being closer to the seat of Executive authority.

2. The committee recommends that one of COSATI's first concerns in development of a master plan for coordination of all Federal information facilities should be resolution of the question: Are there too many? . . . Until the question is resolved by study, not only will the present confusion continue, but so will proliferation.

3. The committee recommends that COSATI exercise a strong initiative in refining glossaries and coordinating thesauri among the various disciplines and in all Federal agencies. Closely allied to this is the standardization of systems and formats, so far as it is possible to achieve it in the light of the varying functions performed by the different agencies.

This will assist as well in the standardization of accounting methods and terms, permitting more precise evaluation of the costs of Government information programs. The Committee recommends that the Bureau of the Budget and the National Science Foundation vigorously pursue their efforts to achieve such standardization, so that the agencies themselves and the congressional committees which oversee them will have realistic bases for their decisions.

4. The committee recommends the designation of one single clearinghouse which would coordinate all foreign Federal activities in documentation and dissemination of technological information. It would receive and pool all such information originating abroad, and would service all requests for foreign publications and translations. It would obviate the danger of different agencies buying the same journals and paying for different translations of the same articles, and would help insure that important information is available in good time to those in the United States in and out of Government who may need it. . . .

5. The committee also recommends the continued and increased use of foreign currencies generated by Public Law 480, for acquisitions of foreign and scientific and technical information and its translations.

7. Since restrictions placed on information by reason of security are often obviated by passage of time, the committee recommends frequent review of such restrictions so that information which may be useful elsewhere need not remain unavailable any longer than is essential to the national interest.

8. The committee urges that all congressional committees give special attention to the scientific information activities for the departments and agencies under their jurisdiction.

Extracted from Union Calendar No. 843, House Report No. 1941, Pt. 2, Study Number X, Part II, *Staff Resume of the Activities of the Select Committee on Government Research of the House of Representatives, 88th Congress,* February 18, 1965, Chapter III, p. 21-2.

Insurance for Newspaper Libraries

DETERMINING the actual cash value of newspaper libraries is a difficult problem. Some insurance executives recommend that the publisher, his editor and librarian should agree on a value for each item contained in the newspaper library. Some appraisal companies indicate that the value of a newspaper library in relation to the total assets of a newspaper is similar to an intangible item such as good will.

In this connection, there is reprinted below an item which appeared in the December 1964 *Newspaper Controller,* issued by the Institute of Newspaper Controllers and Finance Officers. The item answers these questions: What type of insurance coverage should a newspaper carry on its morgue, photographs and zinc etchings in the files? Should such items be specifically covered and evaluated in a schedule? How does one establish such a schedule?

1. A newspaper library, I believe, should be insured under a Valuable Papers and Records policy, which provides for replacement of the damaged or destroyed items with material of like kind and quality. It is not necessary to specify values. For one thing, loss from an irreplaceable item is nebulous. No loss results when certain items are destroyed, since so many are kept on hand just because someone thinks they might become useful. It's better to recover the actual cost of replacing an item that is replaceable than to guess what it is going to cost. Examples include books and periodicals; photos from wire services or another newspaper, and clipping files of other newspapers or made from stored microfilm. In our case, $100,000 coverage costs $182.79 for three years' premium.

2. We carry a separate policy on our morgue under a specific type policy with no requirement for insurance to value in an amount against hazards of fire and those assumed under extended coverage endorsement. Our principal policy covering buildings and equipment specifically excludes the morgue, because no one can accurately figure its value. We have no established list of items in the morgue, or an assigned value of each item. Of course, we do list capital-expenditure items.

3. We cover our back-issue files on a per package basis. Each set of bound volumes for a specific time, usually two or three months, is packaged individually, and we have arbitrarily assigned a value to each package. However, we have not been able to arrive at what might be considered a "good" method of evaluation.

4. Under our new Valuable Papers policy we have a schedule which lists approximately 21,000 volumes valued at $6 each; 2.5 million clippings at 5¢ each; 200,000 replaceable photos (out of 850,000 total) at $1 each, and 45,000 file cards and pamphlets at $1 each. Total coverage amounts to $496,000. Such a schedule settles the questions of value and proof of loss and also supplies wherewithal to replace those records that require replacement.

5. We carry a blanket form on our morgue, including zinc cuts, photographs and clippings. It would be impossible to replace the material, but we realized this when we bought the blanket coverage. Our present insurance covers our expense, to the limit of the policy, for labor involved in rebuilding some form of morgue file from our microfilm and old newspapers. Our carrier says we are insured to the extent of the cost to repair or replace the property with other of like kind or quality.

6. Our Valuable Papers and Records policy carries the following endorsement: "In consideration of the premium charged for this policy, it is understood and agreed coverage is afforded hereunder for bound volumes, mats, pictures, encyclopedias, biographies, microfilm records and all other such materials and properties usual to a newspaper morgue and library, excluding cuts and their mountings."

7. It is impossible to claim against a specific valuable record, photograph, etc., unless it is individually listed. There is no shortcut; you either take the trouble to list them, or else you can't collect for specific

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Reprinted from the *Library Bulletin,* December 23, 1964, of the American Newspaper Publishers Association.

item loss. At our newspaper, we have only overall or blanket coverage for the entire morgue and contents, and this would pay us only in event of major loss or destruction. We would have no claim whatever for any specific picture, document or zinc. We are content to operate in this fashion because of the trouble in making a master list.

8. We have never carried any coverage on our morgue, files, etc., because, when you come right down to it, who can put a money value on items of this type? We try to have sufficient copies scattered around in case of a loss, thus cutting down on the possibilities of a total loss.

9. We do not carry insurance on our morgue, photographs, etc. We have microfilmed all editions dating from the first issue, so we can find any item published. No doubt our files of unused photographs and other irreplaceable materials are worth something, but how much? Isn't the solution in tight security, fire prevention, reduction of deterioration from the elements, etc.?

The White House Conference on International Cooperation

IN 1964 the United Nations General Assembly requested all member nations to celebrate the 20th anniversary of the United Nations by observing an International Cooperation Year in 1965. Emphasis was to be placed on those matters in which individuals, as well as nations, could cooperate and help each other.

Responding to this request, President Johnson designated 1965 as International Cooperation Year and through his Cabinet and the Department of State established National Citizens Commissions on Cultural and Intellectual Exchange, Finance and Monetary Affairs, Arms Control and Disarmament, Development of International Institutions, Technical Cooperation and Investment, International Law, Peacekeeping Operations, Education and Training, and Peaceful Settlement of Disputes.

The White House Conference was held November 28-December 1, 1965, with approximately 2,000 persons attending.

Based on the reports of the nine National Citizens Commissions, 29 panel meetings were established, which were chaired and addressed by various prominent citizens and high government officials, including Vice President Humphrey, Secretary of State Rusk, Chief Justice Warren, and Attorney General Katzenbach, among others. Ample time was allowed for discussion from the floor and among the speakers and panelists. Often the discussion became extremely lively and rarely did they become banal. Two charming receptions, one at the State Department and one at the White House, emphasized the importance the Government was placing on this Conference.

Out of the thousands of suggestions and ideas presented to the Government, only a few can or will be acted upon, of course, but the important fact was that the Government requested these suggestions and the citizens responded with sincerity, thoughtfulness, and much devoted action.

Special Libraries Association was represented by President Alleen Thompson, Donald Wasson, Mrs. Vivian D. Hewitt, Mrs. Elaine Austin Kurtz, Alice Ball, and Dr. Karl Baer.

DONALD WASSON, Librarian
Council on Foreign Relations, New York

MLA Scholarships

Two $1,000 scholarships, the Medical Library Association-Bishop Scholarship and the MLA-Lederle Scholarship, are being offered to students entering library school in the summer or fall of 1966. Application forms are available from any American Library Association-accredited library school or from the MLA Scholarship Committee Chairman, Mrs. Betty Manson, 6300 SW 126th Street, South Miami, Florida. March 1 is deadline.

Developments in Document Reproduction

LORETTA J. KIERSKY

THERE IS A continuing interest in imaginative applications that will make use of closed circuit television and telephone dial systems to disseminate technical information. Discussions on this subject took place at several meetings held last fall in New York. At the meeting of the AREA-SAA National Conference on Records Management and Archival Administration, held October 6-8, the microfiche and systems including this format were discussed. The first edition of *Federal Microfiche Standards* adopted by the Committee on Scientific and Technical Information (COSATI) was distributed. It may be ordered as PB 167630 at $.50 from the Clearinghouse for Federal Scientific and Technical Information.

REMSTAR is an advanced records retrieval system that combines closed circuit television with automated records retrieval units. It was introduced by Remington Office Systems Division, Sperry Rand Corporation, New York, at the BEMA 7th Annual Business Equipment Exposition held October 25-29 in New York.

This system may be designed to handle either original or microfilmed documents. In addition to the retrieval unit, the system includes a transmitter unit, a monitor unit, and a printer unit. The type of transmitter, monitor, and retrieval units to be used in a system depend upon the format of the stored documents. If it is desirable, both originals and microfilmed documents can be accommodated in a dual system by adding appropriate transmitters, monitors, and retrieval units.

Millions of miniaturized documents in a unitized format can be made available quickly by means of the REMSTAR system. The microfilm format that is selected may be jacket, microfiche, or aperture card. The microfilmed documents in any of these formats can be conveniently stored in the Remington KardVeyer Units. The smallest of these units will house 25,000 aperture cards. The largest Remington Lektriever unit will store about 24,000,000 jacketed documents.

When the clerk in a designated area receives a request for a document, he presses the appropriate button on the retrieval unit to obtain it. When it has been obtained, it is then dropped into a slot in the transmitter unit for transmission to the screen of a monitor unit. Here it can be viewed by the requestor. From then on the viewer controls the record. Documents may be scanned either vertically or horizontally. When viewing is completed, a "Finish" button is pushed on the monitor and the record is released. If a copy of any of the information is wanted, the viewer presses a "Print" button on the monitor unit. In seconds an exact hard copy, or copies, of the image viewed on the monitor screen is produced on the printer. One printer may serve more than one monitor station. Monitors may be placed in any area where records are expected to be needed.

The system permits centralization of files. File integrity is maintained, since the document is controlled at all times. Remington claims it is possible to save as much as 95 per cent of the space required by conventional filing systems. Each system is designed in accordance with the requirements of the particular group of users.

Microfilm jackets are used to house microfilmed documents just as a file folder holds papers. The microfilmed images are inserted into chambers in the jacket. They may be added or deleted, singly or in strips as information is extended or up-dated. Two new styles of lightweight jackets are now available. Thin polyester film, Mylar, has been used for the chambers that hold the microfilm instead of the familiar thicker acetate sheet. This type jacket permits the entire contents or any part to be copied by direct

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Miss Kiersky, Librarian at Air Reduction Company, Inc., Murray Hill, New Jersey, is SLA's Representative to the National Microfilm Association.

The REMSTAR Microfilm Transmitter and KARDVEYER Units are pictured on the left; on the right are the REMSTAR Monitor and Print-Out Units.

contact printing, on a reader-printer, without removing the microfilm.

Recordak Micro-Thin Jackets, manufactured by NB Jackets Corporation, are marketed by Recordak Corporation, New York. A jacket 4 x 6 inches in size contains five horizontal chambers and will hold up to 30 inches of 16mm microfilm. Color coding is achieved by means of the color of the ribs separating the chambers. The Abjac, a jacket 4 x 6 inches in size, has four chambers that will hold up to 24 inches of 16mm microfilm. The thin card stock frame of this jacket is available in several colors. It is manufactured by the Microseal Corporation, Chicago, and used in systems designed by Remington Office Systems. Both of these jackets can be inserted into a typewriter for indexing purposes.

The Anken 124 Electrostatic Copier is an automated copying machine manufactured by the Anken Chemical & Film Corporation, Newton, New Jersey. Up to 25 copies can be made in a single run. The copies are made at the rate of seven per minute. A slide lever automatically adjusts the copy size up to a full legal size sheet. It will copy all colors, photographs, and from single sheets and bound volumes. One roll of paper will make 2,000 letter-size copies. The machine is a console model, on casters, and weighs about 250 pounds. It requires no special wiring or venting. The price of $1,495 includes service for one year.

Two new machines have been introduced by Xerox Corporation, Rochester, New York. The Xerox 1860 printer will make size-to-size reproductions or half-size reproductions from originals as small as 8½ x 8½ inches in size. Copies can be made on ordinary bond paper, on translucent paper for diazo reproduction of multiple copies, or on an offset master to be used on a duplicating machine. The Xerox 2400 has a dial that may be set to make from one to 499 copies. It will copy from originals with a maximum image area size of 8½ x 13 inches. This is a copying machine with the ability to produce copies in the range of a small duplicator. It would be useful in producing many types of publications prepared in a library or information center.

Drive to Increase Sustaining Membership

The Association's Membership Committee has initiated an extensive campaign to multiply Sustaining memberships. Personal letters and a descriptive brochure are being mailed to executive officers of research, university, public, and state libraries, industry, business, consulting firms, museums, newspapers, associations, foundations, publishers, library suppliers, and government agencies. Members in the organizations approached are urged to encourage their managements to support the Association's activities with a Sustaining membership.

Table-Top Binder

The Bind-All, marketed after a three-month testing program in the field by the Wassell Organization, 225 State Street, West, Westport, Connecticut, is a 20-pound, table-top binder that can bind up to three inches of material in less than four minutes. The binder has been designed for mass-production use in computer centers and libraries where material is continually being bound. A special glue eliminates the need for sewing, stapling, or punching, and the process is designed to permit pages to lie flat. "Diplomatt" covers are also available.

NLW in Los Gatos, California

NO ONE in the IBM Advanced Systems Development Division Los Gatos Laboratory can have remained unaware of National Library Week in 1965. Following the themes of growth and preparation for the future, the role of the library in the national program to fight poverty through education was emphasized; and laboratory personnel were encouraged to read more, both for their work and in pursuit of leisure interests.

MONDAY: The library staff came to work early to place on every desk the NLW bookmark and an announcement in the form of a computer program flow chart that explored the various meanings of NLW.

TUESDAY: The annual IBM Stockholders' Meeting held in San Jose included tours of the Laboratory, presenting an unusual opportunity to advertise the library to the company Board of Directors and visiting stockholders. The emphasis was that reading as a wise investment assures high dividends.

WEDNESDAY: We stressed the importance of building libraries, displaying a newspaper article about the critical need for more school and community libraries.

THURSDAY: Bringing out the cultural aspects of the NLW program, we highlighted the regular file of current announcements and programs, covering not only technical meetings but also a variety of cultural and recreational events and facilities.

FRIDAY: With literature supplied by the Santa Clara County Free Library and the San Jose Public Library, interest in local library services was promoted. Details on how to apply for library cards and which libraries to use were particularly helpful to newcomers to this area. Book lists suggested leisure reading and home reference collections.

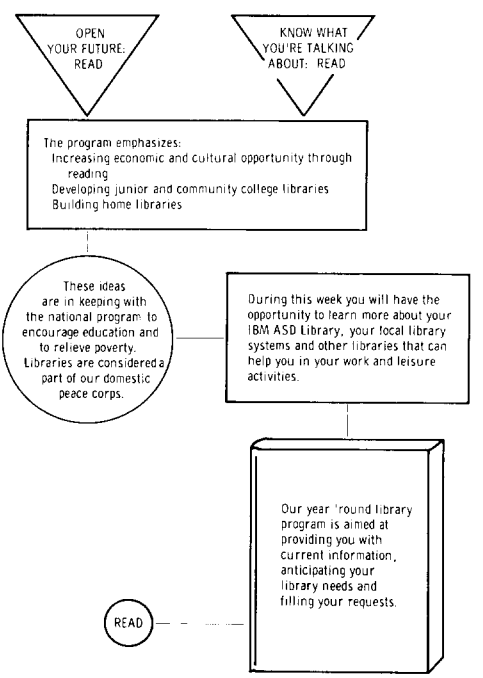
SATURDAY: More than 100 members of the California Association of School Librarians visited the library and saw how a special library not only provides internal service for a particular organization but also relates itself to library problems and opportunities in general.

In addition to the daily events, the NLW mobile, bookmarks, and posters were displayed throughout the building. A changing selection of books demonstrated a variety of subjects available in the less technical collection, i.e., education, reading improvement, philosophy, and local history. The *Library Daily News,* which reaches all personnel, emphasized themes related to the NLW displays and featured appropriate quotations. The library bulletin board in a main hallway was changed daily, the most popular display of the week being the classic Charles Schultz cartoons about National Library Week as viewed by Charlie Brown and his friends. Concluding the planned program, the movie "The Greatest Treasure" was shown to about one-third of the staff.

We have noted a continuing response—requests for another look at the "Peanuts" panels, bookmarks in shirt pockets, new users of our library services. In the community, public libraries are probably signing up new patrons. The influence of National Library Week in the Laboratory seems likely to continue, leading to increased support of school and community libraries and to personal and vocational enrichment through reading.

MRS. SANDRA FERGUSON, Order Librarian

Flow Chart Announced Meaning of National Library Week



This Works for Us . . .

A Check List for Classified Documents

Most individuals who write, receive, or process classified documents eventually become familiar with a great variety of stamps and markings that have little or no meaning for the layman. These stamps indicate whether a document should be given a security classification of Confidential, Secret, or Top Secret and whether it contains defense information, restricted data, or other information that necessitate special handling. Experienced documentalists memorize most of the information covered by the stamps and it becomes second nature for them to react to stamps in a predetermined manner. The fledgling documentalist, however, may be confused by the many shades of difference between the classification of various documents and the many stamps that appear on them. Often it is necessary to check various regulations before it is possible to determine if a document has been stamped correctly.

To facilitate training new employees and to reduce the effort required for even experienced documentalists, a "Check List for Classified Documents" was designed to indicate which stamps would be used when writing new documents, checking new documents for proper markings, and when mailing classified documents off site. (See p. 121.)

When an authorized classifier determines the classification of a document, the classification and document numbers should be inserted at the top of the form. It is suggested that the appropriate column heading then be circled. Thus, by reading down the appropriate column, the X's indicate those items that pertain to a document of that classification. As the various markings are applied to a document or to the copy or plates for printing, they can be checked off, thus assuring that no essential classification markings are omitted. Similar guidance is given for the preparation of unclassified transmittal letters and for the mailing of classified documents off site.

The check list has been used successfully and has reduced the training time required for new clerks. It has made the work of the experienced documentalist easier and has provided a quick method for insuring the proper markings of new documents. It has proven valuable during rush periods when the use of memory alone might result in errors and omissions.

It is believed that this check list could be adapted to the needs of many laboratories using classified documents. Though this check list was current when it was designed, changing security regulations will make occasional revision necessary.

NELSON W. HOPE, Assistant Librarian
General Atomic Division
General Dynamics Corp., San Diego, Calif.

Coming Events

The INTERNATIONAL COUNCIL ON ARCHIVES will hold an Extraordinary Congress in Washington, D. C. on May 10-13, 1966, to discuss Archives for Scholarship: Encouraging Greater Ease of Access. Persons wishing to attend as observers should apply to Robert H. Bahmer, Chairman, ICA Extraordinary Congress Organizing Committee, National Archives and Records Service, Washington, D. C. 20408.

The Council for International Progress in Management will hold its 14th INTERNATIONAL MANAGEMENT CONGRESS in De Doelen Hall, Rotterdam, Holland, during September 19-23, 1966. The Nederlands Instituut voor Efficiency will be host. The theme is "Management and Growth—Management's Creative Task in a World of Increasing Complexity and Accelerating Growth." For further details contact Drs W. Snel at the Instituut, 18 Parkstraat, The Hague.

SEMINAR ON COORDINATE INDEXING, the seventh in Rutgers Graduate School of Library Service's Seminars on Systems for the Intellectual Organization of Information, will be held April 28 and 29. The key speaker will be John C. Costello, Jr., Director, Information Systems Research, Battelle Memorial Institute. For further information, write to Dr. Susan Artandi, Assistant Professor, Library School, New Brunswick, New Jersey 08903.

CLASSIFIED DOCUMENT CHECK LIST	Security Classification_____ DOD DOCUMENTS				Document No._____ AEC DOCUMENTS			
A. MARKING DOCUMENTS, LETTERS, ETC.	S/RD	S/DI	C/RD	C/DI	S/RD	S/DI	C/RD	C/DI
1. Copy No. and Documentation	X	X			X	X		
2. Copy No. Only			X	X			X	X
3. Classification, S or C*	X	X	X	X	X	X	X	X
4. AEC/RD (Long R/D Form)*					X		X	
5. DOD/RD (Short R/D Form)*	X		X					
6. Defense Information-Espionage Stamp*		X		X		X		X
7. Automatic Downgrading		X		X	Not Applicable			
8. Exempted from Automatic Downgrading	X		X		Not Applicable			
* Starred items shown on inner envelope.								
B. UNCLASSIFIED TRANSMITTAL LETTERS								
1. Classification Stamp, S or C	X	X	X	X	X	X	X	X
2. Document transmitted herewith contains classified DEFENSE INFORMATION		X		X		X		X
3. Document transmitted herewith contains RESTRICTED DATA	X		X		X		X	
4. When separated from enclosures, handle this document as UNCLASSIFIED	X	X	X	X	X	X	X	X
C. MAILING (ALL DOCUMENTS)								
1. Document numbers on receipts checked against documents to be mailed	X	X	X	X	X	X	X	X
2. 2 copies of receipt in inner envelope	X	X	X	X	X	X	X	X
3. Inner envelope sealed and addressed	X	X	X	X	X	X	X	X
4. Inner envelope stamped with classification stamps of highest classified document (See starred items in A above)	X	X	X	X	X	X	X	X
5. Outer envelope addressed, register no. listed on envelope, and return receipt secured on outer envelope	X	X	X	X	X	X	X	X
6. Air mail sticker attached to outer envelope when package is to be air mailed	X	X	X	X	X	X	X	X
7. Security clearance verified for mail messenger, *et al*	X	X	X	X	X	X	X	X
8. Security Office notified if shipment to be handcarried	X	X	X	X	X	X	X	X

Addressee: Register No.:_____

Remarks: Date Mailed:_____ By:_____

Check List for Processing Classified Documents

Government and Libraries

THE FIRST SESSION of the 89th Congress was a milestone for libraries. Three acts passed during this session that are of interest to special librarians were The Higher Education Act of 1965 (P.L. 89-329), The Medical Library Assistance Act of 1965 (P.L. 89-291), and the State Technical Services Act of 1965 (P.L. 89-182). The authorization of these acts was discussed in an earlier issue (*Special Libraries*, vol. 56, no. 10, December 1965, p. 727-8).

Funds totaling $3.5 million have been appropriated for fiscal 1966 for the implementation of State Technical Services programs. On October 28, 1965, the First Conference on State Technical Services was held to outline the purposes and steps for state participation in the Act. On December 9 and 10, 1965, a second conference was held in Washington to describe library and technical information services already available in the states and nation. William S. Budington, Librarian of The John Crerar Library, Chicago, and Past-President of Special Libraries Association, and Robert J. Havlik, Research Library Specialist of the U.S. Office of the Education, were among the speakers.

Regulations for administration of the State Technical Services Act have been printed in the *Federal Register* for Wednesday, December 29, 1965, volume 30, number 250, p. 16211-16. Further information may be obtained from Mr. W. C. Bandy, State Technical Service Program, Office of State Technical Services, U.S. Department of Commerce, Washington, D. C. 20230.

Although the Medical Library Assistance Act authorizes the appropriation of funds totaling $105 million over a period of five years, these funds are not yet available.

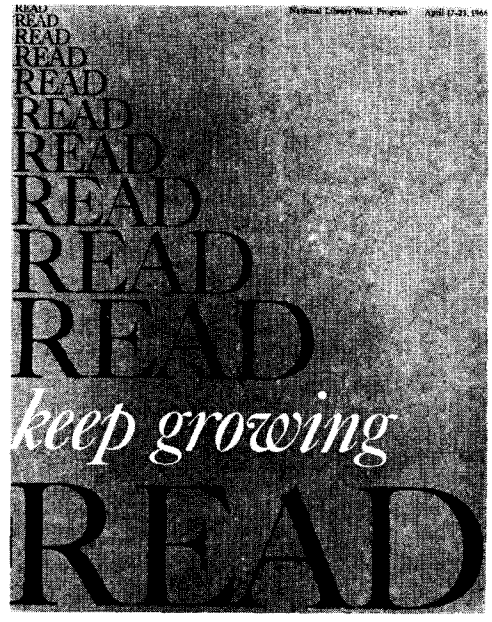
Submission of the Supplemental Appropriation request have been deferred until after the opening of the Second Session of the 89th Congress.

Funds for Title II of the Higher Education Act were also requested in the final Supplemental Appropriation Bill for fiscal 1966 but were not granted by the Congress. Meanwhile work has begun on the drafting of regulations, administrative policies and procedures, and other documents to implement the provisions of these acts. The regulations themselves will be published in the *Federal Register* when funds become available.

For information on the Medical Library Assistance Act, write the Associate Director for Extramural Programs, National Library of Medicine, Bethesda, Maryland 20014.

Readers wishing additional information on the college library resources and library training and research provisions of Title II of the Higher Education Act should write the Library Services Branch, U.S. Office of Education, Washington, D. C. 20202. Attention is also directed to the February 1966 issue of the *ALA Bulletin*, which is a "special" on federal legislation affecting libraries. It contains seven articles by members of the staff of the Library Services Branch and Division of Plans and Supplementary Centers of the U.S. Office of Education and of the Library of Congress.

ROBERT J. HAVLIK
Research Library Specialist
Library Services Branch
U.S. Office of Education
Washington, D. C.



Observe National Library Week
April 17-23, 1966

Have You Heard . . .

Census of Science-Information Personnel

Researchers at the Columbus Laboratories of Battelle Memorial Institute, under a contract with the National Science Foundation, are conducting a census of science-information personnel and their activities to acquire for NSF information concerning the education and training needs of science-information manpower. As part of the census, a questionnaire is being sent to all science-information personnel known to the BMI investigators. A copy may be obtained by writing Robert S. Kohn, Information Systems Engineering Division, Columbus Laboratories, BMI, 505 King Street, Columbus, Ohio 43201.

Current R&D Projects Reported

To inform scientists, engineers, and research managers of the initiation of government-sponsored research and development projects, the Clearinghouse for Federal Scientific and Technical Information began listing current unclassified R&D projects in its *U.S. Government Research and Development Reports* in January. The new service was started to promote active interchange of information between research workers in the same or related fields. *USGRDR* is published semimonthly and is sold on a $15 a year subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402.

Film on Librarianship

The Pennsylvania State Library and the Graduate School of Library and Information Sciences of the University of Pittsburgh have produced a 20-minute, sound, color film, "The Challenge of Change," which presents to college juniors and seniors some of the types and uses of information, various library activities, and an inducement to make librarianship a career. Prints may be purchased at $150 from William W. Matthews and Company, 130 Seventh Avenue, Pittsburgh, Pennsylvania. Further information concerning the film may be obtained from Carol A. Vogel, Library Career Consultant, Graduate School of Library and Information Sciences.

Members in the News

PETER DRAZ, former Head of the Public Reference Section at the Library of Congress, has been named Chief of the Bureau of Editorial Reference for Time Inc., succeeding CONTENT PECKHAM, who is now assistant to Time Inc.'s Staff Relations Director.

ARCH C. GERLACH, Chief of the Geography and Map Division, Library of Congress, was presented with a 20-year Federal Service Award pin by the Director of the Reference Department.

DR. ROBERT MAYO HAYES, Professor of Librarianship at the University of California, Los Angeles, was appointed Director of the Institute of Library Research at the University of California.

HESTON HEALD, formerly Assistant to the Director of Technical Information, Office of the Secretary of Defense, is now head of Project LEX, the Department of Defense technical thesaurus.

PAUL HOWARD, former Librarian of the United States Department of the Interior Library, has joined the staff of the Library of Congress as Executive Secretary of the Federal Library Committee.

HUBERT SAUTER, former Chief of the Technical Services Branch, Scientific and Technical Information Division, NASA, was recently appointed Deputy Director for Operations, Clearinghouse for Federal Scientific and Technical Information, Springfield.

EDWARD F. SINTZ, former Assistant Director of the Kansas City, Missouri, Public Library, has accepted the position of Assistant Director at the St. Louis Public Library.

FRANK H. SPAULDING, formerly Supervisor, Information Services, Colgate-Palmolive Company, is now Supervisor, Library Technical Processes, Bell Telephone Laboratories, New York City.

LLOYD WAGNER, former Librarian, Technical Information Library, Bell Telephone Laboratory, is now Chief of the Library Services Division, Federal Aviation Agency, Washington, D. C.

In Memoriam

MRS. VERA HALLORAN, Head Librarian, Bureau of Advertising, ANPA, died January 24, 1966. Mrs. Halloran was New York Chapter President in 1959-60 and served as a member of the Foundation Grants Committee from 1962-66.

SAM P. SMOOT, Chief, Technical Processing, Tulsa City-County Library, Tulsa, Oklahoma, died recently. He was a Charter member of the Oklahoma Chapter of SLA and its President in 1956-57.

Letters to the Editor

MORE THOUGHTS ON PROFESSIONALISM

Each time I read a letter like that of Mr. Samuel Sass in *Special Libraries,* Dec. 1965 issue, I feel I must comment on the important subject of "professional standards."

Quite plainly Mr. Sass is likening himself to a doctor and rightly so, and professional standards should exist in both fields. However, one thing that must be remembered about SLA is that there are a lot of members who are not professional librarians in the true sense of the word. Either from having been in SLA and the library field a long time, or having some special talent that brought them to professional status without benefit of formal education in library science, they have earned the title of "professional." If any further and derogatory comments are made about the "non-professional" librarians, it is quite likely that they may, en masse, start a move towards an organization of their own such as the Association of Assistant Librarians is in England. At which time—due to the falsely elevated levels of "professional" librarianship in the special library field—SLA may find itself short of a large section of its membership.

It is perfectly ridiculous for any librarian to hold the view that Mr. Sass does, that an advertisement in a professional journal will be misunderstood by those reading it. That kind of an advertisement does not make a mockery of professional standards at all. It clearly says what they need, and if their needs include a secretary who can act as a librarian—well good luck to them. Maybe somewhere in the library world there is a librarian who is looking for exactly that kind of job. If SLA does not serve the needs of the various kinds of librarians in SLA (who could possibly include retired librarians or incapacitated librarians), then it will not have them long.

Many people who cannot be called "true professional" librarians, like engineers, computer programmers, systems men, etc., are willingly taking over the responsibility of automating libraries—mainly because the "professional" librarians could not handle the job! Their "professional" library schools had not trained them in the latest information retrieval techniques.

To add more fuel to this "pro versus non-pro" fire, who in SLA is willing to support a move whereby "professional librarian" examinations will be set up (equivalent to the British system of Library Association examinations) and be available to any person—engineer, librarian, computer programmer, or non-professional who thinks he might qualify? This happens to be a well-honored system of certifying engineers in America. A "Professional Engineer" is a man who has passed comprehensive engineering examinations in his field of engineering, not one who took a prescribed set of courses, for a set length of time for a certain amount of money expended. Who among the "professional" librarians will sponsor this, so that *real* professional standards may be achieved *by* examination.

To conclude, I would like to say that the notation "SLA Member" would be a good addition to any advertisement or job requirement. This would speak for itself. But I am sure that any company placing an advertisement in *Special Libraries* would normally think that the reader was a qualified member. Other than that kind of reader could be handled by clarifying the requirements by stating the above.

DOROTHEA SANDERSON PFEIL
(Active Member)
Librarian, Control Instrument Division
Burroughs Corp., Paoli, Penna.

REACTION TO PROBLEM OF TALKATIVE SECRETARY

My reaction to Roger Smith and his problem in the December *Special Libraries?* Well, the description of the fictional (I hope!) gentleman as "not too aggressive in managerial instincts" gets my nomination for "Euphemism of the Year." Rog, baby, you're a patsy—ballyragged and browbeaten by a snip of a secretary.

Too late now to tell you that you should have nipped this situation in the bud by giving Viola a sound indoctrination, I suppose, but never too late to remedy this situation and start fresh. Viola sounds too immature to hold a job above the steno pool level. Call Personnel and have her sent back there. Then, Roger, when you get your new secretary let her know right off that you and she form a team which

is geared to Service First. Everything else stops when a request needs filling, a question needs answering, a job needs doing. In short, business before pleasure—at least on company time.

EILEEN KEIM
University of Denver Libraries

PRESERVATIVE AND BINDING SUPPLIES

In connection with the Book Restorer Kit item in your December "Have You Heard" feature, I would like to call to your readers' attention the leather preservatives now being marketed by my company for use on fine leather bindings.

We prepare and sell the familiar potassium lactate-paranitrophenol solution and the lanolin-neatsfoot oil mixture that were developed and have been successfully used by rare book librarians.

Although these preservatives have been widely used for many years, this is the first time that they have been made available in this country as stock items. Therefore, it is important for your readers to be informed of this fact.

As adjunct items, we carry a portable book press, unbleached linen cloth, tape and rope, all of which are essential to book and map repair but, similarly, have been difficult to obtain in the United States.

Mrs. ELAINE HAAS, Director
Technical Library Service
261 Broadway, New York, N. Y. 10007

SLA Sustaining Members

These are in addition to the Sustaining Members for 1966 listing in the January 1966 *Special Libraries.*

RICHARD ABEL & COMPANY, INCORPORATED
AMERICAN CAN COMPANY, Research Center
AMERICAN CANCER SOCIETY, INCORPORATED
AMERICAN ELECTRIC POWER SERVICE CORPORATION
AMERICAN IRON AND STEEL INSTITUTE
AMERICAN TOBACCO COMPANY
ARGONNE NATIONAL LABORATORY
ATLAS CHEMICAL INDUSTRIES, INCORPORATED
BASIC ECONOMIC APPRAISALS, INCORPORATED
BELL TELEPHONE LABORATORIES
BETHLEHEM STEEL COMPANY
BOSTROM CORPORATION
CARRIER CORPORATION
CHICAGO MEDICAL SCHOOL LIBRARY
COLLEGE OF PETROLEUM AND MINERALS, Saudi Arabia
CONTINENTAL CARBON COMPANY
CORNELL UNIVERSITY LIBRARY
CORNING GLASS WORKS
JOHN CRERAR LIBRARY
DALLAS PUBLIC LIBRARY
DEFENSE DOCUMENTATION CENTER
DOW CHEMICAL LIBRARY, Midland, Michigan
DOW CHEMICAL COMPANY, Golden, Colorado
EASTMAN KODAK COMPANY
FORD FOUNDATION
FORD MOTOR COMPANY
GENERAL ELECTRIC COMPANY
GENERAL FOODS CORPORATION
HARVARD GRADUATE SCHOOL OF BUSINESS ADMINISTRATION
HONEYWELL, INCORPORATED
IDAHO STATE UNIVERSITY LIBRARY
INTERNATIONAL BUSINESS MACHINES CORPORATION
JOHNS-MANVILLE RESEARCH AND ENGINEERING CENTER
WALTER J. JOHNSON, INCORPORATED
KAISER ALUMINUM & CHEMICAL CORPORATION
LITTON SYSTEMS (CANADA) LIMITED
LOS ANGELES COUNTY MUSEUM OF ART
MARATHON OIL COMPANY
MARQUETTE UNIVERSITY MEMORIAL LIBRARY
MAXWELL SCIENTIFIC INTERNATIONAL, INCORPORATED
MINNESOTA MINING & MANUFACTURING COMPANY
NATIONAL ASSOCIATION OF ENGINE AND BOAT MANUFACTURERS
NEW YORK LIFE INSURANCE COMPANY
NEW YORK PUBLIC LIBRARY
NORTH AMERICAN AVIATION, INCORPORATED
PEOPLES GAS LIGHT & COKE COMPANY
PENNSYLVANIA STATE UNIVERSITY, Pattee Library
PERGAMON PRESS, INCORPORATED
PITTSBURGH PLATE GLASS COMPANY, Barberton, Ohio
PITTSBURGH PLATE GLASS COMPANY, New Martinsville, West Virginia
PORT OF NEW YORK AUTHORITY
RADIATION INCORPORATED
RAND CORPORATION
RCA LABORATORIES
ROCKEFELLER OFFICE LIBRARY
ROHM & HAAS COMPANY
ST. JOHN'S UNIVERSITY LIBRARY
SHELL OIL COMPANY
SQUIBB INSTITUTE FOR MEDICAL RESEARCH
J. W. STACEY, INCORPORATED
STECHERT-HAFNER, INCORPORATED
SYNTEX CORPORATION
SYSTEM DEVELOPMENT CORPORATION
TECHNICAL BOOK COMPANY
J. WALTER THOMPSON COMPANY
TRW SYSTEMS
UNION ELECTRIC COMPANY
UNITED STATES AIR FORCE ACADEMY
UNIVERSAL OIL PRODUCTS COMPANY
UNIVERSITY OF ARIZONA LIBRARY
UNIVERSITY OF MISSOURI AT KANSAS CITY
UNIVERSITY OF WASHINGTON LIBRARY
WILLIAM JOHN UPJOHN ASSOCIATES
WAYNE STATE UNIVERSITY
H. W. WILSON COMPANY
WORCESTER FREE PUBLIC LIBRARY
XEROX CORPORATION

Off the Press . . .

Book Reviews

CAHN, R. S. *Survey of Chemical Publications.* London: The Chemical Society, 1965. 97 p. 15s. post free; 6s. to Society Fellows.

Librarians who are concerned about the future of the research journal should read this *Survey.* Dr. Cahn has produced a concise, readable summary of today's problems, has predicted the near future, and recommended a course of action for the Chemical Society's publications. Although the *Survey* was made for the Chemical Society, its coverage and significance extends to all research journals.

Several of the author's comments are of particular interest to librarians. His study of the sources of publishers' incomes brings out several significant points. For instance, in recent years the sale of journals to members of learned societies has fallen off sharply (about 80 per cent) until "the solvency of the general research journal thus depends now almost wholly on its sale to libraries." He points out that libraries constitute a captive market for journals in their fields of interest, requiring publications no matter how inflated their prices may be.

Dr. Cahn has compiled figures to show the cost per 1000 words to subscribe to different kinds of journals. Whereas the cost for the *Journal of the Chemical Society* is £ 0.44, the cost of a commercial publication such as the *Journal of Inorganic and Nuclear Chemistry* (Pergamon Press) is £ 3.45, per 1000 words, almost ten times as much! It can be expected that a specialized commercial journal with its smaller circulation and profit motive would cost more; however, even among the specialized commercial journals the cost varied from £ 1.75 to 3.45. The scientist is blamed for excessive prices through his support of such journals as an author or editor. "The captive librarian is helpless in this situation."

There is a strong vote of confidence here for the publications of societies and associations, such as SLA. It is apparent that journals can be produced more cheaply (even if unsubsidized) by noncommercial publishers. In addition to the advantage of lower cost, selection of papers and editing are usually better.

There has been no sudden "explosion" in chemical publications. They have been doubling every ten years for a long time and will continue to do so, but the doubling period will soon lengthen. Although many have suggested that the scientific journal should be abandoned in favor of other means of communication (e.g., Bernal's suggestion in 1948 that complete papers should only be issued singly), Cahn expects the journal to continue "for the foreseeable future." Beyond this, he says that "the key to future systems lies in (the) transformation of printed abstracts into a computer based service involving a network of national information centres." When that point is reached, whole papers will be deposited in centres for reproduction on demand, and only summaries will be published. Meanwhile, the research journals will continue in their present form, although they will become increasingly more specialized.

The organization of this report is outstanding. Dr. Cahn's summary and recommendations catch the reader's attention immediately and lead him through the details of the study, which are supported by several appendices, including "The Origins of Chemical Publications," "The Statistical Growth of Scientific Publications," and others. The *Survey* was carried out in 1964 and issued a few months later, making it a most timely publication. The text is well illustrated, completely documented, and indexed thoroughly.

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HEILPRIN, Lawrence B. et al., eds. *Proceedings of the Symposium on Education for Information Science* (ADI, Warrenton, Virginia, September 7-10, 1965). Washington, D. C.: Spartan Books, 1965. 175 p. $6. (L. C. 65-28375)

The 23 papers in this volume were presented at a recent symposium sponsored by the American Documentation Institute to enable it to shoulder with academic institutions the educational responsibility to the profession for the "training and renewal of human resources in information science." The papers are grouped into five topical areas: contributions towards information science theory, operational constraints in the design of information systems, pedagogical aspects of information science, administrative problems in education in the information sciences, and computer sciences in the information sciences curriculum.

The papers were written for oral presentation to stimulate discussion and not to provide a complete review of the state of the art, either in information science or education. As pub-

lished, they appear to be little more than a somewhat disorderly display of some selected and heterogeneous thoughts, attitudes, and opinions, frequently in conflict with each other, and not entirely new, chiefly on the structure of information science and only generally on the implications of the various topics discussed on education. A bit of synthesis, based on the discussions, appears in the appended four and one-half pages of summary statements from the working session group meetings held during the Symposium.

Some of the papers will be difficult to read if one lacks training in the language and techniques of certain areas of mathematics, logic, and engineering. This in itself is not unreasonable, for these people are using the languages of their disciplines, which, hopefully, give them new insights into library problems. It may be somewhat troublesome, however, in a meeting of experts from a variety of disciplines looking for mutual directions. Some of the papers hang on to technicalities of development in such detail that the relevance of the comments is lost. Among other things, ADI needs to promote its nomenclature activity. (It's about time someone either extended the definition of the word *parameter* or forced those who use it to learn its true meaning and to search for the proper word.)

A nagging sense persists of a lack of direction in development of both the boundaries and content of information science, and hence educational programs. The Symposium participants agree that education for research, for development, and for operation in information science will require different approaches and techniques but disagree on how to organize educational programs and curricula content. The few degree programs now in existence, several of which are described in these papers, indicate no uniformity in approach to the subject and curriculum content.

Libraries are mentioned, but still with too little understanding of the contribution that the functions and techniques of librarianship and library schools can make to information science. None of the papers addresses itself directly in a significant way to this important topic. The library is considered principally as an operating agency. Its well developed technology is largely downgraded or overlooked. The urge seems to be to hinge the development of an information science discipline, and education for it, on the existence of a number of topics and techniques from disparate disciplines which can be defined as having a bearing on information, with only token consideration of the needs of the market and of task specifications for which educational programs must be developed. The kind and depth of training needed to bring people to useful levels of competence in each of the elements described as part of information science are left unmentioned.

What the new order is doing is useful—librarianship may yet get from it the scientific and research base and an integration into the total information enterprise it has so long lacked. Transfer of information and ideas and common understanding of problems and techniques among all interested groups are essential; otherwise the translation of new research, through development, into operating information systems will often result in something resembling the form of librarianship but with librarianship's substance all to be reinvented and learned by those who now have no adequate access to it.

RUSSELL SHANK, Senior Lecturer
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WASSERMAN, Paul. *The Librarian and the Machine; Observations of the Applications of Machines in Administration of College and University Libraries.* Detroit: Gale Research Company, 1965. 170 p. $5.75. (L. C. 65-25320)

The author, formerly Librarian of the Graduate School of Business and Public Administration of Cornell University, is now Dean of the Graduate Library School of the University of Maryland. Aided by financial assistance from various sources, Wasserman was permitted to spend the academic year of 1963-64 in study at Western Reserve. The monograph, a result of that year of study, is directed to the college or university librarian but it contains a strong message for library school administrators as well.

Mechanization, according to the author, is taking two avenues in college or university libraries. One is the use of data processing equipment for the circulation, cataloging, and acquisitions functions. The second is devoted to the information retrieval function, an area that Wasserman believes will develop quite slowly in academic libraries, in sharp contrast with the experience of special libraries. In part, at least, this reflects the differing philosophies of librarianship, the academic library concentrating on the collecting of information and the special library concerned with the prompt dissemination of information.

The author offers short descriptions of the outstanding mechanized university library systems including the Florida Atlantic University, The University of Illinois Undergraduate Li-

brary, and the evolving Yale-Harvard-Columbia Medical Library cooperative cataloging system. He also discusses the roles of manufacturers and the three major library associations, SLA, ADI and ALA, in the promotion of the mechanization of libraries.

Wasserman attempts to catalog the attitudes of college and university librarians towards mechanization. His survey is based on only 34 interviews primarily with librarians in the Mid-West and can hardly be conclusive; nonetheless, the results of the survey are quite plausible. The writer divides academic librarians into three catagories: *1)* those who are concerned about mechanization but are doing little or nothing about it; *2)* those who have adopted the wait-and-see attitude; and *3)* about 15 per cent who reject mechanization completely.

Wasserman states that library school administrators are behaving toward automation in somewhat the same way as are academic librarians. He echoes the warning of others who claim that if education for automation is not provided promptly by the library schools, other agencies will step in to provide the training.

The monograph would be much more interesting and easier to read if the author had employed a less complicated style and had eschewed the involved sentence structure one finds throughout the work. Two or three errors that evaded the efforts of the proofreader add to the complications.

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Library Directory for Upstate New York

A Directory of Special Libraries and Research Resources in New York State has been published by SLA's Upstate New York Chapter. This list identifies special libraries and information centers in New York State outside the metropolitan area of New York City. It does not include the five boroughs of New York City nor the adjacent counties of Nassau, Orange, Putnam, Rockland, Suffolk, and Westchester, because this area of the state is covered by *Greater New York Directory of Special Libraries*, which was published by the New York Chapter in 1963. The new *Directory*, which was edited by Paula Strain, IBM, Owego, and Mrs. Elizabeth W. Tapia, Eastman Kodak Company, Rochester, includes libraries of societies and associations and special collections in public and college libraries as well as company libraries. Each of the nearly 400 entries gives the location and content of the collection and information about who may use it. The 40-page *Directory* has a plastic spiral binding and sells for $6. Orders are being accepted by T. W. Johnston, The Pfaudler Company, P. O. Box 1600, Rochester, New York 14603.

Aerospace Membership Directory

The 1965-66 Membership Directory of the Aerospace Division was recently published and contains the names and addresses of the Division officers and an alphabetical listing of the members. The *Directory* is available free upon request from Mrs. Margaret Sloane, Manager, Technical Information Center, TRW Systems, Redondo Beach, California.

Minneapolis-St. Paul Union List of Serials

The Minnesota Chapter of Special Libraries Association has announced the publication of the 1965 edition of the Chapter's *Union List of Serials*, a computer-prepared, 126-page long list of approximately 3,000 journals and selected serial titles belonging to 23 company and two government research libraries in the Minneapolis-St. Paul area are listed. A library code, key, and list of abbreviations are included. The price is $6.00 per copy. Checks should be made payable to Minnesota Chapter, Special Libraries Association, and prepaid orders should be sent to: Marie A. Sladky, Honeywell Inc., Aeronautical Division Library, 2600 Ridgway Road, Minneapolis, Minnesota 55440.

Journal Notes

The Academic Press plans to publish a quarterly, the JOURNAL OF COMPUTER AND SYSTEMS SCIENCES, by the middle of the summer 1966. It will feature papers on computers and computer-like information processing systems, general theory of systems, and optimization theory of such systems. The editorial board will be represented by scientists from the United States, the Soviet Union, Israel, England, France, and Japan.

POVERTY AND HUMAN RESOURCES ABSTRACTS, the combined effort of the University of Michigan-Wayne State University Institute of Labor and Industrial Relations, is a recent bimonthly containing detailed abstracts, shorter annotations, bibliographic references, review articles, and a national and state legislative developments section in the field of social planning, study, and policy. *PHRA* is available in two formats: a heavy paperbound edition at $40 a year and a looseleaf edition at $30 a year. Orders and requests for further information should be mailed to the Institute at P.O. Box 1567, University of Michigan, Ann Arbor 48106.

Third Edition of Union List Issued

The Joint Committee on the Union List of Serials, Inc., a nonprofit corporation representing 13 American and Canadian library associations and bibliographical institutions, recently completed the third edition of the *Union List of Serials in Libraries of the United States and Canada.* The five-volume work, published by The H. W. Wilson Company, contains 4,649 pages, which include entries in a single alphabet for 156,499 serial titles held in 956 libraries. Libraries desiring the third edition in less than five volumes may request, by May 1, at no reduction in the $120 price, sets of unbound, folded sheets, available in limited supply. Idris Smith, Head, Business and Technical Department, Kansas City Public Library, Missouri, represented SLA on the Joint Committee, which spent six years preparing this successor to the 1943 edition.

SLA Authors

ANDERSON, Beryl. Canadian Training for Documentalists: The McGill Approach. *Bulletin de L'Association Internationale Des Documentalists,* vol. 4, no. 3, 1965, p. 33-4.

ARTANDI, Susan. SYNTOL—A New System for the Organization of Information. *Library Resources and Technical Services,* vol. 9, no. 4, Fall 1965, p. 473-7.

ATHERTON, Pauline. Ranganathan's Classification Ideas: An Analytico-Synthetic Discussion. *Library Resources and Technical Services,* vol. 9, no. 4, Fall 1965, p. 463-73.

CASELLAS, Elizabeth. Relative Effectiveness of the Harvard Business, Library of Congress, and the Dewey Decimal Classification for a Marketing Collection. *Library Resources and Technical Services,* vol. 9, no. 4, Fall 1965, p. 417-37. (Reprints available to libraries upon request from the author, Assistant Professor, University of Hawaii Graduate School of Library Studies, 2425 Campus Road, Honolulu, Hawaii 96822.)

CLAPP, Verner W. DC Number on LC Cards. *Library Resources and Technical Services,* vol. 9, no. 4, Fall 1965, p. 393-403.

KRISHNASWAMI, Meena. A Proposal for the Method of Adapting the Dewey Decimal Classification Scheme to Meet the Needs of India. *Library Resources and Technical Services,* vol. 9, no. 4, Fall 1965, p. 449-61.

MUMFORD, L. Quincy. DC Numbers on LC Cards: A Supplement. *Library Resources and Technical Services,* vol. 9, no. 4, Fall 1965, p. 405-13.

SCHULTZ, C. K., co-author. Comparative Indexing: Terms Supplied by Biomedical Authors and by Document Titles. *American Documentation,* vol. 16, no. 4, October 1965, p. 299-312.

SESSIONS, Vivian S. Electronic Data Processing: Document Retrieval and Planning, *Planning 1965,* p. 332-5.

WEIL, B. H., co-author. Introduction to Symposium on Methods of Alerting Chemists to New Developments. *Journal of Chemical Documentation,* vol. 5, no. 3, August 1965, p. 123.

———, BOLLES, Shirley W., LEWENZ, C. F., et al. Esso Research Experiences with Chemical Abstracts on Microfilm. *Journal of Chemical Documentation,* vol. 5, no. 4, November 1965, p. 193-205.

WOOD, James L. co-author. A Computer-Based Source Inventory of *Chemical Abstracts. Journal of Chemical Documentation,* vol. 5, no. 4, November 1965, p. 242-9.

RECENT REFERENCES

Prepared by MRS. MARTHA O'LEARY AND JOHN R. SHEPLEY

Librarianship

AMERICAN LIBRARY ASSOCIATION. *National Inventory of Library Needs* (rev. ed.). Chicago: 1965. (iii) 72 p. illus. spiral binding. $2.

Findings and methods of survey conducted by U. S. Office of Education and ALA to determine the gap between minimum national library standards and existing service in public, school, and academic libraries. Brief tabulations on graduate library education and library resources of correctional institutions are included. Charts and statistical tables.

BREILLAT, Pierre. *The Rare Book Section in the Library.* Paris: UNESCO, 1965. 38 p. pap. photos. $1.25. (Distr. by UNESCO Publications Center, 317 East 34th St., New York 10016)

Discusses the selection, characteristics, arrangement, and preservation of treasures in those small arrays of rarities developed through the research, method, and creative touch of the librarian. Bibliographic notes, p. 33-8. Reprinted from the July-August and September-October 1965 numbers of the *Unesco Bulletin for Libraries.*

BUNDY, Mary Lee, and ARONSON, Ruth, eds. *Social and Political Aspects of Librarianship: Student Contributions to Library Science.* Albany: School of Library Science, State University of New York at Albany, 1965. 99 p. pap. $2.50. (Available from State University Bookstore, 135 Western Ave., Albany 12203)

First collection in a new series on librarianship. Among the eight case studies in this sociological-political approach to the problems of librarianship by candidates for the master's degree, Julia Hewitt's paper will be of particular interest to readers of *Special Libraries.* Entitled, "Factors Influencing the Growth and Development of the Industrial

Library," it demonstrates the influence on the evolution of the Main Library at General Electric of four main factors—economic, organizational status, physical plant and location, and the librarian—over a period of 50 years.

BURKETT, J., ed. *Special Library and Information Services in the United Kingdom.* 2nd rev. ed. London: The Library Association, 7 Ridgmount St., 1965. 366 p. photos. 60s.; 45s. to Library Association members.

National, government, industrial, learned, professional, and municipal libraries are covered. In a final chapter, trends in professional education, mechanization, and research are summarized.

CANADIAN ASSOCIATION OF COLLEGE AND UNIVERSITY LIBRARIES, UNIVERSITY LIBRARY STANDARDS COMMITTEE. *Guide to Canadian University Library Standards.* Ottawa: 1965. v, 53 p. pap. $1. (Order from Canadian Library Association, 63 Sparks St., Ottawa)

Qualitative and quantitative standards as conceived for the present needs of Canadian academic libraries.

CASTAGNA, Edwin. *Three Who Met the Challenge: Joseph L. Wheeler, Lawrence Clark Powell, Frances Clarke Sayers.* Berkeley, Calif.: Peacock Press, P. O. Box 875, 1965. 32 p. pap. $1.75. (L. C. 65-27692)

Bouquets for three contemporaries—librarians, humanists, educators, and writers all—who vigorously and effectively have met librarianship's challenge to greatness. Speech delivered at the Annual Congress for Librarians, February 22, 1964, at St. John's University, New York. A miniature measuring 4½ x 5½ inches.

CHANDLER, George. *Libraries in the Modern World* (The Commonwealth and Informational Library, Library and Technical Information Division). Oxford: Pergamon Press, 1965. vii, 164 p. pap. $3.50. (L. C. 65-25007)

A general, non-specialist survey of all types of libraries on a world-wide basis, of international documentation services, and of national and international library associations.

CONANT, Ralph W., ed. *The Public Library and the City* (Joint Center Series). Cambridge, Mass.: The M. I. T. Press, 1965. xii, 216 p. $6.75. (L. C. 65-27504)

This volume grew out of a symposium on "Library Functions in the Changing Metropolis," sponsored by the National Book Committee and the Joint Center for Urban Studies of M.I.T. and Harvard in May 1963.

FOSKETT, D. J. *How to Find Out: Educational Research* (The Commonwealth and Informational Library, Library and Technical Information Division). Oxford: Pergamon Press, 1965. viii, 124 p. pap. illus. $2.95. (L. C. 65-22921)

Intended to provide an explanation of how to use the various types of publications and not to serve as a guide to the literature of education. Indexed by name and subject.

Proceedings of the First Governor's Library Conference: June 24-25, 1965, Albany, N. Y. Albany: Executive Chamber, State Capitol (1965). 67 p. pap. Apply.

Conference called by the Governor "to gauge the new requirements and the new services for reference and research which cannot be satisfied with traditional library methods." It is odd that among 21 speakers and respondents, not a single woman was included.

REED, Sarah R., ed. *Problems of Library School Administration: Report of an Institute/April 14-15, 1965.* Washington, D. C.: U. S. Department of Health, Education and Welfare, Office of Education (1965). iv, 71 p. pap. Apply.

Sponsored by the Office of Education, the American Library Association, and the Association of American Library Schools. Papers and panels dealt with library school administrative problems and suggested solutions in five major areas—faculty, curriculum, finance, accreditation, and legislation.

STOKES, Roy. *Bibliographical Control and Service.* New York: London House & Maxwell, 1965. 125 p. $4.95. (L. C. 65-26280)

A guide for students aimed to cover the paper on bibliographic control and service in the Part I Examination of the Library Association. Bibliographic control, aids to stock building, bibliographic service, types of materials, and production methods are areas briefly discussed.

WHITE, Joyce L., and PARR, Mary Y., eds. *Church Library Guide* (Drexel Library School Series, No. 12). Philadelphia: Drexel Press, 1965. 52 p. pap. Apply. (Available from Drexel Book Store, 32nd and Chestnut Sts., Philadelphia, Pa. 19104)

Summarized proceedings of the Third Church Library Conference held in Philadelphia (1965), sponsored by the Philadelphia Council of Churches, the New Jersey Council of Churches, and the Drexel Library School.

Classification

Hospital Literature Subject Headings: A List of Subject Headings Used by the Library of the American Hospital Association Asa S. Bacon Memorial. Chicago: American Hospital Association, 840 North Lake Shore Drive, 1965. vi, 141 p. spiral binding. $5.

Headings and cross references for use in the field of hospital administration. Does not include clinical medicine or clinical nursing.

MCHENRY, Nancy. *Subject Index.* Wilmette, Ill.: Encyclopaedia Britannica Films, Inc., [Library] [1965]. var. pag. unbound. Gratis.

Subject categories used in cataloging material in the company's picture library. Possibly useful to other libraries as a general framework and example. Supplement gives directions for typing catalog cards and rules for numbering material. Appendix.

WESTBY, Barbara Marietta, ed. *Sears List of Sub-*

ject Headings, 9th ed. New York: H. W. Wilson Co., 1965. 641 p. $8. (L. C. 65-25753)

Adds about 315 new subjects and substitutes more direct or more modern terminology for outmoded or obsolete headings. Retains the introductory section of the 8th edition, "Suggestions for the Beginner in Subject Heading Work," by Bertha Margaret Frick.

Dictionaries

NAYLER, J. L. *A Dictionary of Astronautics.* New York: Hart Publishing Co., 1965. 316 p. illus. $6.95. pap. $2.65.

First published in Britain in 1964. Some 2,000 definitions of space terms, plus graphs, chemical and mathematical tables, diagrams. Designed as a reference book for both specialists and laymen.

WALSH, S. Padraig. *English Language Dictionaries in Print: A Comparative Analysis.* Newark, Del.: Reference Books Research Publications, 1965. 56 p. pap. $3 (⅓ off on 5 or more copies). (Order from R. R. Bowker Co., New York)

Annual publication. American dictionaries and those published by Oxford evaluated in terms of price, age level, number of entries, pages, and illustrations, contents and arrangement, additional material, and physical makeup. Addresses of dictionary publishers; title index.

Directories

ARBEITSGEMEINSCHAFT DER SPEZIALBIBLIOTHEKEN (ASpB). *Verzeichnis der Spezialbibliotheken (Directory of Special Libraries).* Jűlich, West Germany: 1965. x, 228 p. pap. Apply. (Order from Verlag J. A. Meyer, Buchkremerstr. 5-7, Postfach 467, Aachen)

Lists over 500 German special libraries with address, name of director, number of current periodicals, and indicating whether it is a lending or reference library and whether it has photocopying facilities. Geographical index, list of personnel.

BUCHANAN, William W., ed. *Industrial Research Laboratories of the United States,* 12th ed. Washington, D. C.: Bowker Associates, 1965. xii, 746 p. $25. (L. C. 21-26022) (Order from R. R. Bowker Co., New York)

Entries expanded since the 11th edition in 1960 to include "Facilities," "Major Activity of Company (or Division)," and "Percentages of R&D Performed for the Company, the U. S. Government, and Others." Geographical index lists more than 5,200 companies and divisions; personnel index lists 16,000 key research personnel and executives.

GRAVES, Eileen C., ed. *Ulrich's International Periodicals Directory: A Classified Guide to a Selected List of Current Periodicals, Foreign and Domestic,* 11th ed. Volume I: *Scientific, Technical & Medical.* New York: R. R. Bowker Co., 1965. xii, 484 p. $15. (L. C. 32-16320)

12,000 magazines classified under 116 subject headings with details on each. Appendices include the American Standard of Periodical Title Abbreviations and a subject guide to abstracting and indexing services. Index. Volume II, covering the arts, humanities, social sciences, and business, will be ready in 1966 and also priced at $15.

GREAT BRITAIN DEPARTMENT OF EDUCATION AND SCIENCE and THE BRITISH COUNCIL. *Scientific Research in British Universities and Colleges, 1964-1965.* Vol. I: *Physical Sciences;* Vol. II: *Life Sciences.* London: Her Majesty's Stationery Office, 1965. xx, 368 p.; xviii, 404 p. pap. $7.50; $8. (Order from British Information Service, 845 Third Ave., New York, N. Y.)

Brief notes on scientific research in progress in British universities and associated institutions, colleges of advanced technology, national colleges, regional technical colleges in England and Wales, and equivalent colleges in Scotland and Northern Ireland during 1964-65. Name and subject indexes.

INTERNATIONAL FEDERATION FOR DOCUMENTATION. *Abstracting Services in Science, Technology, Medicine, Agriculture, Social Sciences, Humanities* (FID Publication 372). The Hague: 7 Hofweg, 1965. Var. pag. pap. 25 Dutch guilders.

In five parts: systematic title index arranged by UDC; alphabetical list of abstracting services; obstracting services with limited circulation; abstracting services with national coverage, published in English, French, German, Russian, Spanish; and alphabetical list of subject headings.

PALMER, Archie M., and KRUZAS, Anthony T., eds. *Research Centers Directory: A Guide to University-Sponsored and Other Non-Profit Research Organizations Established on a Permanent Basis and Carrying on Continuing Research Programs in Agriculture, Business, Conservation, Education, Engineering and Technology, Government, Law, Life Sciences, Mathematics, Area Studies, Physical and Earth Sciences, Social Sciences, and Humanities,* 2nd ed. Detroit: Gale Research Co., 1965. 666 p. $35.

First edition entitled *Directory of University Research Bureaus and Institutes.* 3,188 research units in the United States and Canada listed and described. Indexes: institutional, geographic, alphabetic, personal name, subject, university presses. Subscription to quarterly supplements costs $25.

SHIPPING WORLD & WORLD SHIPBUILDING. *Ports of the World 1965,* 19th ed. London: Benn Brothers Ltd., 1965. 710 p. $20. (Distr. by John de Graff, Inc., 34 Oak Ave., Tuckahoe, N. Y.)

Information on port accommodations, charges, pilotage, traffic, etc., for ports in all parts of the world. Arrangement by country. Index to ports and countries; list of oil bunkering ports; international currencies and exchange rates.

UNIVERSITY OF CALIFORNIA, LATIN AMERICAN CENTER. *Master Directory for Latin America.* Los Angeles: 1965. 438 p. $15.

Names and addresses of United States, Western European, and Latin American organizations and institutions interested in Latin America, with explanatory notes and translations where necessary. Covers all fields of activity. Index.

WASSERMAN, Clara Sedacca and WASSERMAN, Paul. *Health Organizations of the United States, Canada and Internationally: A Directory of Vol-*

untary Associations, Professional Societies and Other Groups Concerned with Health and Related Fields, 2nd ed. Ithaca, N. Y.: Cornell University, Graduate School of Business and Public Administration, 1965. vi, 261 p. $13.50.

Expansion of the first edition issued in 1961. In three parts: national, regional, and international organizations with summary statements of activities, membership, finances, publications, affiliations, etc.; statewide organizations in the United States and Canada; classified listing of the national, regional, and international organizations.

Information Handling Techniques

ANDREWS, Theodora, ed. *Automation in the Library: When, Where, and How.* Lafayette, Ind.: Purdue University, 1965. 95 p. pap. $2.50. (Order from the editor at Purdue University Libraries, and make checks payable to Indiana Chapter, SLA)

Papers presented at a conference in October 1964 sponsored by the Purdue University Libraries with the cooperation of the Indiana Chapters of SLA and of the American Documentation Institute. Titles cover: "Basic Computer Information for Librarians," "Automated Procedures at Purdue and Indiana University Libraries" (panel session), "Attitudes and Hopes Where Automation Is Concerned," "Thermophysical Properties Research Center," and "Operations Research in the Purdue Libraries."

DORWARD, Donald L. *Words About Words: Nonconventional Methods of Handling Chemical Information* (Occasional Papers No. 76). Urbana, Ill.: University of Illinois Graduate School of Library Science, 1965. 12 p. unbound. Gratis.

Discusses ways of designating, storing, and retrieving chemical information. "Nonconventional" is applied to any system not using nomenclature or a standard subject index as the retrieval tool.

GOLDHOR, Herbert, ed. *Proceedings of the 1964 Clinic on Library Applications of Data Processing.* Urbana, Ill.: University of Illinois Graduate School of Library Science, 1965. viii, 117 p. illus. $3.00 hard cover; $2.00 paper. (Order from Illini Union Bookstore, 715 S. Wright St., Champaign, Ill.)

Nine papers covering general and specific applications of data processing in libraries. Unjustified margins.

IBM CORPORATION. *IBM Library Mechanization Symposium.* White Plains, N. Y.: [1965]. 252 p. pap. illus. Apply. (Available through IBM stationery stores by requesting Form 3200907)

Papers presented at the IBM symposium held at Endicott, N. Y., May 25-27, 1964. Five deal with public libraries, eight with university libraries, two with special libraries.

INSTITUTE OF INFORMATION SCIENTISTS LTD. *Proceedings of the 1st Conference of the Institute of Information Scientists Ltd., Merton College, Oxford. 17-19 July 1964.* London: 1965. 60 p. pap. $3 (half price to members of the Institute). (Order from S. R. Loynes, MIInfSc, AMIRT, c/o Wiggins Teape Group Research Organisation, Butler's Court, Beaconsfield, Buckinghamshire, England)

Eight papers, including one exercise in science fiction ("Information Work in 2000 A.D." by J. E. L. Farradane), with discussions.

NATIONAL ACADEMY OF SCIENCES—NATIONAL RESEARCH COUNCIL. *Scientific Information Activities: A Report of the Office of Documentation,* rev. ed. (Publication 1291). Washington, D. C.: 1965. [x], 116 p. pap. Gratis. (L. C. 65-61320)

Revision and updating of NAS-NRC Publication 1031, issued in 1962. The information activities described include the preparation of certain publications, maintenance of information centers, provision of information services, and a number of studies and analyses. Index.

Miscellaneous

AMERICAN STANDARDS ASSOCIATION. *Classification and Documentation: English Language Publications. National Standards and Selected Works* (Technical Services Bulletin 18). New York: 10 East 40th St., 1965. 13 p. pap. Gratis.

Catalog of United States and other national and international standards and selected works on classification and documentation that are published in English and available through ASA.

BOUTELL, Henry S. *First Editions of Today and How to Tell Them: American, British and Irish,* 4th ed. rev. by Wanda Underhill. Berkeley, Calif.: Peacock Press, 1965. 227 p. $10. (L. C. 64-10193)

First published in 1928, revised in 1937 and 1949. Quotes publishers' own statements of policy in identifying first editions.

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH AND THE BRITISH COUNCIL. *Scientific Research in British Universities and Colleges, 1963-64.* London: Her Majesty's Stationery Office, 1964. xxvi, 727 p. pap. $7. (Available from British Information Services, 845 Third Ave., New York 22)

Brief notes on scientific research in progress in British universities and associated institutions, in colleges of advanced technology, national colleges, regional technical colleges in England and Wales, and in equivalent colleges in Scotland and Northern Ireland during 1963-64. Name and subject indexes.

EIGHTY-NINTH CONGRESS, 1ST SESSION, HOUSE COMMITTEE ON THE JUDICIARY. *Copyright Law Revision. Part 6—Supplementary Report of the Register of Copyrights on the General Revision of the U. S. Copyright Law: 1965 Revision Bill.* Washington, D. C.: Government Printing Office, 1965. xxvi, 338 p. pap. $1.

Detailed summary of the 1965 Copyright Revision Bill (H. R. 4347, S. 1006). Appendix contains a section-by-section comparison in parallel columns of the present law, the 1965 and 1964 bills, and the preliminary draft of 1963. Index.

———, ———, HOUSE COMMITTEE ON SCIENCE AND ASTRONAUTICS, SUBCOMMITTEE ON SCIENCE, RESEARCH, AND DEVELOPMENT. *The National*

Science Foundation, A General Review of Its First 15 Years: Report of the Science Policy Research Division Legislative Reference Service of the Library of Congress. Washington, D. C.: 1965. xii, 286 p. pap. Gratis. (Available from Government Printing Office)

Traces the development of NSF's legislative authority, organization, funding, and programs. Fold-out tables and charts.

———, ———, UNITED STATES SENATE COMMITTEE ON GOVERNMENT OPERATIONS. *Organization of Federal Executive Departments and Agencies* (Committee Report No. 25). Washington, D. C.: Government Printing Office, March 23, 1965. vi, 67 p. pap. 25¢.

Details of organizational changes in the executive branch of the government during calendar year 1964. Accompanied by a chart (price 20¢) outlining, as of January 1, 1965, the organization of federal executive departments and agencies, with personnel assignments to each major operating unit down through the division level.

ENGINEERS JOINT COUNCIL. *Engineering Manpower in Profile.* New York: 345 East 47th St., (1965). 36 p. pap. $1.

Report of a survey sponsored by the National Science Foundation and based on questionnaires sent to a cross-section of engineers in the United States. Characteristics of the American engineer are outlined under the headings "Education and Specialities," "Employment," "Professional Society Orientation," and "General Characteristics" (age, sex, and experience; geographic distribution). Charts and tables.

FEDERAL ELECTRIC CORPORATION. *How to Write Effective Reports.* Reading, Mass.: Addison-Wesley Publishing Co., 1965. x, 310 p. $6.95. (L. C. 65-14742)

A "programmed instruction" manual and do-it-yourself course. Covers organization of material, selection of format, presentation of data, language, style, etc. Can also be used in schools and company training programs. Instructor's Guide included.

GENERAL SERVICES ADMINISTRATION, NATIONAL ARCHIVES AND RECORDS SERVICE, OFFICE OF THE FEDERAL REGISTER. *Guide to Record Retention Requirements* (Title 1, Appendix A). Washington, D. C.: 1965. 80 p. pap. 40¢. (Available from Government Printing Office)

Revised as of January 1, 1965. Digest of federal laws and regulations relating to the keeping of records by the public. Tells what records must be kept, who must keep them, and for how long. Index.

GOETZEL, Claus *et al.*, eds. *Space Materials Handbook.* Reading, Mass.: Addison-Wesley Publishing Co., 1965. xii, 624 p. $15. (L. C. 65-17404)

Revision and updating of a report prepared by the Lockheed Missiles and Space Company and issued under Air Force sponsorship in January 1962. In four parts: The Space Environment, Effect of Space Environment on Materials, Materials in Space, Biological Interaction with Spacecraft Materials. Glossary; index.

GOLDWYN, A. J., and REES, Alan M., eds. *The Education of Science Information Personnel—1964: Proceedings of an Invitational Conference.* Cleveland, Ohio: Western Reserve University, School of Library Science, Center for Documentation and Communication Research, 1965. viii, 115 p. pap. Apply.

Papers, discussions, workshop reports. Appendix summarizes the activities of several institutions not represented at the Conference.

HAYS, Robert. *Principles of Technical Writing.* Reading, Mass.: Addison-Wesley Publishing Co., 1965. xii, 324 p. illus. $6.50. (L. C. 65-19234)

Step-by-step guide to all phases of technical writing. Suitable for classroom or self-instruction. Questions and exercises, information sources, index.

KLOOSTER, John W. *The Granting of Inventive Rights.* Minneapolis: Intel-Lex, Inc., P. O. Box 6273, 1965. 152 p. illus. Apply. (L. C. 65-16715)

The men, the laws, and the processes behind the issuance of patents, trademarks, and copyrights. Discusses present difficulties and shortcomings in administration, organization, and facilities. Includes a survey of international industrial property rights.

MCCAMY, C. S., and POPE, C. I. *Summary of Current Research on Archival Microfilm* (National Bureau of Standards Technical Note 261). Washington, D. C.: U. S. Department of Commerce, National Bureau of Standards, 1965. iv, 24 p. pap. 25¢. (Available from Government Printing Office or local Department of Commerce Field Offices)

A study of the incidence of aging blemishes on stored microfilm, with recommended preventive measures. Summary of a more detailed paper, *Current Research on Preservation of Archival Records on Silver-Gelatin Type Microfilm in Roll Form,* prepared for publication in the Journal of Research of the National Bureau of Standards.

MARKE, Julius J. *Vignettes of Legal History.* South Hackensack, N. J.: Fred B. Rothman & Co., 1965. xvi, 337 p. illus. $6.50. (L. C. 65-22980)

Famous trials, men, and episodes in Anglo-American legal history. Most were published singly in the *New York University Law Center Bulletin,* and are here revised and enlarged. Should appeal to the general reader as well as to lawyers and law students. Lists of statutes and cases; index.

NATIONAL ACADEMY OF SCIENCES-NATIONAL RESEARCH COUNCIL, DIVISION OF MEDICAL SCIENCES /FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY/INSTITUTE FOR ADVANCEMENT OF MEDICAL COMMUNICATION. *Communication Problems in Biomedical Research: Report of a Study.* Washington, D. C.: Reprinted from *Federation Proceedings,* vol. 23, September-October and November-December, 1964, p. 1118-1176, 1297-1331. pap. Apply.

Six study papers: "The Biomedical Information Complex Viewed as a System," "Trends in Oral Communication," "Document Retrieval," "Reference Retrieval Tools," "Generation of Information," and "Biomedical Literature."

NATIONAL SCIENCE FOUNDATION. *Federal Funds for Research, Development, and Other Scientific Activities, Fiscal Years 1963, 1964, and 1965*, vol. XIII (NSF 65-13). Washington, D. C.: 1965. xiv, 244 p. pap. $1.25. (Order from Government Printing Office)

Survey of federal spending for research, development, and R&D plant, for the dissemination of scientific and technical information, and for collection of general-purpose scientific data. Geographic distribution of obligations for research and development and R&D plant is shown for the first time. Charts, statistical tables.

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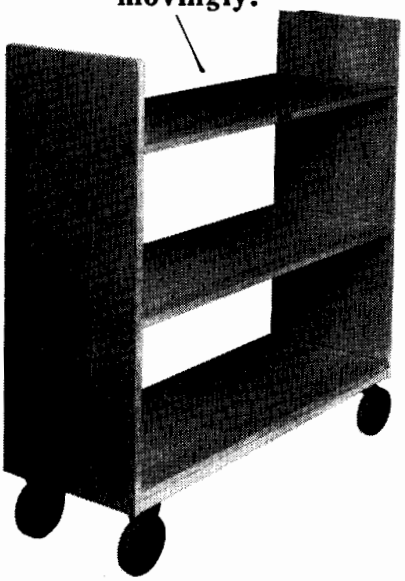

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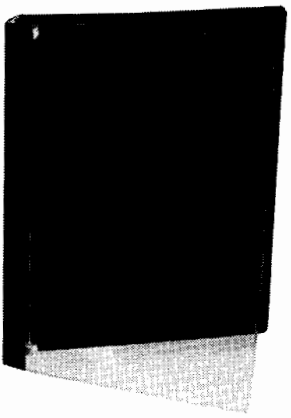

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