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Prof. V. I. Siforov is well known for his research contributions in radioelectronics, signal detection and analysis, and the design of advanced communications systems. Among the notable members of the editorial board are Prof. M. A. Gavrilov of the Institute of Automation and Remote Control of the USSR Academy of Sciences, and Acad. A. N. Kolmogorov, Dean of the Mathematics and Mechanics Faculty at Moscow University and Chairman of the International Association on the Use of Statistics in the Physical Sciences. Kolmogorov has won both the Lenin and Stalin Prizes for research on the theory of functions of a real variable, and he also has recently developed a major modification of the theory of information which introduces an algorithmic approach employing recursive functions. Other members of this distinguished board include B. S. Tsymbakov, R. L. Dobrushin, and M. S. Pinsker who have specialized in coding theory and problems of error detection and correction; L. M. Fink and V. N. Roginskii who have contributed significantly in the area of complex signals; M. L. Tsetlin who is renowned for his work in game theory; as well as such well-known researchers in large-scale information and communications systems as O. B. Lupanov, V. A. Uspenskii and A. M. Yaglom.

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Documents the increasingly prominent role played by Soviet mathematical linguists

AUTOMATIC DOCUMENTATION AND MATHEMATICAL LINGUISTICS

Selected articles from Nauchno-Tekhnicheskaya Informatika

Faraday Advisory Editor: L. Cohan, Polytechnic Institute of Brooklyn

Soviet Editor: A. I. Mikhailov

Focuses on experimental methods of analyzing, translating, encoding, searching and correlating scientific and technical information. Covers problems in the development of information languages, classification and indexing, and automatic analysis of texts. Describes new projects in automatic documentation, mechanical translation, mathematical linguistics and information retrieval.

Academician Mikhailov, Director of the USSR Institute of Scientific and Technical Information (VIINITI), is acknowledged to be one of the world's most eminent authorities in the theory and design of information systems. VIINITI employs over 4,000 specialists and has been involved in countless research projects relating to the theory, methodology and automation of scientific and technical documentation. Such leading mathematical linguists as Yu. A. Shreider, G. E. Velduts and I. A. Mel'chuk have directed in-depth research dealing with problems of generative-transformational grammar, semantic analysis and synthesis, syntactic and morphological analysis and natural-language to information-language conversion. Under the guidance of Prof. D. A. Bochvar, one of the most outstanding Soviet specialists in the field of mathematical logic, a special Semiotics Division was created at the Institute to conduct research in information analysis, logical semantics, structural linguistics and other disciplines which are designed to make available to the new science of informatics the exact methods currently employed to create automated information systems.

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For several decades, France had developed too rapidly for the government to keep pace. A new bourgeoisie was without political voice, angered and frustrated. A new class, industrial workers from the burgeoning economy, was without social place under the Ancien Régime. Lagging agricultural techniques subjected peasants, virtual vassals, to recurrent famines. Gigantic public debt, much increased by aid to the American Revolution of 1776, added to the economic crisis.

While revolutionists reached for a perfect State, Louis XVI held the throne. It was an unfortunate moment for an indecisive King whose Queen was the capricious daughter of Austria’s matriarch, Maria Theresa. Neither sovereign was equipped, by education or nature, to view with empathy the Revolution’s quest of “Liberty, equality and fraternity.”

Early sympathy for the Revolution had first been established 27 years before when J. J. Rousseau published his book, “Social Contract.” Now Rousseau’s philosophy was increasingly popular, his belief in popular sovereignty repeatedly espoused. Voltaire’s works and the Encyclopédie decried the Church and the monarchy’s absolutism, while propounding scientific materialism. Locke’s voice echoed too, favoring English constitutionalism.
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Erik Bromberg
U.S. Department of the Interior
Washington, D.C. 20240

Friendly Confrontation

Don Dorrance’s letter in the February 1970 Special Libraries caught my eye (as did the lavender cover*), and I’d like to comment on his question “Is there any way they could be persuaded to take on the GPO?”

While the Business and Finance Division can’t be said to be taking on the GPO, we are sponsoring a meeting at the 1970 Conference at which Mr. Rowland Darling, Deputy Superintendent of Documents, will be speaking about the Government Printing Office. Mr. Bernard Locker, President of Bernan Associates, will also be speaking. This session is being held in response to the cry of our members last year of “Why is it taking so long to get material from GPO?”

Our approach to this meeting has been positive, in that, rather than billing this as a “gripe session,” we have invited these gentlemen to present their side of the story. We hope that they will be able to give us—the consumer—some ideas of what their problems are and what steps are being taken to remedy some of these. There will be ample opportunity for questions following their formal presentations. If there are specific questions anyone would like answered, please send them in writing to me. I will coordinate all questions and send them to both Mr. Darling and Mr. Locker prior to the meeting.

Because this is such an important topic, and because we believe that this meeting will be of interest to more than just our members, we are planning to video-tape the session. We hope very much to be able to make this tape available to any group—Chapter, Group, other interested library groups—for the period September through April. Correct me if I’m wrong, but I believe that this may be the first time that an SLA Division has used modern available technology to make a meeting like this available to more than their own relatively small audience.

Of course, for those who can make it, we certainly invite them. The time: Thursday, June 11, 2 PM. The place: University of Michigan, Ann Arbor (precise location will be available in Detroit).

T. D. Phillips
Chairman, Business & Finance Division
Douglas Library, Queen’s University
Kingston, Ontario

* We’re glad that the cover caught your eye!
And how did you like the colors on the March cover?
—Ed.

An Attentive Reader

The new type face in Special Libraries is a pleasant change. There seems to be more leading and white spaces to make the page more open, or am I just imagining it? Anyway, I like the looks of the January issue just received. The contents, as always, are interesting.

Paula M. Strain
Booz & Allen Applied Research, Inc.
Bethesda, Md. 20014

Baskerville instead of Garamond—same leading (1-point)—more white space. —Ed.

The Pleasure Was Ours

This week I received the three complimentary copies of the January 1970 issue of Special Libraries which contains the article I wrote about the background of the Church and Synagogue Library Association entitled “An Ecumenical Concern for Quality Service in Religious Libraries.”

Our Church and Synagogue Library Association would like to thank you for showing this interest in our new organization which we feel has a real potential to serve librarianship by encouraging quality religious service for local congregations.

Claudia Hannaford
Church & Synagogue Library Association
P.O. Box 530
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MAY-JUNE 1970
... letters

For Individual Involvement

Mr. Edward Miller's statement (Special Libraries Feb 1970) on involvement is, as he suggests, one of many written in recent years encouraging librarians to be involved in social happenings. I would heartily endorse involvement for every person as an individual. I am in complete disagreement with a concept of an association or a group of librarians jointly taking a stand on any legitimately controversial issue.

We may be for contraceptives and abortion. We may be against all war, or we may be specifically against U.S. activities in Viet Nam. Whether we like it or not, there are many intelligent, educated, well-informed persons who believe in the rightness of an opposite viewpoint. Let us not as a body join the ranks of those who by a self-righteous attitude suggest that everyone is stupid and immoral if they believe differently than we do.

From a purely practical viewpoint, we librarians must maintain empathy with all of our clients if we wish to continue effectively to serve even those with whom we disagree. We cannot officially allow our biases to show if we hope to avoid a credibility gap between ourselves and one segment of our clientele. As individuals let us become actively involved in social issues, controversial or otherwise. As an organization, Heaven help us if we appear to believe that we are smarter, better informed, and more righteous snobs than the other side. It is far better to work at remembering and helping others to remember that those in the opposition are our neighbors, our friends, our colleagues, and our equals intellectually and ethically. In fact, that's what it is all about.

Loyd Rathbun
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Postal Rates—Yes; Social Issues—No

In view of the many problems demanding solutions today, it is imperative that each one of us as a concerned citizen not only make our views known, but also become a participant in appropriate active groups. Please note that I use the word citizen, not librarian, not special librarian.

As a librarian, I expect to be able to make known to officers, Committees, and the Board my views concerning the profession of librarianship or information science. It should be expected that an increase in the rate for shipping books through the U.S. mails may require action from SLA. The same may occur at the local level if funds supporting a regional network are deleted from a state budget.

As a librarian, I do not expect the Association to express an official position on non-library matters, nor an individual member to imply endorsement of a non-library policy position by stating "As a member . . . of the Special Library Association, I am demonstrating a protest to . . .” (from Edward Miller's editorial, Special Libraries, Feb 1970, pg. 57).

If there are librarians wishing to speak with one voice on social and political issues, then they must organize outside of SLA with this goal in mind. SLA objectives are clearly stated in our Bylaws.

(Mrs.) Elizabeth W. Kraus
Eastman Kodak Company
Rochester, N. Y. 14650

The second elision in the sentence quoted in the above letter removes the original wording which is a matter of SLA policy: "... unequal treatment of a minority group." The Minutes of the meeting of the Board on Sep 24, 1964 read:

"that the Board of Directors reaffirm the policy of Special Libraries Association that membership and participation in the Association and its units is not limited in any respect by race, creed, color, or national origin. In particular, all meetings are conducted so as to assure compliance with this policy. The Association participates in joint meetings only with other organizations having the same policy. The statement will be amended further to include a statement that the Association is an equal opportunity employer."

Some corridor comments in Atlanta during the Board and Council meetings seemed to indicate that at least one black member was concerned about possible discrimination at a meeting in a southern city.

—Ed.

Nominating Procedures Need Revising?

With the receipt of this year's Ballot, I am once again reminded of a situation within the organization of the Association that I
feel is in need of correction. I have in mind the procedure for the election of Directors-at-Large.

As is the case with other offices to be filled by election, the Nominating Committee gives us a choice (quite properly) between two candidates for each open Directorship. It happens this year (and it has also happened in years past) that I am acquainted with two of the candidates and feel that each is eminently qualified to become a Director. I am less well acquainted with the other two candidates, and less well able to judge their respective merits.

However, the two candidates I know are running in opposition to one another, and I must select between them.

I would like to propose an amendment to the Bylaws that would charge the Nominating Committee merely to propose four candidates for the post of Director-at-Large. The membership would be instructed to vote for any two of these, and the two receiving the greatest number of votes would become elected. This would avoid the future possibility that the two best qualified candidates would be running against each other, with the resultant elimination of one in favor of a less well qualified candidate.

Charles E. Funk, Jr.
Connecticut State Library
Hartford, Conn. 06115

Although Mr. Funk addressed his letter to the Bylaws Committee, the question should be of interest to all SLA members. —Ed.

N.Y. Academy of Sciences, Again

As a postscript to R. G. Griffin’s letter in the February issue, perhaps we could also entice the New York Academy of Sciences to label the last issue of a volume of their Annals as such.

(Mr.) Dana L. Roth
California Institute of Technology
Pasadena, Calif. 91109

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They Laughed When
I Scratched My Newspaper . . .

Apr 22—EARTH DAY. Today the aroma of garlic cheese was microencapsulated in the paper used for an advertisement in the Daily News Record. The scent supposedly remains odorless until the coated area is scratched. The ad agency's announcement of this technological breakthrough does not even hint at the relation between garlic cheese and the products of the advertiser, “Helthknit.”

- Numerous hurricanes of emotion have churned past SL’s editorial offices at Park Avenue South and East 19th Street during the past year. And, just as often, we have been only a few blocks from other happenings of concern. Parades of astronauts and winning baseballers have travelled north from ticker tape parades in downtown Manhattan to their midtown luncheon receptions. Veterans and their lady auxiliaries have paraded south from Madison Square Park to Union Square on Veterans Day. These parades solved the waste disposal problems of several printing plants across the street as cascades of paper trimmings were dumped on astronauts, baseballers and veterans alike.

- Striking members of the United Federation of Teachers demonstrated loudly outside their UFT offices one block to the north. Two blocks to the south a miniconfrontation between prowar and antitwar factions of a labor union was almost mismanaged by a police detachment facing away from one group of demonstrators—contrary to regulations.

- Eight blocks to the south, an explosion in an amateur bomb factory demolished a three-story town house. But even after the intense fire had burned for 24 hours, a built-in bookcase still hangs at the third floor level. Seemingly, only the spines of the books had been charred. Underwriters of library fire insurance and advocates of water sprinkler systems should take note!

- And five blocks to the south, 14th Street was closed to traffic on Earth Day; for a short period, the street was an urban promenade. But as re-routed traffic stalled and clogged all other streets, the concentration of exhaust gases from idling motors soared upwards. Union Square blossomed into an echt country fair with booths and banners and tree planting ceremonies and non-stop oratory. During the afternoon the pavement was a blackboard for Hop-Scotch games, for peace slogans, sidewalk poetry, and psychedelic chalk art. “Throw-away” soft drink cans and wrappers from ice cream sticks were carefully dropped into trash baskets! And just as carefully—almost reverently—the baskets were emptied by the Sanitation Department. It was unreal.

- And for those with a concern for eternity, the Cryonics Society exhibited your very own deep freeze unit where you await your re-vivification by defrosting in 1984 or in 2001.

Two opposites are the bywords of our times: confrontation and ecumenical concern. But SL's mail shows little concern with the problems seen from our windows—either pro or con. Do none of our readers work in any of the special situations generated by the pressures of the day? Has no one developed special informational materials in the problem areas? Are there no opinions to be aired by concerned professionals and citizens?

During WW I, during the Prohibition era, during the Depression and subsequent period of economic recovery, and even during WW II, some concern with contemporary problems appeared in these pages. One begins to wonder if the publication-release policies of corporations and of government agencies are discouraging submission of manuscripts on controversial or unpopular topics.

- Microencapsulation of the aroma of garlic cheese—indeed! Are we enmeshed by the entrepreneurs of technology? Or do we already know how to handle malodorous publications? After the first reader scratches the newspaper page, can information scientists or librarians guarantee a standard dosage of garlic odor for the noses of all other readers? A heady problem, indeed.

MAY-JUNE 1970

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Information Flow in Science, Technology and Commerce

A Review of the Concepts of the Sixties

Janice M. Ladendorf

North Star Research & Development Institute, Minneapolis, Minn. 55406

Information on user characteristics is of crucial importance in the design of information systems. Unfortunately, many scientists and engineers will not necessarily use information even when it is readily available to them. Characteristic communication behavior is established for two basic types of users: the successful research scientist and the average industrial technologist. Communication activities do not represent an isolated behavior pattern. They are deeply tied to social, professional, and institutional relationships. There are limits on the extent to which these behavior patterns can be modified to increase the use of information.

With modern developments in the techniques of indexing and the mechanization of information storage and retrieval, it has now become possible to design just about any type of information system. The major problem now lies in deciding what type of system to design, and in evaluating its effectiveness once it has been designed. The difficulty here is in determining what the needs of the users of the proposed system really are and how they can be satisfied most successfully.

Along with present increases in the volume of funding and manpower in scientific and technical research have come increasingly acute problems in the provision of effective information services. Examples of duplicated research and wasted manpower time are easily found in the literature, but the reasons behind such occurrences and methods for their correction are less easily ascertained. Scientists and engineers can be provided with the finest of information services, but they will not necessarily use these services, nor will they engage in the painful effort of reading and, even worse, thinking about the materials with which such services can provide them (1). The indexing and retrieval of documents present far fewer problems to the designer of information systems than does the study, analysis, and modification of the human behavior patterns of his clients.

The literature is full of various user studies, most of which are so primitive in experimental design and techniques that they do not produce results which can be compared and used to establish general principles of behavior. The flow of information in science and technology is not as simple as it might appear to be, and such a tangled web of people, needs,
communication channels, and motivations does not easily lend itself to study. However, in recent years this field of research has received increasing attention and some excellent studies have appeared in the literature. By reviewing these studies, some basic principles of communication behavior and information flow of relevance to the problems of the information system designer may be established.

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communication in general

One of the first conclusions such a review reaches is that the process of information flow is a complex one, involving interfaces between a number of publics, involved networks of interpersonal contacts, a wide variety of communication channels, and such human factors as competition for status and resistance to change. This whole process of communication is a dynamic one, and it is in a constant state of flux, adapting to changes in the research frontiers and states of the arts of science and technology, as well as the migration of people into and out of its fields of coverage. Innovations in any part of this process must be carefully considered, since any change in one part of the process can have unsuspected and possibly disastrous results on other parts (2). However, at any point in this complex process, information flow always breaks down into communication between individuals and the increase or modification of knowledge stored in their brains. All that information science can attempt to do is to facilitate this process insofar as this is possible, and this necessarily requires quite a precise knowledge of user habits and needs.

Basically, users of information systems can be broken down into two types: scientists, and engineers or technologists. These two types exhibit striking contrasts in communication behavior patterns which can be traced to fundamental differences in group organization and motivation. The scientist sees himself as belonging to amorphous groups of fellow scientists who share his research interests and attitudes, regardless of their organizational or geographical locations. These groups are usually referred to in the literature as invisible colleges. Membership in these invisible colleges is not formalized, but is based on the production of worthwhile research results as judged by the other members of the group. Choice of research goals is freely determined by a combination of personal preference and group norms. The overall group goal is the extension of scientific knowledge, and rewards to the individual revolve around the recognition by fellow scientists of the value and quality of each individual's work (3). In complete contrast to the scientist, the technologist works for a particular organization which is both product- and profit-oriented. The organization controls both what problems he works on and the evaluation of his research work in the terms of possible improvements in the company's market position (4). This control is exerted to a large degree by administrative managers who do not share the technologist's professional background or value systems. Both scientists and technologists work in fiercely competitive worlds, but in science the competition is among individuals for prestige and in technology it is among corporations for profit.

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written communication

These differences in basic organization and motivation are reflected in the differences in the characteristic communication behavior patterns exhibited by scientists and technologists. These relationships are particularly clear in their use of written communication. The end product of most scientific research work is the publication of a paper in an appropriate professional journal. These journals in turn form the major portion of a scientist's reading material. Publication in professional journals, in accordance with long-standing traditions of academic freedom, is controlled only for quality by the editorial and referral policies of the journals to which papers are
submitted. These policies are set and administered by leading members of the scientist's own professional group. Scientific tradition assumes that research results are to be made available to the scientific community as a whole, and publication is the only method of assuring this. Also, publication in the open literature is one of the main methods by which a scientist establishes priority rights to the results of his work and secures his claim to fame (5). Such priority rights are traditionally protected by the copyright law. The existence of the long-standing "publish or perish" policy is another indication of the role played by the published article in establishing a scientist's reputation. Written communication reflects the basic motifs of scientific organization: individual freedom of action controlled only by the values, traditions, and judgements of the scientific group, and individual competition for prestige.

In complete contrast to the world of science, the technologist is usually engaged in proprietary work, the results of which are usually considered to be the property of the organization for which he works. His work usually results in improved products or processes rather than in an increase in the general knowledge, and are traditionally protected by the patent laws. Unlike the scientists, who share the traditions of academic freedom, he cannot discuss his work with anyone outside of his organization unless permission or patent protection has been obtained. His research results are most frequently printed in the form of an unpublished technical report, the distribution of which can be controlled by the issuing organization. Such reports are in turn one of his most useful sources of information (6). In the open literature he relies for the most part on trade journals, the reading of which keeps him up to date with news of new developments and can provide him with clues as to what the company's competitors are doing. Articles in these journals generally refer the reader to the owner of the process or equipment described and, unlike professional journals, rarely cite previous work (7). Vendors' and manufacturers' catalogs are frequently consulted by technologists; scientists seldom use them. Written communication in technology reflects the importance of the organization for whom the technologist works in both its control of the dissemination of the results of his research efforts and in its basic product orientation.

**oral communication**

In both science and technology oral communication occupies a position of primary importance, even though the ways in which it functions reflect differences in the social structures of science and technology. The reasons why a scientist or a technologist prefers to consult a knowledgeable friend rather than the literature are fairly obvious. First, they share the same professional language and second, the information he receives has been refined, adapted, and evaluated to fit his specific problems. This type of communication therefore involves much less painful effort on the part of the inquirer.

In technology, oral communication plays even a more crucial role than in science, since technologists as a group make much less use of literature than do scientists. Since leaving school, the average technologist has become increasingly specialized in response to the very specific nature of the tasks on which he works. This specialization is, of course, reflected in the nature of the technical reports which he reads and writes. He rarely makes much effort to advance his general technical education and, as a result of this, he finds the usual professional journal, which contains articles of general interest, over his head. These journals rate very poorly as information channels in technology because they are
usually incomprehensible to the average technologist. What browsing the technologist does do is usually in the privately supported trade journals, which are written at a semi-popular level and therefore comprehensible to him (8). His particular information problems are usually primarily resolved through contacts within his local working environment by consulting his colleagues, other company experts, and his own or others' personal files (9). Such personal files usually consist of familiar textbooks, handbooks, and reports from past projects. Even when the answer to his information need may be an article, book, or technical report, he prefers to be referred to it by a knowledgeable friend (10), rather than using the formal information system. When he is forced to go outside of his local work environment, he contacts such sources as external consultants, vendors, or, usually as a last resort, an appropriate library or information center (11). Studies indicate that he always uses first the source which he perceives as the one which will cost him the least effort to use (12). Unfortunately, the formal information system—specifically libraries or information centers—is usually considered to be an information source which requires a high degree of effort on the part of the user.

In science, oral communication also plays a crucial role, but it functions primarily through the mechanism of invisible colleges. The operation of these invisible colleges is based on the desire of each scientist to keep in touch with the other scientists whose work is most closely related to his. These informal networks use a number of communication techniques, including meetings at local, regional, and national conferences, personal visits and telephone calls, invitational lectures and seminars, and exchanges of preprints, reprints, and technical reports. Information on current research flows through these invisible college networks six to twelve months before it reaches formal publication (13). Therefore, the only effective way to keep up to date with activities on the research frontiers of science is through personal contacts. However, the forming and dissolution of these groups seems to go on at a relatively rapid rate; one study determined that the average age of a sociometric link in such groupings was only eight years (14). These informal contacts are of crucial importance to the research scientist since they are essential if he is to conduct successful research projects. Unfortunately for the neophyte, the more successful and better known a scientist is, the more extensive and effective are his contacts with other scientists likely to be (15). Younger researchers and those at less well known institutions are therefore handicapped in their attempts to become established, since they do not have nearly as effective an invisible college network as do those scientists who are better known (16).

Given the impermanent and discriminatory nature of these invisible college networks, a research scientist obviously cannot depend on them alone for necessary information. He must use other techniques to keep in touch with general developments within his discipline. He characteristically spends a good deal of time in conversation with his local colleagues, a process which keeps him in touch with information flowing through their invisible college networks (17). Studies have shown that just such extensive contacts with as many colleagues as possible is definitely correlated with success in science (18). Scientists are usually well aware of the research interests and problems of their friends and colleagues and regularly pass on to them any items of relevant information, written and oral, which come to their attention. Each scientist also possesses his own network of old friends, former colleagues, and fellow students which he can activate at will (19). Undoubtedly a good deal of scientific information travels by just such informal direct contacts between people, especially in the case of detailed information on experimental techniques and
equipment, much of which never appears in print at all (20). The typical scientist, however, is not content with using only oral channels; he usually subscribes to and regularly scans a few core journals which usually cover a large percentage of the published work in his field of interest (21). The wide variety of information channels that a typical research scientist uses does, of course, result in many duplicate messages, but it also greatly decreases the chance of missing crucial information.

two-stage information flow

In both science and technology, the forms of communication which have been discussed are further modified by the operation of a two-step communication process which seems to be characteristic of information flow in any social circle. In this process, information is usually received first by certain individuals who function as opinion leaders and who pass on this information to the rest of the group through a variety of sociometric contacts. In technology, studies have shown that certain individuals in each organization serve as technological gatekeepers for the rest of the engineering staff. These men, as compared to the average technologist, are consulted much more frequently for advice and maintain a much higher percentage of contacts with the technical world outside of the organization. Some maintain this contact by reading more extensively than is usual; others keep up many informal contacts by such techniques as attending numerous scientific or technical meetings (22). Since technologists as a group do not seem to be particularly motivated to keep up with their field, these opinion leaders serve a crucial function in learning of new developments and communicating them to their colleagues. Such gatekeepers essentially bypass the barriers which any organization erects against the outside world and translate the information gained in terms of the particular goals, needs, and coding schemes which characterize any organization (23). The existence of such a specialized language within an organization is one of the reasons that internal consultants are usually so much more effective than outside consultants; they are not only more readily available, they share the same organizational language. On the other hand, an opinion leader must not only have knowledge to communicate, he must have the interpersonal contacts which enable him to communicate that knowledge. Technologists are often reluctant to admit their ignorance or a need for knowledge; such an admission can threaten their reputation for technical competence, the possession of which is a major factor in the establishment of status. Such fears are reduced when the individuals involved are previously acquainted through social contacts or shared working experience (24). Each opinion leader then must have not only knowledge to communicate, he must also possess a web of previously established interpersonal relationships through which his information can flow.

This two-stage process in communication also seems to exist in science, though it operates in a different context. One of the basic statistics of science is the fact that only a small percentage of the total number of scientists are the ones responsible for most of the published work in any one field (25). These men are at the top of the prestige heap in science and they are the ones who form invisible colleges, present most of the papers at scientific meetings, get the major government research grants, and control and edit the professional journals (26). These scientists, who exhibit the communication behavior patterns which have been described as typical of a research scientist, are also presumably the ones who function as opinion leaders for the rest of the scientific community. Their very position at the center of the scientific
group and as representatives of the group ideal is what gives them the security and status to create, advocate, and support innovations in scientific thought. Those who lack this type of status and who propose any revolutionary ideas usually have a very difficult time being heard (27).

Just how the men who succeed are different from, or related to, the ones who do not become well known is something which only further research can clarify.

conclusions and applications

So far, the characteristic communication behavior patterns of two basic types of individuals have been established: that of the average technologist in an industrial environment and that of the successful research scientist in a university atmosphere. These stereotypes do not, of course, completely represent the actual situation in science and technology. Today the very nature of research in science and technology is changing. More and more projects are based on government funding, and research itself requires more elaborate and expensive laboratory and manpower facilities. The steady rise of both multi-authorship and numbers of authors in journal articles reflects the increasingly complex nature of modern research. The use of interdisciplinary teams in research is becoming increasingly common and is apparently one of the most effective means of expediting technology transfer. Traditionally, scientists and technologists become familiar with each other's fields only during their college education, and the lag in information flow can extend up to forty years (28). The use of scientific and technical teams with a wide variety of knowledge and experience can materially decrease this time lag. Obviously, adequate research on the communication behavior of scientists and technologists and information flow in science and technology is only at its beginning, and a great deal of work still needs to be done.

Many of the implications for information system designers of some of the basic principles of behavior which have been discussed are fairly obvious. The two-step process concept, for example, implies that information systems may need to be designed at two levels, one for heavy information users and one for the average user (29). The practice of appointing one man as official information man for each research project can be a successful technique for getting information into the hands of the men who can use it (30). The basic dependence of the average technologist on his immediate working environment suggests that information services should reach into this environment and make the effort of using their services as minimal as possible. The ever-increasing number and types of selective dissemination services are, of course, related to this concept. Many of the basic

literature cited

7. Price, Derek J. deS. / The Structure of Publication in Science and Technology. In Gruber, William H., ed. / Factors in
principles which have been established will not be new to the experienced librarian; they merely provide some theoretical background to his practical experience. One of the basic limitations of any information service is that an information specialist cannot motivate his clients to need information! The professional background and experience of each individual, as well as his personal balance between the effort of reading and thinking and his thirst for knowledge, are the major factors which determine his need for information. All an information specialist can do is to minimize the effort required from his clients in obtaining information and encourage them to use his services. Careful exposure and successful experience with such services can favorably affect a client's need for knowledge.

As a final comment, despite all the discussion of the need for effective information services, there is one basic factor in both science and technology which affects the free flow of information and is therefore responsible for a good deal of the duplication in research work. Unlike creative work in other fields, such as art and music, discoveries are not uniquely personal in science and technology, and any qualified person can make them. Essentially, this means that scientific and technical research is competitive in nature, and its results cannot be freely disseminated until priority has been established. This drive to be the first in the field of technology leads to the proprietary nature of information and to the many forms of industrial espionage. In science, it is one of the bases for invisible colleges; research results which have not reached the publication stage are usually discussed only with friends who can be trusted not to pirate ideas. The human desire to establish priority in scientific discoveries and to reach the market with a new product before competing companies does play a decisive role in creating human barriers which inhibit the free flow of information.

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Miss Ladendorf is information specialist at the North Star Research and Development Institute, Minneapolis.


Putting Automation into Hospital Record-keeping

Alice M. Donahoe

Baptist Memorial Hospital, Kansas City, Missouri 64131

Automation puts a tremendously effective tool into the hands of the specialist librarian. Application of its new skills enables him to perform his work much more efficiently. Without it, in fact, he could hardly hope to meet the many new demands being placed on his services in many situations today. The right kind of automation not only permits him to meet those demands but even to extend the applications and usefulness of his services to the institution or enterprise that he serves.

In the management of hospital medical record libraries in particular, the need for faster and more efficient preparation, handling, storage, and retrieval of records has become more acute in recent years. In addition to meeting the minimum requirements for hospital accreditation, the library has important services to perform for the doctors—if it is able to perform them without making undue demands on doctors' time. By making use of the new resources of EDP and other recently developed electronic techniques, the library can also furnish hospital management with tools for quality control of medical services.

Several years ago the hospital's dictation system for doctors' reports was automated. The most recent acquisition here was installation of a number of Code-a-phone Model 800 automatic telephone answering and dictation units. A bank of eight of these machines now receives all such reports from doctors, as they are dictated from their offices or from telephones in the hospital. As a result, the efficiency in handling doctors' reports has been increased by 15-20%.

A major responsibility of any hospital
The efficiency in handling doctors' reports has been increased by 15–20%.

The ability of the library to provide these reports quickly and accurately (in most cases from information dictated by the doctors) determines in part the degree of cooperation which the department will receive from doctors in return. Such cooperation is not always what the librarian might wish it to be, mainly because of the tremendous demands that are always placed on doctors' time. Nevertheless, routines must be established to keep follow-up information up to date or reasonably so. Those follow-up routines have been made even more efficient by application of EDP resources with less time required on the part of library personnel.

Other improvements realized include a simplified system of storage and handling of microfilmed documents and, more recently, an experimental automated patient index. The index was made possible specifically by the hospital's newest computer terminal and its application.

Automation of the first step, the receiving of information from doctors, has meant very substantial saving in time for both hospital staff and for the doctors. The system currently used is a distillation of a number of years of experience with this kind of equipment. The present method is flexible and also makes possible separation at the source of STAT from non-priority dictated material.

The first Code-a-phone was installed over two years ago for receiving pre-admission information from doctors' offices. This installation replaced standard dictation equipment that had formerly been used for that purpose. Although the original equipment was fairly reliable, there was no way for a positive identification of the hospital to a caller when an outside caller dialed the recording equipment.

As a result, information about patients' physical exams and medical histories was occasionally given to the wrong hospital. Sometimes, the error was not discovered until shortly before time for surgery. This caused great inconvenience for the patient, the physician and the hospital.

With the Code-a-phone the hospital is positively identified because the call is answered automatically by a pre-recorded announcement. This message recorder system has a capacity of three minutes, but the capacity is variable. In practice, the pre-recorded announcement takes only a very few seconds, and can be changed as needed.

The transition to the recorder system for the complete message is also automatic—following a transfer tone. This tape has a capacity of 2 hours; and it has the capability of being voice-activated. Although there is no arbitrary cut-off time, the call is terminated automatically if there is a period of silence exceeding 15 seconds. Otherwise, the tape advances only as the caller speaks, stopping when he stops and starting again when he resumes. This means that there are never any pauses exceeding two seconds duration. It also means that the tape receives the maximum amount of dictation and can be transcribed at maximum typing efficiency.

The new equipment was readily accepted by doctors. To assure that they would have no difficulty getting a line for dictation, a second machine on a second telephone line was installed soon thereafter.

In the fall of 1969, the hospital installed five more similar Code-a-phone units primarily to receive internal dictation. Doctors dictate the same kind of
information to these units that they do from their offices whenever it is more convenient for them to do so from a hospital telephone. In addition, doctors dictate from the hospital such information as post-operative reports and reports of consultations. The volume of dictation received internally is more than twice that received from outside phones.

Before this new installation, internal dictation had been recorded on other equipment for a number of years. That equipment had required installation of its own separate voice transmission system and wiring. The new units use normal telephone facilities without other wiring. This reduces substantially the initial cost of acquisition.

A second major advantage is the separation of STAT and non-priority material onto entirely separate tapes. The original recording medium was plastic belts. Each plastic “belt” had a capacity of about 15 minutes. It was not practical to separate the machines to receive exclusively either STAT or non-STAT dictation. Accordingly, both classes of material were recorded indiscriminately on all machines. They could only be separated after transcription.

Since the STAT material had to be transcribed first, all belts had first to be scanned. Then the STAT material was transcribed, and the belts put aside for later transcription of the non-priority dictation. Notes indicating the material still to be transcribed were clipped to each belt, to be transcribed when the work load permitted. In practice, there was a gradually accumulating backlog of partially transcribed material. It also meant that many additional hours on the part of typists were spent in scanning as well as in transcription.

With the present installation, three of the new answering units are designated for STAT reports; the other two, for non-STAT. If the dictation concerns a patient currently in the hospital, it is considered STAT whether it is an operative report or a history and physical or consultation. Dictation of histories and physicals on patients due to come into the hospital are also STAT. This comprises about two-thirds of the dictated information.

The new arrangement gives very substantial advantages in processing the dictated material. Since the recordings are always separated, no preliminary scanning is necessary. Each complete tape can be transcribed without interruption. The two-hour capacity of a recording unit is also important. Even the backlog of non-priority material has been virtually eliminated, since all typing can

A Bank of Code-a-phones Now in Use at Baptist Memorial Hospital
The library gives assurance to doctors that if they record their STAT histories by 7 p.m., the reports will be typed and ready for them by the following morning for patients going to surgery.

be accomplished so much faster than before.

All doctors are informed of the correct number to call for STAT or other dictation. The very brief pre-recorded announcement that answers when they dial the number provides a double check. From that point, the doctors are responsible that they dictate onto the correct equipment. If, for example, a doctor dictates a non-priority report onto a STAT machine, his dictation is not transcribed, and he is required to re-dictate it onto the correct machine.

The library operates with seven full-time typists; five are on duty in the day and two at night. Typing stations are equipped with transcribing Code-a-Phone units and electric typewriters.

The library gives assurance to doctors that if they record their STAT histories by 7 p.m., the reports will be typed and ready for them by the following morning for patients going to surgery. Since many doctors dictate these reports after their normal office day, this means that the load on the outside lines is heaviest at 5-7 p.m. To assure that doctors will not have to wait for a line at those times, one of the five machines normally used for internal dictation was installed so that it could also be switched to exterior use. At about 5 p.m., this machine is switched to outside reception and is returned to its inside line soon after 7 p.m.

The information received from the doctor plus other information, such as that from the admissions office, is added to the patient's chart, with additional reports and information being added during his stay. The end result for a typical patient is a 15-20 page chart that must be filed for future reference. All this is processed manually, as it must be in the present state of the art.

By use of the computer, the library is able to provide the hospital administration with a degree of control that would otherwise be impractical, if not impossible. For this computer-processed information, a standard source document is completed from each patient record as the patient is dismissed. This document collects all standard information which is required to maintain the necessary indexes in the hospital, such as name, patient number, age, attending physician, surgeon, dates of stay, service classification, and other basic items of information. Many particular items for administrative purposes plus many medical audit items are also added. These will all assist the physicians as they review the records and the quality of hospital care.

At the end of each calendar month a series of standard reports is printed. One of these is a statistical print-out by service classification; another is a print-out by attending physician number to produce the required physician's index. In addition, we have a separate register printed of all mortality cases, a listing of cases by age group, by county of residence, and several other administrative breakdowns that we do not use directly in our department.

Monthly reports are kept until the end of the fiscal year. After correction of errors discovered in the print-outs or in hospital documents, a fiscal year report is printed out (and the monthly copies are destroyed for that year). In addition to all of this, the information on diagnostic codes and operative codes is collected; these are printed out in separate runs, usually at six-month intervals to produce the hospital's disease and operation index.

It is from this kind of summary information that hospital staff and committees of doctors perform their quality control review—of both the hospital's and the doctor's performance.

Medical staff committees are able to select groups of charts for study or review by any of a number of criteria. These criteria may be by laboratory results, age groups, transfers into and out of the hospital, medications received, etc. All of
these specialized charts and breakdowns are used in addition to the standard reports in the quality control review.

A still further refinement to be adopted in the near future will use the new IBM 2260. Rather than having hard copy print-outs of all this, we will be able to get information on the spot from our computer terminal. Instead of consulting a hard copy disease index to locate a number of similar cases, the display unit of the terminal will respond to inquiries inserted via the keyboard unit.

A major problem in any hospital is the completion of patients’ charts by doctors so that the charts can be filed. If too many incomplete charts must be held out of permanent storage, the work of the medical records library becomes nearly unmanageable.

As do many other hospitals, Baptist Memorial requires that doctors complete their patient charts within a defined period after discharge of the patient. Any doctor with one patient file that is delinquent cannot have his new patients admitted to the hospital until the delinquent file has been completed except in emergencies.

In turn, this puts a responsibility on the library to keep the doctors informed of the state of their incomplete reports before they become delinquent. This is accomplished at Baptist Memorial Hospital with minimum time and effort by computerization of the procedure.

Analysis of patient records prepared at the time of discharge results in a special source document which shows (by doctor) the name, his identification number, the patient’s name and record number, and a checklist for deficiencies remaining to be completed in the record. From this source document an IBM card is punched for each physician with deficient records. This card is then filed alphabetically by the doctor’s name so that all charts for one doctor are assembled in one group. As the records are completed, the incomplete chart file is checked. For each deficiency completed, the corresponding IBM card is removed from that doctor’s name file.

Instead of consulting a hard copy disease index to locate a number of similar cases, the display unit of the terminal will respond to inquiries inserted via the keyboard unit.

At regular intervals (once every two weeks) all cards remaining in the box are sent to data processing and a list is printed alphabetically by doctors’ names showing all chart deficiencies for all doctors. At the same time the machine calculates the age of the chart, marking those on the list which need to be completed within a two-week period to avoid becoming delinquent.

If there are charts which are delinquent, the computer stores this name. Then, at the end of the individual listing there is a print-out of all physicians’ names in alphabetical order who have delinquent charts. This list is printed in duplicate with instructions and the regulations concerning incomplete charts printed at the top. The original copy is mailed to the physician’s office so that he has a record of those charts that need to be finished. The duplicate is kept in the medical records library for reference. In this way—by running a listing of incomplete charts through the data processing department—there is no manual handling of records. A count and listing and a delinquent list are produced in a fraction of the time for a manual system.

Both time and space are saved by the library’s system of microfilming patients’ charts. Records here are unitized by using 4" × 6" microfiche jackets. At present, records are filmed when they are five or more years old and have been inactive. It is hoped eventually to cut this down to two years of active files and eventually to only one.

Although the records are photographed on roll film by contract microfilming service, the film is then cut into individual strips so that one patient’s chart is not connected to every other one. This individual strip representing one record is then inserted into the 4" × 6" microfiche jacket. A single jacket holds
approximately 60 page images of microfilming. Since a standard chart has 15–20 pages, approximately three records pertaining to one patient can fit in one jacket. Any that go over that are put into a second or even a third jacket and are identified at the top by the patient's number and designated as "1 of 1," "1 of 2," etc.

This system is more efficient than a straight roll film method. You might, for example, film the record of a patient one day and he might be admitted to the hospital the next. You would then have a filmed record and a paper one. When the aging time comes for the paper record, you would want to film that record also. If you used the roll film system there would be no way specifically to add the new record to the older one unless you spliced it, which is not practical. The microfiche provides expansion in microfilming yet still allows you to keep the records on one patient in one place in your microfilm file.

When paper records are reduced to one year on the shelf, there will be more active use of the microfiche file. Then, for a patient who is readmitted having an old record on film in the file, the library makes a diazo full size print of the film negative, places it in a new folder, and sends it to the patient's floor where the new paper records will be added. Then the record and the film together will return to the library so that that department will still have all portions of the record together in the folder. When this paper chart has aged (to one year under the projected system), the original microfiche jacket will be substituted for the copy that had been placed in the folder. Then, the paper record and the original jacket will be sent to the contract microfilming service so that they may film the new record and insert the strips of film in the original jacket, and return it to the library. At that time, the copy that had been made of the older records will be destroyed.

An improvement in numbering and filing of patient records will be put into effect later this year. Formerly, the hospital used a modified serial numbering system. Patient records were given a new number with each admission, and the older record was brought forward when the patient was readmitted to be filed with the newest number.

Now, the unit number will be given to the patient once and once only, to be retained for his new record each time he returns to the hospital. At that time also, the library will go to a color coded file folder, and the numbering system of the files changed from straight numerical to middle digit filing. With this, records are filed on the shelves in groups of 100, and the filing will expand equally in all areas rather than just at the end of the numerical sequence.

Space and time will also be saved by automation of the patient index to begin this year on an experimental basis. Formerly this was maintained entirely by use of 4" × 6" cards. Now, each time a patient is readmitted his unit number is re-issued. This will be his permanent identifying number and will be stored in the computer with full name, birth date, sex, and social security number. The computer will also store the date of the last admission.

This new system is expected to reduce the present card index by about one-third within a year or so. At that time, all cards which are still in the file will probably be entered into the system, so that the total index will then be in the computer.

By application of data processing to this area as well, this phase of the library's operation also has been made correspondingly more efficient.

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Alice M. Donahoe, R.R.L. is head of the Medical Records Library of Baptist Memorial Hospital, Kansas City, Missouri.
World Cooperation in Nuclear Science Information

Rudolf Brée

Commission of the European Communities, Luxembourg

In many subject fields a trend to international—even worldwide—cooperation on information and documentation exists. For the field of nuclear information IAEA (International Atomic Energy Agency) in Vienna has promoted a project of this kind. This development has been favored by the existence of far developed information services as Nuclear Science Abstracts of the USAEC and the computer-based ENDS (European Nuclear Documentation System) of the European Community. Technical and organizational aspects which might influence the eventual realization and the further development of world cooperation in this field are discussed.

NOWADAYS, the world seems to be so full of good intentions on worldwide cooperation in the field of scientific and technical information that it is the more unbelievable that this kind of cooperation does not yet exist in practice. This statement may meet with objections. However, in reality, international cooperation with an equitable distribution of contributions, responsibilities and access to the world literature in any given field—be it discipline-oriented or mission-oriented—is still in the preliminary phase.

This is but a small wonder. It is never easy to reach agreement among large groups of participants with more or less differing interests. This might be the reason why we are faced with many more attempts to develop worldwide participation in information systems sponsored by national, regional, and even commercial institutions, where it is so much easier to make all the decisions necessary during the development and later phases, or for the often inevitable modifications of the system concept, whether for correcting mistakes, for evaluating operational experience or for adapting the systems to promising opportunities offered by new equipment.

Participation in a more or less unilaterally controlled information system and in worldwide cooperation are not at all the same. Both solutions have advantages and disadvantages of their own. But it would seem to be useful to keep in mind their differences when facing the first attempt at true international cooperation which is emerging in the field of nuclear information.

Since 1965 IAEA in Vienna has promoted under its umbrella—covering more than 90 member nations—the establishment of INIS (International Nuclear Information System). This is really a pilot project for worldwide cooperation. So it might very well deserve our full curiosity and attention.

The realization of this cooperation depends upon finding practicable solutions to a great many problems, from the nec-
ecessary standards for introducing, processing and presenting the collected document data to the crucial problem of which languages are to be admitted in the system. Linguistic problems are important because of the necessity to fit the system's output as much as possible to the users' linguistic ability. On the other hand, for reasons of operational economy, one can admit only a restricted number of languages into any system. So the decision on the system's carrier languages is not at all easy and the decision becomes less so, if and when any of the partners choose to consider this decision in a political light.

The result of any worldwide cooperation will certainly be influenced by the agreed distribution of tasks and responsibilities among the participants. In this context I consider it to be highly regrettable that within all the international groups discussing these problems, the manifold technicalities of their cooperation are much more at the center of their interest than a serious attempt to establish a set of basic and practicable rules of fair international cooperation, more specifically on decision making, on adapting the system to the experience gained or on new developments in methods or equipment, and on equitable sharing of the expenses, etc.

The Situation Up to Now

When IAEA had the idea to set up INIS, two larger facilities for nuclear information already existed in the Western world. Since the promulgation of the Atomic Energy Act, the United States devoted much effort through its Atomic Energy Commission to very generous dissemination of information on the peaceful uses of atomic energy. The USAEC system of depository libraries and the publication of Nuclear Science Abstracts have been, and are still, exemplary. In its 25th year NSA must still be considered the most important tool for the majority of users of nuclear information.

To complement this secondary publication, EURATOM started the development of a computer-based system for storage and retrieval of nuclear information in 1962 after having checked that none of the senior national or international organizations had any serious plans in the same direction. EURATOM (European Atomic Energy Commission) is the little sister of the much more widely known European Common Market, with the same six countries participating in its activities. The European Nuclear Documentation System, ENDS, has been operational since 1967. It now provides access to about 900,000 documents of nuclear interest, among them the total content of NSA.

On the basis of bilateral arrangements, USAEC has participated in this venture since the end of 1964, furnishing indexed document data on the current content of NSA. In 1968 the UKAEA joined this effort by furnishing data on all documents published in the United Kingdom.

As the methods applied in the European System influenced the INIS project, it might be useful to include in this presentation a few data on the operational results of ENDS. After more than two years of experimental service, the users' feedback on these results permit the claim to be made that the performance of ENDS is very acceptable. The feedback operation is continuing, on retrospective searches as well as on SDI.

About 70% of the users are still reporting faithfully—not general statements, but exact data on the relevance of answers received. They are identifying the relevant documents and the non-relevant ones, as well as those not included in the answer which, according to the users' own knowledge, existed and therefore should have been included in the answer.

Careful evaluation of this feedback permitted a steady improvement in retrieval. The relevance ratio for retrospective searches has grown steadily from about 30% at the start to about 50%. For SDI it is better than 75%. The average yield for retrospective searches is 60 pertinent references, and the yield for SDI is not more than 18. These averages seem to please the customers, not only for the precision of the selection which
is behind them, but also because they are obviously within digestible dimensions.

In the ENDS system, output is furnished in the form of full abstracts and not in the generally preferred form of bibliographical data only. Like the above mentioned average yield this presentation of output seems to fit the users' needs rather well. On the whole the system seems to operate in a way which is appealing to its customers. Its carrier language, by the way, is English, although part of the abstracts are available only in French or German.

Subject control of ENDS is exerted by coordinate indexing on the basis of the EURATOM thesaurus of keywords. It is this steadily perfected tool which has permitted the performance mentioned above. The indexing itself has been decentralized since 1963. Two factors support the necessary consistency of this decentralized indexing: the way in which thethesaurus has been built and is displayed in two-dimensional terminology charts and certain machine routines developed for automatic correction of indexing terms and for what we call "generic posting of terms."

The International Nuclear Information System (INIS)

When considering the creation of a worldwide system for nuclear information, IAEA had to take into account all the major existing services in the East and the West. It could take full advantage of not having to start from scratch but of being able to incorporate existing experience in the new system so far as this seemed to be promising.

The first outline of the project was elaborated in 1966 and was discussed by a large panel. Subsequently, in 1968, a special study group of experts was convened which proposed detailed procedures for all the different phases of the project. A set of agreements reached during a new panel meeting in October 1968 were based on the report of this study group. After further meetings to clarify several still open issues and to introduce new modifications, it is now the stated view of the Secretariat of IAEA that it is ready to accept input from its members on a restricted scope starting in January 1970 with supply of the first output in May 1970. Extension to the full agreed scope, it is hoped, will be possible in 1972.

INIS will be based on decentralized input furnished by all the nations participating. The carrier language for bibliographical data and for indexing is English, whereas for the texts of abstracts all the four official languages of the IAEA are admitted, that is, Russian, French and Spanish in addition to English. All the necessary standards for the input have been agreed upon. Coordinate indexing will be used for subject control, with the indexing based upon an expanded version of the EURATOM thesaurus.

After central processing in IAEA the following main output products are to be made available:

1) Magnetic tapes,
2) Printed title lists, and
3) Microfiches.

There is, however, a basic and important difference between INIS and ENDS: this centrally distributed output is not intended to serve individual customers but the national nuclear information centers. Individual retrieval for the national clients is to be effected by these national centers according to their financial and technical means. It is left to the national centers to process the magnetic tapes for economic machine handling. IAEA is abstaining from this finalizing operation because of the wide differences existing between the equipment of the different national centers.

For the decentralized input preparation and especially for indexing, and likewise for the retrieval operations, thorough training must be provided for optimizing the results of both operations.

The INIS project will—at least for the time being—not include the publication of a secondary journal such as the NSA, despite the recommendation to do so by a considerable number of the participat-
ing nations and although IAEA is receiving all the needed input for such a publication, and despite, too, certain economic advantages in making multiple use of the machine file when using it for the retrieval operations as well as for computer-controlled typesetting. Whether or not the printed title lists in combination with the microfiche abstracts will serve the customers as well as a printed secondary publication remains to be seen.

As the abstracts are microfilmed in one or other of the four official languages a rather severe linguistic problem is posed for all those users who are not able to read texts in all the languages used.

Cooperation IAEA/EURATOM

It might be of interest to know that an agreement in principle was recently reached to establish technical cooperation between the services of IAEA and those of EURATOM. This cooperation had been requested by the authorities of IAEA to transfer in this way part of the operational experience which the Center for Information and Documentation of EURATOM has gained during the development and operation of the ENDS system. This agreement is to be translated into a contract.

It is obvious that this kind of contractual cooperation can help much to speed up the implementation of the INIS project from a safe basis. By channeling this experience from EURATOM to IAEA certain delays can be avoided. Furthermore, in this way some measure of desirable continuity can be established between ENDS and INIS.

Further Developments

As the INIS system is not yet operational, all the experience with the output agreed so far has still to be gained before new steps can be taken. The quality of the services rendered will depend largely upon the quality of the input and upon the dependability of the central processing, but even more so upon the ability of the national centers to make the best use of the offered output. Therefore it might very well be that the results of the participating national centers differ widely, depending upon their adaptability and their professional skill.

For certain tasks not performed, at the moment, by IAEA's central processing, groups of national or regional centers might agree upon some further processing among themselves for transforming the output products according to the needs of their clientele; for example, regional reprocessing of the magnetic tape to assure economic retrieval operations, translating those abstracts which cannot be read by a majority of the customers, etc.; or in other words, tasks which can be performed more easily and/or more economically by agreed cooperation.

The output products as agreed upon so far seem to lend themselves easily to a diversity of specific forms of use and they can be reprocessed easily in many ways, not only for use in national or regional retrieval units. They can be adapted for use in progressive data handling systems but all the same they could be translated on to peek-a-boo cards for centers with little quantitative demand.

The INIS system will be, therefore, even in its initial form, much more than a mere experiment. A great deal of experience should be obtainable from its operation on the feasibility and intricacies of worldwide cooperation.

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Mr. Brée is director of the Center for Information and Documentation of the Commission of the European Communities, 29 rue Aldringer, Luxembourg. Presented at a Joint Meeting of the Aerospace, Documentation, Engineering, Metals/Materials, Natural Resources, and Nuclear Science Divisions on Jun 2, 1969 during SLA's 60th Annual Conference.

SPECIAL LIBRARIES
The topic, map librarianship, is a large order, indeed. This discussion is limited to: 1) the responsibilities of the map librarian, 2) his qualifications, and 3) his day-to-day duties. The discussion is aimed at the general problems of the smaller map libraries. You may be surprised that the University of Illinois Map Library is in the category of a "smaller map library" with its collection of 250,000 maps and nearly 100,000 aerial photographs. But I prefer to judge size more from the point of view of the staff to serve the collection rather than the number of items in the collection. There are one professional, one clerical, and three part-time student positions. This staff, however, also services a collection of 14,000 geography books and the library is open for 56 hours a week. Thus our problems, so far as maps are concerned, are the same in kind and in magnitude as other small map libraries, except for those who are starting new collections.

The first responsibility of a map librarian is to build his collection. This requires knowing present needs and anticipating future needs. Know your users and anticipate their wants. Your library's overall acquisition policy will affect your building. A research library will acquire more intensely than a small university or college library. A public library will place greater emphasis on its own region, unless it has a special subject interest. To build your collection you need to know what the acquisition tools are; you must have them at hand; and above all you must use them. The tools include the map publishers' catalogs-governmental and private-map dealers' catalogs and sales lists, cartobibliographies, acquisitions lists, and periodicals.

Building a good collection is not enough. It must be organized. By organization I mean classification, cataloging, and physical arrangement. There are a number of classification schemes available to be used as they are or which can be modified without too much difficulty. Of course you can devise your own. I advise caution in modifying an existing scheme or in devising your own—bear in mind the story of book classification. Two very important considerations in selecting or devising a classification scheme are:

Will it be kept up to date?
Will it meet the needs of a much enlarged collection?

Cataloging accomplishes what classification fails to do, and this largely through subject and added entry cards. Unfortunately the complete cataloging of a map collection is a rarity. There can be, however, at least brief cataloging—at least one card for each map or map set or series. Such a card bearing the class number, authority, title, imprint, and scale will provide good control of the collection. This sort of control should be within the capability of any small- or medium-sized library.

The map librarian is responsible for the use of the collection. He determines which maps will circulate, if any, and to
whom; what the loan period will be; and whether they will be available on inter-library loan. Some libraries circulate virtually all maps freely; others permit no circulation whatsoever. A basic philosophy of American librarianship, as you know, is to make the book as freely available to the public as reasonably as it can be done. As a consequence there has been a great deal of freedom in making the book stacks open to the public. Can this same freedom be allowed with the map collection? I do not think so, unless the map librarian has no responsibility for preservation. The risk of damage or loss of maps is very high when the map files are open to the public. When you restrict access to the map files, you place a greater burden on yourself, because you then take on greater responsibility in selection of maps for use.

Maps that circulate need a protecting cover. Tubes, in which many maps are shipped by the publishers, are very suitable for this purpose. Maps that are torn need repair. Maps can be protected by laminating and mounting. This requires a decision of selection because there is hardly a library that can afford to mount all maps.

All librarians have a responsibility for assisting users in the selection of material, of course. But I think that the map librarian has to go beyond this service of selection—assistance to a greater extent perhaps than almost any other type of librarian. He must be able to assist the user in reading and interpreting maps. Many of the people who come to him for a map need and should get this kind of help. Another important service of the map librarian is the determination of geographic location. By and large, most of the reference questions directed to him will be of this nature. So he needs all the tools at hand to perform this service—gazetteers, postal and shipping guides, map indexes, and so forth.

There are thousands of book stores in the United States where one can go and purchase a book, and if the book is not on the shelf the store will order it. But there are extremely few stores where you can go and purchase a map, or even get any help in purchasing one. For this reason the map librarian has a responsibility to help people buy maps: what to buy and where to buy it. Because he should have a file of publishers’ and dealers’ catalogs, it should be very easy to render this kind of assistance.

To perform these responsibilities what qualifications should the map librarian have? I would like to mention first three very general, but fundamental, qualifications that any public service librarian should have. I use the word “public” here in the sense of the particular kind of public you serve and not necessarily the general public; and I think that almost without exception all map librarians are public service librarians. The qualifications are dedication, personality (that is, a personality that makes for easy rapport with your public), and understanding. I think that most of you will find that a large proportion of the people who come to you for maps not only know very little about a map but also do not even know how to ask for a map. The map librarian must understand them, be patient with them, and be sympathetic with them.

Looking back for a moment, what were the qualifications of our first librarians? Let me quote from Walter Ristow’s article “Map Librarianship” in Library Journal (Oct 1967):

“The First Generation of American map librarians was, of necessity, self-trained. Those few individuals who filled positions as map curators prior to World War I, moreover entered the profession largely by chance rather than design. They came from a variety of noncartographic backgrounds, and none had prior training in library science or geography. Cast adrift in a confusion of maps, they struggled and learned as they sought to establish order and control over the collection.”

We can hardly say that they had ideal qualifications.

The map librarian should have a first degree and an advanced degree, the latter being in library science. His library science degree should include formal instruction in map librarianship, a type of which is almost impossible to obtain.
The first degree should be with a major in geography. Why in geography? It is because the geographer deals with aerial distribution of people, of plants, of animals, of climates, of transportation systems, of settlements, of industrial sites, of chain stores—and I could go on and on. Aerial distribution is very effectively presented graphically by the map; and that is why the geographer considers the map as a fundamental tool of his profession. Because of this he makes a cartography course one of the requirements for a major in geography. Besides a major in geography the map librarian should have had courses in geology and history, and he should have competence in two foreign languages.

My last point for discussion is the day-to-day duties of the map librarian. If a collection is to be kept up-to-date there must be constant searching of periodicals, catalogs, price lists, acquisitions lists and so forth for new maps to be acquired. Another daily task—and it requires considerable time—is helping in selecting the right maps and atlases for the users of your collection. If you have an air photo collection, you will be concerned with identifying and selecting the photo or photos that cover the desired area. Map users will ask you questions about maps you select for them that will require you to do some map reading or even map interpretation. The training and supervision of help is a continuing task. Processing of maps is a constant task—unwrapping, arranging, stamping, classifying, cataloging, indexing, and the placing of call numbers on maps. A common duty is the answering of reference questions, and the most common questions are about geographic locations—some of which are simple to answer but others are difficult. The more difficult, the more intriguing but the more time consuming. And lastly, weeding. It is difficult to fit weeding into the day-to-day routine, but if you can, so much the better.

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The Need For Map Cataloging

Roman Drazniowsky

American Geographical Society, New York 10032

NOT LONG AGO it was believed, among some librarians, that map cataloging was not necessary. Cataloging was simply a waste of time. To those professionals a simple alphabetical filing of maps, by geographic or political regions, was satisfactory enough. Soon after, the demands placed on map collections showed the shortcomings of such an approach. Unfortunately, all discrepancies created by such a system could not be improved overnight and as a result, at the present time, there are many uncataloged map collections, or perhaps it would be better to say, there are very few cataloged map collections.

At this point, it would seem appropriate to ask the question, “Is map cataloging really necessary?” I would not dare to ask this question regarding book cataloging. Of course, map cataloging is just as necessary as book cataloging—in order to make use of, to the full extent, the wealth of information provided by maps. It is a well-known fact that cataloging is one of the most difficult tasks in any library operation; it is more so for map cataloging, because, unlike the systems developed for book cataloging, there is a lack of any accepted map cataloging rules.

This problem is not limited only to maps. At the present time there is no adequate classification for geographical material in general. Dr. Arch Gerlach* in his article, “Geography and Map Cataloging and Classification in Libraries,” stressed these problems quite well:

“The basic difficulty appears to be that librarians have had too little contact with modern geography to recognize works in this field when they see them, and too little understanding of maps to give them the attention they deserve as sources of information.”

Major libraries have hesitated to introduce radical changes, despite the fact that they recognize the need for such changes, because of the great number of already cataloged material that is scattered throughout their collections, and because of the high cost of recataloging projects. As a result, individual map collections were forced to develop or modify map cataloging methods according to their needs.

The problems of map cataloging could be divided into two groups. First, the shortage of properly trained personnel, which could be easily overcome by training them in library schools. However, the second group of problems is rather complicated. To solve them satisfactorily it is necessary to understand the nature of the map and to deal with these non-book materials accordingly. It is advisable, therefore, to develop the ideal map cataloging rules or to modify existing ones which could be acceptable to all map collections. At the present time, the American Library Association rules† and the Library of Congress rules for entry are based on the supposition that maps should be cataloged as books are cata-

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* Special Libraries 52:(no. 5) 248–251 (May/ Jun 1961)
loged. The main entry for books is author, title. The primary interest in a book is the subject. For maps, however, the author or title has little significance. No one asks for a Bartholomew map. The area is of primary importance in map cataloging. In fact, the earliest map catalog printed in America by Harvard University—in 1831—was arranged by area. And, since 1885, the catalogs of the British Museum followed an area arrangement. The subject, in most cases, is of secondary importance and is always related to the area. If a subject is not related to the area, then there is no need for a map.

Since the area entry is of primary importance in map cataloging it must be clearly defined. The problem is not as easy to clarify as it first appears. For example, the shifting of long-established geographical regions, due to political changes, as in Central Europe or Eastern Europe, Near East or Middle East. The boundary between Asia and Europe. What type of boundary—cultural, political? It is difficult to mention geographical. Even more complicated are those with undecided territorial changes. I can mention, at this point, the Polish-German territorial problems. How should such territories be cataloged? The constant name changes are also creating problems, not only to catalogers but also to map-makers, who complain constantly. Perhaps, further research into automation for map cataloging may be the answer in solving these problems.

†"A map, series or set of maps, an atlas, a relief model, or a globe is entered under the person or corporate body that is primarily responsible for its informational content." Description of Main Entry in Anglo-American Cataloging Rules, ALA, Chicago, 1967. p.272.

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Determining Tomorrow's Needs Through Today's Requests

An Automated Approach to Interlibrary Loans

Bette H. Dillehay, Lester W. Preston, Jr. and Mary Webb

A. H. Robins Company, Richmond, Va. 23220

The development and operation of a computer-based system for managing, monitoring, and evaluating the interlibrary loan system of a special library in the pharmaceutical industry is described.

The corporate special library can only hope to be the apex of a pyramid comprised of the totality of the published literature of the world. Indexing, abstracting, and current awareness services have reached a level of economically feasible utility so that even the smallest libraries can provide their clients with selected citations in any number of subject matter areas. Obviously, such services would be useless without the ability of providing cited publications selected by the client. Thus, interlibrary loans become absolutely indispensable in a special library operation.

Like any powerful tool, interlibrary loans must be intelligently used. Such use must be expressed in terms of the particular demands of the library's clients—demands that are constantly changing in nature and degree. An in-depth analysis of these demands as expressed by requests for published material is an excellent means of evaluating the needs which should be met by the library.

In 1962 Eugene Graziano stated in published correspondence that interlibrary loan record analysis should be the subject of national and international cooperation. He justified this statement by saying, "Not only do interlibrary loan records constitute a plot of the parameters of individual libraries but they contain the raw materials for study of regional, national and international trafficking in the graphic records of civilization." (1)

Perhaps all will agree that this is, to say the least, a challenging statement and one which should inspire most librarians to immediately proceed to compile records which will allow them to catch a glimpse of where civilization is headed. The reason for the delay in this great movement quite possibly is the fact that Graziano neglected to specify the means by which such records should be kept. It is our hope in this paper to present such a plan and thus to add impetus to the original challenge. In addition, we will evaluate some of our findings in an attempt to justify the system as it has been developed.

The system at A. H. Robins Company began simply enough, as most systems do.
Feeling that the interlibrary loan requests do hold the answers to various questions, we began to think of basic plans which might be used.

Initially, we outlined the information which could be of value. This has not changed with expansion of the program. True, the expansion has enabled us to add to the list of possible objectives, but the original outline has remained, including goals such as:

- Evaluation of titles to determine needed subscriptions.
- Evaluation of material requested to determine backlog acquisitions.
- Evaluation of suppliers, taking into consideration cost and length of time needed to receive requested material.
- Development of cost-breakdown by department.
- Provision for backup reference service for library users by having a permanent record of requests.

A four-part form was designed using NCR paper and distributed to all research department employees. They were asked to place all requests for material on this form regardless of type of material or in what form they wished it. The small number of book requests received was a major factor in deciding to design the form primarily for journal requests. A separate worksheet was prepared for library use which could be attached to the reference request form. On the worksheet were listed our four major suppliers: Medical College of Virginia, National Library of Medicine, John Crerar, and Battelle so that responses from them could be easily recorded.

When a request was received in the library, a search was made to determine the location of the material. Due to the fact that the library at Robins is located in two buildings, many requests were intralibrary rather than interlibrary. After it had been determined where the material could be procured, steps were taken to obtain it. All such steps were recorded on the worksheet which was attached to the original of the request form and filed under the requestor's name.

The other three copies were filed as follows:

- Copy B—Journal title;
- Copy C—Supplier;
- Copy D—Pending (This copy was always returned with the material as it aided the researcher in identifying material sent to him.)

If the material was received from the initial supplier queried, the pending copy was pulled, the original copy with the worksheet attached was located and date of receipt and cost noted on it. If the initial supplier queried could not forward the material, the worksheet was located and the supplier copy pulled from the file. An attempt was made to locate a second source. This source was marked on the worksheet and the supplier copy filed in a new location. This procedure was followed until a copy was received or the search abandoned.

Getting to Know Ourselves

This system worked quite well with only one exception. We had failed to take into consideration the number of requests handled. This presented two basic problems which more or less defeated the purpose of the operation—storage and manipulation of the data. In the first eight months, we filled fourteen large notebooks with files. Not only was this an expensive proposition, but we discovered that the amount of space needed to shelve the notebooks was prohibitive.

At the end of the year when we started to evaluate the records, we found it a difficult job to even count the total number of requests. When this was finally accomplished, we discovered that 1,155 requests had been processed in a ten-month period. It was decided to abandon the project on a manual basis and to enlist the aid of our computer friends. Sympathetic ears were bent, and within a few months the result was the system presently in use (Fig. 1).

The format of the source material for the system demanded little change in order to make it compatible with data

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Fig. 1. Interlibrary Loans: Library Phase

processing requirements. The same employee request form is used, but a two-part form replaces the four-part form. The library worksheet remains the same since the keypunch operator lifts the needed information directly from this sheet.

Each week the completed requests are forwarded to the data processing department (Fig. 2). Requests not completed are kept in a pending notebook under the name of the requestor.

Each request is entered with the following: Requestor/Department, request citation, reference citation, supplier, date requested, total pages copied, reason for non-receipt if applicable, total number of days involved in the transaction and cost.

In the reference citation, each journal is entered with the CODEN abbreviation, volume, year and beginning page. In order to complete each entry on one card, it was decided to use only the author's name and to exclude the title of the article requested. If title information is needed, it can be obtained from the original employee request which is filed chronologically in a remote storage area.

After the reference request sheets are punched, they are simultaneously listed in sequence by requestor and loaded onto a disk. From there the data are sorted by supplier and listed; then sorted by journal and listed. This approach was taken so that the data cards would be handled only once by the computer operator. After the data cards and run deck are put onto the computer, no further action is required. The succeeding two sorts and listings are accomplished by the job control cards in the same run deck. The computer program used to list the file is written in IBM System 360 Assembly Language using the Disk Operating System. Once a month three lists of the current year master file are printed and sent to the library, 1) by requestor, 2) by supplier, and 3) by journal title. Upon receipt of the latest copy, the reference librarian destroys the previous list with the exception of the December print-out since the lists are cumulative and include all requests processed during the year.

The use of these lists by the reference librarian is limited; however, there are occasions when they prove themselves invaluable.

The print-out by journal title identifies immediately where a title can be secured if it has been previously requested. This saves a great deal of time especially in obtaining relatively obscure titles. The print-out by supplier aids in verifying invoices from various sources, and should a request be urgent, the reference librarian can determine at a glance the approximate time it will take to receive the material needed. The last list, that by requestor (Fig. 3), aids the absent-minded researcher who loses a paper and has usually forgotten where he saw the reference. If the citation does not provide sufficient information, the original reference can be retrieved.

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Evaluation—Not Ready Reference

The primary reason for the establishment of this program, however, was as an evaluation tool not a ready reference source for the use of the librarian although, as just described, this phase of the program has proven to be of value.

A. H. Robins, like many special libraries, depends heavily on the resources of other libraries to supply much of the material requested. We think it is reasonable to expect the library of any organization to have the sources that are frequently requested, but few libraries can hope to have all of the materials they are expected to provide. The problem is how to acquire the material most needed and for what period.

The hypothesis of our system is that titles most frequently requested for interlibrary loan in any given time interval are the ones which should be considered for first purchase. An evaluation of the master file by journal title gives the total number of requests for each title and the cost of obtaining the copies. The total cost of obtaining copies of current material from a particular title can be compared with the subscription cost (Table 1). Of course, handling and storage costs can also be a consideration as well as time lapse in receiving the copied material. We have found that for the past two years we have had at least four titles each year that have been requested more than fifteen times each. Regardless of the cost factor in these instances, it is our opinion that a subscription should be placed for these titles. The convenience factor is quite relevant in such cases and possibly even greater use would be made of the journal if it were available for perusal by members of the research staff. This opinion is in conflict with that of Graziano (2) who stated in a paper appearing in This Journal that an evaluation of his interlibrary loans showed only 8% of the titles were requested more than twice and thus such an evalu-

Fig. 2. Interlibrary Loans: Data Processing Phase

Fig. 3. Interlibrary Loan Requests. Excerpt from Master List

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Table 1. Frequency of Journals Requested and Cost Comparison

<table>
<thead>
<tr>
<th>Journal</th>
<th>Number of Times Requested</th>
<th>Cost of Securing Copied Material</th>
<th>Subscription Cost (1968)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acts Medica Scand.</td>
<td>14</td>
<td>$42.50</td>
<td>$27.00</td>
</tr>
<tr>
<td>Acta Physiologica Scand.</td>
<td>15</td>
<td>8.40</td>
<td>15.00</td>
</tr>
<tr>
<td>Psychosomatics</td>
<td>12</td>
<td>(NLM)</td>
<td>11.50</td>
</tr>
<tr>
<td>Experientia</td>
<td>16</td>
<td>38.50</td>
<td>22.50</td>
</tr>
</tbody>
</table>

that another source should be used whenever an alternative exists. Quite possibly the length of time involved is a result of the distance of the source from us, not an indication of poor service.

Approaching supplier evaluation from a different aspect, it is also important to determine if such sources as the National Library of Medicine are being used excessively. If this appears to be the case, a study of the titles requested possibly can reveal other sources which can be used. From a user standpoint, this source should be used on a limited basis since a study of our requests shows that 44% of them were pending for more than two weeks.

The two libraries at A. H. Robins overlap in subject areas and interests of those persons using each. For this reason, we have entered all requests which transpire between the two locations. This has been done for two reasons:

1) to insure that we can provide a complete bibliography of requests should a user ask for it; and
2) to determine when a title should be housed other than where it is or that possibly a duplicate subscription should be placed.

If a title is consistently requested by those located other than where the journal is housed, a check is made on the use in its present location; from this it can be determined if the title should be moved or the subscription duplicated and housed in both libraries.

Indexes to literature are probably the most expensive item in any serial budget.

Table 2. Interlibrary Loan Data by Decade

<table>
<thead>
<tr>
<th>Period Covered*</th>
<th>Total Number of Requests</th>
<th>Per Cent of Total Requests</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968</td>
<td>254</td>
<td>22%</td>
</tr>
<tr>
<td>1960–67</td>
<td>589</td>
<td>51</td>
</tr>
<tr>
<td>1950–59</td>
<td>162</td>
<td>14</td>
</tr>
<tr>
<td>1940–49</td>
<td>46</td>
<td>4</td>
</tr>
<tr>
<td>1930–39</td>
<td>69</td>
<td>6</td>
</tr>
<tr>
<td>Pre-1930</td>
<td>35</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>1,155</td>
<td>100%</td>
</tr>
</tbody>
</table>

* Requests reviewed were received in 1968.
For this reason it is important to select them wisely. An excellent source for the determination of the extent of their individual use within the organization is provided in our program. An index is unused either because it is not understood or because it is a poor index. By listing the interlibrary loans according to reference source, a study of the various indexes can be made. To make a complete study of this would require additional factors such as number of references available on the shelves and extent of abstracts used if such are available in the literature indexes. However, any index which does not appear frequently as a reference source should warrant further investigation.

A Library Administrator Keeps Management Informed

One of the most important administrative duties of any librarian is to inform management of the activities of the library. This naturally should include a breakdown of the services performed for the various departments within the institution. Since we consider the procurement of requested literature a high priority item, it is proving extremely valuable to be able to enumerate these costs on a departmental basis. In the past, it was rather difficult to do this because the cost per item was usually small and because deposit accounts with various sources often prevented a per-item charge-off. With the system now in use, we are able to provide interlibrary loan costs on a quarterly basis to the Accounting Department and to the department heads. Thus, the combination of this cost along with book acquisitions and new subscriptions provides the department head with an accurate picture of library costs and services. It also aids in determining budget requirements both for the library and the department.

We must always keep in mind that the ultimate goal of every library should be to provide the services that will best promote the objectives of the institution it serves. Good research is the basis for doing this. However, good research usually raises more questions than it answers. Some of these questions were raised by Graziano (2): "As the library grows, will the number of requests diminish for new titles and the frequency of repeats increase, or will older journals make up a larger part of the total?"

A constant survey of these trends through evaluation of interlibrary records should enable us to yield better service at a lower cost.

Literature Cited


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Mrs. Dillehay is librarian of A. H. Robbins Company; Mr. Preston is director of scientific information and Mrs. Webb is programmer/analyst. This paper was originally presented at a meeting of the Pharmaceutical Division on Jun 3, 1969 during SLA's 60th Annual Conference in Montreal.
Pharmacy and the Pharmaceutical Sciences

Information Activities in Japan

Yosoji Ito
Shizuoka College of Pharmacy

Masayoshi Horioka
University Hospital Pharmacy, University of Kyushu

Japan Pharmaceutical Library Association

FOURTEEN YEARS AGO, the libraries of the pharmaceutical colleges and the libraries in the pharmaceutical industry organized the Japan Pharmaceutical Library Association to promote the development of pharmaceutical libraries. This was not only to implement pharmaceutical education as effectively as possible, but also to fulfill the library's mission as a specialized information center for pharmaceutical research in colleges and in industry.

At present 36 governmental, prefectural or municipal, and private pharmaceutical college libraries and 44 libraries of firms in the pharmaceutical industry are affiliated with the association.

The association's activities are:

■ In 1965 the association, in cooperation with the Japan Medical Library Association and under the auspices of the Ministry of Education, completed a 10-year short-term program to train medical and pharmaceutical librarians. Curricula were compiled for the 10 years; and stress was placed both on basic library science and on the outlines and bibliographies of special academic subjects in the medical and pharmaceutical sciences.

■ Since 1957 the association has sponsored an annual session on "Documentation" or on "Pharmaceutical Literature" during the Annual General Meeting of the Japan Pharmaceutical Society—a large learned society for research in the pharmaceutical sciences—to discuss the needs of documentation for research workers, and to influence the preparation of scientific research papers as much as possible. The programs, as a rule, include symposia and training sessions; broad subject areas are discussed.

■ Since 1961 the association has held its meeting every autumn. As a rule, the meeting includes lectures, symposia, educational sessions, and contributed papers, as well as visits to libraries or other institutions.

■ The association has published a quarterly bulletin, Pharmaceutical Library, since 1956. News commentaries, reviews, treatises, results of investigations, etc. appear in the bulletin. A cumulative index for vol. 1–5 (1956–60) has been published. In addition, the association pub-
lishes many catalogs or finding lists, such as The Comprehensive Union List of Periodicals in Japanese in the Fields of Pharmacy and the Pharmaceutical Sciences.

The association endeavors to influence interlibrary loan activities, not only among its own members but also with other libraries.

In 1965 the association undertook an overall inquiry into the pharmacy college libraries for the purpose of preparing a “White Paper.” The association investigated facilities, librarians, and the present status of audio-visual education. In the White Paper on Pharmaceutical College Libraries (1965), many problems awaiting solution for the improvement and further development of pharmacy college libraries are elucidated.

The association has six regional committees in: Hokkaido and Tohoku; Tobu (Eastern); Hokuriku; Tokai; Kinki and Shikoku; and Kyushu. Each regional committee plans its own training programs, symposia, visits to libraries, etc. within its own region.

In 1963 the association prepared a standard for the establishment and for the normal functions of a pharmacy college library. The standard includes facilities and equipment, administration, collection, functions, librarians, etc.

Documentation Committees of the Japan Pharmaceutical Society

The Japan Pharmaceutical Society organized its Documentation Committee in 1953. Its UDC Committee (Universal Decimal Classification) was first organized. Later, as the importance of documentation increased, the committee was reorganized. At present, the Documentation Committee has four subcommittees: 1) Subcommittee for UDC; 2) Subcommittee for Pharmaceutical Terminology; 3) Subcommittee for Chemical Nomenclature; and 4) Subcommittee for Documentation.

The Subcommittee for Documentation functions through the Japan Pharmaceutical Library Association. At every

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Annual General Meeting the subcommittee holds a “Documentation” session or a “Pharmaceutical Literature” session as well as several academic scientific sessions.

The Subcommittee for Pharmaceutical Terminology was organized 5 years ago to legislate pharmaceutical terminology with a view to more effective pharmaceutical education. This subcommittee has already established terminology in the fields of “Pharmaceutics” and “Pharmacognosy”; and terminology in other fields of the pharmaceutical sciences is now proceeding. Terminology in the field of chemistry is now under joint consideration with the Committee for Revision of Chemical Terminology of the Ministry of Education.

The Subcommittee for Chemical Nomenclature was organized in 1953 as the Committee for Indexing. This committee's original objective was the preparation of a subject index for the Journal of the Japan Pharmaceutical Society (Yakugaku Zasshi). In 1966, the Committee for Indexing was reorganized. The main task of the present subcommittee is to check the nomenclature of chemical compounds in the articles which have been presented to the Journal according to IUPAC nomenclature (International Union of Pure and Applied Chemistry) and the nomenclature of Chemical Abstracts.

In June 1953 the Pharmaceutical Society of Japan established its UDC Committee with member-specialists in the fields of pharmacology, pharmacy, chemistry, pharmaceutical technology, biology, pharmacognosy, pharmacopoeiae, and UDC. This committee undertook an examination of UDC 615.7, “Classification of Pharmaceuticals According to Their Main Action.” The following discrepancies were found:
Because individual pharmaceuticals are listed as subdivisions under "Pharmacological Action," further classification by pharmacological action is prevented. This situation also has prevented the addition of any newly discovered pharmacological activities to UDC.

Arrangement of UDC 615.71/.79 had developed in parallel with 611 "Anatomy." The arrangement does not agree with modern pharmacological classification which considers the nervous system to be the basis for pharmacological activity.

Pharmaceuticals or chemicals which exhibit two or more different pharmacological activities must be classified according to each activity (e.g., Alcohol both as a Stimulant and as an Aseptic). The method of manufacture and the properties of the substance must also be indicated by appropriate classifications.

Substances with similar chemical structures but with entirely different pharmacological activities present problems in the assignment of UDC numbers (Sulfones used for diabetes therapy are related to the sulfanilamides used in chemotherapy, but their uses are quite different).

Antibiotics discovered in recent years, such as penicillin, streptomycin, etc., are assigned UDC numbers under the subdivision of "External Drugs, Chemotherapeutics," 615.779.93. Because all the numbers had already been assigned to old drugs (which are almost never used today), new drugs with high frequency of modern use have to be assigned a long string of numbers in unsuitable locations in the UDC classification tables.

UDC numbers had been rigidly assigned to many structurally unclassifiable substances which were probably used as home remedies in Europe long ago. If such uncommon old European drugs are to be included, then UDC numbers should also be assigned to the thousands of vegetable, animal, and mineral drugs that are used as unrefined drugs in the Asian countries. Similar drugs from India, the Middle East, Africa, and South America—or all over the world—should then be treated on an equitable basis.

Finally, it was realized that it would be impossible to eradicate such discrepancies by merely correcting the existing classification table or by adding to it. It was concluded that, unless the classification were to be developed on a more rational basis, UDC 615 could not be effectively used in view of the developments in the pharmaceutical sciences. For this reason, the following fundamental principles were proposed:

- Classification of pharmacological activity together with individual drugs in 615.7 should be discontinued.
- Individual chemicals and drugs should be classified in 615.2 for inorganics and in 615.3 for organics.
- Classification according to pharmacological activity should be developed in 615.6 (not now in use).
- Pharmacodynamics (615.5) should be abolished; this science should be treated under auxiliary numbers.
- Special auxiliary numbers should be corrected and some additions made.

Accordingly, the committee started on the preparation of a revised draft. The proposal was presented at the Diamond Jubilee Meeting of the Pharmaceutical Society of Japan in April 1955. This draft proposal was approved by the specialists and was presented as *A Proposal for the Revision of UDC 615 Pharmacy* at the 22nd FID Conference (Brussels, Sept. 1955). Unfortunately, this proposal was stopped in the hands of the then rapporteur of FID/C615 Committee. A second proposal was sent to the 23rd FID Conference (Paris, 1957), but the proposal was also not put on the agenda. Thanks to the good offices of Dr. O. Nacke, then chairman of the FID/C61 Committee, this proposal was presented to the C61 Committee meeting at the 27th and 28th FID Conferences (London, 1961 and The Hague, 1962) by Professor Haruo Otuka, a member of the FID Central Classification Committee (FID/CCC). As a result, FID/CCC agreed on the policy to separate pharmacological activity and individual pharmaceuticals, but FID/CCC assigned 615.2 to the former and 615.3 to the latter.
In accordance with this decision the UDC Committee prepared a fourth draft and presented it to FID/C61. The new revision was placed in the hands of Dr. Klein of Germany, then secretary of the FID/C61, and the various fine points were discussed by the representatives of Japan and Germany. The revised plan was then debated by specialist members of FID/C61 from Belgium, Germany, Japan, The Netherlands, Poland, United Kingdom, USA and Yugoslavia at the FID/C61 meeting during the 29th FID Conference (Stockholm, 1963). Further discussion took place at the joint meetings of CCC and C61 in Prague (Apr. 14–16, 1966) and at The Hague (Sept. 15, 1966). The final draft was printed and distributed to all member nations as Document PI md 857. After a period for any claims to be made by Sept. 30, the new tables for UDC 615, Pharmacy, became effective on Nov. 30, 1966.

The revision of UDC 615 has not yet solved all problems. Some questionable points still remain—such as the method of combination of numbers in the case of actual applications. Several problems came up during preparation of the draft; notably, the question of terminology such as the exact meaning of certain terms, and nonuniformity of terms used in the French edition (1939), in the German full edition (1951), and in the abridged English edition (1961).

Drug Information (DI) Activities in Hospital Pharmacies*

Following recent developments in the medical and pharmaceutical sciences, many new drugs and preparations are available. The number of published articles that deal with the evaluation of new drugs is said to be more than 300,000 per year. This situation results in the increased use of new drugs and new preparations in the hospital day by day. Physicians who diagnose and treat patients, on the one hand, and those who prescribe, on the other hand, are finding it very difficult to learn enough about new drugs so as to select the most effi-

* Dr. Horioka gives the following definition of drug information activities: “Drug Information (DI) activities in hospitals and clinics are the activities of hospital pharmacists as drug consultants in order to contribute to the development of pharmacotherapy.”

UDC, as its name implies, must accommodate each and every subject common to the world but all items so treated are not necessarily known throughout the world. Since none of the terms in the printed schedule has any annotations, translation from one language to another will inevitably be a free translation rather than a rigorous translation (when a suitable word cannot be found). If such a term is translated further into a third or fourth language, the original meaning can well be lost. For this reason, all the terms adopted in our revision were based on the German edition but were stated in English. Dr. Klein edited the original draft in German based on our draft in English; this was printed as PI md 857. It was thought that many of the ambiguities and mistaken notions could be avoided by giving both the English and the German terms which served as the original for the newly revised UDC 615. Plans were then made to publish the revised UDC 615, Pharmacy as a trilingual edition (German, English, and Japanese) with the approval of FID, the British Standards Institution and Deutscher Normenausschuss. Here, we acknowledge the permission given by BSI and by DN for publication and for their helpful advice for corrections in our draft. In addition, the revision was to be published in honor of the 33rd FID Conference (Tokyo, Sept. 1967)—the first FID meeting to be held in Asia.
The pharmacists, as pharmaceutical scientists who have a thorough knowledge of drugs and allied preparations, have a duty to obtain the most recent and correct information on each drug, and to disseminate such information to the physicians as occasion demands.

Although drug information activities in the past had been only on an individual and nonsystematic basis, hereafter DI must be promoted by a larger unit, for example, by the hospital pharmacy rather than by individuals. Such persons must systematically apply modern information techniques.

During the 1965 General Meeting of the Japan Pharmaceutical Society, a symposium on “Drug Information Activities in Hospitals and Clinics” was held. The symposium provided an incentive for these activities by hospital pharmacists. Before the meeting, some advanced university hospitals had established Pharmacy Committees and Therapeutics Committees to promote effective conferences and recommendations on the use of drugs in their own hospitals.

One of the most prominent developments in drug information activities was the establishment of drug information centers in many hospitals. These centers give hospital pharmacists a practical way to fulfill their duties of collection, retrieval and dissemination of information in a systematic manner, instead of the traditional individual ways now in use. The successful development of these centers is recognized to be advantageous by medical professionals. These activities are regarded as appropriate and reasonable for hospital pharmacists.

Although the activities of these centers are known, they cannot produce efficient services or marked results as they are pursued separately in each hospital.

To correct this defect, the Fukuoka Society of Hospital Pharmacists organized the Drug Information Collaborative System in Dec. 1964. This is a collaborative information network to channel “unanswerable” questions received by the smaller hospitals to the Kyushu University Hospital Pharmacy. The society consists of 140 hospital pharmacies in the prefecture. Because the system has operated successfully, similar systems have been organized in many of the prefectures in Japan.

An effective means to promote such activities is to publish a Hospital Formulary edited as a pocket-sized comprehensive manual containing data and materials on drugs used in the hospital for the convenience of staff physicians. An advance publication was issued by Kyushu University Hospital in Sept. 1965, and similar formularies were later published in several teaching hospitals.

In March 1967, the Ministry of Welfare enforced an adverse drug reaction reporting program for university hospitals and national hospitals. Pharmacists of these hospitals have participated as coordinators who administer and complete the reports.

Since 1968 the Association of Japanese Hospital Pharmacists has supervised the publication of hand-sorted punched cards of new drugs that describe available information (including chemical formulas, dosages, contraindications, applications, pharmacological data, side effects, reference sources, etc.). Three hundred sheets have already been issued, and are to be issued continuously. The cards are retrievable by proprietary name, by non-proprietary name and by pharmacological classification. The latter is identified by five digits as determined by the Statistical Standards Bureau of the Administrative Management Agency as a “Standard Commodity Classification for Japan.”

This paper is an updated version of one presented by Dr. Yosoji Ito at the 1st Asian Congress of Pharmaceutical Sciences, Tokyo, 1966. The invited manuscript was received on Mar 16, 1970. Special Libraries acknowledges the assistance of Mr. H. Yajima, editor of the Pharmaceutical Library Bulletin, in presenting this report. Mr. Yajima is librarian of the Faculty of Pharmaceutical Sciences, University of Tokyo, Bunkyo-ku, Tokyo.
Acquisition Cards as an Announcement Medium

Donald M. Munro and Nancy W. Huang
Highway Safety Research Institute, The University of Michigan, Ann Arbor, Michigan 48108

WHAT TO DO about publicity for new materials added to the library? When this question arose in 1966 (as it will in new library situations), we realized that conventional answers lacked the quality which we hoped to reach in serving the research personnel of the institute. In considering the question, three needs were evident:

• The need to present more information than the usual bald announcement contains. We wanted to equip the library user with enough guidance to enable him to make an intelligent decision to request or not to request new materials coming in to the library.

• The need to conserve library time; a desirable solution would not require excessive supervision of the announcement process.

• Considerable experience with announcement bulletins had pointed up the need to overcome as far as possible the monotony experienced by the reader of an accessions list of unchanging format over a period of time.

After other solutions were considered, we settled on one which provides a single 5" × 8" printed card for each item to be announced. Such a card is perhaps the smallest which provides space to reproduce around two pages descriptive of the item, photographically reduced and still in readable form (Fig. 1). As used here, the cards are processed by relatively experienced clerical help. The aim is to produce a printed card which reproduces on the right the title page or other identifying information, and on the left an abstract, summary, or part or all of

![Fig. 1. Announcement Card](attachment:image.png)
Selected item, newly cataloged

Material reproduced (see Fig. 1)

Mounted on layout sheet

Plate made and cards printed on offset press

Card preparation and sorting

Distribution

Fig. 2. Preparation of Announcement Cards

the table of contents. The HSRI number, an accession number which identifies the item, is displayed prominently to the right of the card. Reproduction is mechanical, with the best available information duplicated and included for each item. The process for making these is detailed in Fig. 2. The result is a card which often lacks the finish and clarity which could be desired, but which has proved acceptable to our research clientele over a period of time. The back of the card is not used.

Distribution. As the library grew in size and capacity, we recognized the wisdom of making cards only for those new items which are timely and of research interest. Even so, the numbers of cards produced presented a problem by burdening the individual with announcements of a superfluity of items for which he had no real use. We responded with what might be termed a primitive and entirely unmechanized SDI system. Materials are selectively disseminated on request in ten categories which include all of the highway safety literature received by the library. (This breakdown was originated by J. C. Marsh IV, of our Information Center.) The categories are:

A-Alcohol; AC-Accidents; V-Vehicles; H-Highways/Roads; TO-Traffic/Operations; B-Biosciences—Biomedical, Biomechanics; HF-Human Factors; PF—Public Factors; MT-Methods/Techniques; GR-General Reference.

When cards are distributed, we include a duplicated list of all the cards sent out during the month. This acts as an index, and we believe the presence of this list prevents an annoying sense of being "spoon-fed" from settling over the individuals receiving cards only in one or two categories. Because the research interests of an individual can change unpredictably with time, we maintain an open file of all acquisition cards distributed recently by subject. This enables a person to pick up back acquisitions cards in categories in which he had no previous interest. Although we felt that any attempt to use these cards for permanent reference was doomed to failure because of their lack of uniform bibliographical information, a number of researchers are actively maintaining personal files of the cards in their own speciality.

Level of Effort. Selection of the items to be publicized is one task which requires professional attention, but a minimum of time. We are currently making announcement cards for less than half of the materials cataloged. Other clerical tasks are the assignment of subject categories to the materials, and supervision of the entire process of making the cards. With experienced workers, the time devoted to supervision is minimal.

Clerical tasks include making a copy of the title page; cutting out and mounting the material on a previously prepared layout sheet for the printer; keeping track of material sent to, and re-
ceived from the printer; and cutting, sorting and distribution of the cards when received. Typing and duplicating the list of all cards distributed is another clerical portion of the effort.

When the cards were first introduced, the institute maintained an in-house offset printing facility which has since been discontinued. A local commercial offset shop now prints the cards from our layout sheets. For each item 45 cards are printed. The cards are produced two-up; a power operated paper cutter is used to separate the cards.

It will be noted that this approach to an acquisition announcement is more costly than merely typing, duplicating, and distributing an ordinary list. Whether this is uneconomical or not is primarily a question of values. The conservation of the time of the research staff weighs more heavily with us than saving of clerical effort, card stock, and ink. The sharper image of the original item which the cards reflect seems to us to be worth the difference in cost. Use of cards seems particularly justifiable when there is a large number of readers to be served.

It has been more than two years since we first started this service. Our growing list of requests has proved encouraging, but many improvements can yet be made.

The article by M. Bloomfield in the Oct 1969 issue of Special Libraries (1) will, in my opinion, become recognized as a major contribution to the literature. It illustrates how one obtains important knowledge about information systems through clear thinking rather than elaborately concocted, ill-conceived experiments. This study reminds me of the pioneering studies by M. Taube (2) on cost effectiveness in IR systems.

There are a number of details in the Bloomfield study which require elaboration. Whenever one discusses average situations, it is easy to lose sight of important differences between users who are not typical or average. For example, the Automatic Subject Citation Alert (ASCA®) service is mentioned as one of several SDI services available. Contrary to Bloomfield's experiences with other SDI systems, the average ASCA subscriber receives about 25 notices per week—which appears to be about four times the range given by Bloomfield. This appears to have an important relationship to the size of the data base from which ASCA is obtained. The value of any service must be determined not only on the basis of the number of notices, but also on the basis of the amount of literature examined. Furthermore, Bradford's Law (3) tells us that it becomes exponentially more costly to the user to find pertinent notices as the number of journals he scans increases. Consequently, I would say that Bloomfield should extend the Type I range to 100 notices.

The discrepancy is to be found in his monthly rather than his weekly orientation. The amount of information the scientist or engineer is willing to accept in a single reading is accurately analyzed by Bloomfield, but this does not mean the user will not be willing to do this several times per month. In fact, I predict that in another decade the acceptable number of daily notifications will equal those now received weekly. Again this varies considerably for each user. Similarly, I would extend his range for Type II up to at least 800.

In the case of Type III services, Bloomfield mentions Current Contents® (CC®) and gives 800 notices per month as the average. Once again he is about right in the number,
but wrong in the frequency. The reader of Current Contents®/Physical Sciences sees about 2,000 titles per weekly issue. In spite of continued expansion in coverage, our readers have an almost insatiable appetite for more coverage. In the case of Current Contents®/Life Sciences, the number of notices per week is over 3,000. Consequently, the Type III service is an order-of-magnitude higher. Since a large number of abstracting services do not cover as many papers per year as does Current Contents, it would appear that these services present special problems in Bloomfield’s evaluation. An abstracting service may not lead to as many document requests because of the information provided in the abstract.

While “common sense” indicates that “a lot of time has to be expended to read the unselected tool,” common sense does not tell us that intermittent reading time is often readily available to the modern scientist. This practice is also common to professionals, like physicians, lawyers, engineers, etc.

While I have indicated that the number of notices sent to the average ASCA user is just the number that Bloomfield claims as a threshold, we cannot go beyond; our experience does not match his. Provided we maintain a high level of relevant notices, our subscribers will accept as many as 100 hits per week. A critical factor over which we cannot exercise control is the number of pertinent papers published on a given topic. In fast moving fields, more papers are expected. In other fields, the size of the literature available may be small.

Finally, the average number of papers “requested” by an average Current Contents reader is not only variable but deceiving. Would a reprint request be considered the same as a tear sheet order or an interlibrary loan? For reasons given above, I would say that Current Contents readers “obtain” from 200 to 2,000 papers per year according to their range of interests. On the other hand, Bloomfield has predicted the lower limit for ASCA users quite well. However, some of our ASCAmatic (4) users obtain every article listed in their weekly reports.

Of the many important remarks in his paper with which I most heartily concur are the statements:

1) There is “a need and use for each of the three types of tools”; and
2) “Each provides a certain kind of service to its users that the others cannot provide.”

This undoubtedly accounts for the fact that many of our ASCA users also read Current Contents (5) or regularly use abstracting tools such as Current Abstracts of Chemistry and Index Chemicus™, Nuclear Science Abstracts, etc.

Eugene Garfield
Institute for Scientific Information
Philadelphia, Pa. 19106

Literature Cited
5. Garfield, E. / ASCA—Insurance for CC Readers, CC/Life Sciences 11 (no. 52): 4 (1968)

The Author Replies
Dr. Garfield has recognized well that the ranges I had given in my article were somewhat limiting. However, the ranges that I found fell well within my experience. It is more important to understand the number of requests that will be generated by each type of current awareness tool and the cost to produce that request, than the absolute number of notices sent to a user.

Because I was so limited in the number of examples of current awareness tools available to me for study, I appreciate the expansion of data. The experience Dr. Garfield has had with observations derived from commercial, and therefore real world, current awareness publications, helps to document the data given in my paper.

Masse Bloomfield
Hughes Aircraft Company
Aerospace Group
Culver City, California

SPECIAL LIBRARIES
Resignation of SLA's Executive Director

THE SLA Board of Directors announces with regret the resignation of George H. Ginader, the Association's Executive Director for the past two and a half years. Mr. Ginader is leaving his position with the Association to join Morgan Stanley & Co., New York as their librarian July 13. The Association wishes him well as he returns to the profession of special librarianship.

President Robert W. Gibson, Jr. has appointed a committee headed by Mrs. Elizabeth R. Usher, The Metropolitan Museum of Art, New York, to select and interview possible candidates for the Association's top position in SLA's Headquarters operations.

Anonymous Trust Established for SLA Scholarship Fund

THE ANN ARBOR TRUST COMPANY has advised SLA that a trust has been established for the benefit of the SLA Scholarship Fund by an anonymous trustor. Net income from the trust is estimated to be $3,300 during the 13-year life of the trust. Semi-annual payments will be made to SLA "to be used for scholarship purposes according to rules and regulations established by Special Libraries Association."

The Board of Directors and the members of SLA are indebted to the anonymous donor for this significant contribution to the Association's Scholarship program.

SLA Election Returns

EFREN W. GONZALEZ has been elected to the office of President-Elect of the Association for 1970/71; and Mrs. Jeanne B. North, to Chairman-Elect of the Advisory Council. Janet Rigney was elected to a three-year term (1970/73) as Treasurer. Two new Directors are John P. Binnington and Miriam H. Tees.

The 1970/71 Board of Directors will hold its first meeting in Detroit on Friday, Jun 12. Florine Oltman automatically succeeds Robert W. Gibson, Jr. as President; and Mr. Gibson will serve on the Board as Past President. Keith G. Blair automatically succeeds Helen J. Waldron as Chairman of the Advisory Council. Rosemary R. Demarest and Burton W. Lamkin will be serving the third-year of their terms as Directors (1968/71); and Edythe Moore and Loyd R. Rathbun, the second year of their terms as Directors (1969/72).
CHAPTERS & DIVISIONS

Baltimore—Dr. Michael M. Reynolds, acting dean of the School of Library and Information Services, University of Maryland, spoke on “Education for Special Librarianship” at the Chapter’s Apr 28 meeting.

Connecticut Valley—On May 7–8 the Chapter met with the Connecticut Library Association during CLA’s 79th Annual Conference in New Haven. The Conference theme was Intellectual Freedom: The Light in the Dark.

Engineering & Sci-Tech—The availability of scientific and engineering journals on 16mm cartridge microfilm is being promoted by two SLA Divisions. A survey questionnaire has recently been mailed to members of the Engineering Division and the Science-Technology Division.

Illinois—On May 19 a dinner meeting at the Chicago campus of Northwestern University was followed by a tour of the J. Walter Thompson offices at the John Hancock Center.

Minnesota—“Guidelines for the Development of Community Hospital Libraries” was the May 14 topic of Dr. Norman S. Stearns, executive director of the Postgraduate Medical Institute in Boston.

New Jersey—Dr. Elizabeth W. Stone, Catholic University of America, spoke at the Apr 20 meeting; her topic was: “Administration and Management in Industrial Libraries.”

Philadelphia—On May 11 the Chapter heard Dr. Alexander M. Cain speak on the topic, “The British Museum Has Kept Its Charm.” Dr. Cain is associate editor of the Medical Library Association Bulletin.

Philadelphia’s Social Science Group—An elementary school teacher, Mrs. Peggy Perlmutter, told of her experiences with children in the Head Start program. Her talk on Mar 17 was titled: “We Flood the Room with Beautiful Books.”

Pittsburgh—The Chapter’s first meeting in 1970 was held at the Allegheny County Law Library. Hon. John J. McLean, Jr., Judge of the Common Pleas Court, spoke on the uses of a law library in the administration of justice. The second meeting of the year had as its theme: Updating the Pittsburgh Library Scene. Five Pittsburgh librarians reported on the status of local information programs.

Rio Grande—An all day meeting considered “Library Networks and Communications.” The meeting was held in Phoenix, Arizona on Feb 7.

San Diego—The Chapter’s tenth anniversary was observed at a dinner meeting on Apr 22. The May 12 meeting was a joint meeting with the Palomar District of the California Library Association; the speaker was Harry Harrison, a science fiction author.

Texas—A joint meeting of the Chapter and the Dallas County Library Association on Feb 6–7 considered “Library Education and Manpower Utilization for the 1970’s.” The Apr 18 meeting was in San Antonio at the Southwest Research Institute.

Toronto—The 5th edition of the Chapter’s Directory of Special Libraries in the Toronto Area is available at $5.00. Payment must accompany order to: Dean Tudor, Dept. of Revenue Library, Frost Building, Queen’s Park, Toronto. Checks should be payable to SLA, Toronto Chapter.

The Chapter will be represented at the [Canadian] National Conference on Cataloguing Standards on May 19–20 by William Dagger.

Virginia Communicates

THE VIRGINIA CHAPTER held its Communications Seminar on Mar 25, 1970, at the General Office Building of Reynolds Metals Company in Richmond. Chapter members and prospective members from special libraries all over the state were invited. Executives of Reynolds Metals Company, Mr. Gail J. Penny (Director of Sales Training) and Mr. Thomas L. Matthews, Jr. (Director of Manpower Planning) were featured speakers.

A half-day was devoted to a full-participation workshop on listening, and the after-
noon included a presentation on communicating through an understanding of personality. This program ties in with the Chapter’s two-year theme, “What Can Librarians Do to Sell Themselves to Management . . . to Other Librarians?”

Bess P. Walford, Virginia Chapter president, pointed out that an important part of every librarian’s job is communication—with library users to determine their needs, with management to provide better understanding of library activities, and with other librarians to facilitate interdependent cooperation. Mildred Mason, president-elect of the Chapter, is librarian at Reynolds Metals Company’s Executive Office Library.

MEMBERS IN THE NEWS

The first annual Alumni Achievement Award of Simmons College School of Library Science Alumni Association has been presented to John N. Berry, III, editor of Library Journal, “for his contribution to librarianship in general; and, in particular, for his distinguished career in library reporting.”

Alice Billingsley... from Vitro Laboratories to the ERIC Clearinghouse on Library and Information Sciences operated for USOE by ASIS.

Patricia A. Bush, assistant librarian of Northwestern University’s Joseph Schaffner Library, has been retained as a consultant by the American College of Hospital Administrators to assist in the organization of ACHA’s Ray E. Brown Management Collection at the American Hospital Association’s Chicago headquarters.

Dr. Robert B. Downs, dean of library administration at the University of Illinois... awarded the Centennial Medal of Syracuse University in recognition of his services to higher education and society. He was cited as “one of the most effective forces in international librarianship.”

Mrs. Ciel M. Carter... from executive secretary of the Association for Computing Machinery to manager of information services at the German headquarters of McKinsey & Company, Inc. in Dusseldorf.

“Gypsy Fortunes” had its world premiere at the Santa Fe Community Theatre on Jan 23; co-author of the new play is Bill Farrington, president of SLA’s Rio Grande Chapter.

Alan Fern, assistant chief of LC’s Prints and Photographs Division, spoke on “The Prints of Edvard Munch: Emotion and Innovation” at the Virginia Museum of Fine Arts in Richmond on Apr 6.

Robert E. Fidotren has been appointed assistant director for program planning and evaluation at PPG Industries Glass Division research laboratories at Harmarville, Creighton and Ford City, Pa.

Paul Valery in English has been published by Olivant Press, Homestead, Florida. The translations from the French are by Charles Guenther, president of SLA’s Greater St. Louis Chapter. A new book of Guenther’s own poems is scheduled for publication in 1970 by the Prairie Press, Iowa City, Iowa.

Jean B. Hopson, formerly coordinator for the DRILL Project (Delaware Rapid Interlibrary Loan Reference Service), is now librarian of the Charles H. Babcock School of Business Administration, Wake Forest University, Winston-Salem, N.C.

Jack Key from Lovelace Foundation for Medical Education & Research, Albuquerque... to librarian, Mayo Clinic and Graduate School of Medicine, Rochester, Minn.

H. Robert Malinowsky... from Science and Engineering Libraries to assistant director for science and engineering at the University of Kansas Library, Lawrence, Kansas. He has been elected president of the Geoscience Information Society for 1970.

Mrs. Helen Redman, head librarian of the Los Alamos Scientific Laboratory, has been named “Librarian of the Year” by the New Mexico Library Association; she was honored for her work as chairperson of the New Mexico Library Development Council.

Dean Jesse H. Shera will be honored at the Annual Dinner of the Case Western Reserve University School of Library Science Alumni Association on Jul 1 at the Sheraton-Cadillac Hotel, Detroit. Dr. Shera will retire as dean of the library school on Jun 30.

Richard W. Stephenson... from head of the Acquisitions Section to head of the Reference and Bibliography Section of LC’s Geography and Map Division; he is chairperson of the Geography and Map Group of SLA’s Washington, D.C. Chapter.

Dorothy Watkins, who is retiring as New Mexico State Librarian, has been honored by Senate Joint Memorial 2 in the New Mexico State legislature.
Call for Papers
62nd Annual Conference
Special Libraries Association

San Francisco, California
Hilton Hotel
June 6-10, 1971

Theme:
Design for Service: Information Management

The 1971 theme emphasizes our concern for the new dynamics of the seventies. New techniques, new systems, and new challenges will be explored, designed to make the librarian even more effective in serving his community of users.

Papers are cordially invited from all SLA members, library school students and faculty, and others with a contribution to make. The General Sessions in 1971 will be closely coordinated and very specific in nature; so papers are not solicited for these. However, papers will be very welcome for a special authors' session, and for Division programs. They should be approximately 1,500 words in length, based on original research or development or on personal experience, and must not have been published or presented previously to any national group. They will also be considered for publication in Special Libraries.

Information and Instruction for Authors

1. Send the paper or the title of the paper and names of the authors accompanied by an abstract no later than Sep 15, 1970 to:

   Miss Marilyn Johnson
   Information Services-Library
   Shell Development Company
   1400 53rd Street
   Emeryville, California 94608

2. The abstract must not exceed 100 words. Please use the official abstract form which may be obtained from:

   Special Libraries Association
   235 Park Avenue South
   New York 10003

   In case of co-authorship, the name of the person expected to present the paper must be underlined. The name and the address of the institution or company sponsoring the paper should be given as well as the names and addresses of the current professional affiliations of the authors.

   The author should prepare the abstract carefully so that it will arouse interest in his paper and do justice to it. The abstract should set forth the purpose of the paper, important results, and conclusion. Please avoid historical summaries and generalities. The abstract will be reviewed by the Conference Committee to determine its interest to SLA members. Notification of acceptance will be given no later than Nov 15, 1970. Full text of all papers must be received by Jan 10, 1971.

3. Special Libraries Association has first right to publish all papers presented at its meetings. All papers are reviewed before acceptance. Papers not accepted for publication in the journal will be released to the authors.

4. Diagrams and data to be presented visually should be made legible through the use of large letters, heavy lines, and limited data on each illustration. Lettering should be readable from 150 feet. Projection equipment must be specified and requested when the abstract is submitted. An overhead projector is suggested.

5. No paper will be accepted unless an author expects to be present.
HAVE YOU HEARD?

National Commission on Libraries and Information Science

Almost one year after being reported out of committee and recommended for passage, HR 10666, the bill to establish a National Commission, was brought to the floor for a vote under suspension of the rules. The vote in favor of the measure was 259 to 11. Following passage of HR 10666, the House took up S.1519, a similar measure passed by the Senate, and passed that in lieu of HR 10666 after amending it to contain the language of the House-passed bill. These actions prepared the legislation for a Senate-House conference to resolve differences between the two versions.

Canadian Periodicals

The 4th edition of the Directory of Canadian Scientific & Technical Periodicals has been compiled by the National Science Library of Canada. This guide to currently published titles is available from the National Research Council of Canada, Ottawa, as NRC No. 10889 at $5.00 per copy.

Indiana Library Assistants Survey

SLA's Indiana Chapter and the Indiana Library Association cooperated with Purdue University in surveying the needs for library assistants in Indiana. The Case for Library Technical Assistants and Library Clerks in Indiana is available as Manpower Report 69-3 from Prof. J. P. Lisack, Director, Office of Manpower Studies, SCC-A, Lafayette, Ind. 47907. Checks for $1.50 should be payable to Purdue University.

ASIS News

The American Society for Information Science has established its new headquarters at 1140 Connecticut Ave. NW, Suite 804, Washington, D.C. 20036 (telephone number 202/659-3644). Herbert R. Koller has been appointed executive director of ASIS; he replaces James E. Bryan as executive director of the society. The new ASIS offices also house the ERIC Clearinghouse on Library and Information Sciences, which is operated by ASIS under a contract with USOE. Mr. Koller also serves as director of ERIC/CLIS. Mr. J. I. Smith has been appointed associate director of ERIC/CLIS; he was formerly with Plenum Publishing Corporation, New York.

Watershed Congress Proceedings

Paperbound back issues of Proceedings of the National Watershed Congress are available from the Congress' offices, Room 1105, 1025 Vermont Ave. NW, Washington, D.C. 20005. Years available: 1954-58 ($3.00 each); 1959-67 ($4.00 each); and 1968-69 ($5.00 each).

American Radicalism

A bibliographical survey on American radicalism from the Colonial era to the early Twentieth Century has been published by the library of the Polytechnic Institute of Brooklyn. Copies are available at $1.50 prepaid from the Library Secretary, 333 Jay St., Brooklyn, N.Y. 11201.

Council of Communication Societies

Seven professional societies, whose members use language and the graphic arts to communicate ideas, have formed the new council. The constituent societies are: American Business Communication Association, American Forensic Association, American Medical Writers Association, International Communication Association, Society of Federal Linguists, Society of Technical Writers and Publishers, and the Speech Association of America. The council's first president is Dr. Vernon M. Root (STWP). The council's
mailing address is Suite 514-16, 1545 Glenarm Pl., Denver 80202.

Dental Library

The S. S. White Company, a division of the Pennwalt Corp., has presented its library of dental publications to the School of Dental Medicine of the University of Pennsylvania, Philadelphia. S. S. White Company is a manufacturer of dental materials and equipment. The collection of more than 5,000 volumes was begun by the founder of the company.

Northern Ireland

The Queen's University of Belfast has announced a name change for its School of Library Studies. The new name is School of Library and Information Studies.

Special Library Specialist

The Library Association (London) has appointed a new Assistant Secretary to improve the association's services to special librarians and information officers, particularly those working in industrial and commercial concerns. The appointee is Michael John de Courcy Hamilton who had been at the National Central Library.

Negro Research Libraries

The National Agricultural Library has announced recommendations concerning the use of information resources for historically Negro colleges. The recommendations were made at an invitational conference in Washington, D.C. on Feb 24–26, 1970. The focus of the conference was developed by the new Subcommittee on Negro Research Libraries of COSATI. Inquiries may be directed to: Burton E. Lamkin, National Agricultural Library, Beltsville, Md. 20705.

Library Festschriften

An Index to Festschriften in Librarianship has been prepared by J. Periam Danton. More than 3,000 articles in 283 Festschriften are listed. Order from: R. R. Bowker Company, 1180 Avenue of the Americas, N.Y. 10036. Price: $18.50 net postpaid in U.S. and Canada ($14.85 elsewhere).

South African Government Pubs

The first volume of the bibliography of South African government publications has been issued. The volume, which includes all publications of the Department of Statistics, was prepared by the Division of Library Services, Department of Cultural Affairs, Republic of South Africa. Copies are available at R2.95 from the Government Printer, Private Bag 85, Pretoria, R.S.A.

Brooklyn College Award

The 20th Distinguished Service Award of the Library Associates of Brooklyn College was presented to David R. Brower, Environmentalist, on May 9.

French Books

The first annual edition of French Books in Print will be available on Sep 15, 1970. The estimated 200,000 titles will include all available in-print books in the French language, regardless of country of origin. The 6,000 page work will be hard bound in four volumes; it will have author, title and subject indexes. The price is $125 net. Sales offices: Editions de la Maison Française, 610 Fifth Ave., N.Y. 10020.

New Management Literature Tool

Business & Industry Management Abstracts is a new bi-monthly abstract publication. Each issue is to contain 300–400 abstracts arranged in broad subject classification. Annual subject, author and title indexes are planned. The annual subscription is $75 on a calendar year basis. Publisher: Library Services Associates, P.O. Box 380, Glen Ellyn, Illinois 60137.

COLT Workshop Kits

Workshop kits prepared for the regional meeting of the Council on Library Technology in Bethlehem, Pennsylvania in Jan 1970 are available at $1.00 per kit. The kits contain a sampling of job descriptions and salary scales in effect in various parts of the U.S. and Canada. Orders to: Mrs. Dorothy T. Johnson, Cuyahoga Community College, 2900 Community College Ave., Cleveland 44115. Make checks payable to COLT.
Translators Directory

A second edition of the Professional Services Directory of the American Translators Association lists 351 members of ATA. Four indexes are provided: by discipline, by source language, by target language, and a geographical index. The directory is available at $15 postpaid from PSD-ATA, P.O. Box 401, Chatham, N.J. 07928. The price is $12 if payment accompanies order.

U.S. Distributor for Aslib Pubs

The Chicorel Library Publishing Co. has been designated as the exclusive distributor in the U.S., Canada, and the Philippines of Aslib publications (except periodicals). Address: 330 W. 58th St., N.Y. 10019.

National Microfilm Association

NMA has moved its headquarters offices from Annapolis, Md. to 8728 Colesville Rd., Silver Spring, Md.

Preservation Research Laboratory

The Library of Congress will establish a Preservation Research Office, or laboratory, to undertake basic research in the preservation of library materials. A grant from the Council on Library Resources will meet the costs of scientific equipment for the new laboratory. Space for the laboratory is being prepared in the LC Annex.

Interdisciplinary Doctoral Program

The University of Pittsburgh has announced an interdisciplinary graduate program leading to the Ph.D. in Information Science. The emphasis will be on integrating behavioral, computer science and engineering principles. Entrance requirements are a BA, BS, or MS in Behavioral Sciences, Physical Sciences, Engineering Sciences or Humanities.

Gerontology Films

North Texas State University's Main Library has established the first film collection on gerontology in Texas. More than 20 films have been accumulated to date.

Public Library Salaries


Theatre Historical Society

The Marquee, the bi-monthly journal of the Theatre Historical Society, is one year old. The publication stresses worldwide theatre architecture as well as stage sets, posters and newspaper advertising. Subscriptions: $5.00 per year U.S., $6.00 Canada and foreign. For free sample copy: Bro. Andrew Corsini, Editor, P.O. Box 4445, Washington, D.C. 20017.

Business School Libraries


Midwestern Health Science Libraries

The 1969 Directory of Health and Allied Sciences Libraries and Information Sources (in Illinois, Indiana, Iowa, Minnesota, and Wisconsin) has been compiled by Sara L. Moreland. The directory can be obtained at $5.00 prepaid from: Richard A. Davis, Midwest Regional Medical Library, The John Crerar Library, 35 W. 33rd St., Chicago 60616.

Recruitment Checklist—Law Libraries

An expanded and revised version of the Annotated Recruitment Checklist has been prepared by the Recruitment Committee of the American Association of Law Libraries. Copies are available at $2 each from: American Association of Law Libraries, 53 W. Jackson Blvd., Chicago, Illinois 60604.
COMING EVENTS


Aug 24–28. IFIP World Conference on Computer Education. RAI Congress Centre, Amsterdam. Write: P. O. Box 6400, Amsterdam, Netherlands.


Sep 20–21. Librarians’ meeting prior to the Institute for Hospital and Community Psychiatry . . . at the Pennsylvania Hospital, Philadelphia.


AUDIT REPORT

Oct 1, 1968–Sep 30, 1969

Board of Directors of Special Libraries Association, Inc.

In our opinion, the accompanying statements (Exhibits I through IV) present fairly the assets and liabilities of Special Libraries Association, Inc. at September 30, 1969 resulting from cash transactions, and the income collected, expenses disbursed and changes in fund balances for the year, and are presented on a basis consistent with that of the preceding year. Our examination of these statements was made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

The accounts of the Association are maintained on the basis of cash receipts and disbursements, and accordingly include approximately $88,220 collected at September 30, 1969 for dues and periodical subscriptions applicable to subsequent periods, but do not include expenses of approximately $27,000 incurred but not paid at September 30, 1969. The corresponding respective amounts at September 30, 1968 were approximately $74,800 and $30,000.

60 Broad St., New York, N.Y. 10004
April 23, 1970

EXHIBIT I

STATEMENT OF ASSETS AND FUND BALANCES RESULTING FROM CASH TRANSACTIONS SEPTEMBER 30, 1969

<table>
<thead>
<tr>
<th>Fund balances (Note 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Fund:</td>
</tr>
<tr>
<td>Cash, $79,213 in savings accounts</td>
</tr>
<tr>
<td>Deposits</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Federal Grants and Contracts fund:</td>
</tr>
<tr>
<td>Cash</td>
</tr>
<tr>
<td>Less—Unexpended advances from National Science Foundation</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Reserve Fund:</td>
</tr>
<tr>
<td>Cash in savings accounts</td>
</tr>
<tr>
<td>Marketable securities at cost (approximate market value $48,467)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Assets (Carried forward)</td>
</tr>
</tbody>
</table>

MAY-JUNE 1970
EXHIBIT I (contd.)

<table>
<thead>
<tr>
<th>Assets (Brought forward)</th>
<th>231,772</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Membership Fund:</td>
<td></td>
</tr>
<tr>
<td>Cash in savings account</td>
<td>— Exhibit IV</td>
</tr>
<tr>
<td>Non-Serials Publications Fund:</td>
<td></td>
</tr>
<tr>
<td>Cash in savings accounts</td>
<td>37,734 Exhibit IV</td>
</tr>
<tr>
<td>Scholarship Fund:</td>
<td></td>
</tr>
<tr>
<td>Cash in savings accounts</td>
<td>19,408</td>
</tr>
<tr>
<td>Loans receivable</td>
<td>2,334</td>
</tr>
<tr>
<td></td>
<td>21,742  Exhibit IV</td>
</tr>
<tr>
<td>Equipment Reserve Fund:</td>
<td></td>
</tr>
<tr>
<td>Cash in savings account</td>
<td>12,485 Exhibit IV</td>
</tr>
<tr>
<td>Total assets</td>
<td>$303,733</td>
</tr>
</tbody>
</table>

Note 1. The total of assets of each fund represents the fund balance of the respective fund. The changes in the respective fund balances during the period are shown on the indicated exhibits. The cash balances shown in the respective funds have been adjusted for amounts owing to or due from other funds, as well as income derived by the Association in 1968 and subsequent years. No provision for such taxes was made in 1968 or 1969 because, in the opinion of management, the Association had no net advertising income after allocation of direct and indirect expenses.

In 1967 the Internal Revenue Service adopted regulations which could subject to taxes any advertising income from membership programs.

EXHIBIT II

STATEMENT OF INCOME COLLECTED, EXPENSES DISBURSED AND CHANGES IN GENERAL FUND BALANCE FOR THE YEAR ENDED SEPTEMBER 30, 1969

<table>
<thead>
<tr>
<th>Income collected:</th>
<th>Actual</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dues and fees</td>
<td>$215,043</td>
<td>$220,500</td>
</tr>
<tr>
<td>Periodicals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scientific Meetings</td>
<td>15,813</td>
<td>15,700</td>
</tr>
<tr>
<td>Special Libraries</td>
<td>84,588</td>
<td>95,800</td>
</tr>
<tr>
<td>Technical Book Review Index</td>
<td>28,165</td>
<td>28,500</td>
</tr>
<tr>
<td>Net receipts from conference</td>
<td>27,324</td>
<td>24,000</td>
</tr>
<tr>
<td>Interest</td>
<td>6,584</td>
<td>6,100</td>
</tr>
<tr>
<td>Non-Serials Publications Program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>1,352</td>
<td>1,000</td>
</tr>
<tr>
<td>Total income</td>
<td>378,869</td>
<td>393,900</td>
</tr>
</tbody>
</table>

| Expenses disbursed:                |         |        |
| Allocation of funds to subunits:   |         |        |
| Chapters                           | 22,017  | 21,550 |
| Divisions                          | 17,278  | 18,450 |
| Committees                         | 973     | 2,000  |
|                                   | 40,268  | 42,000 |
| General operations:                |         |        |
| Salaries and wages                 | 118,876 | 104,500|
| Employee benefits (Note 2)         | 7,141   | 11,400 |
| Office services                    | 36,973  | 29,200 |
| Occupancy costs                    | 28,151  | 28,600 |
| Professional fees and services     | 7,255   | 6,600  |
| Travel and entertainment           | 13,231  | 13,000 |
| Member services                    | 4,478   | 6,600  |
| Public relations                   | 17,079  | 25,450 |
| Periodicals                        |         |        |
| Scientific Meetings                | 10,331  | 10,000 |
| Special Libraries                  | 106,337 | 97,300 |
| Technical Book Review Index        | 16,492  | 16,700 |
| New furnishings                    | 1,267   |        |
| General operations (Carried forward)| 368,211 | 349,350|
EXHIBIT II (contd.)

<table>
<thead>
<tr>
<th>Expenses disbursed (contd.):</th>
<th>Actual</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>General operations (Brought forward)</td>
<td>368,211</td>
<td>349,350</td>
</tr>
<tr>
<td>Bank charges</td>
<td>1,128</td>
<td>650</td>
</tr>
<tr>
<td>Oral history interviews</td>
<td>650</td>
<td>650</td>
</tr>
<tr>
<td>Conference evaluation</td>
<td>674</td>
<td>2,000</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>709</td>
<td></td>
</tr>
<tr>
<td>Reduction for overhead charged to programs and funds</td>
<td>(28,239)</td>
<td>(27,800)</td>
</tr>
<tr>
<td><strong>Total expenses disbursed</strong></td>
<td>343,133</td>
<td>324,200</td>
</tr>
</tbody>
</table>

| Systems study at headquarters | 11,584 | 10,120 |
| Excess of income collected over expenses disbursed | (15,916) | $17,580 |
| **Fund balance, September 30, 1968** | 136,669 | |
| **Less:** | | |
| Transfer to Reserve Fund | (31,423) | |
| Transfer to Equipment Reserve Fund | (7,000) | |
| **Add:** | | |
| Transfer from Non-Serials Publications Fund | 23,218 | |
| Transfer from Life Membership Fund | 11,199 | |
| **Fund balance, September 30, 1969** | $116,747 | |

Note 2. The Association has a contributory group annuity retirement program with an insurance company covering substantially all qualified employees. There was no pension expense recorded for the year as the calculated contribution of $2,056, which included amortization of prior service cost, was provided by a reduction of termination credits. Unfunded past service cost to be paid by the Association amounted to $11,499 as of September 30, 1969. The employees' contributions to the plan for the year ended September 30, 1969 totalled $371.

EXHIBIT III

STATEMENT OF INCOME COLLECTED, EXPENSES DISBURSED AND CHANGES IN FEDERAL GRANTS AND CONTRACTS FUND BALANCE FOR THE YEAR ENDED SEPTEMBER 30, 1969

<table>
<thead>
<tr>
<th>Income:</th>
<th>Cumulative Translations</th>
<th>Translations Register-</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Science Foundation</td>
<td>$17,892</td>
<td>$18,002</td>
<td>$35,894</td>
</tr>
<tr>
<td>Sales</td>
<td></td>
<td></td>
<td>$32,011</td>
</tr>
</tbody>
</table>

Total income | 17,892 | 18,002 | 32,011 | 67,905 |

<table>
<thead>
<tr>
<th>Expenses:</th>
<th>Cumulative Translations</th>
<th>Translations Register-</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries</td>
<td>12,862</td>
<td>2,964</td>
<td>7,540</td>
</tr>
<tr>
<td>Payroll taxes</td>
<td>199</td>
<td></td>
<td>199</td>
</tr>
<tr>
<td>Supplies and equipment</td>
<td>618</td>
<td>549</td>
<td>1,167</td>
</tr>
<tr>
<td>Communications</td>
<td>76</td>
<td></td>
<td>76</td>
</tr>
<tr>
<td>Computer processing</td>
<td>2,691</td>
<td>1,273</td>
<td>3,964</td>
</tr>
<tr>
<td>Reference tools</td>
<td>115</td>
<td>115</td>
<td></td>
</tr>
<tr>
<td>Photocopying</td>
<td>1,128</td>
<td></td>
<td>1,128</td>
</tr>
<tr>
<td>Promotion</td>
<td>18</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>Service fees</td>
<td>(1,195)</td>
<td>(1,195)</td>
<td></td>
</tr>
<tr>
<td>Printing</td>
<td>12,730</td>
<td>12,730</td>
<td></td>
</tr>
<tr>
<td>Postage</td>
<td>2,290</td>
<td>2,290</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Overhead charged by John Crerar Library</td>
<td>2,339</td>
<td>13,794</td>
<td>12,420</td>
</tr>
<tr>
<td>Overhead charged by SLA General Fund</td>
<td>303</td>
<td>303</td>
<td></td>
</tr>
<tr>
<td><strong>Total expenses (Carried forward)</strong></td>
<td>17,892</td>
<td>18,002</td>
<td>37,622</td>
</tr>
</tbody>
</table>
### EXHIBIT III (contd.)

<table>
<thead>
<tr>
<th>Description</th>
<th>17,892</th>
<th>18,002</th>
<th>37,662</th>
<th>73,516</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total expenses (Brought forward)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excess of income over expenses</td>
<td>(5,611)</td>
<td>(5,611)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fund balances, beginning of year</td>
<td>14,688</td>
<td>14,688</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfer to unexpended advances from National Science Foundation</td>
<td>5,611</td>
<td>5,611</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fund balances, end of year</td>
<td></td>
<td></td>
<td>$14,688</td>
<td>$14,688</td>
</tr>
</tbody>
</table>

### EXHIBIT IV

**SUMMARY OF CHANGES IN SPECIAL FUND BALANCES FOR THE YEAR ENDED SEPTEMBER 30, 1969**

#### Reserve Fund

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest and dividends received on marketable securities and savings bank accounts</td>
<td>$4,889</td>
</tr>
<tr>
<td>Balance, September 30, 1968</td>
<td>$64,025</td>
</tr>
<tr>
<td><strong>Add</strong>—Transfer from General Fund</td>
<td>$31,423</td>
</tr>
<tr>
<td><strong>Balance, September 30, 1969 (Exhibit I)</strong></td>
<td><strong>$100,337</strong></td>
</tr>
</tbody>
</table>

#### Life Membership Fund

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance, September 30, 1968</td>
<td>$11,199</td>
</tr>
<tr>
<td><strong>Less</strong>—Transfer to General Fund</td>
<td>$(11,199)</td>
</tr>
<tr>
<td><strong>Balance, September 30, 1969 (Exhibit I)</strong></td>
<td><strong>—</strong></td>
</tr>
</tbody>
</table>

#### Non-Serials Publications Fund

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales charged to Sustaining Members</td>
<td>$937</td>
</tr>
<tr>
<td>Proceeds from sales of publications</td>
<td>$30,078</td>
</tr>
<tr>
<td>Interest on savings bank accounts</td>
<td>$1,484</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>$97</td>
</tr>
<tr>
<td><strong>Production and selling expenses</strong></td>
<td>$32,596</td>
</tr>
<tr>
<td><strong>Excess of income over expenses</strong></td>
<td>$(20,186)</td>
</tr>
<tr>
<td><strong>Balance, September 30, 1968</strong></td>
<td>$12,410</td>
</tr>
<tr>
<td><strong>Less</strong>—Transfer to General Fund</td>
<td>$(25,218)</td>
</tr>
<tr>
<td><strong>Balance, September 30, 1969 (Exhibit I)</strong></td>
<td><strong>$37,734</strong></td>
</tr>
</tbody>
</table>

#### Scholarship Fund

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gifts</td>
<td>$10,489</td>
</tr>
<tr>
<td>Interest on savings bank accounts</td>
<td>$1,142</td>
</tr>
<tr>
<td><strong>Scholarship grants</strong></td>
<td>$11,631</td>
</tr>
<tr>
<td><strong>Less</strong>—Expenses disbursed</td>
<td>$(10,000)</td>
</tr>
<tr>
<td><strong>Balance, September 30, 1968</strong></td>
<td>$(2,186)</td>
</tr>
<tr>
<td><strong>Balance, September 30, 1969 (Exhibit I)</strong></td>
<td><strong>$21,742</strong></td>
</tr>
</tbody>
</table>

#### Equipment Reserve Fund

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proceeds from sale of equipment</td>
<td>$250</td>
</tr>
<tr>
<td>Interest on savings bank account</td>
<td>$441</td>
</tr>
<tr>
<td><strong>Less</strong>—Expenses disbursed</td>
<td>$(2,975)</td>
</tr>
<tr>
<td><strong>Balance, September 30, 1968</strong></td>
<td>$7,769</td>
</tr>
<tr>
<td><strong>Add</strong>—Transfer from General Fund</td>
<td>$7,000</td>
</tr>
<tr>
<td><strong>Balance, September 30, 1969 (Exhibit I)</strong></td>
<td><strong>$12,485</strong></td>
</tr>
</tbody>
</table>

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