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Special Libraries, February 1963

Special Libraries Association

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FEBRUARY 1963, VOL. 54, NO. 2

Translating Activities . . . Information Retrieval with Termatrex Equipment and Electronic Computers . . . Bibliography and Trends of Technical Information Services . . . Z-39 Committee

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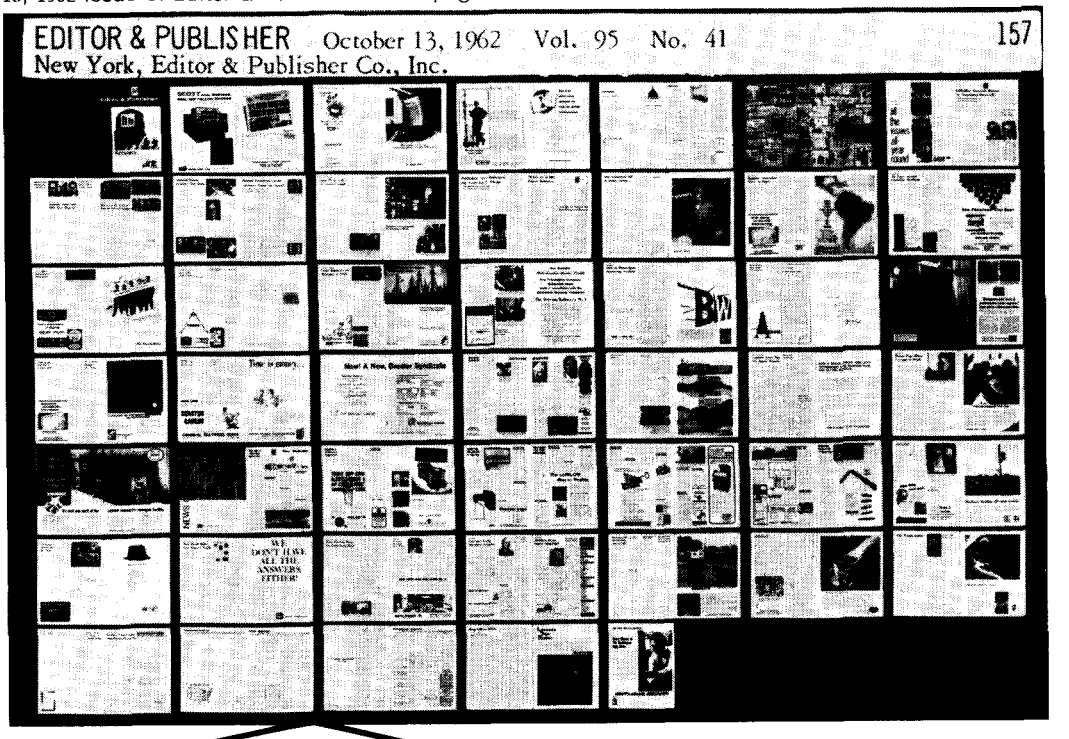

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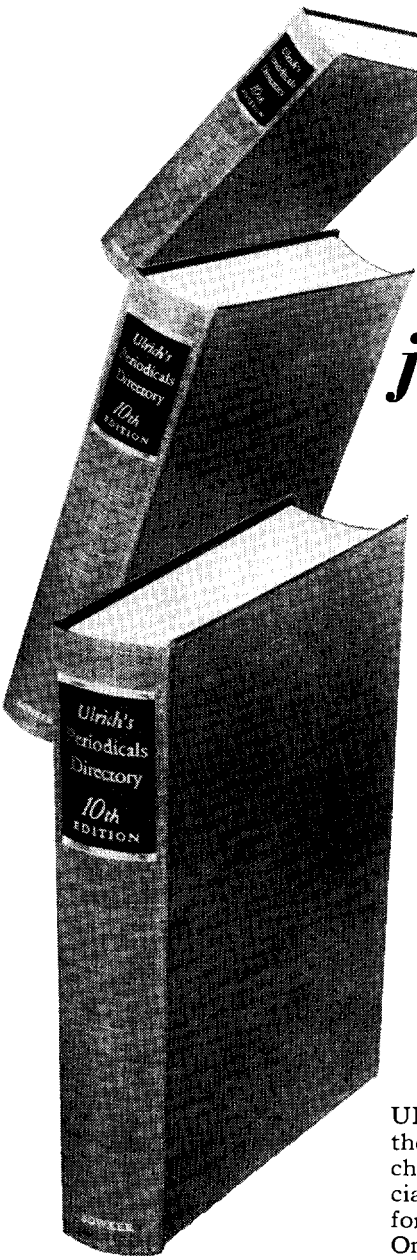

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CONTENTS

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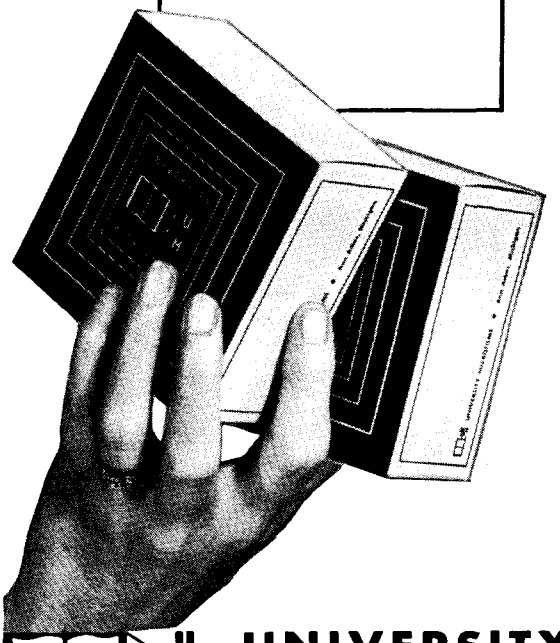

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SLA and Me

"'WHAT DOES IT DO for me?' is the cry heard in our Association as in others, as if the total function of the individual were to receive and that of the volunteer 'Association' were continually to give—with never the twain meeting. In past years, Special Libraries Association has given greatly to its members, but it is the members themselves who give to other members and the Headquarters' staff who accept more of the chores. This is no impersonal automat activated by chinking coin, the coin is nevertheless required." The above paragraph has been selected from the editorial of Bill Budington and Frank McKenna in the December 1962 issue of "Special Libraries" because of the opening question—a fair question indeed and one that should be answered before coming to a decision about the proposed dues increase.

"What does it do for me?"—a very personal question and my answer concerns persons, not services or publications. The Association started doing for me at my second Convention. Here I became involved in a discussion with Dr. Jolan Fertig at an Advisory Council meeting. Being newly entered in the lists, I was unaware that I was tilting against a proven champion of the Association. The bout was a draw, although I retired with nerves badly shaken from the vigor of her attack. After the meeting we left the hall by separate doors, but a turn in the corridor brought us face to face. However, this time I was opposite a lady with a lovely smile. She stopped me and said, "You know, you must not take our recent argument personally. Each of us do what we think is right for the Association, but we must remain friends."

Later in the week I made my first report to the Executive Board. As I awaited my turn to speak, the formality of the meeting and the penetrating questions of the Board members caused my self-confidence to wilt. When my name was called, my forward progress toward the long table was nearly stopped when the several heads slowly swivelled and nearly a dozen pair of eyes fell upon the faltering target. A sudden movement at the end of the table drew my attention to the Association's former Execuive Secretary, Marian Lucius. She had leaned across the table to catch my eye and with a nod, a smile, and a quick wink supplied the encouragement I needed to present a coherent report.

These incidents that have remained in my memory serve to recall for you those personal experiences you have shared with outstanding members of our Association. They shall remind you also that the services promoted by the Association today have been inaugurated and supported, in many cases, by men and women who are leaders in special librarianship. The Association cannot afford to lose these people whose initiative needs to be satisfied by participation in group activities, which promote the welfare of our profession. A raise in membership dues may cause dropouts among the laggards, but not among our best workers.

JOHN P. BINNINGTON, Chairman
Public Relations Committee

Translation Activities in the United States and Future Requirements

ELIZABETH M. WALKEY, Manager, Library Services
Bell & Howell Research Center, Pasadena, California
Chairman, SLA Translations Activities Committee

NOTWITHSTANDING articles in the popular press, there exists in the United States today a formidable language barrier that hinders rapid dissemination of foreign scientific and technological information among American scientists. The "information explosion," that exponential rise in the world-wide publication rate generally considered to have begun following the Second World War, has been brought vociferously to public attention. Until recently, however, the fact that over 50 per cent of this literature originates in languages other than English has been almost ignored outside intelligence and other government circles and the most sophisticated groups of literature scientists.

Truthfully, present and future requirements for translating foreign technical information into English are so vast that only by fully exploiting the combined resources of government, industry, universities, professional societies, commercial and individual translators and linguists, and electronic translating machines can we hope to control this phase of the twentieth century's information problem. Planning Research Council, for example, estimates a maximum translation need of over 4 billion words a year by 1970 and calculates that about 51 million words were translated by the government in 1959. Such statements illustrate that certainly there is no cause for apprehension among any of the elements enumerated, while there is ample opportunity for all, in a carefully coordinated national program.

A report and discussion held May 30, 1962, at the 53rd Annual Convention of Special Libraries Association in Washington, D. C.

Before opening a discussion of United States nongovernment translation activities in the fields of science and technology, a brief history of SLA's translation interests is in order. As early as 1947 SLA was concerned with making foreign literature available to the scientific community; a pro tempore committee was set up to study ways and means of organizing a translation pool. Many committees and cooperative translation schemes later evolved into the SLA Translations Center, the Center's Committee, and now the expanded-in-scope Translations Activities Committee with its two Sub-committees (Translators and Translations: Services and Sources, second edition, Frances E. Kaiser, Chairman; and Transliteration, Rosemary Neiswender, Chairman).

In 1961 the Translations Center Committee became the Translations Activities Committee, with a considerably broadened charter: "to be responsible for the development of the broad program of the Translations Center, render guidance to the Translations Center contractor, and cooperate with other interested groups in helping personnel working in the English language gain maximum access to material originally issued in other languages." SLA policies on translation matters are determined by the Board of Directors upon recommendation from this Committee and the Executive Secretary. The Committee aims to be aware of all ramifications of the burgeoning translation problem and to initiate or stimulate practical solutions.

Under contract to house and maintain the translations collection and provide other services as required, the Translations Center has been located at the John Crerar Library in Chicago since 1953. (Recently the Center moved with the contractor to improved modern quarters on the campus of Illinois In-

stitute of Technology and its address is now 35 West 33rd Street, Chicago 16.) The Center, in turn, is a contractor to the Office of Technical Services, U. S. Department of Commerce, to supply monthly copies of translations contributed to the Center by nongovernment sources, while OTS collects translations from government sources, supplying copies to the Center. In addition to contractual support, the Center recently has been fortunate to receive annual grants from the National Science Foundation, as well as earlier grants from American Iron and Steel Institute and the National Institutes of Health. The semimonthly *Technical Translations* published by OTS announces, abstracts, and indexes the translations collected by SLA and OTS, and either agency will supply these translations as inexpensive photocopies, or occasionally in printed form or as interlibrary loans. By virtue of cooperative agreements with the European Translations Centre in Delft and other foreign sources, many translations made abroad are also announced in *Technical Translations* and made available through SLA-OTS services.

Currently the Center's holdings include over 70,000 translations, from many languages (in descending order the most numerous are Russian, German, French, Japanese, Italian, Scandinavian languages, Slavic languages, Chinese, Spanish, and Roumanian), in many fields of science and technology. Translations collected by SLA are available through the generous cooperation of a variety of nongovernment research organizations. The Center does not vouch for accuracy or authority of translations thus provided. To preserve anonymity and protect proprietary interests of donors, all identifying information is removed before translations are sent to requesters.

Translations Survey

In May 1960 the Center received a special grant from NSF to perform a *Survey of Translation Activities in Universities, Societies and Industry in the Fields of Science and Technology.* Data were collected by consultant Alberta L. Brown, who visited 19 SLA Chapters to discuss translation problems and submitted a progress report on findings. The final project report was prepared by George Fry and Associates in March 1962.

One of the important findings reported in the *Survey* is that during the five-year period more of the 678 research organizations queried recognized the need for obtaining scientific and technical information in languages other than English. These organizations both began new translation programs and increased existing translation activities. German, French and Russian, in that order, are the languages most frequently translated at present, although Russian, German and Japanese have been indicated as the three languages to be emphasized in future translations, with Chinese also gaining in popularity. Chemistry and chemical technology lead in the types of subject matter being currently translated and will continue to be stressed in the years ahead.

Preparation of Translations

More than 50 per cent of translations used by universities, technical societies, trade schools, profit and nonprofit research institutions and industrial firms are prepared by staff members and about 40 per cent by commercial translating agencies. The SLA Translations Center in Chicago, an organization's own library, and the Office of Technical Services are the sources most frequently checked for existing, unpublished translations. Funds spent annually by individual companies on translations vary as widely as less than $50 to more than $20,000, and 519 research organizations indicated an approximate expenditure in 1959 of $883,750, exclusive of salaries paid translators within the respondents' own organizations.

The Survey has emphasized the urgent need, not for a shotgun approach, but for a centrally coordinated massive effort in the handling of science-technology translations in the United States. As pointed out by Senator Hubert Humphrey and his colleagues, this need exists in many areas of the federal government. In the SLA Survey of nongovernment sources, it became increasingly apparent, from conflicting answers

and marginal notes on questionnaires or discussion with respondents, that few individuals are in a position to know exactly what their own organizations are doing in the translation field or what already available, costly, services they may be duplicating at "X" thousands of dollars per year! In view of industrial management's concern over unfavorable profit-cost relationships, the latter fact alone should induce industry to participate in a more coordinated approach. Finally, it is apparent to this Committee that, as a prerequisite to any realistic long-range plan, the specific roles of the Special Libraries Association, Office of Technical Services, National Science Foundation, National Federation of Science Abstracting and Indexing Services, American Translators Association, American Chemical Society, American Institute of Physics, and all other professional societies and government agencies having translation objectives, should be surveyed, elucidated, and, if necessary, redefined so that the best efforts of each can be channelled into an improved and effective national translations program.

• • •

(In the following edited transcript of the question and answer period held after Miss Walkey's report, Translations Activities Committee members and others on the panel are identified in bold face; individuals who asked questions or made comments are identified in small capitals.)

MRS. VICTORIA BARKER (Boulder Laboratories, National Bureau of Standards): Is there any movement for cover-to-cover translation of German periodicals such as the National Science Foundation is sponsoring for the Russian?

Paul Feinstein (Deputy Program Director for Foreign Science Information, National Science Foundation): I have a negative answer. Unfortunately the Foundation has no plans to support the translation of German journals. Even though in the current fiscal year NSF will be spending in excess of a million and a half dollars for translations, it feels that this sum is far too limited to enable it to support any German translations. We made a rather arbitrary decision some years ago that the funds made available to us through the Congress should be devoted to translations of those languages that are far more difficult for our scientists. In the Foundation's Manpower Survey a far greater proportion of United States scientists report ability to handle scientific and technical French and German than any of the other languages. If I remember the figures correctly, it ranged downward from 4 per cent for Russian, Japanese, Chinese, and other languages, so NSF felt that this was the area of greatest need and deliberately decided to concentrate on this area. When the results of the Survey become more widely distributed, it is possible that some of the commercial organizations might feel that at least a little profit is to be made by undertaking a German translations journal—but, I don't think there is any move anywhere in the government.

Walkey: I might add one other comment—I think possibly the desire for German translations may reflect the difference in literature needed by engineers as against scientists. The language background of an engineer does not normally equal that of a scientist. As many librarians deal with engineers, some of hybrid varieties, this is a problem to us, I know.

BARKER: I think we tend to accept what has been given us and look to the future to have something more all the time. I think what the National Science Foundation has done with Russian cover-to-cover translations is one of the most exciting things, and the most admirable things, that has happened in a long time—and also tying these translations in with the Public Law 480 Program.

GERTRUDE LOSIE (Parke Davis & Co.): About six months ago I inquired about indexes for *Technical Translations,* and I understand they are not yet available. I wonder if anything is being done about it?

Lillian Hamrick (Technical Information Division, Office of Technical Services, U.S. Department of Commerce): I am glad to say that work on the indexes is proceeding. OTS hopes to publish the indexes to back volumes very shortly and then plans to keep them current and up to date.

JACKIE PAUL (Alfred I. Du Pont Institute): In consulting with other librarians on the problem of donating translations to the Translations Center, I have heard a couple of

comments that, "We have put forth the expense of obtaining these translations, why should we make them free for all the others?" Is there any way of combating that rather selfish argument, in order to obtain translations that have been made and are already available in English?

Walkey: I think it would help if the management personnel who have this attitude were aware of the funds spent needlessly and of the dollars that might be freed for the translation of information not now translated, as well as the complexity and size of this whole problem. For example, has management any idea of the cost of originally translating 1,000 words of technical Russian into technical English? However, this Committee feels, at the moment, that one of our biggest problems is promotion and publicity for the Center, both to obtain added use and to acquire more donors. We have a number of projects in the mill right now that, we hope, will, on more or less a mass basis, soon be reaching a lot of these people who have negative attitudes of one kind or another regarding contributing to the Center.

George Mandel (Technical Information Division, Lewis Research Center, National Aeronautics and Space Administration): I would like to comment further. If you are talking about librarians being concerned about participating in the program because they have spent some money from their library funds to prepare the translation, I think this is a strange attitude. The very existence of the SLA Translations Center for years and years has depended upon people participating in it. As the Translation Survey showed very startlingly, more folks took out from it than put into it, a sort of put and take situation. There is a potful of translations that people could have contributed. Now, if it's management's point of view, it would seem then that it's up to the librarian to do what she or he can to explain this real cooperative undertaking. But it's kind of a narrow approach on the part of the librarian.

Feinstein: I would like to add a comment. Being outside of the Committee framework, I think I can give a re-hash of this response. Basically, I think it's a matter of enlightened self-interest on the part of every organization that cooperates and participates with either the OTS or SLA Center. As plans materialize and there is a greater amount of reporting on translations in process, for example, every company would stand to either save dollars or free those dollars for translations of other materials. We have taken a look at part of the service being rendered, and we find that *Technical Translations* reports many duplicative efforts have gone on in the past. If you notice the information provided at the end of some of the abstract, you will see "Another translation of the same article is available from ————————." Sometimes it runs up to as many as six duplications. So, I think a librarian should be in a position to point out to his own management that there are savings to be gained as well as shared. I always think of it in terms of dropping a pebble in a pool and the way the ripples spread out, or as an older expression, "Casting one's bread on the water."

BARKER: I would like to mention one minor point we experienced in my own organization. We insisted on people telling us whether the translated material was copyrighted or not, because of the implications of fair use, and we found that our scientists didn't care. They didn't want to look it up, and it was difficult to determine, especially in the case of the German items. So we corresponded with Mr. Taylor of OTS and, after a few months, he assured us that nothing would be released until his office had checked on the copyright and obtained permission from the author to distribute a translation. It may be helpful to other organizations to know that they can shift the copyright responsibility to Mr. Taylor.

GOLDIE RIMSON (B. F. Goodrich Research Center): Recently we have received a number of advertisements from various translation services. Would it be possible for the Translations Center to evaluate any of these services?

Frances Kaiser (Price Gilbert Library, Georgia Institute of Technology): That particular problem is outside the jurisdiction and out of the field of services offered by the Translations Center, which operates primarily for bibliographic control of the trans-

lations after they are already made. But it is a problem that has concerned the Committee for a long time and is one reason it is going ahead with plans for a second edition of *Translators and Translations.* At this time, we are fortunate enough to have wonderful support, both financial and in terms of services, not only from SLA, but from the Computer Center at Georgia Tech and from many other volunteers who are going to help. We hope to do a very comprehensive job of sending out questionnaires to all the translators we can locate before going to press. We will require extensive information from them as well as references that can be checked. In this way we hope to evaluate their background and training to the extent that it can be presented in the directory. We will maintain references for those who want to check them and believe that this will, to a large extent, help solve some of the problems.

MRS. IRMA JOHNSON (Charles Hayden Memorial Library, Massachusetts Institute of Technology): I would like to ask about the proportion of the total amount of money that the Foundation spends on various aspects of translations. How much is spent for bibliographic control and underwriting of indexes, for instance, for the various translations NSF is underwriting? Do you anticipate better support of this kind of control of of translations that already exist? And does NSF support part of the operations at OTS? Can we anticipate better support of the kind of tools that would help us obtain what already exists?

Feinstein: Again I must answer in the negative. NSF really doesn't give any conscious thought to what is being put into the bibliographic apparatus on translations. Actually it is not supporting any of the efforts of the Office of Technical Services on this translations program. It conducts this operation strictly on its own. In connection with the translations we are obtaining overseas, through the use of the Public Law 480 Program, NSF is making funds available to OTS to handle some of the managerial aspects of this operation. Inherent in that is a certain amount of bibliographic control, but nothing of a formal nature.

We could assume—and from what we have seen, I think it's an assumption that can be backed up—that the professional organizations that NSF is supporting in translations activity are exercising a fair degree of bibliographic control themselves. There are such things now as multi-year indexes in the works, of all articles in cover-to-cover translation journals or in a selected translation program. But as far as the bibliographic work that has been done, both through the OTS and SLA Centers, this is done strictly on their own. Another program of the Foundation, as you know, provides support for abstracting and indexing services. But again, this is quite independent from the translations activity program.

JOHNSON: I would like to ask a whole group of questions then. I wonder how many people would find it useful to have cumulative tools about what is available currently, rather than having to go through all the practically innumerable lists of translations now in use? We have all these marvelous cover-to-cover translations, but we don't know when they are going to be put out or if they have been issued yet. I would like to know for how many people this poses a problem.

Walkey: It just occurs to me that the two most comprehensive translations listings are *Technical Translations* and the CIA's *Consolidated Translation Survey.* Between those two, a great deal of the material is covered. Of course, I know there are certain things that somehow escape.

JOHNSON: Yes, a great deal of the NSF American Mathematical Society's program on translations is not reported. There are several collections like that which you can't get at unless you just plow through by hand.

Walkey: I think this desire for cumulative index tools is an excellent suggestion, and the Committee will take it under advisement.

Kaiser: Does Mrs. Johnson have in mind something that would be retrospective and would give one a comprehensive listing of all the translations back to the original SLA list, including the bibliography of Russian translations that were turned over to the SLA Center and on up to date? Was that the sort of thing you had in mind as a cumulative index?

JOHNSON: Yes, a cumulative index for current control, because the current indexes are running a year behind and you can't find anything without going through the current issues.

Walkey: I would like Mrs. Nowak to reply to this and also tell about an index that is being worked out at the Translations Center.

Mrs. Ildiko Nowak (Chief, SLA Translations Center): I suggest that everybody check with the Translations Center regarding availability of translations. We have complete author and journal reference files on all translations that have been collected since 1953—that is, translations collected either by the Translations Center or by the Library of Congress, when it was still holding Russian translations. Also, many translations are included that have not been listed in *Technical Translations* because of the inevitable lag of time between when the Center receives a translation and it is processed and listed in *Technical Translation.* We already know that a translation exists a maximum of one week after we have received it. Also, many translations are of articles that were published prior to 1940; these are not announced in *Technical Translations,* but we do have cards indicating they have been translated. Thus I suggest that everybody check with the Translations Center.

RICHARD DAVIS (Drexel Institute of Technology): I would like to go back to the first question that was asked. Has there been any attempt to convince German publishers to put out English editions? I know of one German publisher who does this; the journal is *Kunststoffe,* which also comes out in English. I am sure that when the German publishers realize the demand for *Stahl und Eisen* in the United States, for example, they might consider an English edition.

Nowak: We recently had a visit from Dr. Van der Wolk, Chief of the European Translations Centre. He said they are hoping that all translations activities in Europe will be put into English instead of their respective European languages. Also, they will try to convince the publishers of the major journals to publish English editions or an international edition.

Feinstein: I think that is an excellent suggestion. Your answer reminds me of another thing that hasn't been brought out. NSF has had some experience under the foreign translations program and has persuaded the Poles to bring out simultaneous English language editions of two of their journals. One is the *Acta Biochimica Polonica* and the other is *Nucleonika.* We are beginning the Russian journal, *Radiochemistry* in Israel, although it won't be a simultaneous translation, and we have advanced negotiations underway in Yugoslavia whereby Yugoslav scientists are evaluating their own journals from the standpoint of which is the most significant and will attract the most interest in the United States. They will be doing somewhere between six and ten journals simultaneously. We have no such program in Germany I am sorry to say. But it seems to me that organizations in the United States could directly approach German publishers. I think that if they thought there was a market here, they would want to take advantage of it.

MARIAN WICKLINE (Dow Chemical): Why isn't the journal of the American Institute of Chemical Engineers, *International Chemical Engineering,* included in *Technical Translations?* Can this material be announced somewhere else?

Feinstein: The American Institute of Chemical Engineers is producing a highly selective translation journal. At the present time *International Chemical Engineering* is concentrating on translations of significant material from the entire Sino-Soviet bloc. As you might imagine, the preponderance at the moment is from the Russian, but Polish, Czech, and I think one or two Chinese articles have appeared to date. To answer the question, "is there some means by which the material translated here could be announced elsewhere, in some other tool, so that people could find it, presumably on a retrospective basis, "I am sure you have noted that in the back of each issue of this journal there are, in essence, abstracts of articles contained in it and, according to the AIChE Thesaurus approach, a key-word locating tool. I think these are set up as tear sheets so one can file them in his own files and have a reference source without thumbing through each issue of the journal. It seems to me this should go a long way towards answering the question.

MARGARET PFLUEGER (Technical Information Services Extension, Atomic Energy Commission): At the time the journal was announced, I wrote to the editor and asked if he was aware of the difficulties facing librarians in knowing what was to be translated. He told me at the time that he had registered with OTS his intent to translate the articles that were to be printed. Whether those were going into *Technical Translations* or not, I don't know.

Hamrick: I am not certain whether they are coming into OTS or not. If the translated articles are coming in, or do come in, they will, of course, be put in *Technical Translations.*

ROSEMARY CENTNER (Procter & Gamble Co., Miami Valley Laboratories): Is the Translations Center working on a universal translation inquiry form to be distributed at a nominal cost?

Walkey: The answer is "no." I know that many of us who frequently order translations have worked out our own inquiry forms. Actually, this is something the Committee has discussed, and I believe that within the next year we will have a conventional order form available that everybody can use. It would facilitate operations greatly.

ROSS PETTY (Hercules Powder Company): I gathered from the comment on the SLA file in Chicago, as a search tool, that it does not completely duplicate the OTS file. Does OTS have the same file on all such information?

Hamrick: The card files at OTS and at the SLA Translations Center are duplicated. However, there are times when you might find something at the SLA Center before you find it at OTS, and on other occasions, you would find it at OTS before you would at the SLA Center. As soon as OTS does the descriptive cataloging for the material, a temporary slip goes into the files. Therefore, OTS has information available from four to six weeks before you will receive it in *Technical Translations.*

PETTY: But we are covering the field if we have checked either at SLA or OTS?

Hamrick: Yes, with the exception of what might have been processed at a recent date.

Kaiser: I should like to add that because of the longer duration of the SLA Center, it has approximately 20,000 more translations in its files than OTS. I believe it's a ratio of about 50,000 in the SLA files to some 30,000 in the OTS files. This is largely because the SLA Center started sooner and because it has a great many items, either pre-1950 translations or pre-1940 in date of original publication, which are not listed by OTS.

PETTY: I have one other comment regarding the cooperative supply of material for the Center. We had two or three questions in regard to the quality of translators who are in the open market. We have in our own files many translations that have been done by our own men, in-house translations. These are not professional translators. We can't guarantee the quality of the translations. Does SLA want these?

Nowak: We frequently receive translations that were prepared by staff members or by students. These might not be up to the standards of a professional translator, but they have served their purpose for one company. If the translation is too bad, let's say, we make it available on loan, free. Nobody is losing anything. You can borrow the translation, and if it helps you, fine. It is always noted on such an item that it is a rough translation, or it is a partial translation, or a condensed translation, whatever it might be. But we do accept these translations and are grateful for them. Neither the Center at OTS nor the SLA Translations Center is responsible for the quality of the translation. We try to verify the bibliographic information and note on the translation if any figures or graphs or any bibliographic information have been omitted. We are not responsible for the quality of the translation itself.

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NSF GRANTS AND REPORT

A LIBRARY OF CHICAGO UNDERGRADUATE DIVISION OF THE UNIVERSITY OF ILLINOIS Research Project, geared to the automation of all functions of the library, has just received a grant of $45,033 from the National Science Foundation to continue its work, which has been in progress for the past three years. This new grant will be used to test a system of data processing based on the use of a computer, which had been developed previously. Earlier research was made possible by grants from the Council on Library Resources, Inc. and the University of Illinois Research Board.

Translations of Mathematical Monographs, part of the AMERICAN MATHEMATICAL SOCIETY's American Mathematical Society Series, will aid American mathematicians in keeping up to date on Russian works in the field. Publication of this series is made possible by a grant from the National Science Foundation. The Society is in a position of being readily able to call upon translators, editors, mathematicians, and printing facilities for quick, accurate translations at low prices. Volume I of the six-volume monograph series will be published in six parts and will survey the current work done by 18 Soviet mathematicians. Part 1, which consists of two chapters out of the total 20, covers "A General View of Mathematics," by Aleksandrov and "Analysis" by Lavrent'ev and Nikol'skii. This section can be purchased for about $6. Parts 2-6 will be published during 1963. Volume II, *Some Questions in the Theory of Moments* by Ahiezer and Krein is available at about $7. Orders for these books as well as standing orders may be placed with the Society at 190 Hope Street, Providence 6, Rhode Island.

According to a recent National Science Foundation survey, $100 million will be spent by the federal government for research and development in scientific and technical information. This is part of a $14.7 billion spending program for research and development in fiscal 1963. Complete survey results will be published in *Federal Funds for Science XI* by the Government Printing Office, Washington 25, D. C.

Information Retrieval from Technical Reports Using Termatrex Equipment

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THE LIBRARY AT ITT Federal Laboratories is using Termatrex equipment in its system of information retrieval from technical reports. Although the system has been in operation only about one year, it promises to be quite satisfactory. For ease of operation and flexibility of adapting a user's questions to the contents of the collection, Termatrex equipment has much to offer. Although a collection of over 100,000 reports might be too large at present to search by Termatrex equipment without special accessories, time alone will prove the ultimate capabilities of the equipment.

The ITTFL Library has a collection of over 10,000 reports (mostly in the field of electronics and physics) written by company authors, as well as thousands of reports from other sources. Although there are several governmental agencies, such as ASTIA and the Office of Technical Services, and commercial sources, such as *Engineering Index,* that index many of the reports among the holdings from non-company sources, the greatest bulk of our reports are those written internally, which are not apt to be included in any governmental or commercial index. At the time of adaption of Termatrex equipment, the library had almost no means of retrieval from the report collection. Hence there was no pattern to follow to make use of former work. It was decided that whatever system chosen was to meet the following specifications:

1. It was to allow unrestricted depth of indexing. (This ruled out edge-notched cards because of their space limitations and made questionable conventional catalog cards because of the inherent difficulties of making and filing a large number of cards.)
2. It was to be readily available to the library staff and to be quick to operate. (This made computers less likely to be chosen as they are usually not readily available to a library, and eliminated the Uniterm system because of slow operating time.)
3. It was to be relatively inexpensive. (This also ruled out most computers.)

After considering every known retrieval system from Uniterm to computers, the Termatrex system was finally selected. Although our system is intended primarily for indexing internal reports, plus selected outstanding non-company reports, only the limitations of indexing and processing time require this restriction. The system could also be used for many other purposes within the company, such as an index to the skills of the engineers, contents of purchase orders, or minutes of committee meetings.

Operation of System

This system makes use of optical coincidence cards. Each Termatrex card represents an indexing term, such as ANTENNAS, or MICROWAVES, or AIRBORNE. Holes are punched into the cards with the Termatrex equipment (see Figure 1) when entering data into the system; the position of the holes indicates the accession numbers of the reports being entered. For example, a hole in a card for RADAR at location 5045 indicates that the report with accession number 5045 contains material on RADAR. Similarly-located holes on the cards for ANTENNAS or AIRCRAFT would indicate that the report also contains data on these subjects.

To retrieve information, Termatrex cards bearing the terms pertinent to the requester's questions are placed on a light box that is part of the Termatrex unit. The holes' light shows through indicating the accession numbers of reports that contain material on all the subjects wanted. For example, to find

reports on airborne radio antennas operating at microwave frequencies, the four cards for AIRBORNE, RADIO, ANTENNAS and MICROWAVES are placed on the light box. If ten lighted holes appear, the positions of the ten holes are checked with a ruled read-out guide to determine the ten accession numbers (see Figure 2).

This is sometimes referred to as the "Peek-a-boo" system, but many users feel this term is rather unfortunate, since it has a rather childish connotation. It is simple but not juvenile. I prefer to call it the optical coincidence system. It uses coordinate indexing but, unlike the Uniterm system, eliminates the tedious task of hand entering numbers and reduces the likelihood of errors on cards that are apt to occur when matching numbers. Also, slower input and output time required by the Uniterm system is avoided.

Features of Our System

The ITTFL Library began to use coordinate indexing many months before it was decided to use Termatrex equipment. A dictionary or thesaurus of around 300 terms was assembled before any reports were indexed. The authority cards in the dictionary include definitions when needed, and "See" and "See also" cards are used, as in any conventional catalog system. Strict control over terms is essential. This system, like any other retrieval system, is no better than the quality of the indexing terms and the skill of the indexer.

The indexing terms are arbitrarily divided into six categories to simplify the job of considering all the major aspects of a problem, such as environment, equipment nomenclature, and type of report. The six categories are:

CATEGORY	SAMPLE INDEXING TERMS
1. General terms	radar, receivers antimony, interferometers
2. Date written	1940-49, 1950-54
3. Nomenclature	B70, AN/URT-17
4. Environment and geography	Cuba, underwater airborne, corrosive environments
5. Type of report	Bibliographies, theory patents, fabrication techniques, tests
6. Customers	U.S. Bureau of Space Jones Radio, Ltd.

The indexer uses a work sheet, which includes space for the usual title, paging, report numbers, and authors. Each sheet is prenumbered with an accession number by which the report is identified, although the report may be filed by another report number, particularly a nationally known number or important local number, and this is shown in the upper left hand corner. Any number of terms may be assigned, although it has been our practice to try to limit non-company reports to 15 terms each and internal company reports to 25 terms each. Conference or symposia proceedings, having dozens of papers, often require 40 or more terms to describe. The 50 most popular terms have been printed on the reverse of the work sheet, and these are circled by the indexer if used. Otherwise he writes the terms on the face of the worksheet.

To put information into the system, a clerk locates the plastic cards for each of the terms, checking them off on the work

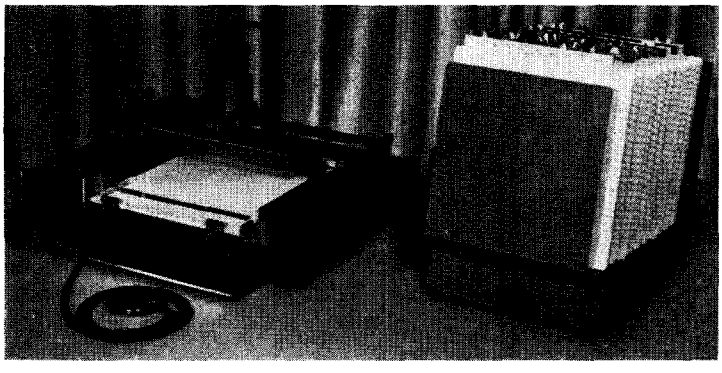

Figure 1: Termatrex punching and searching equipment on left with punched cards and holder on right.

sheet as they are located. (The cards hold up to 10,000 holes each and are about 9 x 11 inches in size. Term names can be typed directly onto the plastic cards.) Then these cards are placed on the Termatrex machine, and the perforator is set at the position matching the accession number. At least 20 cards can be punched at once. Other cards can be put on the machine, and others taken off, without disturbing the setting. To avoid errors in punching, the position of the perforator is quickly checked by another clerk before punching the hole. Then the Termatrex cards are refiled. The indexer's work sheets are filed by issuing source and constitute a corporate source index, eliminating setting up a separate file for this purpose.

When a request is received, a member of the professional staff clarifies the user's question in all the detail possible, since we have found that the user often needs to be questioned a bit to find out what he really wants. Then the question is compared to the terms in the authority file or thesaurus, and the terms nearest to those in the question are selected. For example, suppose a request is for "reports on transistorized radio transmitters suitable for use in aircraft, operating in the very low frequency range, and having an output of 5 watts." After checking the authority file, the following terms would be selected: RADIO, TRANSMITTERS, AIRBORNE, FREQUENCIES (V.L.F.), POWER (1-9 WATTS), and TRANSISTORS. The Termatrex cards to match these terms are placed on the light box, underneath the punching device. Wherever light shows through, the numbers of the holes are determined by placing a plastic ruled read-out guide over the cards.

If no holes light up, or if there are too many holes or too few holes, the answer may be simply to add more cards or take off cards to see if the quantity of documents matches the needs of the requester. For example, if 100 holes light up, perhaps the requester would be better served if a card representing reports written only in 1960-1964 were added to the stack, and thus reduce the output to say 25 reports. Or if only two holes lighted up originally, perhaps the requester would say that one term was not required. Removing this card might increase the output to ten holes.

The ease and flexibility of manipulating the terms in this way is, in my opinion, one of the most attractive features of the Termatrex system. Most other systems require considerable effort to learn how much is in the collection on a given set of terms, whereas on the Termatrex one can learn this in a matter of a minute or so. Further, it can be adjusted simply by adding or subtracting cards in a few seconds. In my opinion, only random access computers can equal the Termatrex equipment on this score. Computers requiring sequential searching might dutifully print out hundreds of report numbers in response to a given question, whereas the requester might have use for only a dozen. Conversely, the computer might, after checking its collection, report little or no reports on a given set of terms; with the Termatrex one knows almost immediately about this and can at once remove terms that the user considers expendable, to find a suitable number of reports. Also the equipment is in the library, not shared, so there is no waiting for another department to act. The equipment works quickly, unlike most manual systems.

Supplementary Files and Procedures

When the report number is determined, the next step is to look at the abstract file, where a 5 x 8 inch sheet is filed, by accession number, for each report. It takes about ten seconds to locate each abstract sheet. Often the user can determine by a glance at the abstract whether or not the actual report is required. The number of copies maintained by the library is marked on the reverse of the sheet. As the abstract sheets for classified reports are themselves classified information and must be accounted for, a log book is maintained to indicate the military classification of each sheet.

An additional index is maintained for locating reports; this works independently of the Termatrex system. It consists of a file of 3x5 cards representing report numbers, such as AD, PB, and NBS, filed alpha-numerically and also the titles of conferences or symposia, filed by key word in title. Each

card in this index correlates the report number or title thereon with the accession number. When a requester knows he wants a particular AD report or knows the title of the conference, he can obtain the report merely by looking in the correlation file without needing to use the Termatrex equipment. Our aim is to provide the speediest retrieval possible, with or without special equipment.

We also maintain a simplified author index for authors of internal reports only, as we rarely receive requests for authors of external reports. A 3 x 5 inch card is used for each man, on which the accession number of the report and the year it was written are recorded. Many reports can thus be represented on one card.

To simplify the selection of outstanding reports, the editor makes a special mark on the worksheet beside one term (or rarely two) in a truly outstanding report (roughly about one out of 50). This term is circled in green on the worksheet, as a signal. The Termatrex clerk, after punching the appropriate Termatrex cards, types the accession number of the report on the Termatrex card called for by the circle. Thus if one picked up the Termatrex card for OSCILLATORS and found the numbers 4718 and 8824 typed on it, near the tab where the term name appears, this indicates that these reports were considered outstanding in their treatment of oscillators. Naturally, one must be very selective to make this system effective, because too low a standard for selecting "outstanding" reports would negate its value.

One feature of Termatrex equipment that some people dislike is that of reading out the number of the holes with the plastic guide. It takes about five seconds to identify each hole. This is certainly quicker than manually matching numbers, as in the Uniterm system, but it is admittedly not as impressive as the automatic print-out from computers or machine-accounting equipment. There may be some wear on certain popular cards, but re-punching replacement cards is not difficult. Others may object to indexing only 10,000 documents with one deck of cards, after which another deck is necessary. The Jonker Minimatrex machine is the next step one might consider, as it converts the

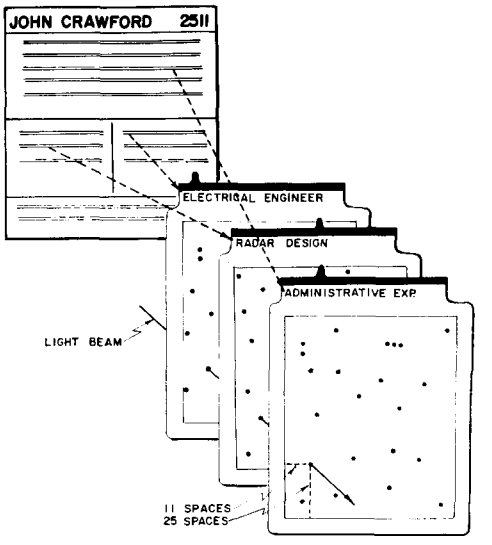

Figure 2: In a personnel file punched cards designating skills and experience desired for a certain job are placed on the Termatrex machine. The coinciding holes through which light shows indicate the serial numbers of the employees meeting those requirements.

cards into pieces of microfilm, so that several decks of cards are replaced by strips of microfilm. These can be read and compared in a special microfilm reader, making it possible to compare easily the sets of images, each representing up to 10,000 reports.

Another problem that might be raised is that of "false drops"—the matching of terms for a document which results in combinations not actually present in the report. These have been frequently discussed in the literature as they are common to any coordinate index system. At least the system operates on the side of giving one more than he wants, which, in my opinion, is safer than having less than he wants. Even when using the index to a book one commonly accepts the problem of sorting through some excessive material to weed out the unwanted items.

Cancellations for reports removed from the collection are made by punching a hole in a colored translucent sheet. This colored sheet is used in each retrieval. Any hole that appears as white light can therefore be disregarded, and only colored light is valid. This is far speedier than removing reports from a Uniterm system, in which it is neces-

sary to strike out the accession number on each term card used for the report.

A recent typical question illustrating the number of variables involved was, "What is the effect of the aurora on tropospheric radio communication in polar regions?" This was answered (one paper on the subject was located) in a matter of a few minutes. There was no waiting for a computer to become available, no poring over all reports on tropospheric radio communication to see which ones involved the polar regions. As the collection grows, such a question might be expected to bring many reports to light, so that eventually the requester might ask that only reports written in a certain period of time, or by certain agencies, or any other restriction he wished, would be considered.

Principles of Indexing

One of the most difficult decisions in building the vocabulary of indexing terms is deciding when to combine words into one term and when to make them separate. The advantage of combining is to eliminate the possibility of failure to pick both the two component terms together, or of confusing their meaning, or the order in which they are used. An obvious example is to have one term for DOPPLER EFFECT rather than two terms, as the word "effect" by itself would be meaningless. We also use ANALOG-TO-DIGITAL and DIGITAL-TO-ANALOG to be sure that the terms are used together in the proper order. On the other hand, combining terms builds up the number of terms in the dictionary faster than not combining them.

Cases in which it is almost a necessity to combine occur when one wants to indicate a quantitative idea, such as high, thin, or long. These terms by themselves could be combined with almost any other term in the system and thus lose their value. Thus we have such terms as FILMS (thin) and DISTANCES (long). Any quantitative term is difficult to set up unless one decides to devote a complete set of expected values to the set. Frequencies in the electronics world are simple, since there is a generally accepted range of frequencies already named. All users know and understand such terms as FREQUENCIES-V.L.F. and FREQUENCIES-U.H.F., but in the case of temperatures, what ranges should be selected? Our reports cover temperatures from near absolute zero to thousands of degrees Fahrenheit, for example. Since in our work it was arbitrarily decided that exact temperature ranges were not as important as in an extensive collection of reports on chemistry, we have merely classed the terms as TEMPERATURES-HIGH, TEMPERATURES-ROOM, and TEMPERATURES-LOW. So far this has been acceptable for our particular collection. However, in the case of power or voltages, we make the ranges small enough to be useful.

When one has made a poor decision about the range of values for quantitative terms or has decided to combine terms, there is no reason why the reports affected cannot be rechecked in terms of the new ranges or new definitions and have new term cards punched, provided there are not too many to redo. This is the main reason for trying out the system as soon as one begins to index, so that flaws in term selection can be remedied before reaching a "point of no return" as far as ease of adjustment is concerned.

One common reason for combining terms in a Uniterm system is not a factor in a Termatrex system; namely, the slowness of matching cards in the Uniterm system makes it a great saving of time to combine terms often used in combination, such as DIGITAL and COMPUTERS. Every manual comparison saved or every entry saved means quite a saving of input and output time. In the case of Termatrex, however, the extra time to punch two cards or to lay two cards on the light box is so small that it is foolish to combine terms for that reason alone.

Each user must decide for himself the depth of indexing he wishes to use, as in any cataloging system. Increased depth increases irrelevancy in retrieval, and decreased depth decreases completeness in retrieval. The safest system is to index deeply, but one pays for it in terms of increased processing time and in the number of documents of questionable value retrieved. As a compromise, by establishing an arbitrary maximum number of terms to be assigned to different classes of documents, one avoids the tendency to go

"overboard" in term selection and the indexer is forced to be more selective.

Processing Statistics

The Termatrex model we use (#202) costs around $1400, and the plastic Termatrex cards cost 25 cents each. Card holders for 1,500 cards cost $45. Those desiring a permanent record of the output can use a photocopying machine devised by Jonker Business Machines Inc., Gaithersburg, Maryland, source of Termatrex equipment. More elaborate Termatrex equipment is available for faster punching or larger collections.

We use one full-time indexer, one part-time typist, one part-time Termatrex operator and one part-time editor. The amount of time spent by each of the "part-timers" is quite variable, and so is their output.

Based upon an average of 25-30 terms assigned to each document, the ITTFL Library dictionary consisted at one time of 1,500 different terms used to index about 375 reports. This included terms for equipment nomenclature, such as AN/URT-7 and B-70, but did not include personal or corporate authors. When we had indexed 450 reports, the dictionary numbered 1,700 terms. This indicates that the rate of growth of the dictionary is slowly diminishing as the collection grows, which is what we expected.

To compute the expected input time for entering data into the Termatrex cards, our experience has been that the average clerk takes about 15 seconds to locate a Termatrex card. The punching of the hole takes only a minute or so, whether for five terms or for 40 terms. The average refiling time for the cards is also about 15 seconds per card. Thus to process one document containing 25 terms takes about 14 minutes to locate all the cards, punch them, and refile them. We are now filing the Termatrex cards so that the 50 most popular terms (the terms printed on the reverse side of the indexing work sheet) are a separate section of the file to see if locating and refiling time can be reduced further. No doubt the use of Termatrex cards bearing numbers (called RN or random numerical cards because they are filed in random order and the color and position of the tab has been designed to allow quick location) might decrease the processing time, but one disadvantage is the need to key the numbers to the terms. This slows down the work of the clerk who has to look up the number for each term before locating the card.

The average number of terms per document may begin to be less than 25-30 as we are now making more of an effort to use prescribed limits. If so, then one clerk working eight hours a day could process about 10,000 reports during a 50 week year. If the average remains around 25, then about 8,000 reports would be the total each year. Possibly faster ways of locating and refiling cards will be evolved, which would further increase the output.

The number of uses per week of the system is rather low at this point because of the small number of reports in the system. As the total number of reports processed on the cards increases, so will usage. We plan to make a general announcement of the system's availability to users when more reports are processed. In the meantime we use it whenever it seems likely to be worth it.

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Discusses the principles of Termatrex equipment and describes various models, including those designed for larger collections (over 100,000 reports).

The Use of Electronic Computers for Information Retrieval at the Naval Ordnance Test Station

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SINCE THE Naval Ordnance Test Station (NOTS) has experimented with the use of high-speed computers in information retrieval since 1954, perhaps a librarian's account and, I hope, objective evaluation of the machine program—why it was started in the first place, the original program and its shortcomings, the program now in operation, its usefulness, the current problems, and plans for the future—may be of some help to those who are considering using computers in their operations or are under pressure to use such equipment.

About ten years ago, when NOTS first started considering using computers for its library operations, the big problem of control and information retrieval centered around the collection of technical reports—a very heterogeneous collection in all the basic fields of research, ordnance materiel, propellants, explosives, rockets, and so forth. New titles were received at the rate of 400 to 500 each month, and about 60,000 of these were already on hand, very inadequately described and indexed. In fact, the catalogers had found the standard subject heading lists so inadequate and difficult to apply that around 1951 subject indexing, as such, of this material was virtually abandoned.

Meanwhile, there was considerable pressure on the library to adopt some method of mechanized retrieval. I'm sure each one of the systems then available was proposed by a library friend as the solution to our problems. (It's interesting to note that all the systems started by people in good faith for their personal files or for larger uses have been abandoned. They became too unwieldy to handle as they increased in size.)

Coordinate indexing was adopted early in 1953 as it appeared to be a feasible system of subject indexing and a method that also appeared to be suitable for later mechanization.

Former System

An IBM 701 computer was delivered to the Station in the fall of 1953, and shortly after this an experiment was designed for this computer to perform the manual operations of coordinating terms. There were about 14,000 documents indexed by coordinate indexing, and there was already trouble with the manual coordination. This first program allowed only for assistance in the coordination process, although a more elaborate program was considered. The limiting factor at that time was the memory size and capabilities of the computing equipment on hand. A short description of this first program appeared in the National Science Foundation's first issue of *Non-Conventional Technical Information Systems in Current Use,* dated January 1958. In general, each term or descriptor was assigned a number and punched on a set of IBM cards together with all the report numbers associated with that term. Each set of cards was written on tape as a unit record in ascending order of term number.

This first program provided only for the coordination of descriptors and a print-out of all report numbers common to the descriptors used. The product was highly disappointing to the library clientele. Moreover, there was a great deal of complaining that

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the program took too long. The result was that the system received very little use.

The library staff, however, did use the computer to some extent to pre-coordinate terms, setting up terms that were more and more specific as the collection grew and the manual coordination became more and more laborious.

The Station acquired a 704 in 1957, but because of the limited use of the 701 program, it was not reprogrammed for the new computer. Actually, after 1957 there was no computer program at all. The machine records were kept up to date, though, because the keypunched input was used in the manual posting operation.

New System

In late 1959, with the growing realization that the library had a very ineffective subject approach to its technical report collection, it was decided to reprogram the system for the IBM 709 (on Station at that time) and to give greater consideration to the requester by providing more information about the reports. (The 709 computer has a memory size capable of handling this additional information.) Because of the effort, time, and money that had gone into the old system, it was considered advisable to salvage as much as possible of it and in some manner to expand it to include the additional information desired. The simplest procedure appeared to be to prepare a second tape giving the following information about each report:

Accession number
Issuing agency or laboratory
Title
Number of pages
Date
Personal authors
Security classification of the report
Whether a serial publication or progress report

Report series was omitted as being of secondary importance in a subject search and also because if this information were included, the untrained keypunchers, who would be working directly from the shelflist, would require more supervision and direction. The only keypunching that was carefuly checked was the report accession number and author entries.

The search product now is an informal bibliography giving for each report the information listed above. The program also allows for including short abstracts or annotations if and when the library staff can absorb this additional work.

Apparently the research and engineering personnel at the Station are quite pleased with the new service. Also, they are more willing to wait until enough searches are collected to make the computer time economical. If they cannot wait, they can provide funds to put the search on an urgent basis. However, the urgency of their requests has become of secondary importance now that the product is meaningful. Many of the searches made have been of fairly widespread interest throughout the Station and have been duplicated and sent to widely separated working groups.

Costs

The system is not cheap! Major costs so far have been in the machine time, keypunching, and programming involved in preparing, correcting, and up-dating the tapes. These costs alone have been in excess of $20,000. Now the IBM 7090 is being used. The cost of this computer and auxiliary equipment runs around $500 per hour.

A group of 21 questions searched recently cost close to $250 in machine time or an average of about $13 per question. This does not appear to be a realistic way of determining costs, however, because the product for many of the questions amounted to only ten or so reports while for others 50-100 reports were listed. Costs might be figured on the basis of the number of reports printed out: in this case, 1,700 at 14 cents per report. As yet, we have not determined a good way to compute search costs. The only thing we watch for is that there are enough searches to make the use of the computer economical. If the question has enough priority and importance the computer may be used to perform only one search.

I have no comparative figures on the cost

of a manual search and the subsequent typing of a list from the catalog cards. It would, perhaps, appear offhand that a clerk could do this as cheaply as a computer. However, at NOTS there is an extreme labor shortage so that comparable costs would still favor the machine search.

Problems

We still do have problems. The intellectual problems of adequate subject indexing and reference work are still with us. In fact, they are now somewhat magnified. However, in most cases they appear to be problems in connection with coordinate indexing itself—not in the machine application.

Coordinate indexing does not appear to be applicable to a collection as heterogeneous and as large as ours without resorting to the use of computers to perform the manual operations. Moreover, because it is a totally unstructured system, there is a strong tendency among the analysts to index by words, not subjects. In the effort to handle requests for information during the past five years, we have tended to use more and more specific descriptors. It is imperative that a great deal of care be used in formulating these questions because coordinate indexing does not permit browsing and machine time is expensive.

Searches may be made that are completely unproductive but we will not know this until considerable machine time is used. A standard card catalog with standard subject cards, on the other hand, would reveal promptly that the subject being searched was nonproductive and should be abandoned for a more general or a more specific one as required.

Plans for the Future

There are several plans for improving and expanding the computer system. One that I think holds a great deal of promise is the use of the computer to maintain the manual system. Because of the specificity of many of the descriptors, the manual system is still more applicable to many questions. For example, if someone wants information on a specific propellant and there are only three or four reports posted on this term card, it is foolish to delay work and use computer time to answer the question when a simple check of the shelflist under these numbers, or even a look at the reports themselves, will let the requester know what is available.

Maintaining this manual index is time-consuming—pulling the card from the file, typing on the applicable report number, and refiling—and it is also subject to a great deal of error. In a short time the computer will maintain this system for the library. Whenever changes are made under any descriptor, the computer will reprint the complete coordinate index card. When a new card is printed, it will merely be dropped into place in alphabetical order and the old one pulled. I believe this will be more accurate than the present system.

We estimate it will cost about $500 to print out the complete coordinate index as it is. Keeping this manual record up-to-date will be comparatively inexpensive.

In a trial run, the printing of cards for 800 descriptors (about one month's posting) costs about $15. Moreover, because the cards will not be permanent we shall use a lightweight card stock costing much less than the cards now being used.

Maintaining a manual system such as this, normally a completely clerical task, is an operation, I believe, is particularly suitable for computer assistance.

Another plan is to use the paper tape from our Flexowriter, now used to prepare the standard library records, as direct input into the computer. (The Station is acquiring a paper tape to card punch converter soon.) The keypunching operation now necessary for input will then be eliminated.

We also hope to add annotations on the content or scope of reports, as in many cases the report title is incomplete or ambiguous. The computer program allows for this additional data. Such annotations will, of course, require time of the professional staff.

We hope to retire the heavily posted terms from the manual system, or perhaps only retain a record of the latest additions to these terms and use the computer program when these terms are involved in a search.

Eventually, we'd like to set up a program

whereby the machine will automatically enter under a more general term when certain specific terms are used. The problem here lies in determining the general term to be used.

We are considering a personal author sort from the report tape. Perhaps the personal author cards in the catalog can be retired and a book catalog maintained for these entries.

Conclusions

There are a few general conclusions I think are safe to make.

1. It is important in setting up any machine program to try to give the requester at least as much information as he would obtain using a standard system. Any program requiring extensive manual or intellectual manipulation of numbers or codes will not be acceptable to him.

2. To date, computers save no intellectual effort if the indexing and subsequent preparation of questions for search is done properly. Moreover, although a computer system may reduce or eliminate many manual operations, it creates some of its own.

3. Every librarian should be constantly on the alert for machines to relieve him of monotonous manual tasks, even though he is not faced with the manpower shortage that is ever present in an isolated desert community such as China Lake. We have, for example, saved a great deal of clerical time during the past few years by using machines—from a simple little addressing machine for charging and mailing library material to a Flexowriter for the preparation of catalog cards. The computer program will expand and develop to a point where the time it saves is really meaningful.

4. Finally, we are giving better service, and that is by far the most important thing. As one scientist observed when handed a rather lengthy bibliography, "These machines have fouled up my water bill, my insurance premium notices, my bank statements, and will probably foul up my income tax. It looks like the library is using one to good advantage and giving me something *I* can use."

SPOTTED

● Among the displays of books and dust jackets in the Denver Public Library hangs a poster with the words, "The Patron." Thus library users are reminded that they are not interruptions to the library staff's work but are the purpose of it. ● St. Thomas' church on Fifth Avenue in New York City poses a prominent façade, and Mrs. Paul Cassard, librarian at St. Bede, saved it from an embarrassing error that not even the architects or church officials noticed. Glancing at the recently installed statues in the entrance, Mrs. Cassard quickly saw that the symbols carved in stone under the statues of St. Mary and St. John were incorrect. Fortunately the situation could be corrected by switching the statues, which were on spindles. ● Brevity is the soul of the English language. From the National Union of Teachers in London comes word that of the 400,000 words in the language, the average person uses 20,000, and one third of the normal reading vocabulary is based on 30 words. ● A Freudian slip by a reader of a book on psychiatry netted a librarian a platinum ring turned in by another reader while leafing through the book. ● Robert Goulet, Broadway musical star, wishes for "the New York Public Library and a very charming librarian" if stranded on a desert island. ● A quote from Professor J. D. Bernal in England states, "The most useful documentalist is the wastepaper basket." ● Research is now industry's big business. But it was not always so. Minnesota Mining and Manufacturing Company listed research as a separate cost in 1926, but in 1955 it realized $28 in gross sales returned for every research dollar spent. ● Toronto is a city of readers, especially adults, whose borrowings have increased ten per cent over the past year. The annual one-day census showed that 244,684 or one-third of all the circulating books in the Central Library and 22 branches were checked out. ● John Ruskin, the writer and critic, took a strong stand as a reader: "We call ourselves a rich nation, and we are filthy and foolish enough to thumb each other's books out of circulating libraries." ● "Libraries," says a Washington, D. C. physician, "are the brain banks of our society."

A Literature Survey of Technical Information Services

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THIS ARTICLE POINTS OUT THE PROBLEMS that arise when exploding publication output occurs without satisfactory means to process and digest the reams of scientific and technical information becoming increasingly available. While such a situation results in an information specialist's nightmare, if the situation is viewed in its historical perspective, we see faint rays of light that give cause for optimism regarding future growth and success in the information-services area. It is hoped that the extensive bibliography at the end of this article will aid those seeking solutions to some of the problems.

The need for better information processing and digesting methods has been recognized for years. Mechanization has been applied as a solution on a limited basis and with varying degrees of success. During the late 1940's and early '50's, the flood of literature from accelerated research and development activities far outran the ability to process the information effectively. Generally speaking early experience with mechanization was disappointing. An editorial of this period, in fact, referred to the information field as "a house divided," with librarians and classical tradition on one side and the documentalists and computer and machine advocates on the other.[1] Selecting areas of agreement from this debate, both sides generally concurred on these points:

Machine systems had limited success for:

1. Homogeneous groups with a high rate of specific inquiries.
2. Volume coverage in a limited, predictable field.
3. Coverage where speed of response is more important than total content.
4. Systems in which unique operations do not sever interlibrary communications.
5. Libraries needing swift transmissions of information to many areas.
6. Reducing indexing time and cataloging space.

Machine systems were not successful for:

1. Coverage of varied fields with high incidence of unpredictable change.
2. Depth searches using variety of sources where each search is defined and redefined as it progresses.
3. Keeping current in a particular field.
4. Solving the over-all problem of information services or substituting for competent, well-trained librarians.
5. Gaining the confidence or the support of prime users or librarians in general.
6. Providing an economic balance between make-ready and answer time.

During the 1940-1950 period, economic factors also inhibited progress toward solution of information-services problems. For the most part, general-purpose computers and data-processing equipment were used as a response to explosive industrial growth and the need to process increasingly large volumes of bookkeeping and accounting data (clerical-information processing). With a sellers' market and a new technology, it was only natural that problems having the most immediate, tangible payoff would receive major emphasis. To meet its own needs and under impetus of government support, in-

1. A House Divided. *American Documentation*, vol. 6, no. 3, July, 1955, p. II.

dustry was rapidly increasing its R & D operations. With such growth, the first concern quite naturally was the acquisition of personnel and facilities. Though the need for better information services was appreciated, this matter again became a lower priority problem than the expansion of R & D staff and facilities.

The International Conference on Scientific Information, held at Washington, D. C., in 1958, marks a turning point—a new phase in the attempt to reach a solution to this problem. The conference recognized that the increases in size and scope of the national R & D effort meant that there was now a need for better information services. The need was to insure industry's tremendous investment in a very valuable commodity—its R & D personnel and facilities. At about this time also, the rate of R & D expansion was declining so that emphasis shifted from the problems of acquiring capability to the problems of development and utilization of such capability. Problems of supply and utilization of information began to receive prime consideration.

Documentalists, librarians, and linguists began to realize that new techniques were necessary to adapt conventional systems to computers and other data-processing equipment. They recognized the need to proceed beyond the primarily theoretical interest in information retrieval that had characterized the earlier period. In this second phase also, equipment manufacturers, who now covered a much broader spectrum, endorsed the theoretical trend that was already underway and significantly increased their research work in the information area.

More recently government has been a leading proponent of research aimed at improving, on a national scale, the coordination of information processing, storage, retrieval, and display techniques. Abstracting, translation, and storage of scientific data have received major emphases.

Along with these developments has come a subtle but significant shift in thinking. This is the broadening of the definition of information services to include countless applications in daily business life as well as in the more esoteric fields of scientific technology. As a natural consequence of such change, there has been—and continues to be—growing recognition of the need to integrate information processing and management decision-making into one total system. Terms such as total-information systems, management-information systems, management-intelligence systems, command-and-control systems, and Program Evaluation and Review Techniques (PERT) are now widely used in the business press and management journals as well as in technical journals dealing with information-processing equipment. In addition, practically every major conference dealing with data-processing equipment during the last two years has devoted one section to information retrieval and/or information services.

Information-retrieval techniques are also finding increasing use in the legal profession, hospital administration, medical diagnosis and research, analysis of drug prescriptions and pharmaceutical data, transportation reservations, and freight-car scheduling.

As a result of combined action and change in both the conceptual and hardware areas, information processing has progressed from theoretical consideration as a commodity in R & D fields to acceptance as a vital component in the administration of large and complex business organizations. A wide spectrum of systems equipment, ranging from the modest price and capacity of the Termatrex and Minimatrex of Jonker to the size and scope of a Magnavox Media or IBM Walnut, is now available. The range of capabilities extends from limited systems primarily concerned with providing mechanized, bibliographic access to those designed for remote, visual display and hard-copy output.

In the future, progress both in the intellectual and the equipment areas may be expected. There is still much to be done in the intellectual area in these fields: mechanization of classification and indexing; automatic abstracting and interpretation of texts; new teaching programs and development of standardized methods for communicating thought and meaning; and correlation of human thought processes with mechanical devices and artificial intelligence systems. In the equipment area advances can be expected in

the following fields: character recognition and optical inputs; miniaturization and the combining of computer techniques with techniques for high-density storage and retrieval; increased use of random access equipment; special software packages for information processing; increased use of teleprocessing techniques; and remote facsimile or other means of reproducing source documents.

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Coming Events

The 39th Annual Convention of the CATHOLIC LIBRARY ASSOCIATION will be held April 16-19 at the Ambassador Hotel in Los Angeles, California. Meetings will have the theme, "The library and the Mass Media."

St. Louis University and Washington University are joint sponsors of the EIGHTH MIDWEST ACADEMIC LIBRARIANS CONFERENCE to be held April 5-6 in St. Louis, Missouri. The campuses of both universities will be used for conference activities. For information, write Andrew J. Eaton, Director of Libraries, Washington University, St. Louis 30.

The third INTERNATIONAL CONGRESS ON TRANSLATION will convene in Dubrovnik, Yugoslavia, August 31-September 7, in conjunction with the fourth Congress of International Translators. Write I. J. Citroem, General Secretary, International Federation of Translators, Rembrand Haan 47, Hilversum, Netherlands.

CURRENT CONCENTRATES Of The Library World

THE MOST important recent development related to the special library is the growth of an information science. . . .

We can visualize a greater division of the technical information field into two types of organizations. The one type is the service concern, which would acquire a bank of cataloged technical information converted into machineable form and used to supply comprehensive mechanical literature surveys for a fee.

The other type of information unit would be the "in house" unit. This group, now freed of many quite mechanical tasks, can concentrate on aggressive and enterprising use of the literature for the specific objectives of their private organizations.

Among the difficulties the advancing technical information function will have to get around is that of achieving an independently active role in the organization structure. . . .

In the administrative sense the function of technical information is often oversimplified into what we used to call line/staff. What happens is that the staff function is considered entirely an optional service without important primary responsibilities of its own. Where this has happened, where technical information is considered almost entirely a service, we run into a raft of operating problems. If technical information is to be staffed adequately for most peak demands, it must have some of its own activities to occupy its personnel strength in off-peak request periods. . . .

Another of the obstacles . . . is a natural reluctance to surrender part of our own self-sufficiency to information specialists outside our organization. . . . Realize how great would be the advantages in having the common activities of the technical information profession performed by service organizations, leaving the competitive, proprietary, enterprising, opportunity-seeking functions to private companies. The competition will be healthy, our efficiency will be greater and the profession will advance. . . .

To sell a management on technical information, we must offer something exclusive, some preferred advantage, something not generally available, to be in competition with what other technical and research units offer.

. . . the technical information specialist who restricts his aspirations to requested service keeps himself from being accepted as a research man and I think this is what he should try to become. . . .

The positive programs toward which technical information is heading will have direct values to research management as well as to the project staff. For example, literature evaluation studies related to specific research programs will be an additional source of scientific judgment on approaches, objectives and prospects of a research project. Work of this nature, done by the technical information unit, is not intended to duplicate that normally done by the research man himself . . . such evaluated literature would not be accepted by the research man, in fact even rejected. The very fact that there is a possible resentment is indication that use of the technical literature under the present system is not up to the level desired. Difficulties of this sort would disappear if research management regularly looked toward technical information as an alternate and internally competing source of background information.

The technical information program of the future will have a larger concern with research and commercial intelligence work.

Extracted from a speech entitled "The Changing Role of the Technical Information Function in Industrial Research," given before the Special Libraries Council of Philadelphia by W. J. Borns, Socony Mobil Oil Co., Inc., and reprinted from the *Bulletin of the Special Libraries Council of Philadelphia and Vicinity,* November 1961, p. 15.

Special Library Services—Current Thinking and Future Trends

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LIBRARY TRENDS, in October 1952, summarized current trends in special libraries.[1] A number of the articles defined special librarianship mainly, as is only proper and right, in terms of services. A decade has now passed, and it is appropriate to consider trends and current thinking from 1952 to 1962.

The question "What is special librarianship?" is still a topic of great interest to special librarians. Thinking in the late 1950's echoes Henkle's definition of 1952,[2] that the primary characteristic of special librarianship is not so much the subject content of the collection or the type of organization in which the library is operating, not the particular personnel it serves, but rather the kind of service it gives. Rothstein[3] sees no reason why service of this type could not be rendered on the same scale and with the same success in the social sciences and the humanities as it is in science and technology.

The emphasis on information is also apparent when J. E. Wright[4] explains that what makes special libraries *really* different is that they file information rather than material, draw attention to its existence, and so evoke demand for it. The subject need not be scientific, it may be related to law, banking, or needlework, but the need will be for pertinent, factual, and accurate information. The inquiry itself will be a request for information, not for a particular source known by the inquirer to contain that information. Thus the broad objective of special libraries is to provide information needed, when needed, and in the form in which it is needed.[5]

Modern management has identified a number of more specific objectives. They vary with the size and philosophy of each organization but in general include the following responsibilities: to keep abreast of the literature in the field of activity or interest generated within as well as outside the organization; to present this information in effective, usable form; and to achieve these objectives promptly and efficiently.[6]

A similar approach to objectives is expressed by N. T. Knox of Esso,[7] who notes that the primary purpose of an industrial research library or information group is to help the research man stay ahead or abreast of his research contemporaries so that he can keep his company economically sound. The decision to establish a library in industry is nearly always based on economic grounds; culture is incidental. These ideas agree with Henkle's[8] thinking in 1952, that the roots of the characteristic demands that have to be met by the special library are partly economic and partly derive from the cumulative character of science.

Lowry[9] looks at the library as a communications system and identifies a broad objective that applies to any type of library and is both "obvious and simple"—to bring the reader to the books.

Functions and Services

On the basis of the objectives described, several functions are clearly identified by the profession, which when carried out provide the service wanted. According to Foskett,[10] while it is generally agreed nowadays that the information function is important, great controversy continues to rage over what that function actually is. Interestingly enough, I could find no indication of this controversy in the literature. Instead, there seems to be general agreement about functions, and current controversy centers around whether the sum total of these functions should be called special librarianship or documentation.

Services are divided by Foskett[11] into two groups—those arising from user demand to be kept informed of new developments and those arising from the need for information

on specific points on request. It is his opinion that the person who organizes and performs all these services has taken librarianship to its most advanced state but has not founded a new and qualitatively distinct profession. The main divergence from the traditional role derives from the demand for an active service and active anticipation of demand.

Spitzer and McKenna[12] point out that while many large organizations have set up their information units on the divisional level, good technical information service can be rendered even in very small organizations. A compact reference collection of a few hundred books yields a great deal of information in the hands of a librarian who knows how to make full use of it.

Gray[13] distingushes two principal kinds of procedures used to accomplish the information function—those involving automatic dissemination of documents or information about documents and those that involve supplying information in response to requests. This parallels Foskett's thinking.

The consensus of the literature gives the following specific functions and services:

Selection, in terms of needs and the anticipation of needs.

Acquisition of information in various physical forms.

Organization and subject analysis of the acquired information, placing the information under bibliographic control in terms of information requirements, retrieval systems, and information use (storage).

Dissemination of information, which may be automatic or in response to specific requests. Automatic dissemination means that the librarian must not be content to await requests from users but must notify them of information relating to their interests. Publicizing of resources can be achieved through abstracts, resumes, bulletins, reports, bibliographies, contacts with individuals, and so forth.[14] Goodwin[15] carries this idea further by saying that the ideal information service would know what the scientist wanted even if he himself did not. It would call the attention of the scientist to developments in which he is not now interested but in which he might become interested. Dissemination of information on response to specific requests involves searching the literature, presenting the findings, and reference work (retrieval).[16]

Bird[17] thinks that all the processes in the library should be considered from the point of view of their contribution to the successful answering of inquiries. Cunningham and Grinnell[18] consider the efficiency of the reference service (using the term broadly) as the yardstick by which the library's achievement can be measured. Even a good collection will not be fully utilized unless the library staff is competent to aid readers to obtain maximum information from its resources. Readers should be able to obtain not only what they originally sought but, if it is desirable, additional information. They should leave the library "with their store of knowledge enriched beyond anticipation."

Locating the materials and presenting them in usable form. In this area Lowry[19] sees future use of facsimile transmission systems, and Foskett[20] envisions mechanical translation centers that would produce "approximate" translations to be improved and edited by the individual libraries.

Foskett[21] brings out several important points relating to some of these services. Selection and evaluation in the sense of knowing whether or not the information is related to the work of the company or the individual is the library's function; evaluation on scientific grounds should be left to the individual scientist, i.e., materials are selected for possible use, and it is up to the specialist to decide its actual value to him. The library acts "as a filter not as a barrier."

Rockwell and Longnecker,[22] on the contrary, state that the critical evaluation and creative use of information is not the exclusive job of the laboratory scientist but can be shared with him by the information specialist. When working as a member of the team, the librarian is responsible for the bibliographic preparedness of the team; he uses the literature on behalf of the others, working in the library instead of the laboratory. The success of his service will depend on the extent of his knowledge of the interests of his colleagues.[23]

Foskett[24] identifies an educational function, usually not associated with special li-

braries, which is clearly distinguished from the information function. The latter provides information for experts; the former provides specialized materials for nonexperts. He compares this function with the public library's advisory service and thinks that it is easier to perform in a special library because the clientele is more intimately known. He strongly favors the development of this educational function. In Britain it evolved from the educational programs started in industry after World War II for returning servicemen, which were later expanded into regular training programs within industry.

Cohan and Craven,[25] in their study of science information personnel, list 12 elements that constitute the presently accepted task of the science information specialist: administering, locating, selecting, and acquiring materials; descriptive cataloging; subject analysis; abstracting; performing reference work; literature searching and bibliography; transmission and copying of materials; and translation and conversion of information into machinable form.

It is interesting to consider for a minute the other side of the picture. A group of 157 scientists was recently asked to comment on special library service. Some of the more important points they made were: librarians should publicize their services, librarians should notify users individually of literature of interest, and there is a need for more and better copying facilities.[26]

Relationship to Documentation

A frequently raised question in the literature is concerned with the relationship of librarianship with documentation. Shera[27] defines documentation as that aspect of librarianship concerned with the organization and dissemination of graphic records for their most efficient use within and among groups of scientists, to the end that they will receive, in a manner as effective as possible, the data and other information that they require for the promotion of their work.

Shaw[28] regards documentation as a complete-cycle system of providing information, which consists of the following phases:

1. Information requirement
2. Locating probable sources (searching)
3. Locating the materials (in the collection or in other collections)
4. Obtaining the materials
5. Examination and preliminary selection of the materials
6. Transmission of information to the user in the needed form

All these are differentiated from general library work by being more intensive and in having a distinct relationship to the specialized needs of the particular users. As far as the functions of special libraries are concerned, they coincide completely or partially with those of documentation, depending on how narrowly or broadly a particular librarian or documentalist views his field.[29]

The gap between documentation and library practice is narrowing as librarians are becoming more and more conscious of the opportunity to serve dynamic information requirements, and the documentation field pays increased attention to the well-learned lessons of librarianship in designing and operating systems for exploiting recorded knowledge. This trend was already foreseen in 1956 by N. Harlow[30] when he pointed out that documentalists should be regarded as "we" not "they" and that librarians "are likely to have the best training of all documentalists."

Future Trends

As far as the future is concerned Eugene Jackson[31] sees an increase in the proportion of special librarians to research workers because of the greatly increased volume of technical literature, the progressive need for more detailed information, and the compressed time cycles faced by research programs. The wide use of computers for information retrieval work will result in need for more rather than for fewer librarians.

Some of the trends identified by Adkinson[32] are: continued rapid expansion in the number of special libraries; increased introduction of mechanized techniques for information handling problems; and the injection of the librarian into the information process at a spot much closer to the origin of scientific and technical information. The

librarian will not only be responsible for seeing that both old and new information from external sources promptly reaches the people who should have it but will often have to organize internally produced information for both internal use and outside distribution. Other probable trends are to be found in the development of specialized information centers and the advent of the "who is doing what" center.

Foskett[33] selects the opaque "library sized" Microcard as the main microform of the future because of the possible development of inexpensive, portable readers.

Kent[34] visualizes a new type of library, which will have a collection of analyzed and encoded published literature in a form ready for mechanical exploitation. These new types of libraries will be subscribers to "machine feed" produced by centralized processing agencies, which will acquire, analyze, and encode the scientific literature of the world.

By 1980 it will be impossible to distinguish between special library service and documentation. A merger will have taken place but "the surviving member will not need a broader charter than the SLA objective of *Putting Knowledge to Work*. . . ."[35]

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Z-39 Today: Its Work and Its Subcommittees

MRS. ANNE J. RICHTER, Director, Book Editorial Department, R. R. Bowker Company
SLA Representative and Vice-Chairman, American Standards Association,
Sectional Committee Z-39 on Library Work and Documentation

NEVER IN THE NEAR quarter century since its organization in 1939 has the Z-39 Sectional Committee of the American Standards Association (ASA) been more active. This impetus has come not only from the growing realization in the profession of the need for standardization on library work and documentation, both national and international, but from the new resources made possible by the grant from the Council of Library Resources and the National Science Foundation.

This grant, given in 1961, made possible the appointment of an Administrative Associate (the position has been ably filled by Marguerite von Geyr since August of that year) and attendance at international meetings by American delegates representing Z-39.

As the national standards body of the United States, the ASA is the American member of the International Organization for Standardization (ISO) whose objective is: "to promote the development of standards in the world with a view to facilitating international exchange of goods and services and to developing mutual cooperation in the sphere of intellectual, scientific, technological, and economic activity." ISO Recommendations do not become mandatory for the participating countries but they do constitute strong recommendations for voluntary adoption as national standards by all countries.

At this time the ISO program has 107 active projects under way, of which the United States is participating in 62 and holds the secretariat on nine of these. Forty-five member countries are represented, and the headquarters are in Geneva. The General Assembly meets every three years, and an elected Council, of which the ASA is a permanent member, more often. Technical Committees meet every two years, and it is TC/46 that

Officers of the ASA Z-39 Sectional Committee at a recent meeting. Left to right: Mrs. Anne J. Richter, Vice-Chairman, R. R. Bowker Company; Robert E. Kingery, Chairman, New York Public Library; Marguerite von Geyr, Administrative Associate; Harold Oatfield, Secretary, Charles Pfizer and Company.

deals with library work and documentation.

At the Ninth Plenary Meeting of TC/46 held in Paris, June 25-28, 1962, Z-39 was able to be represented in strength for the first time. Robert E. Kingery, Chairman of Z-39 and Chief, Preparation Division, New York Public Library, headed the delegation comprised of Henry J. Dubester, Chairman of Z-39 Subcommittee on Bibliographical References and Chief, General Reference and Bibliography Division, Library of Congress; and Dr. Jerrold Orne, Chairman, Z-39 Subcommittee on Transliteration, and Director of Libraries, University of North Carolina. (Dr. Orne had also represented Z-39 in the summer of 1960 at a meeting of TC/37 in Berlin, on Terminology.) Bernard Fry, Deputy Head, Science Information Service, National Science Foundation, attended the 1962 meeting as an observer.

Even so, this delegation was not large enough to cover all working groups. Mr. Kingery, covering Working Group C, which dealt with "Typical Word Abbreviations in Bibliographical References," reports agreement on some 65 abbreviations of generic names and periodical titles, representing the shortest abbreviations permitted. It was proposed that such abbreviations selected by this international group be pre-empted from other assignments.

Mr. Dubester, working with Group A, reports that ISO is to issue a Recommendation for Bibliographic References that is permissive and will serve as a basis for a proposed American standard.

Dr. Orne attended Working Group D on Transliteration. With the long-range question of revising the existing ISO R-9 International Standard on Transliteration of Cyrillic and Greek Characters before them, the English-speaking delegates are working jointly. A British standard for transliteration from modern Russian is now before Dr. Orne's Subcommittee. The American delegation also undertook to redraft the introduction to R-9.

The responsibility for a proposal on standardization for the Romanization of Chinese was assigned the French delegation, while the American group was asked to prepare a working draft on the Romanization of Japanese. Working Group B on Bibliographical Cards, Indexing, and Title Leaves unfortunately had no American representation. The next meeting of TC/46 will be in 1964, and Mr. Kingery has extended an invitation to hold the meeting in the United States. Action was referred to the Secretariat.

In addition to this international activity, the 13 national subcommittees of Z-39 have been busy on their assignments. Four areas have been recommended and selected for intensified work: Abbreviations for Periodicals Titles, Abstracts, Layout of Periodicals, and Transliteration. Mr. Kingery and Miss von Geyr have met with several of the groups and concrete results are forthcoming. Among the most important is the long awaited Standards on Abbreviations of Periodicals. James L. Wood, Librarian of Chemical Abtracts Service, and his committee of ten, have submitted their recommendations for processing, and the document, which will consist of an introduction, 16 basic rules, plus abbreviations for some 2,500 words appearing frequently in journal titles, should be ready for distribution shortly.

Another important development is the work of the Subcommittee on Statistics. On the recommendation of this subcommittee, Z-39 formally endorsed the ALA-SLA Statistics Coordinating Project, which now has been conditionally approved by the CLR at its fall meeting.

The currently active subcommittees and their chairmen are:

Z-39/SC 1—International Subcommittee
Robert E. Kingery, The New York Public Library. Its members are chairmen of all other subcommittees.

Z-39/SC 2—Subcommittee on Machine Coding
Dr. Irving Sher, Director of Research, Institute for Scientific Information

Z-39/SC 3—Subcommittee on Abbreviations for Periodicals
James L. Wood, Librarian, Chemical Abstracts Service, Ohio State University

Z-39/SC 4—Subcommittee on Bibliographic References
Henry J. Dubester, Library of Congress

Z-39/SC 5—Subcommittee on Transliteration
Dr. Jerrold Orne, Librarian, University of North Carolina

Z-39/SC 6—Subcommittee on Abstracts
Anne McCann, Librarian, American Pharmaceutical Association

Z-39/SC 7—Subcommittee on Library Statistics
Frank Schick, Assistant Director, Library Services Branch, Office of Education, U.S. Department of Health, Education and Welfare

Z-39/SC 8—Subcommittee on Proof Corrections
Karl Brown, St Martin's Press

Z-39/SC 9—Subcommittee on Terminology
Dr. Jerrold Orne, Librarian, University of North Carolina

Z-39/SC 10—Subcommittee on Layout of Periodicals
Ivan A. Given, Editor, *Coal Age*, McGraw-Hill Publishing Company

Z-39/SC 11—Subcommittee on Finance
Henry J. Dubester, Library of Congress

Z-39/SC 12—Subcommittee on Indexing
Mrs. Anne J. Richter, R. R. Bowker Co.

Z-39/SC 13—Subcommittee on Trade Catalogs
Dr. Karl Baer, Librarian, National Association of Home Builders

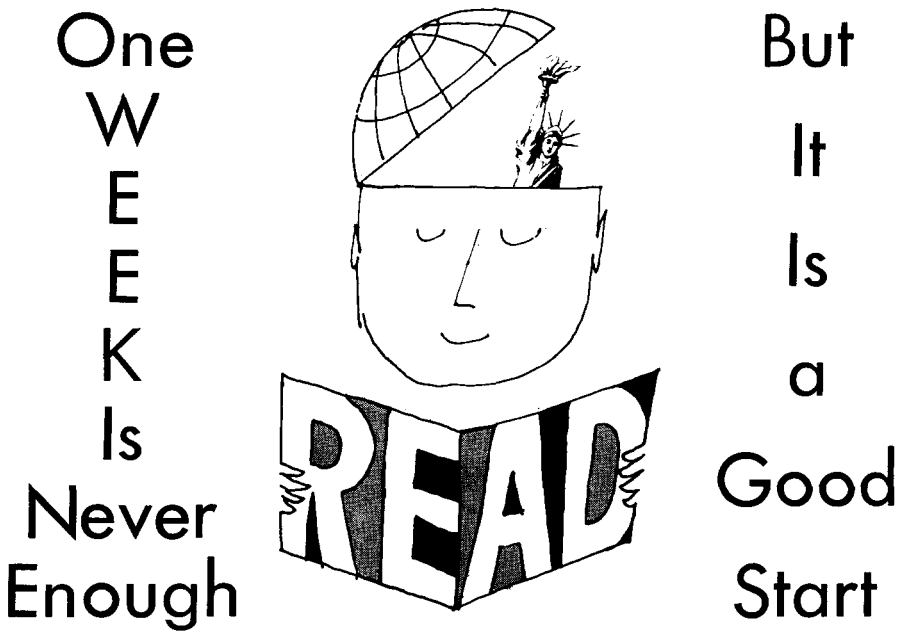
Z-39 now has 31 member groups represented in its Committee: American Association of Law Libraries, American Book Publishers Council, American Chemical Society, American Documentation Institute, American Library Association, American Textbook Publishers Institute, Associated Business Publications, Association of American Library Schools, Association of American University Presses, Association for Computing Machinery, Association of Research Libraries, Book Manufacturers' Institute, Catholic Library Association, Classification Research Study Group, Council on Library Resources, Jewish Librarians Association, Joint Committee on Microcards, Joint Committee on Pharmacy College Libraries, Library Binding Institute, Library of Congress, Library Services Branch, Medical Library Association, National Association of Home Builders, National Business Publications, National Research Council, National Science Foundation, Society of American Archivists, Society of Technical Writers and Publishers, Special Libraries Association, Technical Publishing Society, and U. S. Navy Department—Bureau of Ships. In addition, the following are members-at-large: Frazer G. Poole, Robert E. Kingery, Dr. Maurice Tauber, Harold Oatfield, and Louis D. Sass; and there is a representative of the ASA Sectional Committee on Photographic Reproduction of Documents PH-5.

Ruth E. Mason is the American Standards Association staff representative providing invaluable liaison for Z-39. Other ASA groups with which SLA has affiliation are the PH-5 Sectional Committee on Photographic Reproduction of Documents, Z-84 Sectional Committee on Glossary of Environmental Terminology, and Z-85 Sectional Committee on Library Equipment and Supplies. SLA members are also serving on several Z-39 subcommittees—Bibliography, Machine Coding, and Transliteration.

SLA Sustaining Members

The following organizations are supporting the activities and objectives of the Special Libraries Association by becoming Sustaining Members for 1963. These are additions to the Sustaining Members listed in *News and Notes*, January 1963.

AEROJET-GENERAL CORPORATION
ARGONNE NATIONAL LABORATORY
ATLAS CHEMICAL INDUSTRIES, INC.
BELL TELEPHONE LABORATORIES
R. R. BOWKER COMPANY
CARRIER CORPORATION
DOW CHEMICAL LIBRARY
FEDERAL RESERVE BANK OF NEW YORK
FORD FOUNDATION
HARVARD GRADUATE SCHOOL OF BUSINESS ADMINISTRATION
IDAHO STATE COLLEGE LIBRARY
LOCKHEED MISSILES & SPACE DIVISION
NATIONAL BANK OF DETROIT
NEW YORK PUBLIC LIBRARY
PENNSYLVANIA STATE LIBRARY
SQUIBB INSTITUTE FOR MEDICAL RESEARCH
STECHERT-HAFNER, INC.
UNIVERSAL OIL PRODUCTS COMPANY
UNIVERSITY OF MINNESOTA LIBRARY



Here's What We Did During National Library Week 1962

THE PUBLIC RELATIONS Department issued an announcement on the joint meeting of the Greater St. Louis Chapter of Special Libraries Association and the St. Louis Library Club, which was held at Monsanto. Never before had our PR Department made such an announcement. As you well know, in a company of this size the engineer, chemist, everyone—all have their "Weeks" too, so I guess they shared my enthusiasm for NLW.

Some 241 industrial and public librarians, and instructors and students of library schools attended this meeting. The attending librarians visited the new Monsanto Technical Information Center where they had a first-hand look at the variety of communications techniques employing the latest machines and methods for handling literature in books, magazines, and reports. They saw how such techniques are revolutionizing libraries to keep up with the fantastic growth of literature and documents needed to enable research and industry to keep abreast—and ahead of the technology. This was reported in the evening edition of the *St. Louis Post Dispatch*, April 12, 1962.

New books were displayed on company bulletin boards. NLW materials were displayed in the entrance to the cafeteria and main and private cafeterias. Throughout the company's lobbies NLW mobile and table tents were displayed. An exhibit was set up in the new Research Center Lobby displaying publications of the Information Center and the St. Louis County Library. Posters of the national SLA activities and a list of local special libraries were on display on a huge table at the entrance of the Information Center along with SLA pamphlet material.

NLW press release was sent to some 51 local company house organs or newspapers and was also published in the St. Louis ACS section magazine. NLW postage meter slugs were put on all out-going mail. Approximately 1,000 each of the NLW bookmarks and pocket calendars were distributed with charge-outs and routings. An orientation program was held April 12, 1962, for new employes of the Center to help acquaint new personnel with the Information Center staff, facilities, and available equipment. This is a continuing program with at least one scheduled every month.

MARGARET E. MADDEN, Librarian, Technical Information Center
Monsanto Chemical Company, St. Louis, Missouri

WE TOOK THE OPPORTUNITY of National Library Week to show the community of Covington, Kentucky that St. Elizabeth Hospital had both a medical and a School of Nursing Library. We wanted to show the public, visitors, and patients that the libraries played an important part in the "Care of the Patient." There is much confusion about the purpose and function of medical and school of nursing libraries. I am sure after seeing our displays, the community as a whole and the entire hospital personnel is better informed about our library facilities.

The theme of our exhibit was to depict the role of the libraries in patient care. To do this, displays were put in the school library, the medical library, and the hospital bulletin boards on the ground floor and main lobby. The dietary service would not be left out of things; they ordered book tents and book calendars to use on the cafeteria tables and to add a decorative touch to the patients' food trays. The chief pastry chef baked beautiful cakes daily, in the shape of books or bound medical journals, with the emblem of National Library Week as part of the frosting.

The School of Nursing displays were comprised of:

1. A double-paneled poster on a black backdrop showing a patient being admitted, being cared for, and being released from the hospital. Various black and white photographs depicted the library as a teaching aid to the patient's care and recovery. The theme showed the libraries' part in the road to recovery. *(See Photo.)*
2. Students painted the official symbol of National Library Week on the library windows. As these windows are the only ones facing the main approach to the hospital, they brought many visitors to the libraries.
3. Another display showed dolls dressed as student nurses, one for each class, and the final goal of every student, the Registered Nurse at the top. This exhibit showed books as being "So Many Steps to Knowledge" in attaining the goal, the R.N.

Raymond E. Hadorn

The medical library displayed a single-paneled poster showing its role in patient care by use of small photos of various teaching staff, medical staff, and student nurses using the library. Attached to the poster were letters explaining the purpose and function of each library. These letters are a part of our library orientation and are given to each new member of the medical and teaching staff and new students. On one of the tables in the medical library, we put a special exhibit of all the published works of our medical staff, plus the scientific programs prepared by the staff, interns, and residents. This display also showed the bibliographical work done by the librarian in helping the staff prepare these papers and programs.

We held open house in the libraries each day from 8:30 a.m. to 10 p.m. The use of the window display, posters, book tents, calendars, and other displays throughout the hospital showed visitors, patients, hospital personnel, and members of our community that we were celebrating National Library Week. I estimate we had 900 visitors; many were visiting hospitalized patients, some were neighbors in the vicinity of the hospital and school of nursing, and some were ambulatory patients, but they were all attracted by our displays. Of our 720 hospital personnel, 680 visited the libraries during NLW.

ELVA ROCHE, Librarian
St. Elizabeth School for Nursing, Covington, Kentucky

JUST AS THE LINKS in a chain depend upon each other, the scientist depends upon the industrial library, and the industrial library relies upon the public library for resources. No special library can ever be large enough to meet the demands for the information it receives. Featuring this theme the Technical Library of the Robert A. Taft Sanitary Engineering Center had a display in the Cincinnati Public Library's Science and Industry Department during National Library Week.

The exhibit, consisting of two large colored (turquoise and rust) peg boards carrying copy and five illuminated 4 x 5-inch color transparencies of the Sanitary Engineering Center's Library, revealed that access to a technical library is one of the essential tools of every research scientist and engineer. New methods required by today's rapid pace of science were also shown. It was also disclosed that all new research projects must begin with the review of other accomplishments in the same field. The display, placed in an advantageous spot at the entrance of the Science Department, was seen by more than 8,000 people from a 50-mile radius surrounding Cincinnati. Literature distributed from the display area included NLW book marks and leaflets from the Sanitary Engineering Center.

MRS. ESTHER E. NORTON, Librarian, Technical Library
Robert A. Taft Sanitary Engineering Center, Cincinnati, Ohio

THE CIVIL ENGINEER Corps Officers' School is a postgraduate school providing instruction to several hundred newly commissioned officers en route to permanent stations throughout the world, senior officers, and civilians of all services.

National Library Week offered a wonderful opportunity to publicize the library, which has a comprehensive collection of nuclear weapons effects along with many references of scientific effort in the engineering field. The Library celebrated NLW with an open house for all personnel on the Naval Construction Battalion Center and for community librarians by invitation. Techniques used to point up references that scholars have developed and to draw attention to other collections in the library were:

1. A mobile display with the 1962 NLW theme was made and hung, centered, in front of a large bulletin board on which bright blue shafts of cardboard directed the eye to the mobile display. On the shafts of blue were mounted pictures (from *Library Journal* covers) of library patrons of all ages, also directing attention to the center display. Strategically placed on the board was a map showing the forecasts of a decisive decade —the communist world and the non-communist world 1962—an editorial "What's Right with America" by W. M. Kiplinger, book jackets, and book lists of suggested reading on democracy versus communism.
2. On Thursday afternoon tapes of lectures on communism were presented by a member of the academic staff. Coffee and cookies were served.
3. Two other displays of books and publications, "Atomic Defense Engineering" and "Computer Technology," were featured.
4. A guest register signed by all visitors gave each a chance for the door prize—a copy of the new and popular "Trachtenberg's Speed System of Mathematics."
5. AND there were candy and nuts for refreshment throughout the Week.

Besides catching the eye of the students and staff of the School, the library was visited and the exhibits were viewed by personnel from other departments on the Center and a number of outsiders. We feel the concrete results of the NLW program increased awareness of the materials available in the library, good communications with users, excellent public relations with all personnel, encouragement of science faculty to enlarge their knowledge in the social sciences, and stimulation of thinking along the line that a better informed America is a stronger America, and knowledge is a mighty weapon more durable and more effective than hate.

MISS E. FRANCIS MASON, Librarian
Civil Engineer Corps Officers' School
Port Hueneme, California

This Works For Us . . .

A Journal Cross File

"How many journals does the library have in the field of biology, chemistry, metallurgy, or physics? Which of these journals contains abstracts? Are these publications written in English or in a foreign language? How many are published by professional societies?"

Until recently, the answers to these questions were found by examining the library catalog and by inspecting each journal. However, the library catalog did not provide complete information on journal content and language of publication, and the checking of each journal proved to be tedious and time consuming. To give Battelle library users quick and complete holding information, a journal cross file was prepared and placed near the current periodicals. This new reference tool consists of three sections: journal titles, subjects, and issuing associations.

A multiple-entry card-filing system is followed. White 5 x 8-inch cards are used for regular journals, green cards of the same size for abstract journals. A master card is made for each journal, and reproductions are made equal to the number of file entries represented by black underlines on the master card. One underline on each of the six cards is reunderlined with colored ink prior to filing to indicate file location. This eliminates the need to type added entries.

The word, "Title," refers to the names of periodicals as used when placed on shelves in the library reading room, for example, *American Chemical Society Journal.* Inverted names, abbreviated names, popular names, and former names are included under the heading, "Other Titles," i.e., *Journal of the American Chemical Society, Journal of the A.C.S.,* and *A.C.S. Journal.*

Different colored underlines are used for titles, supplementary titles, subjects, and associations. The multi-colored underline system allows for easy removal and re-entry of cards. Cards that have titles and additional titles underlined (one blue or brown underline, respectively, per card) are interfiled alphabetically and placed in the first section of the file. The second section of the file is an arrangement of cards interfiled alphabetically with subjects and related subjects underlined (one red underline per card). The third part of the file comprises cards representing journals published by professional societies, industrial concerns, government agencies, and educational institutions. These cards are also underlined (one green underline per card) and alphabetically interfiled. Cards can be removed and later re-entered merely by matching the colored underline with the corresponding section of the file.

Another feature of the cross file is the ease with which it can be kept updated.

JAMES H. SCHWARTZ, Technical Library
Battelle Memorial Institute, Columbus, Ohio

(Mr. Schwartz has been employed at Science Information Services, Abbott Laboratories, North Chicago, Illinois, since February 1, 1963.)

J 53

Title Journal of Applied Physiology

Other Titles Applied Physiology Journal

Main Subject Physiology

Related Subjects Biology
Medical Science

Language(s) English

Special Contents:
(Abstracts, Book Reviews, Etc.)

Sponsoring Institution or Publisher and address American Physiological Society
9650 Wisconsin Avenue
Washington 14, D. C.

Frequency of Publication Monthly

Indices Subject
Author

Call Number QP1 J82A

Means of Obtaining Subscription

Master file card for the "Journal of Applied Physiology" indicates that it is published by a professional society and is represented by one inverted title and two related subject entries.

Have You Heard . . .

Physicist New Dean of Library School

Dr. Don R. Swanson, former manager of the Synthetic Intelligence Department at Ramo Wooldridge, Inc. in California, became the eighth dean of the Graduate Library School of the University of Chicago this month. Dr. Swanson is an authority on computer applications for information storage and retrieval systems and is currently serving as a member of a panel investigating the possibility of automation in several Library of Congress operations.

Dollars for Scholars

A campaign that will enable every member of SLA to personally contribute toward the education of a future special librarian was undertaken recently by the Scholarship and Student Loan Fund Committee. A mailing of about 5,800 envelopes went out from Association Headquarters to the membership requesting that each person contribute "Dollars for Scholars." The 1963 Committee, under the chairmanship of Gertrude Bloomer, selects several deserving individuals interested in special librarianship for scholarships and loans each year to enable them to study at accredited graduate schools of library science.

New and Revised ASTIA Thesauri

To comply quickly and selectively with requests for its vast storehouse of information, the Armed Services Technical Information Agency has recently revised its *Thesaurus of ASTIA Descriptors* and published for the first time, the *ASTIA Chemical Thesaurus.* A thesaurus on semiconductor devices is in preparation. These micro-thesauri, which will supplement the master *Thesaurus of ASTIA Descriptors,* carry detailed descriptors for a particular subject along with identifying terms. The completely revised *Thesaurus* is available free of charge to government agencies and their contractors and on sale to the public at the Office of Technical Services in Washington, D. C.

Stebbins Memorial Library Scholarship

Syracuse University was the recipient of a $500 gift given anonymously in memory of the late Mrs. Kathleen B. Stebbins, former SLA Executive Secretary. The money is to be awarded to a library school student interested in special librarianship.

New Service by Biological Abstracts

A Professional Relations Office has been established by *Biological Abstracts* to provide biologists and educators in its most effective use. The Office will also serve as a liaison between the press and developments in the field. Ann L. Farren, Assistant to the Director at Biological Abstracts, has been named to head the Office.

$1 Million for Medical Library

Columbia-Presbyterian Medical Center recently received an anonymous $1 million gift to be used for the construction of a new medical library for Columbia University's College of Physicians and Surgeons in New York City. It was also stipulated that the library be called the Augustus Long Medical Library after a trustee of the hospital and a member of the Medical Center Development Committee. The library is part of a $50 million building program.

New EDP Courses Available

Friden, Inc. is offering, for the first time, courses in government data processing, insurance agency data processing, computer input/output programming, and output programming for Friden add-punch numeric encoding as part of its free educational program this year. Anyone with business systems responsibilities may attend classes and receive all materials, manuals, training aids, and luncheons gratis. Five courses on programming and data processing given last year are being expanded in 1963. Course descriptions and procedures are included in a 24-page booklet available from Friden at Dept. 946, 97 Humboldt Street, Rochester 2, New York.

LTP Designed Box on Market

Open-top, cut-corner pamphlet boxes, designed by the ALA Library Technology Project, are being sold by Bro-Dart Industries. These pamphlet boxes were designed to be a substantial improvement to similar ones on the market and sell at one-third to one-half their cost. The boxes, which are made of fibre board, can be stored flat and set up or knocked down easily. Three sizes are available: 7½" deep by 9" high x 2" wide at 35 cents each; 7½ x 10¼ x 4 at 42 cents; and 9 x 11 x 4 at 45 cents. A minimum order of any assortment is 12. Label holders for the boxes come in two sizes: 1¼ x 2 at three cents each, and 3 x 2 at four cents; and they come with white card inserts and pressure-sensitive backing. They are sold by the dozen in any assortment.

Medical Library Internships

The Biomedical Library of the University of California Medical Center, Los Angeles, is offering three training fellowships in medical librarianship. The one-year program, now in its third year, includes work in foreign languages, documentation, biological sciences, and history of science. The Medical Library Association has approved the curriculum with a level II certification. Applicants must be United States citizens or applicants for naturalization, and hold Masters degrees from ALA-accredited library schools. Applications should be submitted before March 30 to Louise Darling, Librarian at the Biomedical Library.

Member in the News

JOSEPHINE I. GREENWOOD, Librarian at Consolidated Edison Company of New York since 1917, retired recently. She is a former SLA Treasurer and New York Chapter Director. Miss Greenwood continues her Association activities by working on a special assignment of the Archives Committee.

In Memoriam

CHARLES STOLBERG, current Chairman of the New York Chapter Newspaper Group and Dean of the Newspaper Division, died recently. He was Chairman of the Newspaper Division in 1943-44 and particularly active in the New York Chapter Newspaper Group where he held many offices. Mr. Stolberg was Librarian of the New York *Sun* from 1919-49, and then became a researcher for the law firm of Henry F. Dressel. He created crossword puzzles for newspaper syndication, collaborated with John K. Winkler on bibliographies of famous men, and aided Ward Morehouse in research. Mr. Stolberg was a member of Silurians, an organization of veteran newspapermen.

NLW House Organ Story Available

To help special librarians publicize libraries and encourage their use, Special Libraries Association is distributing an article suitable for placement in company house organs or local newspapers during National Library Week. The approximately 550-word piece was prepared by Gilbert W. Chapman, a man who is very knowledgeable about library problems and objectives. Mr. Chapman, retired President of Yale & Towne Manufacturing Company, is currently President of the New York Public Library and Chairman of the Council on Library Resources. Although complete in itself, the article is developed so that an individual librarian or editor can easily add material on the services or collection of his own organization's special library or on other appropriate library-oriented activities. The article may be used freely in toto or in part, and copies may be obtained from Association Headquarters or Chapter Presidents.

NEEDED

by the SLA Geography and Map Division

Back issues of the "Geography and Map Division Bulletin" for 1962 are in great demand. Past Board members, Division Chairmen, and others, who may have copies they no longer need, are requested to send them to: Robert C. White, University of Illinois library, Urbana.

In particular demand are the following:

February 1961—no. 43
February 1962—no. 47
December 1962—no. 50

Off the Press . . .

Book Review

ASLIB CRANFIELD RESEARCH PROJECT. REPORT ON THE TESTING AND ANALYSIS OF AN INVESTIGATION INTO THE COMPARATIVE EFFICIENCY OF INDEXING SYSTEMS. *Cyril W. Cleverdon.* Cranfield: 1962, 311p. 35s. (Available from C. W. Cleverdon, The College of Aeronautics, Cranfield, Bletchley, Bucks, England.)

In July 1957, the National Science Foundation awarded a grant to Aslib for an investigation, under the direction of Cyril W. Cleverdon, of the comparative efficiency of four indexing systems: Universal Decimal Classification, an alphabetic subject index, a special facet index, and the Uniterm System of coordinate indexing.

The report on the first stage of the investigation, which told of the indexing of 18,000 papers in the four systems, was published in 1960. The controls built into the indexing system included the use of indexers with different experiences, indexing at different rates ranging from 16-2 minutes per document, and dividing the material to be indexed between aeronautical reports and periodical articles published in the United Kingdom, the United States, and other countries.

The current report analyzes the results of the testing of the four systems of indexing and emphasizes the reasons for failure to retrieve source documents by devoting a full chapter to the problem. A future report is tentatively promised to explain the reasons for the retrieval of nonrelevant references by the various indexing systems.

To test the relative efficiency of the indexing done under the four systems, cooperating organizations in the United Kingdom, United States, and Europe were asked to prepare questions based on the documents covered by the project. Some 1,200 queries were received. If the document on which the question was based (the source document) was retrieved, the search was successful. This avoided the subjective evaluation of the relevancy of the retrieved items and made statistical evaluation of the results easier.

To achieve an objective study, Cleverdon carefully refrained from including any of his opinions and conclusions in the report. However, he provides the reader with extensive data (in addition to ten chapters, there are 14 appendices and 57 tables) on which to base his own conclusions. If one compares the highest retrieval percentage possibilities for the lower two systems, and smallest percentage for the apparently better two systems, there is a differential of only 3.2 per cent in their relative efficiencies for retrieval. On the other hand, there is a range of 13.2 per cent between the system with the lowest possible percentage of retrieval and that with the highest possible retrieval percentage. The alphabetical and Uniterm systems made the best retrieval scores.

The effect of the time spent in assessing the subject content of a document and the assignment of the subject descriptors on the success in retrieval should surprise the American library profession and provoke disbelief among the members of the indexing fraternity. While the percentage of retrieval proficiency ranges from 72.9 per cent for indexing at the rate of two minutes per document to 84.3 per cent for that done at 16 minutes, the efficiency of indexing at four minutes is 80.2 per cent. This figure is even higher than that for indexing done at eight minutes. The suggested reason for the drop of efficiency at eight minutes is that the indexers felt free to study the document more closely before making any indexing decisions. The time was inadequate for this and indexing efficiency declined.

Another shocker is that Cleverdon's data does not bear out the commonly accepted assumption that a detailed subject knowledge of the field is necessary to do adequate indexing in physics, metallurgy, or engineering.

The reasons for the failure of the searchers to retrieve the source document were thoroughly investigated and found to be the result of errors in indexing (36 per cent), in searching (15 per cent), in inadequate indexing attributed to insufficient time allowed for indexing (22 per cent), poor questions (17 per cent), and 10 per cent for all other reasons.

There undoubtedly will be some criticism of the investigation because it was not a "real situation" test. To avoid determining relevancy of retrieval documents to the question asked, the Project arranged to have questions built on the documents in the system. If the source document was retrieved in the search, it was considered relevant. The searchers also knew that there was at least one document in the collection for every question. This may have increased the retrieval efficiency recorded for the various systems. On the other hand, the searcher was unable to question the inquirer to obtain more information concerning his request.

But in spite of these potential criticisms, the study is a major contribution to the literature of librarianship. The report will never make the best seller list, but it merits inclusion as a "must" bibliography on every library school's reading list.

G. E. RANDALL, Manager
IBM Research Library
Yorktown Heights, New York

Illinois Chapter Directory

Who's Who and Who's Where in Illinois Chapter, the Chapter's 1962-63 membership directory, is available for $1.25 from Ruth Larson, Librarian, Technical Information Center, Chicago Rawhide

Manufacturing Company, 1301 Elston Avenue, Chicago 22. Checks should be made payable to Illinois Chapter, Special Libraries Association.

New Serials

ADVANCED ENERGY CONVERSION, an international Journal published bimonthly by Pergamon Press, concentrates on the technical and administrative aspects of primary energy sources. The first two issues contain the papers delivered at the symposium, "Thermoelectric Energy Conversion." Annual subscription rate for libraries is $30; individuals, $15.

NEWSLETTER OF THE ROUND TABLE ON LIBRARY SERVICES FOR THE BLIND is a quarterly publicaton of the American Library Association, edited by the Round Table Chairman. The *Newsletter* carries items on publications, materials, personalities, and programs of interest to libraries for the blind and is available gratis from ALA.

SPACE PROPULSION, the first publication devoted exclusively to space vehicle propulsion, is a semimonthly journal published by J. S. Butz, Jr. and Arthur Kranish. Contents include research, development, marketing, production, and operation. Special subscription rate before April 1 is $60; regular yearly rate is $72 from 998 National Press Building, Washington 4, D. C.

SLA Authors

CLUXTON, Harriette M. Optometric Writing. *American Journal of Optometry and Archives of American Academy of Optometry,* vol. 39, no. 11, November 1962, p. 624-35.

MOHRHARDT, Foster E. A Building for the National Library of Medicine. *Libri,* vol. 12, no. 3, 1962, p. 235-9.

RANDALL, Gordon E. et al. *Report of Clarkson College of Technology Library Consultants Committee,* December 11, 1962, 25 p.

Aerospace Abstracts and Indexes

A cooperative effort by the National Aeronautics and Space Administration, Documentation, Inc., and the Institute of the Aerospace Sciences has resulted in the publication of two semi-monthly abstracts and quarterly indexes dealing with the international literature on aerospace science and technology. *International Aerospace Abstracts,* published by IAS on the first and 15th of each month, abstracts and indexes literature from journals, books, and papers and proceedings of meetings and symposia. *Scientific and Technical Aerospace Reports,* issued the eighth and 23rd of each month by NASA's Scientific and Technical Information Facility operated by Documentation, Inc., abstracts and indexes unpublished literature from scientific and technical reports. Both *IAA* and *STAR* utilize the same makeup and indexing techniques for easy reference. Cumulated indexes are published quarterly, with the second quarterly being a semi-annual index and the fourth quarterly, an annual index. Indexing is done by subject, corporate source, author, and report number. Microforms of complete documents will be made available throughout the United States.

New Technical Books Revised

The New York Public Library has changed the format, arrangement, and contents of its publication, *New Technical Books,* with the January 1963 issue. It is being published ten times a year (monthly except for the summer months), and entries will be arranged by broad Dewey decimal classes and numbered consecutively through the year. Emphasis is on American works pertaining to the pure and applied physical sciences and related disciplines, although foreign works will occasionally be included. Each annotation normally consists of the full contents, a descriptive note, and the reviewer's initials. The content range is from the college to the graduate and research levels. Annual subscription price is $3, prepayable, available from the Public Relations Office, New York Public Library, New York 18.

Bell Telephone Libraries Handbook

Bell Telephone Laboratories, Inc. has revised its handbook, *Technical Information Libraries,* for distribution among its employees and interested outsiders. The 24-page booklet includes information on the use, special services, and floor plans of its network of libraries. Free copies may be obtained from W. K. Lowry, Manager, Technical Information Libraries, Bell Telephone Laboratories, Inc., Murray Hill, New Jersey.

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ASSOCIATE LIBRARIAN (SCIENCE AND TECHNOLOGY) to be in charge of the scientific and technological collection of the New York State Library in Albany. Salary: $11,385. Applicants must have graduated from a recognized college or university, completed one full year of professional study in an approved library school and have two years of supervisory or administrative library experience involving responsibility for a large scientific or technological collection and in addition two

more years of satisfactory library experience or satisfactory completion of 60 undergraduate or graduate semester hours in natural sciences, physical sciences, mathematics, or engineering or a combination of the additional experience and 60 semester hours. Nationwide written test on April 6, 1963. For application and announcement, write to New York State Department of Civil Service, Field Recruitment Bureau, Unit 74 A, 1220 Washington Avenue, Albany 1, New York.

CHIEF MEDICAL LIBRARIAN—Required by McGill University June 1963. Minimum qualifications: graduation from an accredited library school and five years' experience, preferably in a medical or science library. Staff of about 20; new medical building soon under construction. Salary commensurate with qualifications. Address inquiries to: Dean Lloyd G. Stevenson, Faculty of Medicine, McGill University, 3640 University St., Montreal 2, Canada.

LIBRARIAN for medium sized new library of National Lead Company, Hightstown Research Laboratories. Applicants should be proficient in library techniques but can be recent graduates of library schools, without practical experience. No scientific background required but preferred. Starting salary range from $6000-$7000. Write: Dr. Otto Konig, Head, Technical Intelligence Dept., National Lead Company Laboratories, P. O. Box 420, Hightstown, New Jersey.

PROFESSIONAL POSITIONS—Open in a college library in New York City in readers' services and technical services. Fifth-year degree from accredited library school required. Starting salary $5,700 or better depending on qualifications. Annual increments, faculty status. Write Box B 101.

PUBLISHING HOUSE LIBRARIAN—The editorial departments of the Christian Board of Publication maintain a research library for the use of editors and copy editors in writing and preparing materials for publishing—local church school curriculum, church journals and books. A librarian is wanted to catalog books and maintain a small library, serve as a resource person to editors, recommend and review books. Library degree not necessary but helpful and would warrant higher starting salary. Membership in a Christian Church (Disciples of Christ) not required but would increase usefulness. Retirement benefits, vacation, attendance at national librarians conventions, plus about $4800 salary. Write Director of Personnel, P. O. Box 179, St. Louis 66, Missouri.

SCIENTIFIC DOCUMENTS LIBRARIAN—Minimum of B.S. degree in physical sciences or engineering. Library school degree or equivalent preferred to organize and maintain collection of corporate research data. Liberal employee benefits. Salary commensurate with professional status. Send details of education and experience and other personal data to: Personnel Manager, Air Reduction Research Laboratories, Murray Hill, New Jersey, 25 miles from NYC. An equal opportunity employer.

TECHNICAL LIBRARIAN — Ethical pharmaceutical company has opening in research library. Training in chemistry is required and the job is primarily indexing and abstracting of patent literature. An equal opportunity employer. Margery H. White, Employment Office, The Upjohn Company, Kalamazoo, Michigan.

POSITIONS WANTED

LIBRARIAN—B.A., M.S.L.S. Now assistant, special business library, seeks position Los Angeles area. Interest in collection containing Spanish and French. Write Box B 96.

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