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## Special Libraries, May-June 1968

Special Libraries Association

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*May-June 1968, vol. 59, no. 5*

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Another problem in publishing a journal such as ours is the varying levels of experience of readers. Some are new to special library work, some have been "putting knowledge to work" for many years, some have small libraries and small budgets, some have large libraries and large budgets. Some members report to librarians or chief librarians, some report to management. Some work in profit-making corporations in which the member's daily decisions reflect the tempo and economics of the parent corporation. Others of us work in institutions in which protracted research is done and in which time and money do not figure as primary factors in decision-making.

Another feature of our journal is that it is written by members almost entirely. With few exceptions, all manuscripts are received from members.

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\* This article is reprinted from *Special Libraries* March 1966.

† The publication of a separate news bulletin is currently under discussion in 1968.

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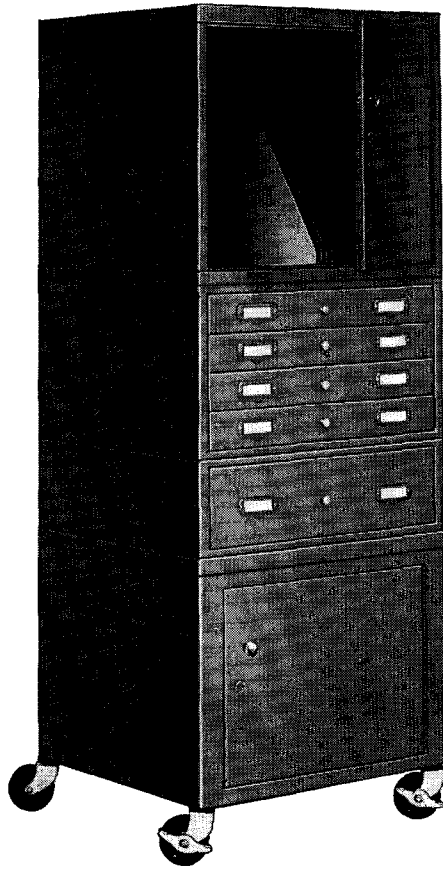
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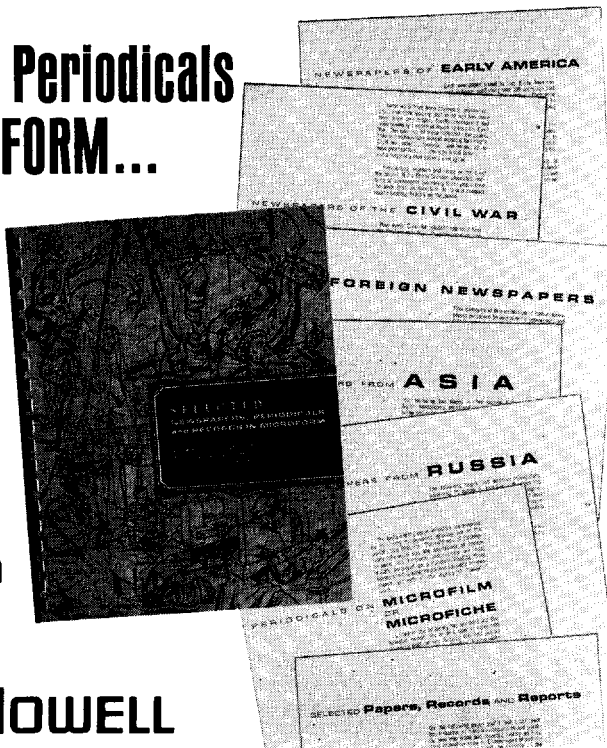
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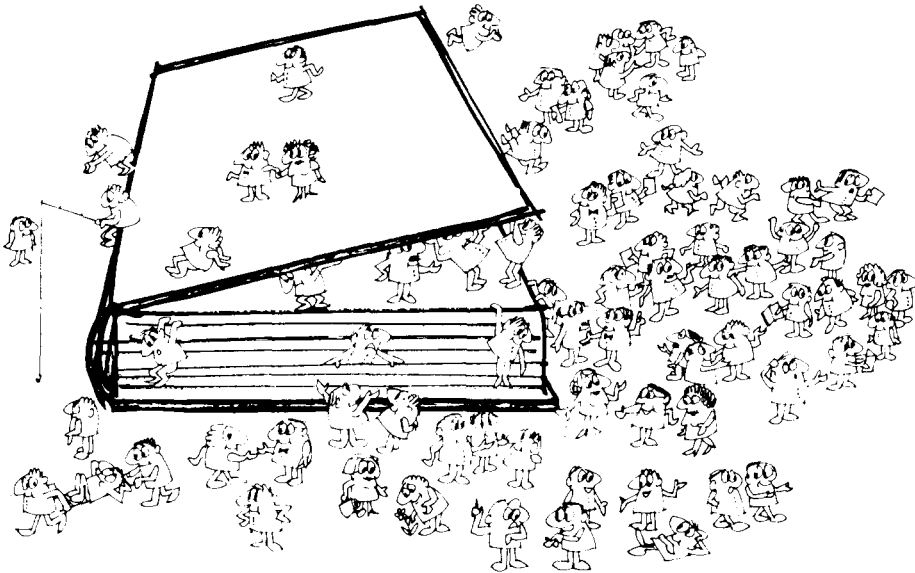


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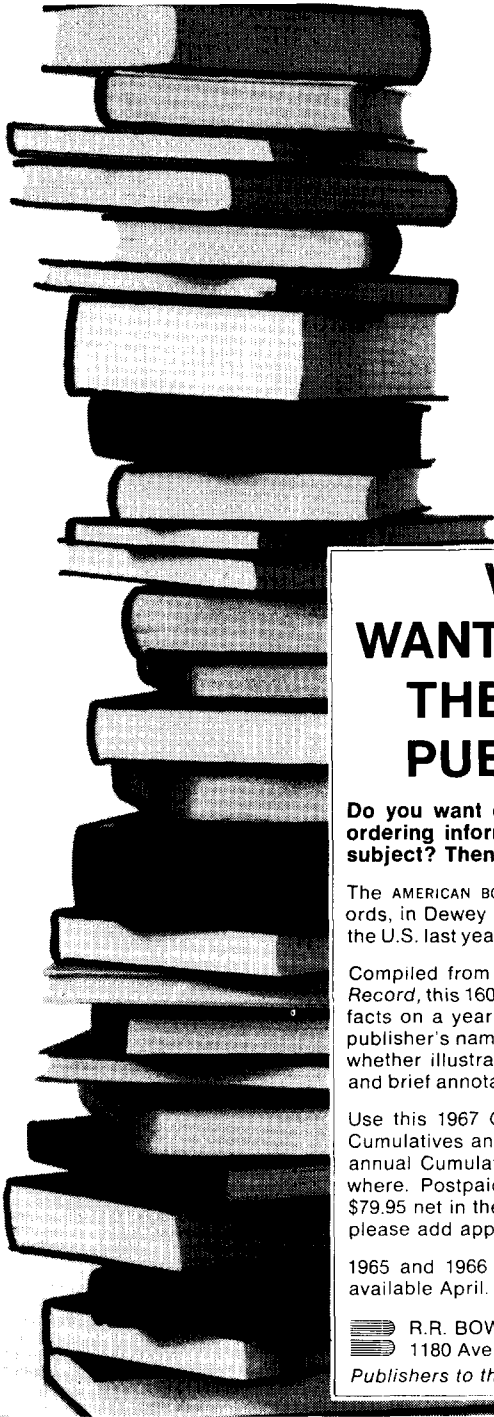
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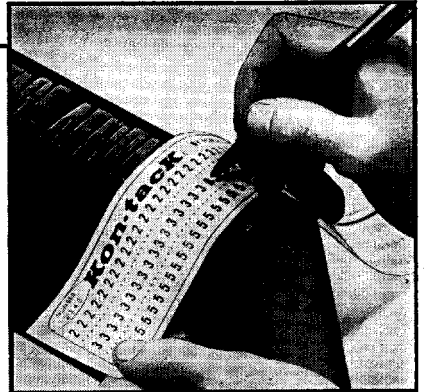
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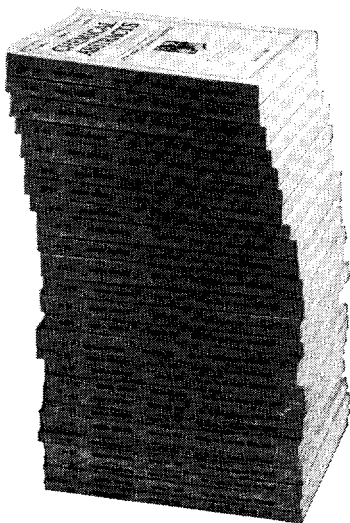
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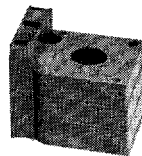
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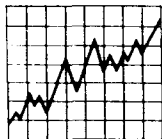
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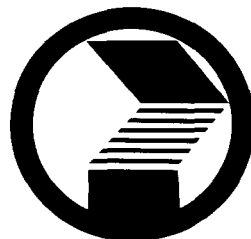
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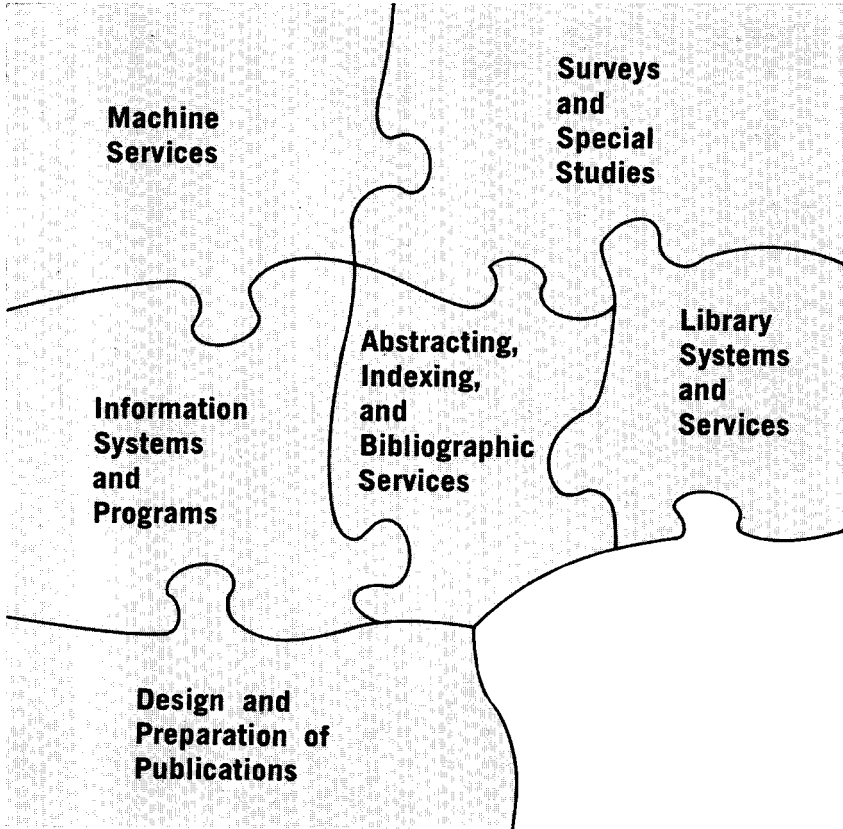
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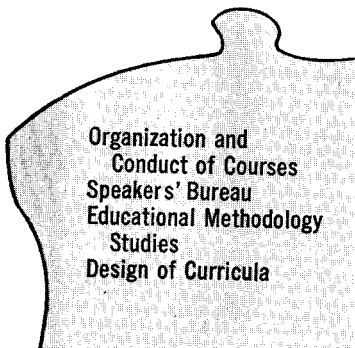
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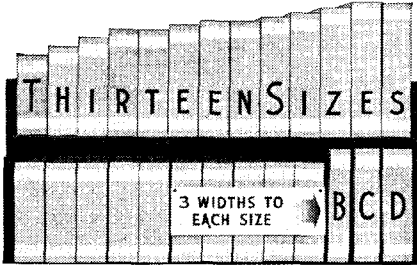
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The nature of the IR problem which confronts the patent offices is described as a basis for explaining why and how ICIREPAT functions. The events leading up to the creation of ICIREPAT are described. The structure of its organization and program are defined. The paper goes on to explain the rules governing the development of cooperative systems, the method of workload distribution among participating patent offices, the nature of the system design and the present status of the program. ICIREPAT is the Committee for International Cooperation in Information Retrieval Among Examining Patent Offices.

## Information Retrieval Among Examining Patent Offices

HAROLD PFEFFER



*Mr. Pfeffer is general secretary of ICIREPAT, U. S. Patent Office, Washington, D. C. His paper was originally presented at a joint meeting of the Metals/Materials and Chemistry Divisions May 30, 1967, during the 58th SLA Convention, New York City.*

*Mr. Pfeffer is general secretary of ICIREPAT, U. S. Patent Office, Washington, D. C. His paper was originally presented at a joint meeting of the Metals/Materials and Chemistry Divisions*

MOST PEOPLE have had some contact with patents in one form or another and have some notion of the fact that it provides some sort of a property right. But the patent office, the organization that is responsible for issuing it, remains an esoteric quantity. There is only one patent office in a country (except in Taiwan where I have been told there is one at each end of the island) and a relatively small segment of the population is involved in the grant of a patent right—the inventors, the patent attorneys, and the employees of the patent office.

There are two types of patent offices. One, a registration office, receives the application, examines it as to form, and issues it, leaving the questions of validity or scope of coverage to a later determination in the courts. The second, which is the

one discussed in this article, is the examining office, which determines whether the inventor is entitled to any property right and to what extent and issues rights which carry a presumption of validity which is rebuttable in the courts.

This again is determined in two ways. Some offices search only for novelty and restrict their searches only to patents which they have already issued. This is generally true of the United Kingdom and the Commonwealth countries. But most of the other countries are required by their laws to make their examinations based on the published technical literature of the world, both patent and non-patent.

In most instances they are required to establish that there is novelty in an alleged invention. Then they are required to measure the degree of novelty, that is, the difference over what the prior art shows, to determine whether or not the novel concept is inventive. Title 35 of the U. S. Code, Section 103, is more or less typical of the criteria used to measure the difference. It states in part "A patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in

the art to which said subject matter pertains."

These requirements have resulted in the establishment of some very elaborate classification schemes to organize the world's technical knowledge in a manner to give the greatest possible assistance to the examiners who must make the examination and decision as to patentability. The examiners are all chemists, physicists, or engineers who are assigned certain areas of technology on which to exercise their expertise.

The problems of organizing the information are not simple. They involve a determination of the scope of any art within which the person of ordinary skill operates. It is recognized by custom and usage that certain arts are analogous and the person of ordinary skill would then be charged with the knowledge within them. Analogous arts are also created by the breaking of barriers between discrete arts as a result of scientific advances.

In addition, since the inventor always tries to claim his contribution in such a way that his specific contribution is merely an example of a class of concepts to be covered, searches are usually made in a generic sense. This requires the technical material also to be organized in a manner which will give as much effect as possible to generic and specific relationships and to the recognition of equivalents for any concept at any level of system organization.

Thus, the problems of organizing information from the point of view of the examining patent offices are quite severe. Those of us who have been studying information retrieval for the last twelve years feel that it represents the most difficult form of the problem. In studying the work of other organizations we have realized that the only organizations which have problems of comparable scope and depth are other patent offices.

### **The International Patent Office Workshop**

Within this context, then, when the U. S. Patent Office was celebrating the 125th anniversary of the Patent Act of 1846, it was decided to organize an Inter-

national Patent Office Workshop on Information Retrieval with the hope that we could find mutuality of problems, needs, and purpose. Representatives of the patent offices of Australia, Canada, Germany, Japan, Netherlands, Norway, the Philippines, Sweden, and the United Kingdom, as well as the Institut International des Brevets, met in Washington with officials of the U. S. Patent Office and experts from other government agencies, industry, and universities.

It did not take too much discussion among these experts to decide that while the existing classification tools used by the patent offices are the best to be had anywhere in the world for the searching operations, they were not adequate to cope with the increased demands being made upon them as a result of the increasing volume and complexity of the applications for patents being filed, as well as the document files which had to be searched. It was also quite clear that advantage should be taken of new techniques being developed in automatic data processing to develop new solutions to the problems of organization, storage, and retrieval of technical information.

Finally, no one disputed the potential advantages to be derived from a cooperative effort where the available resources, even when pooled, appeared pitifully inadequate to cope with the problem as we understood it.

### **Formation of ICIREPAT**

Plans were made for an organizational meeting, which was held in Munich in 1962 and which resulted in the establishment of the Committee for International Cooperation in Information Retrieval Among Examining Patent Offices, otherwise known as ICIREPAT (and pronounced with every variation of accent and combinations of long and short vowels that can be imagined).

In addition to the original conferees in Washington we were joined by representatives of the patent offices of Austria, Denmark, France, and Israel, and of another international treaty organization, Euratom, bringing the representation to fourteen

patent offices and two international treaty organizations.

In the last five years we have been fortunate in watching the membership grow by adding representatives of the patent offices of Czechoslovakia, Finland, Ireland, Mexico, New Zealand, and the USSR as well as the Council of Europe and the Bureaux Internationaux Réunis pour la Protection de la Propriété Intellectuelle (BIRPI), bringing the total to twenty patent offices and four international treaty organizations. Recently we have received applications for membership from the Patent Office of Hungary and the Federation International de Documentation (FID).

ICIREPAT is headed by a steering committee which consists of five members elected for a period of three years each and a general secretary in staff relation, who is in a voluntary non-elected position. The chairman and vice-chairman are selected from the members of the steering committee.

Four standing committees have been established. Standing Committee I deals with problems of abstracting and indexing methods and is charged with fostering cooperative projects in this area. It is also responsible for developing procedures for testing systems.

Standing Committee II is responsible for problems of equipment for transmission, storage, display, reproducing, and similar operations as related to the needs of abstracting, indexing, and searching procedures. It is charged with investigating the usefulness of techniques such as microstorage, photo-reproduction, magnetic recording, card storage, or any combination thereof. More recently it has been assigned the general responsibility of handling all practical problems related to the operational phase of the program. This includes such problems as work load distribution among participating offices, establishment of families of patents related through the priorities of the Paris Convention, optimum methods of exchanging data and copies of technical documents.

Standing Committee III is charged with recommending to the members the adop-

tion of standards of practices which it has studied. It is also responsible for collecting and disseminating information as to classification systems, proposals for standardization of technical terminology, as well as documentation, diagrammatic representations, abbreviations, card formats, and similar matters of interest to patent offices.

Standing Committee IV is concerned with problems of translation in the patent offices and is also charged with watching the machine translation programs. This, so far, has been the least active of all the committees.

### **The Program**

After about a year of effort the various committees were organized and began work on their several programs. Standing Committee I, in the persons of five members from the patent offices of Germany, Japan, Netherlands, Sweden, and the United Kingdom, working as research associates in the U. S. Patent Office and augmented by U. S. officials, operating on behalf of the entire committee, remained in continuous session for one year and evolved the first program. This was presented at the fourth annual meeting in Washington in 1964 and enthusiastically adopted by the members.

The program consisted of two phases. One involved the adoption of five existing nationally developed systems as part of an international shared-use program. These were carefully selected from all known existing operating systems as being best suited for immediate shared use. The systems selected, which were all coordinate index systems, were the Steroids from the U. S., Alloys from the United Kingdom, Lubricants from the I.I.B.-Netherlands offices jointly, Analog-Digital Convertors from the Netherlands, and Nuclear Reactors from Japan. This, obviously, was for the purpose of giving the program as quick a start as possible.

### **Procedure for Developing Systems**

The second phase of the program involved the establishment of a cooperative, international, shared-development system, a set of guiding principles for interna-

tional systems, and an Advisory Board for Cooperative Systems (ABCS) whose task was the coordination and supervision of the program.

The ABCS established the following procedure which is now being followed. Systems develop in a controlled fashion through five stages, which are: 1) Notification stage, 2) term list stage, 3) indexing trial stage, 4) search trial stage, and 5) operational indexing stage.

1. *Notification stage.* In this stage any member office may signify to the ABCS its intention to act as originating office for a particular field of technology. This notification will carry with it *a)* a reasonably precise identification of the subject field, identified in natural language, as well as by reference to the national classification and the International Patent Classification, showing major concentrations of documents; *b)* a statement as to the approximate size and nature of the document collection, *c)* the approximate activity stated as the number of applications filed per year, and *d)* the expected completion date of the first draft term list.

The ABCS chairman designates a monitor for the field, and notifies all members, requesting from each a statement as to their interest in participation together with the information given in *b* and *c* above.

2. *Term list.* The draft term list is circulated to all member offices which have indicated an interest in participation. At this stage the members have the opportunity to criticize and comment on the sufficiency, definition, scope, and detail of the term list. This gives an office an opportunity to orient the term list toward any peculiarities in its own practice. The various comments form the basis for a revision by the originating office. Wherever possible this activity is carried on by correspondence with a very strong effort to maintain response time within a month. If the monitor thinks it advisable he may recommend a meeting to resolve the various problems.

The originating office is then given two months to revise the term list and produce a precise definition of the field and a set of indexing rules. This is distributed once

more with another opportunity for comment within one month. The monitor then reports the adequacy of the term list for advancing the activity into Stages 3 and 4.

3. *Indexing trial stage.* Here the term list is further tested to be certain that all ambiguities and deficiencies have been eliminated and to establish an indexing consistency measure of the field. Here indexing consistency is established within the originating office by having at least two people index the same set of documents. Where possible the test may then be extended to two or more offices.

4. *Search trial stage.* A sample file is constructed (for example by making a random selection of about five hundred documents) and is then used for conducting a number of searches based upon current applications or recently issued patents. Results may be compared with manual searches. Tests may also be conducted against documents known to be in the file. These tests provide information on the depth of indexing, frequency distribution of terms, and recall and response ratios. Following all adjustments made as a result of these tests the originating office produces a final manual, term list, and coding sheet.

The results of all Stage 3 and 4 tests are reported to the monitor who will then report on the advisability of advancing the system to the fifth or operational indexing stage.

5. *Operational indexing stage.* At this point the developed field has been approved by ABCS for shared use by the members. All participating offices then share in the indexing work.

When an originating office would like to offer an existing system for shared use the procedure is quite different. Since members cannot recommend substantial changes in existing systems, the originating office is required to submit sufficient data regarding the system and its characteristics to a designated monitor who studies it and makes a recommendation with regard to its acceptability under existing criteria. If such a system is accepted, it in effect enters into the equivalent of Stage 5 of the procedure.

## Work Load Distribution

In order for the system to be efficient for its intended purpose it must produce a substantially complete file of documents.

As a result of international treaty it is possible for each patent to be part of a family of similar or corresponding patents, issued in a number of different countries. In order to avoid unnecessary duplication of work only one patent from a family will be indexed. According to procedure established by Standing Committee II and accepted by ICIREPAT, the office where the parent patent application originated will index either the parent, or where the parent failed to mature into a patent, another member of the same family. Under the Paris Convention those patents which claim priority based upon an application filed earlier in another country must give this information in the headings of the patents. Each participating office therefore makes lists of the patents in a particular field, one of which shows all the patents which do not claim priority in another country, and lists, by country, of all those which do claim priority in another country. Thus, each national office ends up with a list of specifications which it is required to index. By statistically investigating the file, it appears that elimination of corresponding patents will eliminate about one-half of the currently issued 200,000 specifications per year and will reduce the existing backlog of about 12,000,000 patents by 25 per cent. However, since there may be significant differences in the subject matter and publication dates of these corresponding patents, duplicates cannot be completely eliminated. In addition while the sole representative in a file may be a patent written in a particular language, the examiner might prefer to see equivalents in another language. For this reason, as a by-product of the lists used in work load distribution, a master list is constructed which identifies all the corresponding patents of a particular family.

Additionally, the plan calls for assignment of secondary responsibilities to the various offices for the indexing of specifications originating in nonparticipating

member offices and those originating in nonmember offices.

## Nature of Systems

The term lists are constructed as a multi-aspect system where each aspect selected represents a significant characteristic feature of the subject matter. The terms used therefore represent concepts associated with the particular subject matter, rather than keywords or uniterms. These term lists then become in effect rather sophisticated classification schemes.

Because of the limitations of manpower and equipment in the individual offices the system must be carefully designed to give optimum performance for minimum cost. Thus, we will try to make the recall ratio as high as possible and the total response as low as possible. A mean response of less than twenty has been set as a reasonable goal. And of course, false responses or false drops should also be kept as low as possible. Since most offices must use their highly skilled engineer examiners to do the indexing work, it is essential that indexing time and cost be kept as low as possible.

Because of unavailability of adequate resources, systems must also be designed so as not to place an undue burden on any member office. The system has therefore been designed so that it can be implemented by punched card equipment and can be used with either single or multicolored sorters utilizing an eighty-column punched card as the storage medium. The term lists are preferably constructed so that a direct coded approach may be used in recording on the punched card and so that the number of terms does not exceed about 816, the maximum capacity of a single card after allowing for bibliographic data.

Of course, we hope that as the program advances and becomes more firmly established systems of more sophisticated design will be produced for use on more sophisticated hardware.

## Present Status of Program

At the present time forty-five areas of technology have been proposed for mech-

anization, of which nineteen were presented as existing systems and the rest are being developed according to the procedure set out above.

As can be imagined, there has been considerable difficulty in actually getting this huge operation into action. Despite the desperate need of each office to install these systems and give their examiners much needed assistance, the attempt to put the systems into operation comes directly into conflict with existing programs and procedures. The man who so desperately needs the new tools is the same man who must examine, study, and evaluate what is being given to him to see whether it will perform what the designer alleges it will. Sometimes he must even be the designer. All this must be performed while he is heavily engaged in carrying out his normal duties, which are extremely hard in the first instance or there would not be such a desperate need for new tools. So the whole procedure becomes a huge bootstrapping operation.

While the dislocations of existing procedures can become quite severe in any given office, nevertheless the inertia of the entire system is beginning to give way under the concerted efforts of the steering committee, the advisory board and the responsible officers in each of the member offices.

Of the existing systems which were offered for shared use it appears that those directed to alloys (from the United Kingdom), lubricants (I.I.B.-Netherlands), and A-D converters (Netherlands) are close to being operational in all major offices. While the U. S. steroid system is being used in many offices the system has been revised at the request of ICIREPAT. The revised system is now being studied by an ABCS monitor and his recommendations will be forthcoming soon. In the area of glass technology (Germany) work is now at Stages 3 and 4 and should be completed by late spring and we hope to be at the operational indexing stage before the annual meeting in September. The United Kingdom office has indicated that it is making special efforts to complete work in 1967 in four technical fields where it is the

originating office. These are taps and valves, plastic molding, electrolysis, and process metallurgy.

### Priority Programs

At the meeting of the steering committee in April 1967 additional steps were taken to try to speed up operations. The procedures were modified to permit originating offices to proceed with the testing Stages 3 and 4 before receiving approval from the ABCS monitor, and steps were taken to see that the monitor's report is submitted in a reasonable time. A cut-off date for priority indexing of backlog was set at January 1, 1946, with the condition that this date can be moved either forward or back, based upon an adequate demonstration of fact. The studying of this problem to determine whether there are any techniques that can be employed to find an optimum cut-off date has been assigned to one of the committees.

Certain areas of technology which seem to be more important industrially and whose mechanization seems to be useful to a substantial number of members because of current workload size will be designated as being part of a priority program. The effect will be to make a special effort to complete indexing of document backlog within one, two, or three years from the time of acceptance, depending on a determination as to whether they fall into a small, medium, or large category.

The program is huge. It is difficult to anticipate the problems, because that which appears insignificant on a small scale suddenly becomes critical on a large scale. Problem areas include, for example, such things as transmitting punched cards overseas so that they do not arrive as a homogenized mixture of holes and cardboard, writing manuals in an unambiguous manner, preparing careful definitions of technical concepts, making indexing rules simple and clear. We have discovered in several cases situations where the same technical term has a different significance in different countries. Once this situation has been discovered, something can be done to remedy it, but until it is discovered some strange interchanges take place,

with the personnel of one office wondering how their counterparts can be so stupid.

### **Communication Problem**

The communication problem, of course, is difficult, with the European offices as a group having all the best of it. Forgetting to mark a letter for air mail can be disastrous at times. For example, we sometimes receive a letter requesting us to submit comments on a proposed area of technol-

ogy within one month of the date of the letter which happens to have been the day before yesterday.

Nevertheless, the prognosis for the future is a good one. The motivation is high. Even though ICIREPAT is an informal organization where no member is obliged to do anything, it has become a showcase of what can be accomplished by international cooperative effort, with a minimum of resources but with a strong will to succeed.

The requirements for a second-generation computerized circulation system in the library of the Electronics Systems Center (ESC), International Business Machines Corporation, are listed; and the planning, installation, operations, and cost of the system are described. The system is both book- and man-oriented. Unique features include production of three types of notices on four different time sequences; statistical records on the number of uses of individual volumes and on the number of books borrowed by each man; and preservation of the record of the last borrower after a volume has been returned to the shelf.

## An Automated Book Circulation System, Model II

P. M. STRAIN and W. SHAWVER

THE TIME REQUIRED to produce recall notices and make follow-up phone calls for the 100-150 reserve books handled weekly convinced the circulation assistant and the library administrator of the Electronics Systems Center that the ESC library needed a more mechanized circulation system.

The system that ESC was using had been developed when automation of such routines as circulation was still so new each library had to pioneer its own method. The system had worked usefully for several years to produce loan record cards filed both by author of the book and by the name of the borrower; quarterly reminder notices to all borrowers of books in their possession; a satisfactory way of recording what books were reserved (but not of recalling the reserved items); and previously unavailable statistics on usage which have been discussed in detail elsewhere.<sup>1</sup> The system did not provide means of keeping up with a borrower's changes in location, of pulling together charges for a borrower who was inconsistent in how he signed his name on loan slips, or of providing all the statistics the library

administrator wanted. The basic elements of the system involved unit record machines, cards, and a small computer. The unit record machines prepared and sorted punched cards that were manually filed into or pulled from working files; the card files were manipulated in a limited fashion on occasion by an IBM 1401 computer. The circulation assistant had to do much repetitive work a machine could do as well, and machines were not used to their highest capacity. The system had become out of date, and staff members who worked with it daily recognized the obsolescence.

### Requirements

The library staff agreed that a satisfactory circulation system for the ESC library must satisfy the following demands:

1) Tell what items are out of the library and where they are. The library loans books, single unbound issues of periodicals, and miscellaneous non-book items such as college catalogs. All should be covered in an ideal circulation system. Loans were for periods of one day, two weeks, the normal period best described as "until the reader was done with the book or three months

*The ESC computerized circulation system was developed by Miss Strain while she was technical librarian at IBM, Owego, New York; Mr. Shawver is the system analyst. Miss Strain is now head librarian, Booz-Allen Applied Research, Inc., Bethesda, Maryland.*



passed," and permanently, a term used for library books assigned as desk reference tools outside the library. Loans and returns average about 1,000 each per month. Slightly less than 23% of the entire collection, or around 2,800 books, are charged out at any one time.

2) Tell who has library material charged and what items each borrower is accountable for. It should also provide information on the current address of borrowers as automatically as possible, and should pull together all items borrowed by an individual, no matter how he signs his name. Between 800 and 1,000 individuals have material charged out of the library at any one time.

3) Provide a way to reserve items that are not currently in the library, for later use by another reader or readers. Between 250-300 items are on reserve at any one time.

4) Provide a way to recall reserved material and material that has passed the time limit of the loan.

5) Notify library patrons at regular intervals of library materials for which he is accountable but whose return is not necessarily required. Such a written reminder often alerts a patron to a long-held loan he had forgotten to return.

6) Provide the various statistics required for better administration. Sixteen different questions for which circulation statistics could provide answers were listed as well as indicating *where* in the circulation process the statistics could be obtained.

7) Fulfill the above requirements by the most economic and efficient combination of man and machine operations applicable for our situation, and to do so promptly so that circulation information would always be both accurate and current.

### Adjustments and Planning

Flow charts describing each of the various operations in circulation work as ESC did them were drawn up. All the rules and customs affecting library circulation in ESC were looked at; and a decision was made for each as to whether there was good reason for it being allowed to stand—thus requiring the new system to conform to it—or whether circulation rules could be altered to adjust to the constraints of the machine. The systems analyst was consulted and the limits within which the system would be designed were more sharply drawn.

It was evident quite early that the inclusion of charges for magazines and other miscellaneous items loaned would create more problems in developing an efficient computerized system than the number of loans of this material justified. It was decided the circulation system being developed would limit itself to books, which represented more than 90% of all loans. Magazine circulation,

which represented about 8% of total loans, would be handled by a proposed second-generation serials control system.

An adjustment was made in the custom of the normal loan by giving it a more definite time limit. Studies of the habits of our borrowers showed that about 50% of all books borrowed were returned within two months of the charge date;<sup>1</sup> therefore three months was set as the period before a reminder notice was sent. After the first notice, we would wait three months before sending another reminder; our studies had shown that more than 80% of all loans were returned within six months.

### Shelflist and Bookcards

A more serious adjustment had to be made with our shelflist record and our bookcards. The shelflist, in which one IBM punched card represented one book in our collection, used all 80 columns for the data describing the book. The bookcard was a replica, on an IBM card of another color (yellow), of the shelflist card. Unlike the bookcards used in another computerized circulation system in the corporation,<sup>2</sup> the ESC card had been set up with fixed fields for descriptive data.

1) Identification number (Columns 1-19) divided into subfields

Cols. 1-13. Library of Congress classification number (Cols. 1-10) and our author number (Cols. 11-13). Of these, Columns 1, 2 and 11 are always alphabetic when used; Column 7 always contains a period; and Columns 8-10 are blank (in evidence of an early error of judgment, we thought our collection might use expanded LC classification numbers but it does not). The remaining columns are numeric.

Cols. 14-15. Last two digits of year of publication. The ESC library deals with subjects developed in the last twenty years so no confusion is caused by omitting the century digits.

Cols. 16-17. Volume number, if any.

Cols. 18-19. Copy number, if any.

2) Author entry (Columns 20-39)

The last name of the first author with his initials. When the main entry is an organization, the name is abbreviated to fit into 19 spaces. No standard abbreviations were attempted when the punched card shelflist was originally set up. Abbreviations are still inconsistent, though we now agree with Gibson and Randall's recommendation of standard abbreviations if a computerized circulation

system is planned.<sup>2</sup> It makes for consistency in filing and finding.

- 3) Title, followed by the edition number, if any (Columns 40-80)

No abbreviations had been found necessary with so much space. The title was usually quite identifiable even when it was abbreviated at Column 64 which our first circulation system did in producing the borrower's record card.

To achieve efficiency in computer input in the new system, the bookcard format had to be altered by cutting off the title at Column 61 and reserving the remaining 19 columns for recording borrower and loan information when the book was loaned. Because we felt (and this has been confirmed by experience) there would be only a minor amount of confusion with titles so shortened, new bookcards (duplicating Columns 1-61 from the original 1-80 shelflist card) were gang-punched for our entire collection and replaced the old cards in book pockets as the new circulation system was installed. (This was the most time-consuming part of the system change-over for the library staff since bookcards for between 11,000 and 13,000 volumes had to be exchanged.)

The system analyst and the library administrator looked into the possibility of making the new circulation system an on-line, real-time operation but concluded that the number of loans and returns to be handled daily did not justify the equipment cost. Records, as current as needed, could be obtained by batching our work in daily, weekly, and less frequent schedules. Eleven months experience with the new system confirms that batching provides records sufficiently up to date. Certain records, originally scheduled to be produced every six months, are now being produced monthly because of greater convenience to the staff.

### Installation

A first step in installing the new circulation system was to put the shelflist on magnetic tape. Although the old keypunched shelflist has not been abandoned, the official shelflist is now the abbreviated data on magnetic tape. Additions to, or deletions from, the shelflist are punched on IBM cards which are sent to update the tape whenever the number of changes justifies doing so. This

updating is done at the same time a regular circulation report is being prepared.

The bookcard is used to produce loan and return records. Earlier in this paper the truncation of data shown on the original bookcard was described; it was not made clear that the bookcards were also re-designed. In order to find an effective way to keep circulation records abreast of a borrower's changes of location and to pull together records for borrowers who were inconsistent in the way they signed their names to loan records, it was necessary to begin using the borrower's payroll serial number as part of the loan record. The new bookcard format added spaces for the employee number and the borrower's office phone number, and continued to request the borrower's last name and initials, his department number and the date of borrowing. All these data are on one line which the borrower is asked to fill in at the time of loan. If the borrower does no more than sign his name and give his department number, the staff fills in the date of loan and the payroll number from a personnel list. The office telephone number is requested only for the convenience of the circulation assistant, should she have to phone for the return of the book. If the borrower is not on the plant payroll (the library serves any one who works regularly within the facility, and contractors' and government liaison office personnel use the library), a special symbol is used by the library staff to tell the computer not to reject the card as an incomplete or improper record.

The library staff also fills in two additional blanks on the card, indicating the type of loan it is, and what sort of transaction. The ESC library has four types of loans, with differing recall features:

- 1) Regular (Reminder sent every 90 days)
- 2) Reserved books (Recalls sent every 2 weeks)
- 3) Reference books (Loaned for 1 day only)
- 4) Long-term or "permanent" assignments (No recall)

The transaction code is assigned by the keypunch operator when she punches up the required circulation records for the day. The transaction codes are:

- 1) *Discharge*. Removes book from man-tape; codes

books as in library on book master tape. (Punched on yellow card)

2) *Charge*. Adds book to man-tape charged to man; codes book as out of library on book master tape. (Usually assigned by keypunch operator to special salmon charge card)

3) *Delete*. Remove record for book from man-tape. (Yellow card)

4) *Add*. Adds record to man-tape. (Yellow card)

5) *Change Number of Books Borrowed*. Replaces number of books borrowed with data in Columns 78-80 of card. (Yellow card)

6) *Lost*. Removes book from man-tape; adds 1 to total books lost by man; codes book lost on book master tape. (Yellow card)

7) *New book* charged out regularly, but now put on reserve; produces immediate recall notice. (Yellow card)

8) *Renew*. (Yellow)

### Charging and Discharging

After the borrower has signed the bookcard, the circulation assistant verifies his information as complete and legible, and adds the loan and transaction codes. Once a day the bookcards are collected and taken to the keypunch operator. For each signed bookcard, she produces another bookcard punched Columns 1-61 to replace the original. The original card is now completed by punching Columns 62-80, in four fields: Columns 62-3 for loan and transaction codes; Column 64 for the symbol for a borrower not listed on plant payroll records; Columns 65-70 for employee payroll serial number, and Columns 71-80 for borrower's last name. This card is duplicated, except for Column 63, on a salmon-colored card; it is in Column 63 of the salmon charge card that Transaction Code "2" is punched. All three cards (the yellow card signed by the borrower and now completely punched, the unsigned new yellow bookcard, and the salmon-colored almost-duplicate of the completed bookcard) are returned to the library. The circulation assistant files the two yellow cards by the book's author (Columns 20-39) in the file of books charged out; the salmon card is placed in the unarranged deck of transaction record cards to be taken to the computer. That completes the loan formalities for the library staff for most loan records. The only other formality observed has to do with reserved book loans. The list of names of people who have reserved a title are filed with the author cards for a reserved book, and a colored metal clip is put on the signed

author card to further alert the staff in discharging the book or in consulting the file.

Discharging a book involves pulling the two bookcards from the author file. The blank card goes into the pocket of the book and it is ready for shelving. The signed card is dropped into the deck of transaction cards to be taken to the computer.

If a change in status of the charge occurs, the transaction code must be changed. This is done by sending the original bookcard back to the keypunch operator with a note to change the code. She punches another yellow card with the new transaction code, and returns both cards to the library. The original bookcard returns to its place in the author file, and the new yellow card goes into the transaction deck to instruct the computer.

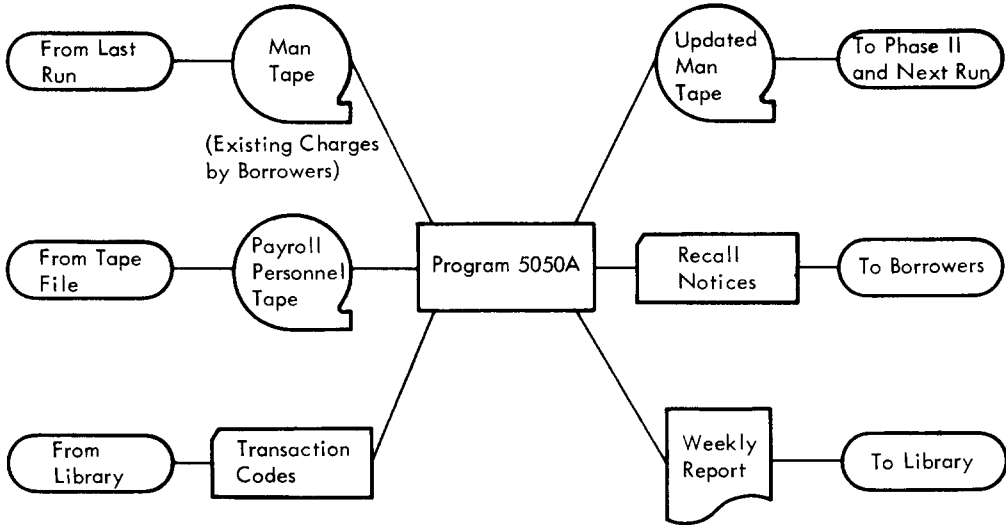
Once a week, all transaction cards are taken to the computer, accompanied by two packs of blank notice cards (yellow recall and blue reminder). The transaction cards are used to add to, correct or delete material from the man-tape kept in the computer library. The transactions are sorted to employee serial number and are matched with the existing tape listing borrowers and their charges, and the payroll tape (Figure 1) and a record of books borrowed arranged by name of borrower is produced. Recall and reminder notices, as necessary, are produced at the same time. These are triggered by the date of loan, which is registered on the transaction tape when the loan is entered. The date is recorded in five digits—the first two being the last two digits of the year, and the next three the number of the day in the year; thus, July 4, 1967, appears as 67185.

### Notices to Borrowers

Two weeks after a Loan Code 2 enters the man-tape, a recall notice is automatically produced by the computer if the loan has not been returned. Similarly, Loan Code 3 triggers an immediate recall notice without any waiting time. Loan Code 1 produces a reminder notice 90 days after date of loan. Please notice that "recall" and "reminder" notices are mentioned. Recall notices are printed on yellow card stock and the text specifically requests the return of the material for the use of other borrowers. A new

Phase I

Employee Oriented – Produces Borrowers Record File and Notices Weekly



Phase II

Book Oriented – Produces Catalog Shelflist, Monthly. Other Book-Oriented Reports are Produced Using Modification of Program.

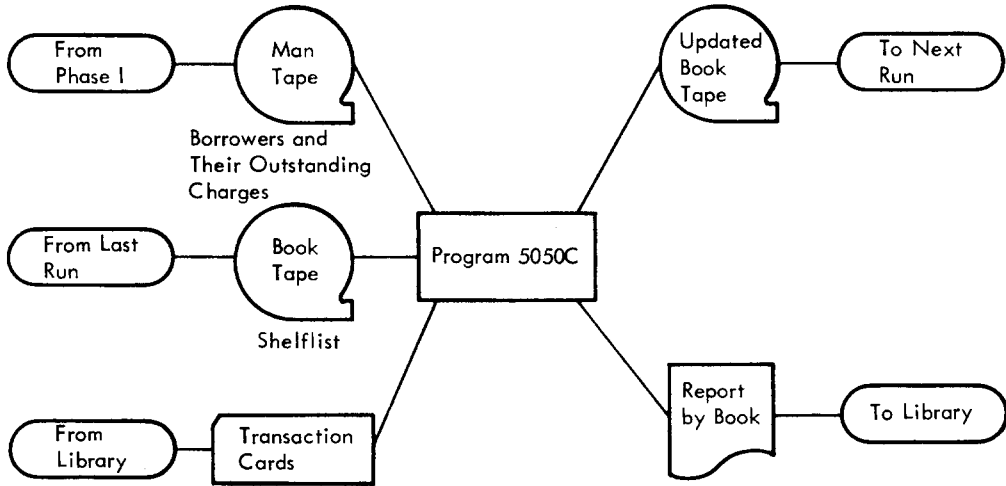


Figure 1. Flow Chart of Computer Operation

recall notice is issued each succeeding week until three have been produced by the computer; after the third, the computer signals to the circulation assistant that human effort is needed to get the book back. This signal is continued until the book is returned or cleared from the tape as lost. The reminder notice, formatted in the same way as the recall notice for displaying information about the book and giving mailing instructions, is on blue card stock. Its text reminds the borrower he has the book and suggests its return if he is through with it; the borrower is also told that, by signing and returning the card, his loan will be renewed. If the borrower ignores the first such reminder, the computer does not send a second reminder card the next week, but waits another 90 days before sending the second. Once more, the computer waits—this time only two weeks, and then switches to recall notices, and follows that sequence.

Normal loans, as noted, may be renewed. A change in transaction code accomplishes this. Reserved books and short-term loans may not be renewed, though the borrower may request another turn on the reserve list. Reserve books, when sent to the borrower, carry an eye-catching notice clipped to the front cover telling him that it is a limited loan book which must be returned for the use of others. When a book on normal loan is reserved while it is in use, the circulation assistant has several methods open to her depending on the circumstances: she may call the borrower and ask for the immediate return of the loan; she may send out a form notice filled in by herself telling him the book is reserved and requesting its return at a given date, at the same time putting into the computer run a change of loan code to produce a two-week notice in the regular way; or she may put in a change of transaction code card instructing the computer to produce its recall notice at once.

We have found that, with these regularly produced and mailed notices (the notices come back to the library for visual checking and placing in the mail), the turnover of reserved books are quicker; normal loans come back to the library more quickly than before; and fewer books are reported "lost" by customers. Since the new circulation system is in use there has been a marked reduc-

tion in the amount of shelf-space available in the stacks and there has also been a slight increase in the number of loans. Using these elements as basis, we believe the increased availability of material to the reader through prompter returns has effectively increased our collection by 6%.

The fourth type of loan is the long-term loan, or the "permanent" assignment of library materials for desk reference in a particular department. Under the old system, these books were charged to the department itself and notices listing what each department was supposed to have, were prepared and sent out in June and December. One of the adjustments required by the new system was that these books be charged to individuals, not to a department, and the system was set up to send out reminder notices in March, June, September and December. These notices are in a third form, a sheet printout of the books charged, headed by an explanatory paragraph explaining the list and requesting the return of books no longer used. Even in the short time this system has been in operation, we notice a greater sense of responsibility for safeguarding these desk tools and for reporting changes in their location. Losses (which are really not actual losses, only losing track of books for months or years) have dropped off.

### Lists Produced

The explanation of what the computer produced each week was interrupted by a digression on the kind of notices produced and their effect. As has been stated, the computer produces a list of books borrowed, arranged by name of the borrower. This listing is extremely useful for a number of purposes, other than the one which demanded its production—that of having an up-to-date listing of all library material charged to an individual in a situation where transfer of employees between facilities may occur on short notice. One of the services this list and the next to be described performs that the library staff did not anticipate in our planning, but which the systems analyst had recognized as a requirement, is to identify errors in assigning classification and book numbers, in charging, or in keypunching. The computer rejects charges for books which do not have unique identification; when the usual

identification group (Columns 1-19) are identical on cards, the computer reads Columns 20-39 (author) to look for a difference. If there is also no difference the record is rejected and the offending card is printed out with a flag for attention on the listing so the library staff may investigate and correct the error. Similarly, if payroll number recorded for the borrower is not found on the payroll master tape, the card is rejected. All errors that affect the record are rejected, flagged, and the reason for rejection noted on the listing. Having errors brought to staff attention while memories are still fresh prevents greater problems later.

The listing of loans by borrowers contains information about the borrower and about each loan to him. The borrower's location and name are always correct and consistent; the use of the payroll tape assures that. How active a borrower he is, is shown by a report of the total number of books he has borrowed during the year. The books currently on loan are identified by notations as to their status; any one of fifteen different possibilities may be recorded for an item, though "Charge" and "Return" are the most frequent.

A final statistical summary at the end of the list reports how many books are on loan this week, how many new charges were made, and how many returns came in. These figures are broken down into sub-totals by management and non-management personnel for use in the library administration's studies of library use.

Upon request, the computer will also print a report showing the complete shelflist of the library book collection, with an indication of where each item is, how many times it has circulated, and who the last borrower was if the book is now in the library. It is this particular report that has proved so useful that it is being produced monthly rather than semiannually as originally intended. The circulation assistant and the cataloger both say that steps are saved having a copy at their desks for consultation. The circulation assistant praises the "last borrower" feature as being helpful in many situations. The library administrator finds the tabulation of use of each volume very helpful even though the data available now are for less than a year's use—already it shows the qual-

ity of our collection by the pattern of use, and indicates subject areas where weeding or more selective buying could profitably be imposed. The innate conservatism of the cataloger insists that we continue to maintain the original keypunched card shelflist, but the library administrator suspects its use will decline so that, within the coming year, we can consider abandoning it and depending instead entirely on the book shelflist.

Other statistical reports are also produced by the computer upon request. One of these is always asked for with the shelflist—totals of all books currently owned by the library, how many are on loan and in what type of loan. We can get a report listing all borrowers by their department and division, as an aid to determining where library service is used. Lists of books lost are producible by class number or by name of the borrower who lost them. (The mere rumor of the existence of that particular listing seems to have encouraged more borrower responsibility about keeping track of library books!) All who have borrowed books during the year may be listed, so that library administration can determine exactly who are our current users. These reports provide far more precise information about circulation than the administrator has ever had readily available and permits detailed investigation of how the library serves its clientele.

The new circulation system fills all the requirements originally specified, in most cases with the machine rather than man performing routine operations. In only two aspects of book circulation is there much dependence on the human—the recording of reserves and the interlibrary loan—and in both cases the decision to depend on human operations was made deliberately.

While Gibson and Randall<sup>2</sup> report a means of recording in the computer reserves for a given book and for listing the reserves along with the loan records, the ESC library staff felt it would be more economic to by-pass this step. The majority of our reserve requests are made on the IBM card-size request form that accompanies our accessions announcement sheet. This request form, when filled out, contains all the data needed for the charge record. We think that filing the request form with the outstanding charge for the book wanted involves less time than

entering the request into the computer. In both systems, the circulation assistant has to clear the old charge and to enter the new. Our system permits the circulation assistant to exercise some judgment based on knowledge of borrowers' needs and habits in the sequence in which reserved items are sent to requesters.

As for interlibrary loans, the loans we make to other libraries are handled in our circulation system just as if they were loaned to people working in the plant who are not on the plant payroll. Since all such loans are listed on the borrowers' report behind the regular employees, it is easy for the circulation assistant to watch these records and to send the recall notice only after the four-week interlibrary loan period is up. Books we borrow from other libraries are kept out of the circulation system entirely because they are the responsibility of the interlibrary loan librarian as official borrower.

### Costs

The Library Technology Project, reviewing automated circulation systems,<sup>3</sup> reported that they are more expensive than the conventional types. This is true if one does not consider the time saved by them; even so, the time saved need not be a decisive factor. Machine costs are not always as great as one might suppose, as will be shown.

Our new system saves time in at least two positions in the library. For the circulation assistant in these ways: filing of daily loan and return records are cut in half (since cards are filed and pulled from one file, rather than two as in our old system); the new recall and reminder notices are fully addressed by the computer and may be put in plant mail without a covering envelope; recall and reminder notices are produced by machine, rather than by hand, and they are produced automatically and regularly; difficulties of identification or location of borrower have been minimized by the use of the payroll serial number, notices go to the right person the first time; reserve requests are filled more easily and the processing time for reserves is quicker; errors or improper actions are identified early when their correction is uncomplicated so snags are fewer. The library administrator's time is saved by having statistics presented to her

that formerly she had to develop from raw data. Four months after the new circulation system was installed, we found that 28 man-hours a month were being spent in various operations related to circulation where 101 man-hours had been spent under the old system. (It is unfortunate that we did not work out a similar comparison of time saved between our original completely manual circulation operation and the first mechanized system; it would be very interesting to compare times for the three ways of operation.)

Machine hours, four months after the installation of our system, were: 4 hours per month keypunch time (no change from the amount used in our first mechanized system); 1.17 hours on the IBM 1460 computer as compared to 0.5 hours for the old system; and 0.62 hours on the IBM 7010 computer. The machine costs of the system per month total only 4% of its savings in man-hours; we feel this is a bargain.

The costs of installing the system are one-time costs; what this library did may not necessarily be what another library would have to do. The activities were: planning by the library administrator and the systems analyst; programming and de-bugging; designing and procuring new cards and notice forms; keypunching cards; exchanging bookcards in the collection, and re-charging all outstanding charges; and taping the shelflist. We do not have full records of the amount of time spent by the librarian and the systems analyst, or in writing and de-bugging the programs. The expenses of the other parts of the change-over totaled 160 man-hours and the cost of approximately 20,000 IBM cards and forms and the magnetic tape required to store the shelflist. We expect to recover this expense within the first two years of the new system in savings by reducing the loss of books which would have gone missing under the old system of notices and records, and by reducing the time spent clearing up snags.

### Conclusions

The increased control we have over circulation routines, the improved records and the more complete statistics, all contribute to our enthusiasm for our system. After eleven months of operation, we have yet to find any serious weakness in it, other than the fact

that all systems are subject to human mistakes whether they are manual or machine systems. Operator error—by the library staff and by the machine operator—does occur; fortunately, error in a machine system is highly visible and may be redeemed promptly.

The system fits the ESC library because it was tailored for our needs. It is also universal enough to be potentially useful to other special libraries. Larger collections and heavier circulation activity would increase the machine time and costs to some minor degree but should not otherwise affect the system's efficiency.

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A written preservation policy which meets the objectives of each library and which falls within its financial and staff resources is recommended. The causes of paper deterioration in libraries are briefly discussed. Current preservation practices in libraries are described as inadequate. Preliminary findings of research in Chicago are presented to complete these guidelines for preservation.

# Guidelines for Preservation

RICHARD D. SMITH

**T**HE NEED FOR conservation of library resources has long been recognized. The problems of preservation were considered in 1876 at ALA's founding meeting in Philadelphia. Preservation has been a steadily increasing concern to libraries as the size and value of collections have grown. Giants, such as New York's Melvil Dewey, as well as librarians like each of us have contributed many proposals aimed at improving our practices.

The problems of book preservation have also been an important concern to industries supplying library materials. For example, the paper industry supports the Institute of Paper Chemistry in Appleton, Wisconsin. The very first research project at this institute was entitled "*Permanence*." Since its founding in 1929, many of the Ph.D. dissertations as well as privately supported research at the Institute of Paper Chemistry have attempted to identify the mechanics of paper deterioration.

Some librarians may not appreciate the fact that all library materials deteriorate in time. Books deteriorate standing on the shelf and their replacement cannot be postponed forever. Nevertheless, library materials ought to be rationally selected for discard on the basis of need rather than discarded because they have disintegrated beyond use.

The quantity and variety of materials in the research library today require conservation of actual materials at the lowest possible

cost. Mechanized preservation procedures and preventive maintenance are essential considerations.

## Library Objectives and Preservation

Libraries in general collect and make available recorded knowledge. The objectives of each library or its parent organization are normally stated in its charter and amended by its trustees as may prove necessary. These objectives are interpreted and put into effect by the director and the library staff. Librarians are charged with the selection, acquisition, organization, interpretation, circulation and maintenance of library collections.

The choice between books or equipment, between staff for public or technical services, between current demands and future needs, etc., is always difficult and invariably leads to compromises. Preservation—in a narrow sense one aspect of maintaining the collection—must be considered along with all the other responsibilities that compete for every librarian's time, attention and money.

Preservation work takes measurable staff time to retard an almost unmeasurably slow rate of deterioration of the collection. Preservation consumes money to provide for the expected future patron at the expense of today's complaining reader. Preservation programs must not be undertaken lightly nor should they be directed at saving individual books for current staff or patron interests.

Preservation work must be planned as an essential part of the library's long-term program and aimed at fulfilling its basic stated objectives.

There never has been nor is there ever likely to be enough money to do all the things that a library might do. Books manufactured today obviously are physically satisfactory for current circulation or ready reference collections. The inadvertent loss of a single book in any library with archival responsibilities is to be avoided. Most libraries have both current circulation and archival functions. The responsibility of the staff and trustees is to prepare and to implement a suitable preservation policy for their individual library. By default on the part of librarians, this policy now deserves as much, if not more, time and thought than a book selection policy or classification scheme.

### Paper Permanence Involves Many People

The permanence of books in libraries is affected by the decisions of four groups of people. These decisions forge the links of the chain of probable permanence and this chain is only as strong as its weakest link. Three of these groups of persons are always associated with books, and the fourth group may or may not be so associated. The individuals who make up these groups may be recognized by their activities:

- 1) Manufacture of basic materials for books,
- 2) Selection of materials and production of books,
- 3) Prolonged storage of books, and
- 4) Pollution of air, water, and other materials.

The members of the manufacturing and the selection-production groups vigorously compete in the business world. The members of the group responsible for book storage are

somewhat shielded from such economic constraint. The ever-present polluter, unfortunately, lacks even the constraint of good manners.

The best known *manufacturer of basic materials for books* is the papermaker. Chemical and equipment suppliers, adhesive and ink manufacturers, and many others also provide basic materials for books. From the viewpoint of book preservation, all persons who are involved in supplying basic materials are important because all raw materials may affect the permanence of the finished book. The responsibility of the basic manufacturer and his suppliers to this ideal of preservation is to have products available which contribute to the best possible permanence and to assist their customers in selecting and using these products.

The publisher typifies the group who *selects basic materials and produces books*. The publisher plans the book, chooses some of its components, and specifies its construction. Book designers, printers and binders also select some of the components of books. There have usually been good basic materials available for the manufacture of books but selection has frequently been made for reasons other than durability and permanence. The selection-production group, before considering permanence, must attend to the problems of profit and loss which are inherent in the speculative ventures of book production and distribution. There are very few publishers, even among our university presses, who can sustain a financial loss. We librarians should remember that the purchases of all libraries represent only a small portion of the printed matter sold. Our great research libraries are insignificant when measured in terms of their purchases. Books, newspapers and periodicals are very satisfactory products for the majority of buyers who need them for only a few days or a few years. Durability and permanence are closely related to the market for a given publica-

*Mr. Smith's paper was presented at the Symposium for Preservation of Library Materials sponsored by the Resources and Technical Services Section, New York Library Association in Rochester, New York on October 11, 1967. The author is a predoctoral student and fellow at the Graduate Library School, University of Chicago.*



tion. Permanence, in terms of library goals, is not normally a practical publishing objective.

Librarians are, above all others, responsible for the *prolonged storage of books*. Librarians are responsible for the preservation of records produced in the past and librarians must be prepared to receive and to maintain all of the materials which are pertinent to the goals of their library. The condition of these materials and the extension of their useful life becomes the responsibility of librarians once the materials are accepted by the library.

Librarians are responsible for the maintenance of past records in contrast to papermakers and publishers who are responsible for the production of future records. All literary materials will deteriorate in time. Librarians, papermakers and publishers do not cause paper deterioration in libraries. However, the decisions they make affect the rates at which library materials will deteriorate. Each of these groups should try to appreciate the other's problems; and when it is economically feasible, attempt to improve permanence by cooperation as well as by mutual education. Librarians are limited in what they control. They might accomplish more by concentrating their efforts on reducing the rate of deterioration within libraries rather than attempting to change the character of industrial materials or the manufacture of printed works.

The insidious results of *pollution* are only beginning to be appreciated by librarians. We are all polluters or active contributors to pollution simply because we live and consume. Librarians know that books waste away on library shelves but we continue to store books in dirty, hot, humid and acidic urban atmospheres. The causes and cures of pollution problems are well known and efforts are being made to apply this knowledge. Solutions to this basic problem may be found but, in the meantime, librarians must accept pollution as a fact of life deeply rooted in our society. Pollution and all of its effects cannot be prevented by librarians but these effects can be minimized through better storage practices in libraries.

Our concern is therefore with the conservation of records as they exist in libraries. We are interested in the earlier history

of these materials only in so far as this history affects preservation treatments. Librarians neither manufacture nor select book components, and the purpose of this paper is to deal with problems which librarians can remedy. This discussion does not attempt to anticipate materials which may become available in the future nor does it sigh about materials which were available in the past. We are particularly concerned with guidelines for the preservation of materials which are now in libraries.

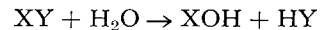
### Causes of Paper Deterioration

The cause of book deterioration, for purposes of this discussion, is considered to be the deterioration of paper. Paper is primarily composed of fibers, and these fibers are composed of industrial cellulose. The principal causes of industrial cellulose deterioration or library paper impermanence are:

- 1) Hydrolytic degradation,
- 2) Oxidative degradation,
- 3) Microbiological, insect, and rodent attack,
- 4) Photocatalyzed degradation, and
- 5) Mechanical wear and tear.

The term "industrial cellulose" is used to indicate that cellulose is considered to be both a chemical and an industrial commodity. The properties of industrial cellulose need much more study and clarification although cellulose itself has been thoroughly investigated.

*Hydrolytic degradation* of cellulose is the most significant cause of paper deterioration in libraries. All hydrolytic degradations involve the consumption of water and the breaking up of a chemical compound (XY) into smaller parts according to the chemical reaction:



A reaction of this form occurs in paper fibers under essentially all conditions. A hydrolytic reaction becomes an important cause of paper deterioration when the rate of hydrolysis is accelerated. Acceleration normally occurs if acidic substances are present in sufficient quantities to cause the water-extract of a paper to be significantly acidic and if large numbers of protons (hydrogen ions) are available to catalyze the hydrolysis.

The rate of paper deterioration, caused by hydrolytic degradation of cellulose, is determined by the total content of protons and the temperature. The rate of hydrolytic attack and the rate of diffusion of protons in the leaves of books are largely determined by:

- 1) Origin and pulping of paper fibers,
- 2) Accessory ingredients of paper,
- 3) Methods of papermaking,
- 4) Other components of books,
- 5) Methods of book manufacture, and
- 6) Environmental conditions of book storage.

The rate of paper deterioration increases as the number of protons available to catalyze the reaction increases. A useful, but limited, yardstick of proton activity (and thereby a prediction of permanence) is given by the pH value\* of a water extract of the paper.

The most important source of protons (or acidity) in book papers is the hydrolysis of the aluminum ion as introduced in papermaker's alum (aluminum sulfate). The most significant, but by no means only, function of papermaker's alum in papermaking is to precipitate rosin size onto the paper fibers. Other important sources of acidity are the book components themselves, as well as sulfur oxides from combustion processes, and nitrogen oxides from automobile engines.

It is customary to report the degree of acidity present in paper as sulfuric acid equivalents. The maximum acid present in cases of severe deterioration could approach 0.1% sulfuric acid equivalents by weight. Carbohydrate, fatty and resin acids are also present in most papers. These acids have properties similar to acetic acid and are very much weaker than sulfuric acid.

Paper chemists believe that a paper whose water extract is neutral or moderately alkaline will be more stable than a similar paper whose hot water extract pH value is less than 5.5 or 6.0. They also know that the source of the acidity is irrelevant to its destructive effect on paper permanence.

*Oxidative degradation* is a factor in library paper deterioration and its significance grows as the quantity of non-cellulosic material present in paper fibers increases. The major oxidizer is oxygen and this oxygen comes from the surrounding air. Besides contributing to paper embrittlement and loss of strength, oxidative degradation frequently results in colored degradation products and may cause paper to discolor. Certain paper fiber components, such as lignin, are particularly liable to oxidation. For example, newsprint papers (roughly 75% mechanical wood fiber and 25% unbleached chemical wood fiber) exhibit discoloration, especially when exposed to ultraviolet light.

*Microbiological, insect and rodent attack* may determine the useful life of books. This possibility of biological attack is greater in particular climatic conditions which occur naturally in warm, humid tropical climates or in summer in temperate climates. Such conditions may be created artificially by inferior storage practices. Rodents may also be troublesome in winter when their natural food sources are inadequate. These destroyers are classed together because book components serve as their food supply and because these living organisms thrive in warm, dark and humid areas.

*Photocatalyzed degradation* is not a serious cause of paper deterioration in most libraries. This degradation is catalyzed by the action of ultraviolet light—a component of sun and most artificial light—and results in complex oxidation and reduction reactions. These reactions begin with the impingement of ultraviolet light on the book component. Anything which prevents ultraviolet light from striking the book is helpful. The intellectual content of most library material is protected by the margins of leaves and the bindings of books.

*Mechanical wear and tear* primarily involves deterioration caused by folding, stretching and tearing actions. The primary sources of these movements are patron use and the expansion and contraction of the book components. This expansion and contraction is caused by fluctuations in relative humidity and temperature during storage. The effect of mechanical wear and tear is not considered critical to a library's archival function for materials in good condition.

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\* pH is a logarithmic expression of the degree of acidity or alkalinity. A pH of 7 indicates a neutral condition. Values between 0 and 7 indicate an acid condition; values between 7 and 14 indicate an alkaline condition.

Nevertheless, heavy use could be detrimental in a particular subject area and a single, bad storage location could ruin the books in that section of the library. Paper which has been attacked by any of the above four causes of deterioration may have lost its natural ability to resist the effects of mechanical wear and tear. Such embrittled and weakened papers need a strengthening treatment to preserve them for future use.

The past history of a book is significant with regard to its present condition and to its potential permanence. It is impossible to predict what causes of paper deterioration will develop in any given library in the future. The librarian must:

- Decide what materials are his responsibility to preserve; and
- Provide the best treatment and storage conditions available to delay the deterioration process.

### Aspects of Current Preservation Techniques

There are basically two ways of preserving recorded knowledge in libraries. One alternative is to replace the worn out record with a new copy. The other alternative is to preserve the book as it exists in the library.

A large portion of the publishing industry is devoted to the production of new copies. The given method of reproduction is usually dictated by the expected market. Low volume titles are normally handled by specialty houses, university presses, University Microfilms, etc. Single copies can even be reproduced economically today by research libraries for the distant inquirer.

The second method of conserving library materials has resulted in many treatments for restoring and preserving records. Barrow's aqueous deacidification treatment is one accepted method of reducing the rate of hydrolytic degradation. The *Constitution of the United States* and the *Declaration of Independence* are stored in an inert helium atmosphere to prevent oxidative degradation. Librarians in the tropics fumigate, set out poison baits, and even try to isolate their collections to prevent attack by fungi, insects and rodents. Librarians in charge of rare book collections prevent the impingement of ultraviolet light by installing special

window glass, exhibit cases, and non-ultraviolet light sources. Some libraries purify their bookstack air and through air conditioning obtain the benefits of constant storage conditions. Both lamination and gelatin sizing, as well as reinforcement, are used to strengthen and otherwise protect weakened papers. Badly deteriorated and less permanent papers are photographed so that their intellectual content will not be lost. The suppliers of photographic materials and the National Bureau of Standards have provided librarians with specifications for the prolonged storage of microforms, etc.

The cost of current preservation techniques is high; and certain materials, like microforms, present additional costs in reading equipment and recataloging procedures. Librarians are unable to apply the available preservation techniques to the great number of ordinary books. Many ordinary books, unfortunately, are now essentially useless; and the fate of others can be predicted. Most librarians fear that important segments of recorded knowledge are about to be lost. These librarians know that current preservation techniques will produce the desired permanence, but they recognize that these treatments cost more than most libraries can afford to invest in the preservation of ordinary books.

### Research in Progress

Librarians cannot fulfill their professional obligations without both practical guidelines and methods for the preservation of books for each individual library. We have already considered library objectives, sketched the causes of paper deterioration, indicated that librarians are as unable to control the past as they are the future, and noted that costs limit the application of current preservation techniques. An economical mass production method for treating large numbers of books is needed; this is the underlying purpose of the research in progress at the Graduate Library School of the University of Chicago. For purposes of this discussion, the following treatments will be called the Chicago Process. Although this work has been under way for over two years, these treatments are not recommended for application at this time because testing is not complete.

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### A Deacidification Recipe

<b>Needed</b>	Books, a special pressure cooker, and a deacidification solution containing no water (a nonaqueous solution).
<b>Procedure</b>	<ol style="list-style-type: none"><li>1. Place books in pressure cooker and seal the cooker.</li><li>2. Pump air out of books inside the pressure cooker.</li><li>3. Pump in enough deacidification solution to cover the books.</li><li>4. Heat the pressure cooker so that the books and solution become warm.</li><li>5. Open valve at bottom of pressure cooker and allow pressure caused by heating to force excess solution out of the pressure cooker; close valve.</li><li>6. Open other valves and allow gases to escape and books to dry themselves; close valves.</li><li>7. Pump out any remaining gases from books, and remove books.</li><li>8. Return books to library for use.</li></ol>
<b>Time</b>	Required would vary depending on the number of books, type of equipment, and actual procedure. Cycling time could range for one hour to three or four hours.
<b>Cost</b>	Will vary with the number of books and degree of mechanization as well as with whether some or all books of a library are treated. Unit costs may lie between \$0.25 and \$0.50 per book—off bookshelf back to bookshelf—in a large library.

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The Chicago Process is envisioned as a collection of preservation treatments from which a librarian might select those appropriate to the objectives of his library. The process is based on the use of industrial methods to improve the durability and permanence of books at a low unit cost. The idea is to handle and treat books in shelf loads with mechanized equipment in so far as possible. This process is not directly applicable to rare books because such valuable materials should receive individual attention. The Chicago Process uses organic solvents because these liquids normally wet paper more rapidly than water, have less swelling or distorting effect on paper, and are easier to dry from paper than water.

Hydrocarbon solvents, such as gasoline, have negligible effect on paper and only fill the voids within the paper as they wet the

paper. Hydrocarbon solvents can be mixed with other organic solvents like ether and methyl alcohol to form a solvent system which is relatively inert to paper and other book components. An appropriate solvent system will dissolve deacidification chemicals like magnesium methoxide and carry such chemicals into books. Liquefied refrigeration gases, like Freon, are solvents and have the characteristics of gasoline towards paper and other book components. Solvent systems containing liquefied gases are advantageous in that they wet a book rapidly and in that when such wetted books are subsequently heated, they will dry themselves. Other beneficial agents may be impregnated during a deacidification treatment to protect books against biological attack and to stabilize certain less resistant parts of industrial cellulose.

Further beneficial treatments are possible when the paper is suitably alkaline. The gas, ethylene oxide, can be combined with the cellulose of the paper fibers. Small amounts of ethylene oxide will stabilize the cellulose against undesirable degradation and reduce discoloration. Similar treatments, chemically speaking, are applied industrially to stabilize a variety of papers and are known to reduce the rate of fungus attack. When appropriate binders are impregnated into a book via a liquefied gas solvent system, the paper is strengthened and the leaves do not bond together because the escaping gases keep them apart as the book dries.

Once the books are protected from self-destruction, it is possible to further the archival function of libraries by storing the stabilized books in an inert atmosphere. A transparent and impervious plastic film can be wrapped around a book and sealed, possibly in a partial vacuum. The small quantity of oxygen and other harmful gases remaining inside the wrapper can be expected to react with—but cause negligible harm—to the book components. The book itself removes the harmful gases and produces its very own inert atmosphere. The transparent film allows the interested reader to verify the bibliographic data on the binding before breaking the seal, and a new wrapper could easily be applied after use. The impervious wrapper would also protect the book from dust and dirt, accidental water damage, and the mechanical wear and tear caused by fluctuations in relative humidity. Chemicals could be incorporated into the plastic film during its manufacture to provide protection

against biological attack and photocatalyzed degradation.

### Present State of the Art

It is hoped that the Chicago Process will eventually offer librarians a number of choices from which to select a practical method for the preservation of their library's holdings. The applicability of these treatments remains to be confirmed by further investigation and by the scrutiny of librarians themselves. The underlying chemistry of the treatments appears sound\* and the questions which remain relate to the problems of impregnation and commercial development. This Chicago Process will not be available for the preservation of library collections tomorrow. Assuming that funds become available and no problems are encountered, it will take at least one or two years to fully prove the procedure and to assemble suitable production equipment.

### Acknowledgements

This report was made possible through encouragement and guidance from the Chicago Paper Testing Laboratory, Chicago, Illinois; from the Institute of Paper Chemistry, Appleton, Wisconsin, and from the Department of Chemistry and the Graduate Library School, University of Chicago, Chicago, Illinois.

The author is grateful to Harold W. Tribolet, Manager, Extra Bindery, R. R. Donnelley and Sons, Inc., Chicago, Illinois, and to members of the above organizations for their reviews of this paper and for their suggestions for its improvement. Part of the work reported was supported by a grant from the Council on Library Resources, Inc., Washington, D. C.

\* Patent applications on the novel aspects of the Chicago Process are pending.

# Does the Library Profession Really Have a Code of Ethics?

MARTHA BOAZ

WHAT IS A CODE of ethics? Does the library profession really have such a code? If so, how effective is it? Among the traditional professions, such as theology, law, and medicine, certain requirements are characteristic of the profession. These requirements have become recognized as basic: 1) the profession demands that its members acquire an intellectually based technique; 2) that practitioners assume a responsibility to their clients; and 3) that practitioners belong to professional associations which set standards for admission to practice and exert control over the actions of their members through codes of ethics. In most professions the control exerted by the association is supported by public licensing and supervision. This support is important, for professional ethics and standards of conduct are academic only, unless supported by power of enforcement.

Similar to the above are the six criteria of a profession proposed by Abraham Flexner.\*

These are:

- Intellectual operations coupled with large individual responsibilities,
- Raw materials drawn from science and learning,

- Practical application,
- An educationally communicable technique,
- Tendency toward self-organization, and
- Increasingly altruistic motivation.

Also, the recognized and established professions specifically reject the amount of financial return as the measure of success. The bases of their dignified and honorable reputations are excellence of performance and service to the community.

Another important characteristic of a profession, Vannevar Bush points out is the fact that the typical client who buys or uses professional services is not in a position to judge their quality for himself. Rather, he relies upon the standards of conduct maintained by the profession and by the reputation of the individual practitioners.

A profession earns a reputation for honor by the behavior of its practitioners. The medical profession is probably the most highly respected profession in the world; this has been pointed out by Morris Llewellyn Cooke: "Think of the limitless freedom which the medical profession enjoys in the homes of the world . . . the members of the medical profession have carried themselves so faultlessly in these intimate relationships that we never pause to wonder at it."

A large percentage of physicians in this country are members of the American Medi-

\* Flexner, Abraham. "Is Social Work a Profession?" *School and Society*, vol. I, 904, June 26, 1915.

*Dr. Boaz is Dean of the School of Library Science at the University of Southern California. For a number of years Special Libraries Association has had a Code of Ethics Committee; its chairman is Miss Rose L. Vormelker, Assistant Professor in the School of Library Science, Kent State University, Kent, Ohio.*



cal Association. Physicians who have graduated from an approved medical school, served a hospital internship of not less than a year, and passed an examination allowing them to practice medicine in their respective state or territory are eligible for membership. Membership in the AMA is required by some hospitals as prerequisite to staff appointment.

The term *ethics* is a misnomer, if used in the strictest definition of the word. Actually professional ethics refers, in large part, to the rules of etiquette developed in the profession to govern the professional contacts of members with each other and serve as a method of establishing internal discipline.

The codes of ethics of most professions are mixtures of general moral principles and of definite rules of conduct. The content usually falls into three major categories: the relation of the professional person to society, to the client, and to colleagues. The rules of conduct in the American Medical Association are altered and revised as customs change, but the general principles embodied in the codes, like the Hippocratic Oath, do not vary greatly except in the wording. It seems logical that a professional code of ethics should be under constant review and perhaps frequent revision. Moral truths do not change, but their application may vary as social conditions and economic factors

change and as our tempo changes.

Ethics must be applied with regard to circumstances, consideration of consequences, and understanding of the ends to be attained. Irrespective of other factors, however, the main objective is the universal good. Each profession has its own problems with the interpretation of the common principles of ethical conduct. And a professional code is more than the duty of an individual towards others. It also prescribes the duties of the members of a whole group towards those outside the group. Attempts of professions to relate the individual to the group and the group to the wider community mark an important step forward.

Greater stress should be placed on the understanding and observance of ethics by the library profession. One way to accomplish this may be in more emphasis—by library schools—on moral character in the selection of students and in greater stress on the teaching of ethical principles in the library schools.

Implied in the total concept of *profession* is a particular form of control over the conduct of the practitioner. The exercise of this control is by means of voluntary codes which have been developed for the practitioner by his peers and are enforced by his peers with primary concern for the public interest.

# Lest we forget . . .

## John Cotton Dana

ROBERT G. KRUPP

WHEN JOHN COTTON DANA'S travels finally brought him to Denver late in the 19th century, his interest in the educational problems of that city caused him to be appointed secretary of the Board of Education. One of the minor duties he assumed as secretary was that of librarian for the Denver Public Library. That was in 1889. Interestingly enough, just two years prior to that turning point in Dana's life, the first library school in America began at Columbia College under the guidance of Melvil Dewey. By 1900 there were four schools—total. Today, ten times as many accredited library schools exist.

A review of the writings on the life and the works of John Cotton Dana reveals him as having been a lawyer, a surveyor, a mining engineer, an author, a poet, a newspaper editor, certainly a scholar, and one of the best read Americans of his time. He was *not* a professional (at least as we view it today) librarian—by education or by training. Mr. Dana was to all an experimenting librarian.

As chief of the Denver Public Library, he aggressively crashed head on with all the traditions of a profession that had gone its quiet and dusty way for a long time. He became at once a storm center. His procedures were classed as undignified and unorthodox. He was even called a radical.

Mr. Dana's great sin was to believe that a library should be used. His experiments, such as open stacks, children's rooms, and schoolroom libraries, shook the traditionalists to their roots but, in the end, fomented a revolution in all areas of library practice.

He, of course, went on to become head librarian at Springfield, Massachusetts and—finally—at the Newark (N. J.) Public Library. It was here that the real purpose in John Cotton Dana's life became manifest in

his vision of a library collection set aside to fulfill a unique, a special purpose, thus creating the spark which was to cause an explosive development in the library field.

This self-styled librarian came to the realization that businessmen everywhere needed collections of books, directories, periodicals, trade literature and the like, keyed to their very specific needs, and that this library material had to be made convenient for its users. After all, was it not Dana's thesis that a library must be used to be useful? And did not service and education work hand in hand with this usage? A few days before Mr. Dana's death *The New York Sun* commented editorially: "It's a dull day in Newark, N. J., on which John Cotton Dana does not find a new way to make the public library more useful. . . . If Newark's population does not attain intellectual supremacy over all the other people in the United States, its failure cannot fairly be laid at the door of the public library where Dana holds forth." There may be some doubt as to whether or not Newark has, due to the influences of Mr. Dana, become the most literate of cities; but there is, indeed, no doubt that it became more conscious of the resources in books.

So in 1907, two years before the Special Libraries Association was formed, Dana established a business branch of the Newark Library in the center of the business section of that city. It's still there today, at 34 Commerce Street. Fifty-nine years of active experience within SLA have proved the validity of Dana's proposal to designate municipal, technical, legislative, and commercial libraries as "special libraries."

*Thus John Cotton Dana identified a challenge.* Library historians agree that in this way he left a heritage to librarianship which can be envied by all other professions.

## JOHN COTTON DANA LECTURES

1967-1968

*The John Cotton Dana Lectures in Special Librarianship were established during the Association's 50th Anniversary year. These lectures which commemorate Mr. Dana as the founder of SLA are presented to inform students about the field of special librarianship and information work.*

*The first lectures were presented in 1961; since then more than seventy lectures have been given in library schools in the United States and Canada. Abstracts of the 1967-1968 series of lectures are presented here. This series was arranged by Mrs. Mary Lee Tsuffis, chairman of SLA's Recruitment Committee for 1966-1967. Mrs. Tsuffis is Librarian, Xerox Corporation, Rochester, N. Y.*

*Mr. Krupp, the author of the introductory essay on John Cotton Dana, is Chief, Science and Technology Division, The New York Public Library.*

ATLANTA UNIVERSITY. School of Library Service. Atlanta, Ga. (Dec. 1, 1967)

**Mrs. Marian M. Orgain**  
University of Houston, Houston, Texas

### *Research Activities of Special Libraries*

John Cotton Dana, who was a leader in the creation of the Special Libraries Association in 1909, urged that the needs of the library patron take precedence over the purely institutional needs of libraries; he believed in a patron-centered library. He further felt that the problems facing those people working in business and technical libraries were largely ignored by ALA; and so from its inception SLA has concentrated on the practical problems of working people. It has emphasized getting information to people.

Special libraries are various, but they might be defined as libraries with collections of materials focussed towards the needs of specific limited clientele—that is, special collections designed for a special group of users. These could include art museums, newspapers, hospitals, or science libraries within universities.

There is a difference, of course, between reference and research questions, and what most special librarians do is aid in research, not *do* research. But special librarians often become active assistants in research, such assistance varying from what the scientist needs out of all the multitudinous papers published, to supplying vast background data on persons, places, and events, including statistics and photographs for a newspaper's voluminous coverage of an historical event such as the Kennedy assassination.

Research activities of special librarians cover many subject areas. Salaries compare favorably to those in other library fields. In this field one finds the concept of service which allows him to fulfill his need to help other people while giving himself an outlet for his intellectual capacity. □

COLUMBIA UNIVERSITY. School of Library Service. New York (Apr. 18, 1968)

**Mrs. Margaret Sloane**  
The Ford Foundation, New York

### *So You Want To Be a Librarian*

The graduates have chosen their profession—hence this is not a "recruitment lecture." Rather, the author has chosen to outline what this chosen profession has to offer and what the graduate can expect from it. This expectation is in direct proportion to the graduates' contribution to the profession. Details and examples, based on experience and observations of the author, are given.

But what *can* this graduate expect? That his master's degree is an "open sesame" to a world waiting for him—because of his advanced degree? If this is his philosophy, he is in for an awakening. Let us hope he awakens to an understanding that his is a responsibility—an individual responsibility—to prove by his department and his endeavors that this profession of librarianship is an honorable one. He must help create a climate which is conducive to fostering the growing realization that librarianship can stand as a peer with other recognized professions. □

FLORIDA STATE UNIVERSITY. Library School.  
Tallahasee, Fla. (Apr. 22, 1968)

Mrs. Margaret Sloane

See Columbia University

GEORGE PEABODY COLLEGE FOR TEACHERS.  
Peabody Library School. Nashville, Tenn.  
(Nov. 16, 1967)

Mrs. Elsa S. Freeman

U.S. Department of Housing and Urban  
Development, Washington, D. C.

*The Bells Are Ringing—Lo, The Special  
Library*

Personal experiences and observations are cited to illustrate one line of special library development—that in federal libraries. A cross-section of disciplines covered, a broad range of programs served, and a variety of formats handled are described. The participation of special libraries in their organization's work, their vitality, and the characteristics of lively librarians are discussed. The role of libraries in information systems, and their use of computer technology are mentioned. Compensation for special librarians, and the wide range of libraries in which they serve, are presented. □

KANSAS STATE TEACHERS COLLEGE. Department of Librarianship. Emporia, Kansas  
(Oct. 31, 1967)

Rose L. Vormelker

Kent State University, Kent, Ohio

*Special Librarians—Today's Necessity, Tomorrow's Sine Qua Non*

The service function and emphasis on finding information, as well as assembling and processing a collection of materials is the distinguishing feature of a special librarian's work.

It takes a knowledge of the field in which the special library exists, whether it be banking, business, chemistry, engineering, marketing, art, music or history, in order to be intelligent concerning the sources of information in these fields; which to purchase, which to count on using elsewhere, which to borrow.

Furthermore, it is necessary to understand the nature of the organization in order to know how to adjust traditional library rules and regulations to the organization's needs.

The introduction of mechanical devices is of great significance in special libraries where the operation of the library is usually concentrated among fewer staff members than is the case in public libraries. Also the various efforts to develop machine retrieval of information is likely to get a more sympathetic ear when one can deal directly and quickly with the person who O.K.'s payment of bills than when negotiations have to go through many hands and boards before approval is given.

The saving grace of a sense of humor cannot be overestimated. Often the officials or department heads with whom a special librarian must deal are woefully uninformed on what the library can and should do and may attempt to use their office to thwart a library development. This calls for realistic discussion sometimes, but can usually be resolved, without bloodshed, when authority is established, understood, and that sense of humor is kept intact.

The paper concluded with a presentation of various kinds of special libraries with examples of the kind of work to be expected in each one—and how good service plus an effective public relations policy was resulting in greater demand for special librarians in more and more fields. In fact as was suggested in our title, no research activity in any field can proceed very far without its special library. It is the base from which to start. Librarians interested in making their contribution through this phase of library work should plan to prepare for it through specialization in their chosen field, in addition to basic library training. Experience in a general reference field would stand them in good stead when they are ready for the special library opportunity. □

LOUISIANA STATE UNIVERSITY. Library School. Baton Rouge, La. (Nov. 17, 1967)

Mrs. Marie S. Richardson

Combustion Engineering, Windsor, Conn.

*Why Special Libraries Are Special*

Special libraries are *special* essentially because of the particularly demanding service a special library provides. The special library makes available to an organization a specialized knowledge and experience directly re-

lated to that organization's activities. The special librarian secures, assembles, and presents all significant information possible in specific subject fields. In this manner, the special librarian frees those engaged in other activities from all but a minimum of time in securing the desired information.

The overwhelming increase in the output of scientific literature during the last decade requires an equivalent increase in special libraries. One of the greatest causes of waste in the business world today is the failure to use accurate, up-to-date information. It is imperative for any firm or organization to have adequate facilities for gathering, evaluating, and storing information if it plans to keep up in the frantic race of today's competition. □

TEXAS WOMEN'S UNIVERSITY. School of Library Science. Denton, Texas (Feb. 7, 1968)

**Mrs. Vivian D. Hewitt**

Carnegie Endowment for International Peace, New York

### *Special Librarianship—A Career of the Future*

Special librarianship is a career of the future, it is part of the international jet and space age. By expressing the challenge of this field, the author hopes to encourage each student to examine special librarianship in view of your own personal goals. I truly feel that this field can offer an exciting, stimulating career that will continually challenge you to grow intellectually.

The library profession is a seller's market and those of you entering it often have a choice of several opportunities. These opportunities exist in all parts of this country and in most countries of the world. Despite this, every young person entering the profession must project for herself the kind of career he wants and plan carefully in this regard.

The special librarian has the advantage of being able to enjoy intellectual stimulation both in the field of his choice and in library science. Another plus factor is that special librarians, seemingly more so than others, develop a high level of sophistication about who knows what and what is where.

Finally, there is the opportunity to develop a high sense of professionalism. Practically every occupation now in existence requires constant study, re-training and general up-grading. This is true in librarianship where

the "information explosion" is being felt in every field. Is it possible for the special librarian to keep up? Yes! The objective is to structure an improvement program to cope with individual needs—workshops, institutes, travel, conferences and certainly active participation in the Special Libraries Association. □

UNIVERSITY OF BRITISH COLUMBIA. School of Librarianship. Vancouver, B. C. (Feb. 16, 1968)

**Theodore D. Phillips**

Queen's University, Kingston, Ontario

### *Special Libraries: A Special Training Ground*

As background for the lecture, a biographical sketch of John Cotton Dana showed his place in library history, what he means to the Special Libraries Association, and his continual dissatisfaction with the *status quo*. The Special Libraries Association was described, together with special libraries—what they are, what makes them special—and special librarians with emphasis on Canada. Special librarianship is a special training ground for a career in more than one aspect of librarianship. It can give one excellent training for positions of increased responsibility in both public and academic libraries, because: 1) Many special libraries are one- or two-man operations, and offer opportunities for a librarian to learn all phases of a library operation; and 2) Special libraries, especially those connected with business or industrial firms, offer the best opportunities for continuing professional education. This includes in-house training, often relating to company organization or general self-improvement; professional courses designed by and for librarians, many of which have been initiated by SLA chapters; and, most important, the opportunity to participate in a company-sponsored management-training program. These educational opportunities, especially management-training, are more difficult to come by in academic or public libraries. □

UNIVERSITY OF CALIFORNIA. School of Librarianship. Berkeley, Calif. (Nov. 2, 1967)

**Dr. L. H. Linder**

Aeronutronic Division, Philco-Ford Corporation, Newport Beach, Calif.

### *Some Problems and Prospects in Special Librarianship*

The subject is introduced by briefly describing special libraries and stating the goal of the Special Libraries Association. An attempt is made to define special librarianship by reviewing the older, more conventional definitions as well as recent ones. Special librarianship is viewed as dynamic librarianship emphasizing an almost total service orientation on the part of the special librarian.

Some typical problems confronting special librarians are next enumerated. The first is titled "Mooer's Law" and is concerned with the common phenomenon of user apathy toward the library. Some suggestions for coping with this are included. The second problem is the "Knowledge Explosion." No immediate solutions are foreseen for this. The third and last problem is "Education for Special Librarians." The lack of uniformity in training is seen as the reason for great diversities in skills and accomplishments which characterize our field.

Three new developments are reviewed and discussed. The first is "Micro-Techniques" which are operationally successful in many places and which enable us to store larger amounts of information than formerly in our same libraries. The second is "Automation" used here primarily in the sense of automating or mechanizing existing procedures, especially those in the technical processes area. Preliminaries to automation are reviewed and a variety of reasons is presented as justification for automating. The final development noted is "Networks" seen as affiliations or linkages of equal but independent libraries or information centers. While many problems remain to be overcome before such networks can be truly successful, they alone hold the promise of salvation for us from the combined effects of ever increasing outpourings of recorded information and continued proliferation of specialties within and between disciplines. □

UNIVERSITY OF CALIFORNIA AT LOS ANGELES. School of Library Science. Los Angeles (Feb. 5, 1968)

Hillis L. Griffin  
Argonne National Laboratory, Argonne, Illinois

*The Librarian and Computers: A Partnership for Library Service*

Professional librarians are in great demand to supply increased library service in industry,

research, school, university and public libraries. Each librarian must become more effective and we must strive for excellence. Librarians must be able to work at a creative, professional level, making full use of their bibliographic skills. Clerical work is an expensive allocation of these skills.

The computer does repetitive jobs quickly and easily, and can make decisions on the basis of criteria supplied by the librarian. It also offers new services to librarians who will use the computer creatively, and may be used to offer expanded services to library users. Without considering information retrieval or selective dissemination of information, there are many areas of librarianship which can obtain substantial immediate benefits through automated procedures. A list of over fifty such applications is cited as a starting point in relating the benefits of automation to present library procedures and services. □

UNIVERSITY OF ILLINOIS. Graduate School of Library Science. Urbana, Ill. (Sept. 28, 1967)

Mrs. Shirley F. Harper  
Industrial Relations Center, University of Chicago, Chicago, Illinois

*Telling It Like It Is: Special Libraries and the Organization of Knowledge*

Although organization of information is just one part of the special librarian's job, it offers many challenges and great opportunities for creativity and ingenuity. A brief description of the process of selecting, acquiring, disseminating, and organizing current information is presented. Reports from eight Illinois Chapter libraries are used to show the diversity of materials collected and the varying proportions of periodicals, books, reports, and other materials in the collections. The variety of special indexes and unique file arrangements used in special libraries is exemplified by analysis of the practices in this small group of libraries. The use of special methods and procedures, such as those devised to combine preparation of current awareness services with preparation of index and abstract files, is also discussed. A concluding quotation from Jesse H. Shera points up the need for further work in subject retrieval and the importance for students of knowing not only the "how" but also the "why" of subject headings, classification and other subject analysis systems. □

UNIVERSITY OF KENTUCKY. Department of Library Science. Lexington, Ky. (Dec. 8, 1967)

**Robert G. Krupp**

The New York Public Library, New York

*View from the Stacks*

In recent years there has been amazement at the naïveté of many librarians (beginning and "experienced") as to what is actually expected of them in real library situations. The problem is, of course, complex and seems to be a product of the library school, library management (employers), and, not least of all, the individual librarian with his own conceptions, dreams, and aspirations. In many ways this lecture is a discussion of the role of behavioral science in librarianship. Some suggestions are submitted to lessen this problem. □

UNIVERSITY OF MICHIGAN. Department of Library Science. Ann Arbor, Mich. (Nov. 30, 1967)

**James C. Andrews**

Argonne National Laboratory, Argonne, Illinois

*The Special Librarian and New Sources of Information*

Through the years, the special librarian has had to cope with many new sources of information over and above the traditional books and journals. An important phase of library work is to keep abreast with such sources and to learn how to make full use of them in behalf of the library users.

As an example, one "new source" which librarians have had to handle has been the technical report. To many of us today, it is no longer new; and many of the original problems have been solved. Nevertheless, the report has many features which set it apart from the traditional book and journal, such as bibliographic control, indexing, method of distribution, subject content, and basic reasons for issuance. These differences make it necessary to continue to recognize and handle the report as a distinctive type of publication.

Modern computer technics are responsible for a number of new sources of information and types of indexes. These may be available either in machine-readable form or as hard copy. While the librarian must be aware of

the various new hard copy publications produced by a computer, these do not present the problems inherent in the distribution of information directly by magnetic tape or other machine-readable forms.

The present increasing involvement of libraries with computers requires librarians to learn their basic abilities and limitations. The special librarian will have to decide when and when not to make proper use of computer technics, and this cannot be done by those who are not aware of the bibliographic, procedural, and economic boundaries within which mechanized technics are feasible.

The special librarian is today faced with an increasing challenge to both learn and use appropriate methods as well as to keep in mind the changing needs of most users. □

UNIVERSITY OF NORTH CAROLINA. School of Library Science. Chapel Hill, N. C. (Apr. 5, 1968)

**Elizabeth Ferguson**

Institute of Life Insurance, New York

*Cooperative Library Systems: Special Libraries*

Cooperative library systems are undoubtedly the wave of the future. No single library can ever again expect to be self sufficient. The instrumentality of a cooperative system offers the best hope for the efficient exchange of information and resources which every library will need to survive. It also presents at the present moment a fabulous laboratory for the development of the newest communication techniques—machine and other.

Special libraries, by their very nature, know a lot about cooperation. Since they are by policy and practicality limited in their holdings to the well defined needs of the organizations they serve, they are bound to turn elsewhere for the occasional reference in other disciplines or in general literature. For the most part, they have worked out harmonious and reciprocal methods for taking care of this need among themselves. The bibliographic literature they have produced, through their Association and its component groups, is evidence of outstanding cooperation among libraries with common interests.

The present problem is how to integrate the rich resources special libraries have accumulated in their own fields, together with their information "know-how," into the cooperative

systems for the benefit of all libraries. This involves, among other things, reconciling different methods of reference service from that offered in an undergraduate library to that offered in an erudite research library.

The fact of the existence of today's cooperative systems faces all libraries with a show-down—they must reconcile their differences and they must get together for the common good of sharing their resources. □

UNIVERSITY OF OKLAHOMA. School of Library Science, Norman, Okla.

**Mrs. Jeanne B. North**  
Programming Services, Inc., Palo Alto, Calif.

*The Special Librarian in the Information Center of 1975*

The special librarian, while not lending himself to close definition, can be delineated by description. The small group sparked by John Cotton Dana grew to a large Association of those who recognize in themselves the characteristics of a special librarian. The specific activities of special librarians have changed, over the years, in their various library environments. At this time it appears probably that

seven years ahead is a long-range prediction for information science although seven years in a librarian's professional life is relatively short. The changes likely to take place in the librarian himself and in information work are important considerations to the professional graduate in planning for his future. The possible parallel and divergent trends of professional development in relation to information, information technology, and the information user are discussed. □

UNIVERSITY OF WISCONSIN. Library School, Madison, Wisc. (Sept. 20, 1967)

**Phoebe F. Hayes**  
Bibliographical Center for Research, Denver, Colorado

*Special Librarianship and the Attitude of Service*

The definitions of a special library and a special librarian are explored and used to describe the services expected from the special librarian by the users of special libraries. These services are reflections of service attitudes and predictably can be expected to become implicit future services in all types of libraries. □



# Have You Heard . . .

## Survey of UDC Users

A world-wide survey of current use of the Universal Decimal Classification has been undertaken by FID. Information is sought from individuals, journal publishers, special or general libraries, information analysis centers, etc. By June 15 all UDC users are asked to respond to: USNCFID, 2101 Constitution Ave. NW, Washington, D. C. 20418.

## "Fair Use" Under Copyright Reaches Court

Williams & Wilkins Company has filed a petition with the U.S. Court of Claims, charging copyright infringement at the National Library of Medicine and at the Library of the National Institutes of Health. The suit will be defended by the Department of Justice. NLM's photocopying practices were first challenged by Williams & Wilkins in April 1967. A similar challenge was received by the New York Academy of Medicine in early 1968.

## LC Cataloging Info by Fiche Retrieval

A new microfiche retrieval system for LC cataloging information is composed of a microfiche file, desk top reader-printer and a computer-produced index keyed to the microfiche file. Subscribers to the system receive weekly, monthly, quarterly and annual compilations of LC cataloging output. Information Dynamics Corp., 304 Boylston St., Boston 02116.

## Document Updating System

The Administrative Terminal System/360 (ATS/360) has been announced by IBM with a set of programs to store, edit, update and retrieve using remote typewriter-like terminals. ATS/360 is said to be particularly useful in handling lengthy documents which must be updated periodically. Some applications include the preparation of technical manuals, proposal writing and engineering specifications. The operator can specify the width of margins, tabular column headings

and page numbers; margins can be justified, if desired.

## Side-by-Side Viewing

Simultaneous comparison of two images is now possible with the 14" × 20" screen of the "Duo," a new microfiche reader introduced by the Micro-Data Division of Bell & Howell. The reader's translucent, grey tint screen is adaptable for use with color fiche.

## New Library School

The Trustees of the University of Kentucky have created a School of Library Science and have named Dr. Lawrence A. Allen as dean. UK has had an accredited library science department since 1942; the elevation of the department to a school now gives it professional status.

## USOE Names Branch Chief

Kathleen Molz, editor of the *Wilson Library Bulletin* for the past six years, has been named Chief of the Library Planning and Development Branch in the Division of Library Services and Educational Facilities, USOE. She assumes her new post on June 1.

## Color/Sound Film

A thoughtful non-commercial film clearly establishes the place of the library and the librarian in the growth of mankind. The organization and evolution of books and learning media are artistically presented in this 13-minute color/sound 16 mm film, "The Library Is . . ." Preview prints are available at no cost for purchase consideration. Bro-Dart, Inc., Dept. PR-113, 1609 Memorial Ave., Williamsport, Penna. 17701.

## Awards for Recruitment Materials

The 1968 Annual Awards of the Library Public Relations Council will be presented for outstanding *Recruitment* materials produced between June 1, 1966 and May 1, 1968. All entries must be printed and will be judged on the basis of content, format and imaginative use of graphics. All libraries—including special libraries—are eligible. Four copies of the submission are due by July 7. Address to: Helen E. Lee, National Book Committee, One Park Avenue, New York 10016.

## Indiana Impact

Mrs. Irene M. Strieby, SLA President in 1947-1948, is the author of a paper, "Impact of Computerization on Indiana Libraries," for the *Hawaii Library Association Journal* (v. 23, 8-15, June 1967). The paper was given the distinction of the "lead off" article of a series devoted to library applications of computers. In considering the state of the art, Mrs. Strieby indicated that a true survey of current progress is impossible due to the rapid developments in the field. The paper has been reprinted serially in three recent issues of the bulletin of SLA's Indiana Chapter, *SLANT* (Nov. 1967; Mar., Apr. 1968).

## Accounting Library's Anniversary

The library of the American Institute of Certified Public Accountants observed its 50th anniversary in April. Now located at 666 Fifth Avenue it opened its doors at One Liberty Street in lower Manhattan to serve "as a central reservoir of accounting information and advice on questions of fact, principle or ethics." Among its rare works is *The American Accountant* published in 1797; this is the first printed work to use the dollar sign as it is known today. Katherine I. Michaelson, AICPA librarian, and her staff compile the *Accountants' Index*.

## Fabrics for Book Covers

A Voluntary Product Standard for book cover fabrics has been approved by the National Bureau of Standards. Printed copies of the standard (PS 9-68) will be available from the Superintendent of Documents in three to four months. A standing committee for the standard is to be appointed by NBS.

## Automated Shiftable Stacks

A new system of shiftable storage facilities, manufactured by Elecompact, Ltd., Tokyo, has been announced. Electrical and mechanical devices foolproof the system against accidents. Elecompact with locks is claimed to be suitable for safe storage of classified documents in the same room with unclassified materials. Address inquiries: Joseph Glynn, Burke & Corbin Associates, 200 Park Ave., New York 10017.

## COMING EVENTS

### "Imagers in Action"

May 21-23 in Chicago at the Conrad Hilton Hotel, the National Microfilm Association Convention. Technical sessions, tutorials, workshops and exhibits.

### Institute for Library Science and Information Science Faculties

June 11-22 at Catholic University of America . . . to enhance the teaching of courses in special librarianship and related subjects. Cooperatively planned by SLA's Education Committee, the Federal Library Committee and the University's Department of Library Science, the institute will also focus attention on special libraries and their services in the federal government so as to demonstrate newer advances and technology . . . Director of the institute is Rev. James J. Kortendick, S.S., Ph.D. Other SLA specialists as instructors or panelists include: Scott Adams, Grieg Aspnes, Dr. Karl Baer, Verner Clapp, Ruth Fine, Paul Howard, Burton Lamkin, Hubert Sauter, Dr. Russell Shank, Dr. Jesse Shera, John Sherrod, Mrs. Elizabeth W. Stone and Mrs. Elaine C. Woodruff.

### Automation of Bibliographical Services

June 10-21 at University of Maryland's School of Library and Information Services . . . in cooperation with the Library of Congress Project MARC and the University's Computer Science Center. Concentrated practical experience in this vital area of automation. The Institute's Director will be David Batty who heads the Department of Information Retrieval Studies in the College of Librarianship, Wales.

### Association of Jewish Libraries

June 23-26 in Cincinnati at the Sheraton Gibson Hotel, with sessions at the Hebrew Union College, the Isaac M. Wise Temple, and the Adath Israel Congregation. For information: Charles Berlin, Harvard College Library, Cambridge, Mass. 02138.

### **Training Library Technical Assistants**

June 26 in Kansas City, Missouri at ALA's Library Education Division. For information: Rose L. Vormelker, President LED/ALA, School of Library Science, Kent State University, Kent, Ohio.

### **Library Systems Study**

July 8-26 in Troy, New York at Rensselaer Polytechnic Institute to provide library supervisory personnel with standard methods of analysis, evaluation and design of library systems, and to instruct assembly-language programming on the institute's IBM 360. Write: Office of Continuing Studies, RPI, Troy, N. Y. 12181.

### **Repair and Preservation**

July 8-26 in Denver at the University of Denver. A workshop on the care, binding and repair of books and the basic principles of preserving historical documents. Apply to: Dale K. Carrison, Graduate School of Librarianship, University of Denver, Denver, Colorado 80210.

### **Library Networks**

July 29-31 at the University of Chicago. The annual conference of the Graduate Library School this year considers the topic "Library Networks: Promise and Performance." Write to: Center for Continuing Education, 1307 East 60th St., Chicago 60637.

### **New Books Preview**

August 26-28 in New York at the Statler Hilton Hotel. Included this year are reference and special books in the "1968 New Books Preview" sponsored by Baker & Taylor Co., book wholesalers. Address: Mrs. Helen E. Wessells, Baker & Taylor Co., Hillside, N. J. 07205.

### **Mechanized UDC Retrieval**

Sept. 2-6 in Copenhagen a seminar before the FID meetings in Moscow. Register with: FID/CR Secretariat, Danmarks Tekniske Bibliotek, Øster Voldgade 10, Copenhagen, Denmark. Persons from the U.S. should also notify USNCFID, 2101 Constitution Avenue, Washington, D. C. 20418.

### **Decision Making**

Sept. 9-20 in Atlanta at Georgia Tech. A short course in "Management Dynamics and Effective Decision Making" for middle and upper level managers; lectures, case studies and discussions. Address: Department of Continuing Education, Georgia Institute of Technology, Atlanta 30332.

### **Automation in Indiana**

Oct. 4-5 at Purdue University, Lafayette, Ind. SLA's Indiana Chapter and the Purdue University Libraries co-sponsor "Automation in the Library." This meeting is a sequel to a 1964 seminar. Meeting chairman: Mrs. Theodora Andrews, Pharmacy Library, Purdue.

### **ASIS**

Oct. 20-24 in Columbus, Ohio at the Sheraton Columbus Hotel. "Information Transfer" is the theme of the annual meeting of the American Society for Information Science (formerly ADI). Dr. Gerard O. Platau, Chemical Abstracts Service in Columbus is convention chairman.

### **Interamerican Agricultural Librarians and Documentalists**

Dec. 2-7 in Bogotá, Colombia at the Biblioteca "Luiz Angel Arango" . . . AIBDA under the auspices of the Organization of American States. Write: Sra. Angela Hernández de Caldas, Secretaria General, Segunda Reunión Interamericana de Bibliotecarios y Documentalistas Agrícolas, Apartado Aereo 449, Pasto, Nariño, Colombia.

### **Institute in Special Librarianship**

Sept. 24-Dec. 10 at Rosary College, River Forest, Illinois. A part-time institute in special librarianship and systems analysis as applied to libraries (funded under Title II-B). Write: Sister Marie N. Weber, Director.

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### **CORRECTION**

The author advises that the cost of the book catalog of the Dance Collection at Lincoln Center (*Special Libraries*, v. 59, p. 150, Mar. 1968) had increased to \$282,000 from \$180,000.

# Off the Press . . .

## Canadian Library Survey

A national survey of academic and research libraries in Canada has been completed by Professor Robert B. Downs, University of Illinois. *Resources of Canadian Academic and Research Libraries* has been published by the Association of Universities and Colleges of Canada, Ottawa.

## Mag Stand

Newly published is the *USA Standard for Periodicals: Format and Arrangement*. It was prepared by Subcommittee 10 of USASI Committee Z39, Standardization in the Field Library Work, Documentation, and Related Practices. Chairman of the subcommittee is Mrs. Anne J. Richter, SLA's Special Representative to the committee. The standard is available at \$2 a copy from USASI, N. Y.

## Texas Directory

Copies of the *Texas Special Libraries Directory, 1967* are available without charge as long as the supply lasts. The directory was prepared jointly by the Texas State Library and SLA's Texas Chapter. Request from: Sara Aull, University of Houston Library, Cullen Blvd., Houston 77004.

## Floors

Practical information about almost every type of floor and floor covering that might reasonably be installed in a library is presented in a new book published by LTP. *Floors: Selection and Maintenance* is priced at \$12.50. Order from: American Library Association, 50 E. Huron St., Chicago 60611.

## Business Literature Bibliography

The Business Reference Service Committee, RSD/ALA, has reprints available of *Bibliography on Business Literature* by Agnes O. Hanson, SLA member, which appeared in the Spring 1966 issue of *RQ*. For a free copy send a stamped, self-addressed envelope to

Margaret Keefe, Head, Business and Industry Department, Flint Public Library, Flint, Michigan 48502. There will be a charge of five cents each for multiple copies.

## Copyright Problems

The first factual report on the amount of, and the kinds of, copyrighted materials copied by US libraries has been completed. At least one billion pages of professional and scholarly copyrighted material are reproduced annually in the form of single copies. Multiple copying is negligible in US libraries. Eighty per cent of the copied material is less than five years old; it is preponderantly scientific-technical in nature and is in the form of complete articles copied from journals, published by nonprofit organizations. Gerald J. Sophar and Laurence B. Heilprin were the investigators. The report is available at \$10 a copy. Send order with remittance to: Committee to Investigate Copyright Problems, 2233 Wisconsin Ave. N.W., Washington, D. C. 20007.

## Insurance Periodicals Index

The Insurance Division, SLA has published its July 1966-June 1967 issue of *Insurance Periodicals*, edited by Agnes Brite and indexed by Annette H. Beard, Janice B. Bentley, Virginia Bersagel, Miriam Fitts, Marjorie Holt, Ruth Nielander and Donna Nuernberg. Orders with payment of \$15 a copy to: Insurance Division, SLA, P.O. Box 406, Back Bay Annex, Boston 02117.

## Merged "Metals Abstracts"

ASM's *Review of Metal Literature* and The Institute of Metals' *Metallurgical Abstracts* have been merged into a new title, *Metals Abstracts*. The joint editors are Mrs. Marjorie R. Hyslop (USA) and Dr. T. H. L. Graff (UK). A separate publication, *Metals Abstracts Index*, is computer-prepared and is issued concurrently with each issue of the new publication. Write to: American Society for Metals, Metals Park, Ohio 44073.

## UNC Serial Holdings

A computer-produced record of the periodical holdings of the University of North Carolina Library at Chapel Hill may be purchased at \$10 a copy. Order from: Accounting Department, University of North Carolina Library, Chapel Hill, N. C. 27514.

## MEMBERS IN THE NEWS

. . . To the first Advisory Committee for the Library Technician Program at the Wilson Campus of Chicago City College: ANNE C. ROESS, supervisor, Library Services, Institute of Gas Technology; Dr. FRITZ VEIT, Director of Libraries, Wilson Campus; and HELEN YAST, librarian, American Hospital Association.

ROBERT E. BALAY . . . from Kresge Science Library, Wayne State University to Head, Reference Department, Sterling Memorial Library at Yale University.

KENNETH R. BROWN . . . from Garrett Corporation, Los Angeles to Pahlavi University, Shiraz, Iran as Advisor to the Engineering Library. Mr. Brown edited the recently published 3d edition of *Directory of Special Libraries in Southern California*.

LOGAN O. COWGILL . . . from Office of the Chief of Engineers to Assistant Manager, Water Resources Scientific Information Center, U. S. Department of the Interior.

MARY C. DUNNIGAN . . . to Head, Architectural Library, Virginia Polytechnic Institute, Blacksburg, Va.

Mrs. JEANNINE SHIVERS GREEN . . . to Director of Information Services and Mrs. ANNE K. STILES to Chief Librarian, National Industrial Conference Board, N. Y.

J. HESTON HEALD retired on February 9, 1968 after directing Project LEX for 2½ years.

BASIL IDLER . . . to president, University of Hawaii's Xi Chapter of Beta Phi Mu. This newest chapter of the national library science scholastic honorary society was installed on Feb. 9 by Dr. MAURICE F. TAUBER, Columbia University, who is national president of the honorary.

JAMES V. JONES . . . from Cleveland State University to Director of University Libraries at Case Western Reserve University; Mr. Jones is a member of the Board of Overseers of the newly federated university.

Mrs. ELIZABETH G. KRAKAUER . . . from Yale University's Sterling Memorial Library to Prescott College, Prescott, Arizona as Librarian and Assistant Professor of Research Methods.

Mrs. MARGARET M. OTTO retired March 1 as librarian, Medical Society of the County of Queens, Forest Hills, N. Y. In 1949 Mrs. Otto organized the Library of The New York School of Social Work, now the Columbia University School of Social Work.

. . . To ELOISE REQUA the International House Plaque in recognition of her distinguished career in international relations. Miss ReQua organized the New Orleans International House Library in 1946. Now director of the Library of International Relations in Chicago she was presented the plaque on April 19 during a symposium of World Trade Center librarians in New Orleans . . . HARRIET M. LEMANN, librarian of the New Orleans International House moderated the "Information Sources" symposium . . . BETTY JANE DOUGHERTY, librarian of the Port of New York Authority, moderated a discussion on "Information Handling."

## In Memoriam

Lorena Clarke, catalog librarian at the University of Illinois Medical Center . . . on February 5. An SLA member since 1934.

Mabel Crowe, former librarian of Chase National Bank's Investment Library . . . on July 10, 1967 in Harrison, N. Y. An SLA member since 1925, Miss Crowe has been retired since 1948.

Mrs. Virginia L. Dunlap, librarian of Lord, Bissell and Brook in Chicago . . . on January 30.

Sara M. Price, a former member of the Association's Board of Directors and a Division Liaison Officer . . . on January 17. Since her retirement as librarian of the Port of New York Authority, she had been senior reference librarian at the Federal Reserve Bank of New York.

Mrs. Dorothy Gleockle Robinson, technical librarian of chemistry, Silicone Products Department, General Electric Co., Waterford, New York . . . on March 20.

Mrs. Beth Simpson, chief librarian at the Medical Field Service School, Fort Sam Houston, Texas . . . in San Antonio on February 22.

## SLA Authors

CASELLAS, Elizabeth. Specialized Services to Business and Industry in Florida Public Libraries. *Florida Libraries*, p. 21-24, Mar. 1968.

GEORGI, Charlotte. How to Keep a Business Library Going: Lesson Number Two. *Library Journal*, vol. 93, p. 959-63, Mar. 1, 1968.

HAVLIK, Robert. Documentation and the Librarian. *The Nova University Journal*, vol. 1, no. 4, p. 10-16, Oct. 1967.

MULLINS, Lynn S. Paraguay: A Guide to the Literature. In: Hopkins, Edward A., Crist, Raymond E., and Snow, William P. *Paraguay, 1852 and 1968*. N. Y., American Geographical Society, 1968. (Its Occasional Publication no. 2) p. 59-64.

## RECENT REFERENCES

### Bibliographies

MORLEY, William F. E. *The Atlantic Provinces; Newfoundland, Nova Scotia, New Brunswick, Prince Edward Island*. (Canadian Local Histories to 1950: a Bibliography, vol. 1). Toronto, Canada: University of Toronto Press, 1967. xx, 137p. facsimiles, map, plans. \$7.50.

This work is sponsored by the Centennial Commission under the Publications Assistance Programme as a Centennial of Canadian Confederation Project. This book includes all monographic local histories printed up to 1950. Titles are arranged by author under the name of the appropriate community, region, or province. List of bibliographical sources, a geographical index and a general index.

MORT, G. *Quality Control*, foreword by J. Murray Grammer. (Special Subject List, no. 49). London: The Library Association, 7 Ridgmount St., Store St., 1967. 80p. pap. 18s to members; 24s to non-members.

A select bibliography which lists significant recent English language material on the subject of quality control. Contains 565 entries listed in sections in reverse chronological order so that the latest publications come first. Directory of periodicals cited, and an author index.

SCHUTZE, Gertrude. *The Social Sciences, a Bibliography of Guides to the Literature*. Woodhaven, N. Y.: Gertrude Schutze, 7620-86 Ave., 1968. ii, 38p. pap. \$3.

Selective bibliography of guides to the literature that exists in the various disciplines of the social and behavioral sciences. Contains 570 entries, works published from 1920 to 1960. The arrangement is topical; items listed under twenty-one subject headings.

SCHWEGMANN, George A., Jr., comp. *Newspapers on Microfilm*, 6th ed. Washington, D. C.: Library of Congress, 1967. xv, 487p. pap. \$6. (LC 53-60042) (Available from Card Division, Library of Congress, Building 159, Navy Yard Annex, Washington, D. C. 20541)

The sixth edition is based on all the information concerning newspapers on microfilm by mid-November of 1966. Some 21,700 entries, some 4,640 foreign newspapers from 136 countries are represented with nearly 17,100 titles from 50 states, American Samoa, Guam, Okinawa, Puerto Rico, and the Virgin Islands. Records both negative and positive microfilms of newspapers.

SEALOCK, Richard B. and SEELY, Pauline A. *Bibliography of Place-Name Literature, United States and Canada*, 2d ed. Chicago: American Library Association, 1967. x, 352p. \$7.50. (LC 67-23000)

List of 3,599 sources, which include both books and periodical articles, and some manuscript compilations to be found in libraries, identifies available material dealing with the origins, meanings, spellings, and pronunciations of place-names, place nicknames, mountains, regions, and rivers. Brief notes are included for many of the citations. Author and subject indexes.

*A Select Bibliography: Asia, Africa, Eastern Europe, Latin America, Supplement 1967*. New York: American Universities Field Staff, Inc., 366 Madison Ave., 1967. 78p. pap. \$2.50. (LC 60-10482)

Adds more than 650 titles, published between June 1965 and before July 1967, to the original volume published in 1960 and the three supplements. Most entries are annotated, and are categorized to aid in selection. Author and title indexes.

STATHIS, James J., comp. *A Bibliography of Swift Studies 1945-1965*. Nashville, Tenn.: Vanderbilt University Press, 1967. xi, 110p. \$5. (LC 67-17563)

An Annotated bibliography of Jonathan Swift studies covers the period, 1945-1965, a period characterized by a distinctly different critical and biographical emphasis contributing to a better understanding of Swift and his writings. The bibliography is arranged under six major categories, with cross-referencing throughout. Author index.

ZIKEEV, Nikolay T. and DOUMANI, George A. eds. *Weather Modification in the Soviet Union, 1946-1966, a Selected Annotated Bibliography*. x, 78p.

55c. (L. C. 67-61609) (Available from Superintendent of Documents, Government Printing Office, Washington, D. C. 20402)

This bibliography highlights recent technical literature on weather modification in the Soviet Union, which has developed significantly since World War II in such areas as rain production, thunderstorm and hail suppression, and fog dispersion. Three appendixes: the titles and Library of Congress shelf numbers of the fifty-four Russian scientific serials represented in the bibliography; the names of Soviet specialists active in weather modification, and addresses of Soviet institutions active in weather and climate modification.

### Cataloging and Classification

FOSKETT, A. C. *A Guide to Personal Indexes Using Edge-Notched and Peek-a-boo Cards*. Hamden, Conn.: Archon Books, 1967. 80p. illus. \$3.50.

This book attempts to show in simple terms how to maintain a personal index on either edge-notched cards or peek-a-boo cards. Gives practical advice without going deeply into theory. Appendix One: Name-Number Codings; Appendix Two: Random Numbers; Index.

FRIEDMAN, Joan and JEFFREYS, Alan. *Cataloguing and Classification in British University Libraries: A Survey of Practices and Procedures*. Sheffield, England: University of Sheffield, Postgraduate School of Librarianship, 1967. 37p. pap. Apply.

The survey is concerned only with printed material: all consideration of archives and manuscripts are excluded. Fifty-one university and college libraries returned completed questionnaires. The present publication is a comparative survey of current practices and procedures in cataloguing and classification. Appendix: The questionnaire used.

### Directories

GOY, Peter A., comp. and ed., MILLER, Laurence H., editorial assistance. *A Biographical Directory of Librarians in the Field of Slavic and East European Studies*. Chicago: American Library Association, 1967. xv, 80p. pap. \$3.25. (LC 67-28101)

This directory was sponsored by the Slavic and East European Subsection (Subject Specialists Section) of the Association of College and Research Libraries, ALA. Included are American and Canadian librarians in Slavic and East European fields, as well as archivists and information specialists with Slavic or East European subject competence. Also persons active in bibliographical and editorial work, and library school students with pertinent subject or language knowledge. Index of field of interest listing.

*A Preliminary Directory of Sound Recordings Collections in the United States and Canada*. Prepared by a Committee of the Association for Recorded Sound Collections. New York: The New York

Public Library, 1967. 157p. pap. offset. \$3. (LC 63-31297)

The Directory was compiled from information obtained from questionnaires mailed to individuals and institutions and from published and unpublished directories already in existence. Arrangement is alphabetical by state, with Canada listed separately, arrangement within the states is alphabetical by collection.

### Indexes

*International Nursing Index*, vol. 1, Annual Cumulation 1966. Published by the American Journal of Nursing Company in Cooperation with the National Library of Medicine. New York: International Nursing Index, 10 Columbus Circle, 1967. Single copies of the annual cumulation, \$12.50.

First annual cumulative index to over 150 nursing journals received from all the world and to all nursing articles from nonnursing journals currently indexed in *Index Medicus*. Arranged in two main sections: 1) Subject section, and 2) Name section. Index includes a list of publications indexed, nursing thesaurus, and list of publications of selected organizations.

JABLONSKI, Stanley. *Russian Drug Index*, 2d ed. (National Library of Medicine; Public Health Service Publication, no. 814 (Revised 1967)). Bethesda, Md.: U.S. Department of Health, Education, and Welfare, Public Health Service, 1967. 111, 384p. illus. pap. \$2.25. Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D. C.

This revised edition has 1,800 main entries for compounds, and cross-references from some 3,700 synonyms have been provided. Arranged in three sections. Special new feature Guide to *Index Medicus* subject headings.

### Miscellaneous

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS. *Agricultural Commodities—Projections for 1975 and 1985, vol. 1, Part I—summary and Conclusions, Part II—General Outlook for Demand, Production and Trade, Part III—Projections by Commodity Groups*. (CCP 67/3 rev.). Rome, Italy: 1967. v, 339p. figures, tables. pap. \$3. (Available from Columbia University Press, International Documents Service, 136 S. Broadway, Irvington, N. Y. 10533)

An earlier version of this study was done in October 1966, and the Committee requested a revision. It has been prepared with two aims: to define the scale and nature of the food problem that faces the world, and to assess long-term prospects for world trade in major agricultural commodities.

*Agricultural Commodities—Projections for 1975 and 1985, vol. II, Methodological Notes, Statistical Appendix*. (CCP 67/3 rev.). Rome,

Italy: 1967. xxxiii, 308p. tables. pap. \$3. (Available from Columbia University Press, International Documents Service, 136 S. Broadway, Irvington, N. Y. 10533)

This study is similar to that applied to the 1970 Commodity projections published in 1962. The analysis has been carried out in greater detail and the projection period has been extended to 1975 for both demand and production, and to 1985 for demand only. The two major objectives of this study were to assess the potential increase in the demand for food and its impact on nutrition, and to evaluate the prospects for world commodity trade.

MAMBERT, W. A. *Presenting Technical Ideas: a Guide to Audience Communication*. (Wiley Series on Human Communication). New York: John Wiley & Sons, Inc., 1968. xiii, 216p. illus. \$6.95. (LC 67-28335)

This book is a practical "how-to" guide designed to answer most of the important questions that confront the specialist in getting himself and his ideas ready to present and in ultimately delivering them to an audience as a technical presentation. Index.

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NATIONAL SCIENCE FOUNDATION. *Scientific Activities of Nonprofit Institutions 1964 Expenditures and January 1965 Manpower*. (Surveys of Science Resources Series, NSF 67-17). Washington, D. C.: Government Printing Office, 1967. ix, 111p. tables, charts, pap. 60¢.

The 1964 survey constitutes the most comprehensive single analysis of science expenditures and manpower in the nonprofit sector this far undertaken by the Foundation.

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