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Librarian + Systems Analyst = Teamwork? 99  George W. Covill
The Canada News Index 102  Bernard K. Johnpoll
Checklist for Review and Evaluation of Technical Libraries 106  C. G. Stevenson
The American Theological Library Association 111  Donn Michael Farris
Factors Affecting the Costs of Library Photocopying 113  Ralph H. Phelps

Special Libraries Association

National Library Week 116

Features

Government and Libraries 114  Paul Howard
Library Literature Gleanings 115  Glorieux Rayburn
This Works for Us: Classifying by Geographic Prefix 117  Matthew J. Vellucci
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As the complexities of library operations increase, it is imperative that librarians develop skills in applying various management engineering tools and techniques that have been available to the business community for many years. The use of one such tool, systems analysis, brings many benefits to any library—large or small, manual or mechanized. The flowcharting technique, followed by the analytical or questioning step, results in systems improvement and lays the foundation for new systems design. But, above all, the resulting visual display, worth a thousand words, becomes an important communications tool in presenting an over-all picture to all those who need a better understanding of the library. Systems analysis should be a part of everyday, good library management.

**Systems Analysis: An Overview**

**EDYTHE MOORE**

Webster defines a system as "a set or arrangement of things so related or connected as to form a unity or organic whole, a set of facts, principles, rules, etc., classified or arranged in an orderly form so as to show a logical plan linking the various parts."

If we translate this into what the real world develops in practice, "a system is a set of operations organized to satisfy a definable user requirement." We have substituted "operations" for "things"—it includes not only black boxes, but manual procedures and computer programs as well. It implies satisfying human users, and it also implies a way of measuring the effectiveness of a system. Systems are essentially concerned with the total picture of a complex operation of many parts in an orderly or logical arrangement.

I am connected with a corporation very much involved with systems research and planning and systems engineering in the aerospace field—space systems (manned and satellite) and ballistic missile systems. There are many facets which make up these systems: rocket engines, guidance, structure, payloads, communications, launching apparatus, and support crews, to name a few. A modern missile or space system does not automatically become a coherent entity. Many complex subsystems must come together to form an integrated system to do the job intended.

And so it is with a library operation. Systems implies the total picture—from the library's objectives, its reason for being, the demands made upon it, its users' needs and requirements: the raw material, sources of data, and kinds of information handled; the processing methods, acquisitions and indexing; and its files which serve as a link between indexing input and reference output. It includes the equipment and the personnel. And it has to do with how well these subsystems are interrelated and synchronized or meshed. It has to do with the total picture, but at the same time it is concerned with the most minute portion of a subsystem and a sub-subsystem because each component must be designed to fit properly with the other components rather than to function by itself. We are always concerned with systems, regardless of whether we have a manual or a mechanized library operation.

**What Is Systems Analysis?**

Systems analysis consists of fact finding and the critical examination of the facts regarding a total system and each of its parts. The systems analyst analyzes, literally takes apart, the process he is investigating "in or-
order to understand it." Systems analysis involves collecting, organizing, and evaluating facts about a system and each subsystem and the environment in which they operate.

The fact-finding must be wholly accurate, unbiased, and comprehensive. Six one-word questions, if conscientiously applied during the fact-finding stage will insure the completeness and accuracy necessary in that phase of the systems survey. These are the old reliable standbys: Who? What? Where? When? How? Why? and especially "why?"

Only by asking and answering each of these questions can the analyst be reasonably sure that the data are comprehensive and factual.

The objective of systems analysis is to learn enough about a system—equipment, personnel, operating conditions and the demands on it—to establish the foundation for designing and implementing a better system, if it is feasible to do so. Systems analysis provides the foundation for the if-it-is-feasible-to-do-so. After complete analysis it may be clear that conversion to a machine system is uneconomical or unnecessary. Without such analysis, it would be impossible realistically to make this decision—or to make the decision to automate.

Systems analysis done properly can provide the decision-making ingredients necessary in the consideration of the conversion from one system to another, whether it be from manual to machine, from one machine system to a new and better one, or indeed from an existing manual system to another manual operation vastly improved. Systems analysis, a term which has come to be associated with mechanization, is in reality just everyday, good business, good management, and its application applies just as much to manual as to machine operations. All of the advantages of a constant and continuous, continuing, analysis of any library operation can add up to good administration, good management, and good library service.

How Is Systems Analysis Accomplished?

There are five standard techniques of fact-finding that have been found successful in applications: 1) personal interviews, 2) document reviews, 3) flow charting, 4) organization charting, and 5) use of previous studies and outside sources. The personal interview is the single most important technique to be used in fact-finding. The analyst cannot rely entirely on position (job) descriptions or written procedures to tell what people are actually doing. How many libraries, or business offices, or any organized endeavors for that matter, have up-to-date procedures manuals and job descriptions? The important goal here is to get all the facts about how things are done—not the way someone tells employees to do things, not the way someone thinks they are done, not the way a manual says they should be done, but rather how they are being accomplished today, now.

Obtaining information through questionnaires and document-description forms is next in importance. In a library operation this includes the forms used, the reports and records generated, and the use made of the records; the questionnaires may quite properly extend to the library's users.

The flow chart is considered by some to be the most difficult to master and yet it is a most important and useful data display. A chart describes a system visually, identifying in a minimum of space, the who, what, when, where, and why of the activities performed.

The fourth means of documenting and displaying data is the organization chart, a useful way of identifying and describing organizational units and their reporting relationships.

The fifth, the use of previous studies and outside sources of information should by no means be neglected. This one is perhaps the most frequently used by librarians. They do keep up with what others are doing and they do, most of them, read the literature.

Who should be responsible for conducting a systems study or systems analysis—1) the head of the library and his staff, 2) a systems analyst from a systems group within the library's parent organization, or 3) an organization or consulting firm who specializes in such studies?

I am admittedly biased in this regard. I feel strongly about the fact that the library must have a continuous analysis program. The advantages outweigh the disadvantages, but one disadvantage is the loss of time on the part of the library staff. It may be worthwhile for a library to consider adding a per-
son to the staff during the initial phases who would have this as his prime responsibility. There are advantages to using an outsider, either from the systems group or from a consulting firm. This man brings analytical experience and a fresh viewpoint, and he is normally available on a full-time basis. In addition, the outside consultant is neither bound by tradition nor subject to organization politics. But the disadvantages are obvious. It will take either one of these outsiders quite some time to gain complete knowledge of the operation, and hence the cost of analysis will go up.

Instead of an outsider coming in and interviewing each one of the library staff members about their daily tasks, why shouldn't each supervisor and each lead person get each individual employee into the act by having him list in chronological order all the steps taken in one particular function or operation. This means everything as it is—every tool used, every source consulted, every new piece of paper generated, noting every decision-making step. Eventually this is put together in chart form, like a wiring diagram, to give an over-all picture of one subsystem.

After the charting comes the analysis step. This is perhaps the most important step of all, and is often referred to as the "why" step. It is here that one not only questions, what, where, when, who, how, and why, but one adds "why" to each of the other questions asked; for example, What is being done? Why is it necessary? Where is it done? Why there? When is the operation done? Why then? When else can it be done? Who does the job? Why that person? Is he the best qualified? How is the job performed? Why this particular way? How is the best way to do it? Why?

Then one should logically add "can" to this list. Can it be eliminated? Why? Can it be done mechanically? Can another operation be combined with it? Can work sequence be changed? Can the service be purchased elsewhere? Should it be?

Everyone who performs a step on the chart should get in on the act, should have a chance to see how he fits into the picture. Brainstorming sessions can be conducted in groups; giant wall charts serve this purpose nicely. As alternatives or proposals are suggested, overlays can be made and placed over the sections affected. In this way the effect on other sections may be noted and a trial run designated.

The over-all facility which must be maintained throughout the complete applications of the analytical step is the questioning attitude.

This represents only a small part of a complete systems analysis project—but on the basis of this example there are five major benefits gained by the library which undergoes such a study:

1. Getting everyone on the staff into the act, thinking about his job, perhaps seeing it in a new light and understanding it better, is of prime importance. The stimulation of creative thinking on all levels is a benefit with far-reaching effects.

2. The staff which has played such a part in this creative operation is now in a receptive climate for change. Certainly, no one who has any part in either making up one of these charts, or brainstorming it, can ever be guilty of suffering from a musclebound brain.

3. Graphically depicted, bottlenecks and duplications stick out like sore thumbs. It becomes obvious when several small steps should be combined. The chart pinpoints areas that may need further examination, such as forms design and records management. These things receive attention and are rectified within the library by the staff. Charting and simplification can make the library "look good" by increasing its efficiency.

4. As a training aid to supplement the procedures manual or, better yet, as a part of the procedures manual the visual flow chart has no equal.

5. A chart, in a language everyone can understand—a picture worth a thousand words—is a communication tool for use to all man-

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**Miss Moore is Manager of Library Services, Aerospace Corporation, Los Angeles, California. Her article is based on her presentation at the Petroleum Section's session at the 57th SLA Convention, Minneapolis, Minnesota, May 30, 1966.**
agement echelons, to anyone who wants and needs to know more about the library.

The creative thinking, the positive attitudes developed during this fact-finding will generate new ideas to test, to try. Personnel will be freed from the feelings that there is only one way to do a job and will be looking at their tasks from the standpoint of "Is there a better way?" or, on a broader plane, "Is this really contributing to fulfilling our library's basic objectives?"

**Systems Analysis Is the Basis for Systems Design**

Systems design is made up of two parts: systems analysis followed by systems synthesis, both conducted on two levels: gross and detailed—the whole and each of its parts. They are so closely related that they are hard to separate in practice. As a matter of fact in doing the analytical or "why" step, which almost always results in streamlining and changing an operation and simplifying it, you are essentially taking the first steps in designing a new system. I have said that libraries must do constant and continuous systems analysis. The librarian has an even greater responsibility in systems synthesis, especially in the designing of the forms and kinds of intellectual input in a library operation. This is the field about which the librarian knows more than anyone else; this is the area in which the librarian is the expert.

In summary, systems analysis is no more than organized common sense, an organized approach to problem-solving and the use of the management engineering tools and techniques that have been available to the business community for many years. These tools and techniques have been used only infrequently in the library field, chiefly because librarians have not been properly exposed to them. But today, as the complexities of operations multiply, it is imperative that they learn about them, develop the necessary skills in applying them. The application of systems analysis is just everyday, good management.

**The essence of good library administration is effective communication. Communication is everyone's responsibility. It fosters understanding, affects attitudes, motivations, and the means by which people employ their skills. This paper discusses communication between the librarian and top management and advances the use of systems analysis as a tool to improve communications. How to integrate systems analysis into the over-all communications process, the interrelationships between the librarian and top management, the role of systems analysis, and several basic elements of communications are reviewed.**

**Systems Analysis in Top Management Communication**

*BURTON E. LAMKIN*

**Top management uses facts to make decisions. Libraries perform a multiplicity of activities; top management has difficulty measuring library productivity and essentiality. Librarians find it difficult to collect consistently factual administrative information. The demands of the normal business day seldom offer sufficient time for the librarian to collect facts. Systems analysis—in libraries—gives librarians a tool that will serve them richly by facilitating their ability to improve operational performance and to communicate with top management. Systems analysis can provide for the consistent collection and presentation of facts which can be gathered as a by-product of normal library operations.**

To integrate the concepts, tools, and skills of systems analysis into the communication process, we must review some basic elements of communication and some of the habits and attitudes of management.
Information Transmission

Knowledge is gained only by experience and communications. The communication process consists of a sender, a message, and a receiver. The intent is to convey a desired meaning to the receiver that will cause a desired response by the receiver.

Meaning must be transmitted with a high degree of precision when attempting to influence the attitudes and opinions of management. To communicate successfully with top management, the message must be tailored to the level of the manager's understanding and acceptance. Also, the clarity of expression in conveying the message depends upon a logical ordering of the various elements that make up the message.

Figure 1 shows several elements of the information transfer process. Each element is unique, interdependent upon the other elements, even though the ordering of the elements may vary. Recognition of each element and its inherent characteristics has a direct bearing on the communication process. Successful communications means good rapport among staff members, acceptable service levels to library users, and adequate management support for library programs.

Sizing You Up

Throughout the communication process, be aware that management, too, is doing an analysis. This analysis is especially significant during the early stages of the librarian–manager relationship. During this period the manager is sizing you up. Are you an empire builder? Are your recommendations sound? Are you responsive to the needs of the organization? Are decisions made from facts or emotions? Are you improving the performance of the library?

In this evaluation top management are looking to distinguish valid information from invalid information, fact from fantasy and rumor, and they must sift reliable opinion from human whim. Sizing you up gives top management their first opinions of your modus operandi. Opinions are hard to change. A “good” opinion is much easier to establish at first than it is to establish later. The communication process with top management contributes to forming their opinions.

The Management Process

Management is surrounded by a multiplicity of subsystems. These subsystems may be thought of as the jobs performed by people at all levels in the organization. All of these jobs—either individually or in groups—contribute to higher level jobs. Finally, all jobs require integration into one functional entity to accomplish the objectives of the organization as in Figure 2. Using the library as an example, there are many individual jobs to be performed to accomplish acquisitions, cataloging, and other library functions.

Forecasting, planning, organizing, directing, coordinating, and controlling of resources and facilities are the basic functions of the management process. Management challenges each subsystem to determine its essentiality, cost/benefits; in other words, does the subsystem contribute to the profit picture of the organization, and the adequacy of the return on the investment. The subsystem is challenged to increase its productivity and at the same time lower its operating costs. Among the many organizational subsystems, the library is very vulnerable.

Graphs, charts, and other display techniques are extensively employed by top management to summarize statistical data into a concise representation of facts which depict trends. Based on these trends and other performance criteria, management seeks additional information as needed. For example, top management will want to know if the company library is being used. To monitor library utilization they may want to examine circulation and usage trends. However, top management is not generally interested in knowing how materials are processed.
Management is both an art and a science. It has aptly been defined as "Getting things done through people." Management skills and aptitudes are recognized to be separate and distinct qualities—separate from professional or job skills. Professional and managerial skills do coexist in some individuals, but not always. A manager, regardless of his professional qualifications, primarily deals with people and with the over-all picture. Therefore, successful managers can be, and are, assigned to positions across professional boundaries to broaden the manager's perspective and to prepare him for future executive positions.

Many psychological conditions are present, too, which influence a manager's attitude. For example, a manager may want to compress his time schedule for reaching his career objectives, thus he may interpret a curtailment of library expenses beneficial to his goal. Also, the manager may have little interest in his current post; his job attention may be focused on nonlibrary activities and his hobby of raising puppies at home. These attitudes do not help the communication process. But, unless these conditions are realized and recognized, the effect on the library could be disastrous.

How then does the librarian present his message so that its impact will best motivate top management in the interest of the library and the organization? The answers to these types of questions are not obvious and the rules change. The rules must be adapted to the situation, the manager, and the time. Each situation is a new experience and may require a different set of rules.

Systems Analysis and Management

New developments in communication, transmission, and computer techniques have made it possible and practical for most businesses to use computers. Some computer applications are accomplished by timesharing. Thus, you subscribe to computer time and your payment is based on the amount of time you use. Therefore, a business can receive the advantages of a computer at a cost it can afford. This situation has introduced many businessmen to systems analysis as a means for solving administrative and information problems. The term systems analysis is common to the businessman's vocabulary.

Some libraries are using computer timesharing as a means for providing services. SDI (selective dissemination of information) and printed book catalogs are frequent applications.

Systems Analysis and the Librarian

Systems analysis is an organized, step-by-step process to analyze programs, procedures, and problems in a logical order. Basically, systems analysis deals with the information flow and operating facts which are fundamental to a system. The extent to which systems analysis can be used in a library depends on the librarian's attitude. However, if you are not aggressive in applying systems analysis to your operation, management may do it for you.

If you lose control of the direction of your library's systems study, be prepared for the consequences. Unless you are knowledgeable on the subject, know what you want to accomplish, and define the final products, your experiences will be less than desirable. Most importantly, you must effectively communicate your problems, ideas, goals, and planned products to management to avoid jeopardizing your library program.

Systems Analysis Applications

Systems analysis in libraries has been directed almost entirely to developing the routine, non-integrated procedural systems, for example, order-receiving and circulation.
This level of systems analysis is important, and certainly a starting point. However, greater tasks await study as systems analysis becomes an integral part of the library activity. For example, systems analysis can and is being applied for functional and operating control purposes. A periodical system which encompasses ordering, check-in, claims, renewal, inventory, routing, and circulation is a good example of this level.

More complex applications of systems analysis are used in the over-all planning and control functions. Here, systems analysis provides valuable information in useful form for decision-making. A library data collection system, for example, will gather statistical information on operations and requirements.

INTEGRATED LIBRARY SYSTEM

Defining Objectives
Planning Decision-Making Progress
Utilization

This data can be correlated to show growth trends, weeding selections, service trends, borrower's interests, and the timeliness of service. The system will provide feedback so that library programs can be better oriented to meet user's needs and reduce costs.

Systems analysis of complex problems is not as precise as it is in a procedural system, such as circulation. Complex problems are built from the combinations of procedural systems with their interactions. Since complex problems are the result of a synthesis, they can be solved by an analysis which identifies subsystems, considers their procedures, and probes all interactions. Figure 3 illustrates a proposed integration of systems analysis into the library system. Systems analysis can be as fundamental to the library as information is to the library.

A library is a multi-dimensional operation. Using systems analysis, simple and complex operations are broken down into a step-by-step sequence of events. When changes are made or contemplated, the sequence can show vividly the interrelationships of the process and the impact of changes. This impact can be presented to management factually.

Remember that throughout these levels of systems analysis, human judgment is dominant and will continue to be. The system performs only what it is programmed to do. You determine what functions the system performs and you are the primary user of the information it provides.

Usually, systems analysis examines existing systems. This approach is common in libraries. It is too often assumed that the design of a new system must be based on the existing system. This approach dictates the investigation of every aspect of the existing system. The pitfall in this approach must be recognized: the approach confines your thinking, restricts your viewpoint, and impairs your objectivity.

There is another school of thought. The design of a new system hopefully will not be predicated on the constraints of the old one. Therefore, the focal point of the effort should be on the new system and resources should be diverted accordingly. This approach does not mean that the old system is ignored, but certainly it is not the foundation of the new system, especially if the new system will use computers.

Systems analysis is being extensively used in the Federal Aviation Agency library system. Time-motion studies are examples of library systems analysis applications at FAA. Many organizations use time-motion studies and other value judgment criteria to assess departmental workload, performance, and productivity. Although library workload statistics at FAA have not been completely formalized, equations have been developed for several library functions which we find useful. These equations reflect manpower needs based on the number of units processed or received. These workload statistics are collected as a by-product of operations activities.
Systems Integration

With the proliferation of information centers throughout the nation, there is a need for these centers to communicate and interchange data files, machine programs, and experience. The synthesis of solutions can then proceed with organization and efficiency. Few libraries are utilizing available information systems resources and data. Systems analysis facilitates compatibility and comparison of information systems and the quick identification and analysis of problems. The "common interface" of these different information systems is and must be communication. Without the application of systems analysis for communication, information systems integration can only be fragmented, piecemeal, and costly.

The Intangible Commodity

Librarians have an important intangible commodity called information. To communicate to top management, library programs should be translated into costs. The librarian must identify goals and relate these goals to resources and accomplishments. This identification process is imperative in top management communication. Placing a dollar sign on this commodity changes the intangible commodity into a tangible entity which has a direct bearing on the profit picture of the organization.

This translation of information from an intangible to a tangible, valuable, costable commodity is in itself a revelation. Top management has always known that a library costs money. But now top management can associate a value to this cost. So the librarian's most effective communication to top management is based on language top management understands—cost versus effectiveness or value as it affects profits.

It is impossible to place an exact cost on the value of library service or the information commodity. Conversely, the cost for not having information when it is needed cannot be measured precisely. Information is still an intangible product; its value varies. Information is analogous to an insurance policy. Without information, the organization has no protection for R&D activities against the threat of duplication of effort. Having information provides partial protection against potential R&D losses.

Summary and Conclusions

Systems analysis is not by definition tied to automatic data processing. ADP may be the resulting implementation, but most often a better manual system is the result. The flow charts, decision tables, matrices, and symbols used in systems analysis enhances the librarian's ability to communicate. Although systems analysis alone does not guarantee complete success in communication, it performs a vital function. It permits us to clarify jobs, to streamline existing methods, to eliminate unnecessary redundancies, to plan new techniques, to automate as appropriate, to identify interrelationships among library programs, to integrate library programs, to collect cost-benefit information, and to communicate with top management.

Systems analysis is a logical tool for understanding. Understanding is the goal of effective communication.

If the librarian is to refine the role of the library within the organization and to participate as a member of the management team, the techniques of systems analysis are essential tools that he cannot afford to overlook.

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References

Flow charts are a very useful tool in the understanding and analysis of the decision-making processes involved in library operations. These charts, combined with other work-simplification techniques, can be used to evaluate and improve many library systems. Flow charts of an ordering routine are used as illustrations.

The Use of Flow Charts in the Analysis of Library Operations

SHIRLEY W. BOLLES

TODAY, ALL LIBRARIES—particularly special libraries in government and industry—are in ever-increasing competition for space, staff, and money with other groups within the larger organization. Within these parent organizations, also, there is no general commitment to library service for its own sake. Therefore, it is important to remember that the library's job is not the accumulation of vast storehouses of knowledge, but is instead the satisfaction of the immediate information problems of its particular clientele. If this is remembered, it will come as no surprise that, no matter how small or generous its present facilities, the library must be able to prove it is making the most efficient use of those resources before asking for more space, staff, or money.

In this competition for "our slice of the pie," management will understand it best if the library utilizes the techniques of systems analysis to assess the present situation, analyze basic routines, and determine changes that should be made. Many times, it may seem that it is easier to continue doing things in the way they have always been done, rather than to challenge these ways in a search for more efficient ones. This attitude is really a deception. In the long run, nothing is more tiring and less productive than adhering to old work habits. The librarian who feels he is just too busy running his library to think about a lot of theory on work simplification will do well to reconsider. By analyzing what is being done, he will often be able to make immediate savings not only in his own work but in that of his staff as well.

The number of decisions to be made in any library are myriad on any day. Some may be defined as critical: the decision to purchase a book, the decisions related to cataloging the book, and the decisions clustering around the act of helping the patron locate needed information.* These decisions are ones which are the province of the professional librarian. In support of these critical decisions, however, many operations are performed, and minor decisions are made which are not critical in themselves. If not properly handled, this high-volume work can be as detrimental to good library service as a poorly selected, cataloged, and managed collection.

This paper is primarily concerned with the evaluation and analysis of such support operations. The areas of book purchasing, periodical handling, materials processing, and circulation are ones in which a long hard look at operations will pay the most dividends.

Systems analysis may be applied to any operation in a library, provided that there are some specific directions for performing the task and that it is one that is performed

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repetitively. Logically, the first step in systems analysis is the determination of the status quo—what are we doing and how are we doing it. The design of improved systems cannot begin until existing systems are set down and completely understood. The method of setting down systems on paper is called flow charting.

"Flow charting is a graphic representation of a procedure's flow, showing the decisions that need to be made and the actions that must be taken to complete a task or series of tasks."† Flow charts do not show who makes the individual decisions or performs the tasks, but they do show the sequence in which these tasks are carried out.

The flow chart itself can be as elementary or as detailed as desired, as long as it is consistent throughout the entire system. Each symbol on the chart should have a standard meaning as far as that particular set of charts is concerned. There are really not any standardized set of flow chart symbols, but a few conventional shapes have been accepted. For library use, many have found that an IBM diagramming template (X24-5884-5) has all the shapes needed.

Using standard IBM symbols in a non-conventional manner (Figure 1), the library can attempt to represent any unit operation as a series of questions to be answered and actions to be taken. Flow charts constructed in this manner produce a sort of decision chart; they reduce most operations to a series of questions that require a "yes" or "no" answer. While one can make no claim that this automatic selection or rejection of alternatives exactly simulates human thought processes, the advantage of this type of chart is that it comes closer than any other to demonstrating the intellectual complexity of many library tasks. The chief purpose of these charts is to aid in determining if decisions are being made and if operations are being performed in the right place, by the right person, and at the right time.

However, there is a basic question that must be answered before such an analysis takes place: "Do we want to perform this operation at all? Are we certain that the staff or clients will derive as much as or more benefit from this operation than it costs to perform it?" Rephrased briefly: "Will output be equal to or greater than input?"

The most important part of any systems study is the identification and elimination of areas where one is spending too much in relation to value received. In library work this sometimes involves a qualitative judgment on the part of the librarian. To weigh input against output and to make decisions accordingly is a prime function of the librarian as an administrator.

Several years ago, all the clerical routines in the Esso Research and Engineering Company's Central Library were charted. As an illustration, let's consider the application of this technique to the photocopy-acquisition routine. The most important lesson to be derived from this illustration is that it is essential to consider the total interrelated system. The Library achieved over-all savings by changes in ordering procedures that greatly

improved its efficiency in the receiving part of the operation. One will not always make savings in each subsystem studied; the important point is that the total system shows improvements. The Library's multiple-part order form created the basis of the revised system. The use of one order for one document has made possible speedier, more efficient service with a net saving of one-half a person from this operation.

Further, the operation was examined to see if the work was being done in the right place by the right people, not just within the Library but within the larger organization. As a result, the bill-checking operation was transferred to the purchasing department, to the satisfaction of both the Library and the Company's auditors.

Figures 2 and 3 show the new ordering and receiving routines. Depending on the "yes" or "no" answer, certain parts of operation may be skipped, or at other points a "no" answer may dead-end the request as far as this chart is concerned. Any operation, no matter how simple or complex, may be charted by this method.

There are a number of other work-simplification techniques that can be used in conjunction with flow charting. One is the time-and-motion study. This can be used to study and to improve specific tasks within the over-all operation. Unless involved with a high-volume, repetitive job, the stop-watch technique will probably not yield much for the effort. However, in large libraries, where there may be one or more persons typing orders all day long, considerable savings can be realized by an exacting study of the amount of time involved in each segment of an operation. In Esso's case, the Library studied in detail the typing of one order calling for many items versus the typing of many more orders with improved format calling for one item per order.

As an alternative to the stop-watch technique in low-volume, high-variety situations, one can identify work units which are meaningful for the purpose and ask people to keep time sheets on which they record the length of time spent on specified operations as well as the number of work units accomplished. You will usually achieve better results, however, by listing the tasks that you are interested in timing, rather than having personnel keep diary-type time sheets on which they describe the work they perform. The rearrangement of these latter records into meaningful work units at a later date is a most difficult job.

Another important matter to be consid-
The forms that the library is using. Is a form necessary at all? Can it be combined with another? Would a continuous form be better? For instance, if a typist is typing more than fifty forms a day, savings can be considerable through the use of continuous forms.

Diagrams showing the spatial flow of work can often prove useful, particularly if work areas are spread out or on different levels. With these the movement of material and personnel can be shown. They can be used most effectively where material is being received and routed, such as in the acquisitions and cataloging areas.

In analyzing operations and improving work flow, the library must keep in mind that the time that it is trying to save must be arranged in identifiable, recoverable units. If you can save fifteen minutes a day on each of five clerical jobs, the time saving will never show anywhere except on paper. However, work reassignment that results in a unit of six hours per week can permit accomplishment of additional tasks. And changes on the order of twenty or forty hours per week mean 0.5 or 1.0 clerk.

Although automation of library procedures is not the topic of this paper, there is no point in denying that it is a subject of interest. The Esso Research Library, for instance, has found it expedient to automate the journal handling operation. But not, however, until it had studied the job as it existed and made a number of changes and improvements in the manual system. Thus, improvements occurring from the analysis of present systems can be both an end in themselves and stepping-stones to future automation.
The librarian must deal with the phenomenon of systems analysis as a continuing requirement in the automating of library information requirements. To achieve the best results, the librarian, as the customer, is required to participate actively in the analysis process. The librarian has the sole responsibility of operating the resultant system; therefore he must be assured that the analyst's planned results are commensurate with the librarian's expectations. This can only be accomplished by the librarian's assuming full responsibility for deciding at each stage of the systems analysis effort whether the conclusions reached by the systems analyst coincide with goals of the system as conceived by the librarian.

Librarian + Systems Analyst = Teamwork?

GEORGE W. COVILL

Once the librarian has decided that the answer to the library information-handling problem is electronic data processing, the librarian is about to meet that new breed of man, the systems analyst. Now this breed is called by many different names, such as digital-computer systems analyst, senior systems analyst, operation research analyst, project director, systems engineer, information engineer, systems and procedures analyst, and management engineer, and this is far from a complete list. However, they all have one thing in common: they are selling something, and the product may be good or bad depending upon many factors. What the librarian must realize is his own responsibility for control of the development of the system, and the limitations of experience in the library field of the majority of the systems analysts.

The concept of the systems approach to business, production, manufacturing, and information-handling problems is a fairly new development, but the systems approach has been growing by leaps and bounds as it has proved its worth in repeated applications. Excellent expositions of the basic methods have been published.*

The first problem which faces the librarian is one of communication. The librarian must realize that the systems analyst has something to sell. And that product is the operation of the library in the manner that the systems analyst prefers, or to phrase it in another way, in the manner that the limitations of data-processing equipment impose.

This is why the librarian must exercise control over the project, and why a good project plan will provide for review and control by the librarian at each phase of the project.

How does one recognize a good project plan? First of all, there will be a plan, with task assignments, names, dates of starting and completion, and results expected. Statements of objectives in general terms, lack of definition of phrases, and avoidance of firm phase completion dates are preliminary danger signals. And if the plan lacks provisions for review, control, or revising of the system design to meet the desires of the librarian, he needs to look out.

The systems analyst will thoroughly discuss the operational plan with the librarian to assure himself that the librarian is in agreement with it; that the people necessary to provide information are available during the proper time phases; to assure himself that all members of the library staff are familiar with the purposes of the study to reduce confusion and hostility when the study phase actually begins. For the first thought that occurs to the uninformed when they hear that a computer application is under consideration is that they will lose their jobs as a consequence, and this fear is not always ground-

less. It is one of the factors that must be provided for in the project plan. The librarian should not expect this detailed plan on the first day the contract starts. But there should be provision for such a plan in the contract, and it should be provided not later than thirty days after beginning the project, unless mutual agreement provides otherwise. The librarian has a right to know just how long and where the normal operation of the library is to be disturbed during the fact-finding phase of the systems design.

A library automation project will go through a distinct series of phases. The first phase should be an analysis and documentation of the present operating system. This is the most important phase of the study from the viewpoint of the librarian. It is also the time in which the systems analyst must work most closely together with the librarian to control the collection and verification of the data. Both sides should be in full agreement as to the facts concerning the present operation. No reports should be submitted by the analyst that contain any statements that have not been verified by the librarian. The end result will be a picture in words, charts, and diagrams of the library process as it exists at the study time. The final product of this first phase must be the problem statement which should definitely express why the present system is inadequate, in what respects, and the course of action that will be pursued in the development of a solution. The full and correct definition of the problem is the foundation on which all other action is predicated.

Once agreement exists as to how the necessary work is accomplished presently, the next step is to establish what is to be expected of the new system to be designed. Up to this point the librarian has probably been thinking in general terms. He must clearly recognize the difference in the production of information for user services and the production of information for library management purposes.

The next phase will be the design of the new system to overcome, correct, and eliminate the deficiencies of the present system. During this phase, the systems analyst will be acting mostly on his own, although if he occasionally asks for additional information, or for further verification or elucidation of documented information, it is a good sign. Finally, the analyst will come out of this next phase with a complete plan for the new system ready for review by the librarian. A good study will not only contain the new plan, but will also show specifically where the new plan differs from the old in inputs, outputs, personnel requirements, space requirements, financial requirements, and so on. A very important area for the librarian to review is the proposed outputs. These are the files, records, and reports with which the library will have to operate when the proposed system is implemented. When prepared on electronic data-processing equipment, their files, records, and reports will no longer look like those which have been produced manually or by typewriter. If there are any deficiencies, additions, or changes desired by the librarian they should be established now, not after the computer programs are written and become operational. The programming process is flexible; written and operating programs may not be. The cost of accomplishing even minor changes may be prohibitive once the system is operational. Unfortunately for the budget, these thinking machines cannot change their thought processes as quickly as humans. Highly paid people are required to change the operating procedures of the machines. A professionally oriented analyst keeps this in mind to the extent that he will go to great lengths to be assured that the customer understands the differences between the previous system and the proposed system, for he knows that only through this understanding will a great deal of disappointment be avoided in the end result.

Before the operating computer programs are written, there must be some decision on the type of equipment used in the processing operation, known as hardware. In the systems

Mr. Covill, who is an Analyst, Vitro Laboratories, was assigned from the Guided Missile System Systems Analysis Section, Information Systems and Procedures Group, Research and Study Department, Vitro Laboratories, as Technical Advisor in the development of the Weapons Equipment Technical Data File for the Naval Ordnance Systems Command.
design, the performance and capability specifications of the equipment required to operate the system must be provided, and a choice must be made between the products of the various hardware manufacturers. This can be a tedious, time-consuming, and frustrating decision. The possibilities of equipment combinations are more variable than the optional equipment on a new car, and much more expensive. The capabilities of the equipment are expressed in terms that can normally be understood and compared only by the trained engineer. In spite of operating times specified in milliseconds, and even faster, all data-processing equipment is subject to two limitations: How fast can the data be entered, and how fast can the reports be produced by the printing mechanism. For library purposes, a large volume of data must be read in, subjected to a few simple manipulations, and reports produced. The capability to do vast volumes of mathematical analysis is not required. Large storage capacity, by whatever media, is a must. Magnetic tape storage is cheapest, capable of handling volumes of data in short periods of time. If immediate access storage is required, the cost will begin to mount depending on how much, how fast.

The librarian and the systems analyst must again work as a team in the changeover from whatever system presently exists to the new system. Don't believe that this will happen in a day, or a month. There will be a period of parallel operation when everyone is attempting to do two different things at the same time. Therefore, the implementation plan must be detailed in all of its aspects to insure that the minimum amount of confusion ensues during what must be at best a trying period for all concerned. However, if all personnel have participated, however inimately, in the systems analysis, have been briefed on the progress of the design, and have been assured of their place in the new hierarchy, such resistance will be minimized.

Upon completion of the implementation plan, the systems analyst should furnish the librarian with complete documentation of the system. This includes program specifications, programs, flow charts, job descriptions, user and indexer manuals, in fact, everything which will explain the system operation and contribute not only to its present effectiveness, but to the accomplishment of the necessary changes which will become inevitable as operating experience is gained, and changes in operating requirements appear.

At least a year, and most likely longer, has been absorbed into the planning and implementation of the electronic data-processing system. Now the librarian may relax, and by pushing the right buttons all kinds of information may be elicited from the computer. Don't believe it. Since the end of the third phase where the librarian and the systems analyst agreed on the objectives of the system, and the reports required, a great deal of time has passed. New requirements have been imposed on the library, which were not known at that time, and the necessary effort to implement even minor changes in report formats is not understood by the layman. Errors in typewritten reports may be erased or Snowpaked. A typist may be shown the format of a new report, and will take it from there. But a computer may need a whole new set of instructions, which can only be provided by a specialist.

Even worse still, if the librarian has been passive all through the systems analysis, design, and implementation, trusting in the systems analyst implicitly to solve the operating and information problems of the library, the situation may be even worse. The first sign of trouble will be the appearance of manually kept records on an employee's desk. Somehow the provided reports are not adequate, not frequent enough, or not readily understandable so that the staff can make the necessary decisions from them. So the reports are disregarded, and everyone begins to maintain his own private record in order to fulfill effectively his responsibilities. In such cases it is of no use to blame the systems analyst. The responsibility for the operation of the library rests where it always has. The systems analyst has gone, but the system, the library, and the librarian remain.

This returns us to the postulation in the title of this article. Certainly the librarian and the systems analyst should be a team, but a team of which the librarian is the captain. When this is understood by both team members, and both members understand that they are cooperating with a professional, a professional, satisfactory, and sound solution will result.
An indexing of Canadian news from about fifteen Canadian daily newspapers was undertaken at the University of Saskatchewan's Regina Campus. To expedite the work an attempt was made to use computers. The indexing, which covered the period from 1840 to date and which would be kept up to date, proved to be an immense undertaking. Moreover, it was discovered that the computer could not do the entire job; that human intelligence was still required. The first issue of the index has been completed and it is expected that regular production of the index will begin sometime in 1967, Canada's centennial year.

The Canada News Index:
A Report on a Computerized Indexing of News in Selected Canadian Dailies

BERNARD K. JOHNPOLL

Some three years ago, while working on a book on Polish politics between the two great wars, I found it might be necessary to read some twenty-two years of ten Polish daily newspapers from cover to cover (a total of about 60,000 papers). This made it impossible for me to study the newspapers with any degree of the thoroughness necessary for a serious scholarly work, and I eventually decided that it would be better to ignore the newspapers (except in a few rare cases). Material in the New York Times and the Times of London was, on the contrary, far simpler to find because both of these papers are indexed and it is not necessary to struggle through endless files to find vital data. The book was thus written without considerable information that would have been available had there been newspaper indexing of Polish papers for the period.

Late last year I began work on a study of Canadian government and politics. I again discovered that there was the same problem in using newspaper material: there was no index that could direct me to the proper section of the proper newspaper for a significant item of Canadian news. This time, however, I decided to do something about it; I suggested that an index of Canadian news be established. And with the cooperation of the Principal of the University of Saskatchewan, Regina Campus, Dr. William A. Riddell, I began devising methods for indexing the news about Canada that appeared in Canadian newspapers.

The first job was to determine a method for building up such an index; and this created several major problems:

1. Which newspapers should be included, and by what criteria are they to be chosen?
2. How far back was it possible to go in Canadian newspaper files that would be readily available?
3. What work would have to be done by humans, and what work could be done by computers?
4. How should the work be scheduled? Which would we attack first: current or past newspaper coverage?
5. What process should be used to cross-index the materials properly?
6. What would be the cost of such a project and how was it to be financed?

The sixth item, of major consequence, is the simplest to discuss primarily because it is still unsolved. The best cost estimate we can now make for twenty-six issues a year of the

For many years a newspaperman, Dr. Johnpoll joined academia in 1960. At the time of the project described which he designed, he was Assistant Professor at the University of Saskatchewan, Regina Campus. He is presently Associate Professor at the Graduate School of Public Affairs, State University of New York at Albany. His paper was first presented at the Newspaper Division Luncheon during the SLA Annual Convention at Minneapolis, May 30, 1966.
News index is about $52,000 a year. This cost includes the following items:

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstracters' salaries</td>
<td>$5,200</td>
</tr>
<tr>
<td>Computer time and materials</td>
<td>10,400</td>
</tr>
<tr>
<td>Printing</td>
<td>26,000</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>10,400</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$52,000</strong></td>
</tr>
</tbody>
</table>

This assumes, of course, that the abstracters would all be graduate students who would work part-time on the abstracting job. It also does not include any salary for the editor. The printing cost assumes that the issue would be produced by photo-offset directly from the computer and would be limited to a hundred copies.

The assumption regarding financing on which we operated was that we would require a $40,000 annual grant and that we would be able to charge $120 a year for the service. Indications now are that we will be able to ask for more than $120 a year for the service, that we shall have close to 450 subscribers, and that we will probably not require any grants after the first issue has been produced. Every major library in Canada, every university in Canada, and several libraries and universities in the United States have requested the service. The indications are now that the service, which is being continued by the university under the editorship of Dr. Bernard Zagorin, will be self-sustaining after the first issue has been printed. The demand for the service has overwhelmed us—and this will mean that the costs will be sufficiently lower per copy to allow us to operate without subsidization.

**Key Problems**

Now to the key problems. First, what were the criteria in deciding which newspapers to use? Because Canada is a federal country, it is necessary that at least one newspaper be used from each of the provinces. This has meant a minimum of ten newspapers. Another newspaper had to be used from the national capital because considerable national news is covered only slightly in the provincial press. Moreover, the two largest cities in Canada, Montreal and Toronto, should be covered by more than one newspaper each, because the wealth of news emanating from these cultural and economic centers requires more thorough coverage. And, finally, it should be made certain that the newspapers would cover as broad a political spectrum as possible, and that they should be under as many different owners as is possible.

With this in mind the following newspapers were chosen: St. John's, Newfoundland, Daily News; Halifax Chronicle-Herald; St. John, New Brunswick, Telegraph-Journal; Charlottetown Guardian; Montreal Star; Montreal Gazette; Ottawa Journal; Toronto Star; Toronto Globe and Mail; Winnipeg Free Press; Winnipeg Tribune; Regina Leader Post; Calgary Herald; and the Vancouver Sun.

The selected newspapers covered each of the provinces and ranged in the political spectrum from the liberal Toronto Star to the conservative Winnipeg Tribune. Yet, despite the broad coverage, it was soon apparent that there were several serious omissions:

First, there was no French-language newspaper. This is now being remedied by the inclusion of the three key French-Canadian newspapers: Le Devoir and La Presse of Montreal and La Action of Quebec City.

Secondly, we noticed that there would be several large cities unrepresented in the indexing. Particularly noticeable was the absence of Hamilton, Windsor, and London in Ontario, Edmonton in Alberta, and Victoria in British Columbia. This will be remedied before the end of the first year with the inclusion of the London Free Press, the Hamilton Spectator, the Windsor Star, the Edmonton Journal, and the Victoria Colonist. A suggestion that the index include also the Saskatoon Star Phoenix has been tentatively rejected because of the similarity between it and the Regina Leader Post in coverage and editorial policy.

Incidentally, the news that would be indexed, it was decided early, would include politics, economics, education, significant crime, and major disasters. Minor crime stories, most traffic and social notes, and most obituaries were to be ignored. Cost and size precluded the inclusion of the items mentioned.

The second problem, the question of how far back we could go, was much more vexing than we had assumed. From 1910 forward we could see no problems. Most of the post-1910 newspapers are available in libraries throughout Canada. But the news-
papers of the period from 1840 to 1910 are sometimes hard to locate. We discovered, however, that they are available in some most unusual places. Montreal, Halifax, and Toronto dailies from about Confederation (1867) onward are in public or university libraries, or are available on microfilm. Newspapers in other centers or copies from the three other cities were located in the New York Public Library and on microfilm. Despite a great deal of searching, we could find almost no full files, however, and in all cases there are some missing days for the period 1840-1885.

The third problem was the most difficult to solve. The extent of cross-indexing would depend on the amount of work that could be done by computer. Human error would make cross-indexing by humans a tedious and less than totally accurate task. Unfortunately, we could not devise a completely computerized cross-indexing technique, although work is now going forward on designing a program which would make the cross-indexing more completely automated (or cybernated).

The Indexing Technique

The technique finally decided on for developing the index is somewhat more involved than it ought to be and it will be simplified as time progresses. But for the time being, it works as follows:

The editor scans each of the newspapers and decides which stories are both Canadian in nature and significant enough to be included in the index. The criteria for significance are hard to describe except that it might be noted that most Canadian news is considered important enough to index. After each day's newspapers are marked for significant stories, they are given to an assistant editor, or abstracter.

The abstracter's work is the first crucial portion of the construction of the index. (We had toyed for a while with the idea of using some sort of scanning equipment for a more fully cybernated operation, but it became apparent in short order that such an operation would be impossible.) The abstracter is also given a series of forms for listing the news items. The news story is abstracted into no more than fifty words, preferably less. The abstracters are warned from the start that they are not to rely on headlines for deciding what is in a news story, but should read the entire story and then develop the abstract from that. After the abstract is completed, the various categories into which each of the stories may fall are listed, as many as twelve categories for any individual news item. These categories must include 1) the basic nature of the story, 2) the names of each of the persons mentioned, and 3) the names of any province, city, or other minor civil division mentioned. Thus a story about the Montreal dock strike would be listed under 1) Canada—Labour; 2) Canada—Shipping; 3) Quebec—Labour; 4) Quebec—Shipping; 5) Montreal—Port; 6) International Longshoremen’s Association; 7) Canadian Shippers Association; 8) Labour Minister Nicholson (the Christian name needn’t be included where important personages are involved; the computer is programmed to place the proper first name in the printer); and 9) Provincial Minister Levesque. The name of the paper in which the story appeared, the page on which it appeared, and the column or columns are also noted in the form. Where the story appears in more than one paper an additional form also is attached. This form simply lists the newspaper, page, and column in which the story appeared. The name of the newspaper is coded, for example, A for the Vancouver Sun, C for the Regina Leader Post, and the computer is programmed to transmit the code letter on the form into the name of the newspaper. We are now, incidentally, experimenting with setting up about 2,200 categories, which will be coded into the machine, eliminating the need for writing out each category and later punching it in full onto cards.

We have found that the average daily newspaper in Canada has between forty and sixty news stories worthy of the index, and that about fifteen of these will appear in more than one newspaper. This means that we have an average of three hundred to five hundred stories a day that must be abstracted. This gives some idea of the enormity of the job. At best, we can expect an abstracter to handle two days' newspapers a week. This means that we require at least three abstracters.

After the abstracter is done with his work, the forms must be edited carefully. It would have been advisable in our case to have used
a professional copy editor on the forms. Unfortunately, our financial position did not permit us to spend the money that would have been entailed. It, therefore, fell upon me to edit the material. Although I have worked in the newspaper industry—as a copy reader and news editor of metropolitan dailies—for many years, my six-year absence from the news room made it a slow job.

When the forms are finally edited, they are taken to the computer room where all of the information is put on IBM punch cards. An average two-weeks’ run would require about 25,000 cards. To speed the work, it was found necessary to give each story a code number and, where a story appeared more than once, the punch card operator needed only to punch the code number on the later cards covering the same story. The cards are then checked for errors. The entire card operation is done on a 1402 IBM card read punch reading eight hundred cards a minute.

The cards are then fed through an IBM-1410 computer. The computer at the University, an IBM 1620, was found to be too small for the work entailed. Through the cooperation of the Province of Saskatchewan’s Government Computer Centre, the larger machine was made available to us. The 1410 has 40,000 memory positions which means that, except under extremely unlikely conditions, there would be no danger of its being unable to handle the indexing job. The cards, incidentally, proved to be too cumbersome an operation. We, therefore, fed them into a tape by use of the IBM-729 tape drivers, which made it possible to have 556 characters per tape-inch, thus reducing the storage space required for the operation. The tapes were finally fed into an IBM-1403 printer. The finished product was then reduced, by use of an extra-large Xerox machine, onto a master plate for lithographic reproduction.

If this procedure appears to be somewhat more than ideally complex, an experience during the experimental stages might be of interest. Twelve students and I tried to do an indexing job of four newspapers without the use of the computers. It took about two weeks to complete a cross-indexing of two days of these papers. With the computer we can complete the job on about fifteen newspapers (more accurately, incidentally, than was possible by hand) with a lag of only forty-eight hours. Our delays were almost all human, except for waiting for computer time, a matter that is now eliminated.

The method we have employed has proven to be feasible and the costs, albeit high, within the range of possibility.

The human element can not be eliminated in indexing, but most of the tedious work which invariably results in delay—the sorting, cross-indexing, and typing—has been done by machine. I do not believe that it will be completely possible to eliminate human intelligence in news indexing in the foreseeable future; but our experience does indicate that the computer has made it possible to do considerably more indexing in less time than was previously possible.

One of the vexing questions that faced us was how to proceed. Do we set up the current or the historical indexing first? We found that it would be far simpler to begin with the current index; once that is underway we could begin working backward into 1965, 1964, and so on to 1840. Two completely separate teams would be required for the two jobs; both would be made up primarily of students at the University of Saskatchewan, Regina Campus. We hope, by 1976, to have the historical indexing completed at the same time that a fully complete, current index could be in regular production.

The value of this index is hard to overestimate. Historians, political scientists, economists, and newspaper people have all reported to us that they feel we are making a major contribution to scholarship. A major source of information, the daily newspaper, is being made available to them. I can also see immeasurable value, in such indexing, for newspapers interested in knowing what they have published in any given period. And for newspaper librarians, whom I remember pestering about some long-forgotten news item I needed to complete an obituary, the value would probably be inestimable.

We chose Canadian news because we were working in Canada. Americans are fortunate to have an index to one of the finest, if not the finest, newspapers in the world, the New York Times. Yet I wonder if an indexing of some other newspapers along the same lines might not be advantageous to the working press as well as to scholars.
A checklist for evaluating technical libraries and technical information centers is presented. Designed originally for use by the Atomic Energy Commission's Division of Technical Information in its evaluation program, it may prove useful for librarians and library administrators in evaluating their own organizations. The checklist includes these subdivisions: background and organization, physical facilities, personnel, administration, reference resources, selection and acquisition procedures, organization and maintenance of the collection, services, and public relations.

Checklist for Review and Evaluation of Technical Libraries

C. G. STEVENSON

EARLY IN 1963 the Library and Document Control Committee of the AEC's Technical Information Panel* undertook to develop standards for use by the Commission in evaluating the technical libraries of its contractors.

The committee recognized that quantitative standards would not be particularly applicable in the situation for which the standards were being prepared. The Commission has many contractors, with varied missions, and these dictate different solutions to the technical information needs at the various sites. The outcome of the committee's efforts was a checklist concerned qualitatively with those attributes considered basic to a sound and effective technical library program.

The committee recognized also that a high degree of subjectivity would enter into the evaluations. The checklist was intended to be used, therefore, by professional librarians with skill and experience. It is basically a fact-finding tool, an instrument for gathering, in an organized and systematic fashion, information concerning activities of significance in evaluating a library program.

The first draft of the checklist was completed in December 1963, and it has undergone a number of revisions since then. The committee was greatly assisted by the many reviews made of the checklist by the members of the Technical Information Panel and their staffs.

The guide may be useful for librarians and library administrators in evaluating their own organizations and programs.

* A national advisory body to the AEC's Division of Technical Information. The panel is composed primarily of representatives of the Commission's major contractors.

Mr. Stevenson is Manager of Technical Information, Battelle Memorial Institute, Pacific Northwest Laboratory, Richland, Washington. He is Chairman of the Library and Document Control Committee, AEC Technical Information Panel. His paper is based on work performed under United States Atomic Energy Commission Contract AT (45-1)-1830.
A Definition

This checklist is intended to apply to the library functions of the technical information activity. These functions are defined as the acquisition, organization, management, control, and utilization of books, periodicals, classified and unclassified technical reports, and other reference materials. Specifically excluded are such typical technical information functions as classification, printing and duplicating, report editing and publication, clearance of technical papers, and transfer-accountability station responsibilities for security control of classified documents.

Note: If the classified reports are maintained as a separate collection from the library, complete a separate form for each facility.

1. Background and Organization
   a. State briefly the objectives of the organization served by the library.
   b. What is the composition and number of the public to whom the library’s services are available?

   Total number served: __________
   - Professional Scientific and Technical ______
   - Administrative (non-scientific and technical) ______
   - Technicians ______
   - Other ______

   c. What is the position of the library in the organizational structure? _____ Research and Development _____ Service _____ Other.

   d. Give in order the titles of all officers of the organization having line responsibility for the library beginning with the highest position at the site and ending with the librarian.

   e. How long has the library been formally organized?

   Strengths:
   Weaknesses:

2. Physical Facilities
   a. What is the total space allocated to the library? _____ sq. ft. Main library _____
   Branches _____

   b. Work and library staff areas: _____ sq. ft. Is this space adequate? barely adequate? inadequate?

   Reader areas: _____ sq. ft. Is this space adequate? barely adequate? inadequate?

   Stack space: Books _____ sq. ft. Is this space adequate? barely adequate? inadequate?

   Journals _____ sq. ft. Is this space adequate? barely adequate? inadequate?

   Reports _____ sq. ft. Is this space adequate? barely adequate? inadequate?

   Equipment space: _____ sq. ft. (Microform readers and reader printers, reproduction equipment, etc.) Is this space adequate? barely adequate? inadequate?

   c. Estimate the number of years for which you consider the space allocated to the library to be adequate:

   d. Is there provision for additional library space to accommodate growth of the library collection? Give details:

   e. Are areas available for low cost storage of little used and stock materials? _____ Yes _____ No. If no, give details:

   f. Are the following working and reading conditions provided: Proper lighting? Quiet location? Air conditioning? Individual study units? Browsing areas?

   g. Does the library have specialized library furniture and equipment: For functions unique to libraries? For reading areas? For workroom and office space?

   h. Is a separate reading room available for convenient consultation of classified materials? _____ Yes _____ No. If no, give details:

   i. Is the library (or libraries) located in area(s) convenient to most users? _____ Yes _____ No. If no, give details:

   j. Is the layout of the library (or libraries) a convenient one for the staff and users? _____ Yes _____ No. If no, give details:

   k. Is the librarian consulted when problems relating to library requirements for space and equipment are considered or when plans for new library quarters, additions or remodeling are being developed?

   Strengths:
   Weaknesses:

3. Personnel

   Note: When completing the items in this section, the entries should be based on "equivalent full-time" staff members. That is, in addition to full-time employees, part-time employees as well as summer or other short-term employees should be included and the total computed in terms of equivalent full-time employees.

   a. Considering the definitions of the library given in the introduction to this appraisal form, what is the:
Total library staff ______
Number in main library ______
Number in branches ______

b. How is this number divided? ______ Professional ______ Non-professional. (Professional will be as defined in the Special Libraries Association standards)

c. Of the professional staff, how many have:
  Professional library degrees, only ______
  Scientific or technical degrees, only ______
  Both degrees ______
  No degree, active member of SLA ______

d. Length of service on library staff: Professionals (Number) ______ Less than 5 years ______ 5 to 10 years ______ More than 10 years ______
  Non-Professionals (Number) ______ Less than 5 years ______ 5 to 10 years ______ More than 10 years ______

e. Does the librarian interview and make final selection of all applicants for positions on the library staff?

Strengths:
Weaknesses:

4. Administration

a. Are the areas of job responsibility within the library clearly defined? ______ Yes ______ No. If no, give details:

b. Is the librarian held responsible for operating within a budget? ______ Yes ______ No. If no, give details:

c. Does the librarian participate in the preparation of the budget? ______ Yes ______ No. If no, give details:

d. Does the librarian receive periodic statements of the library's current financial condition? ______ Yes ______ No. If no, give details:

e. What percentage of the library budget (not including overhead) is devoted to salaries as opposed to library materials and equipment?

f. Does the library have a formal organization chart? ______ Yes ______ No. If yes, provide one.

g. Does the organization chart indicate that similar functions are grouped together efficiently? ______ Yes ______ No. If no, give details:

h. Does the library have a procedures manual? ______ Yes ______ No. If no, give details:

i. Have written job descriptions been prepared for each employee?

j. Does the library keep statistics pertaining to: ______ Acquisitions ______ Cataloging ______ Filing ______ Circulation ______ Reference ______ Other (specify). Comments:

  Does the library make periodic reports to management?

k. Are meetings of the professional staff held regularly? ______ Yes ______ No. Comments:

l. Does the library devote funds and time to the encouragement and support of the professional development of the staff? Attendance at professional meetings? Attendance at courses? Reading and discussing the professional literature?

m. Does the library have an active program to keep the professional library staff aware of the activities of the technical groups which they serve? ______ Yes ______ No. If yes, give brief summary:

n. Is sufficient clerical support available to avoid inefficient use of the professional staff?

o. Does the library have a program to familiarize its clerical staff with: Other clerical jobs in the library? The library's total program?


Strengths:
Weaknesses:

5. Reference Resources

a. What is the total number of volumes in the library collection including those in branch libraries and in self-maintained indefinite loan collections? Books ______ Bound journals ______

b. Total subscriptions including office copies, if any ______
   Number of titles ______
   Library subscriptions, including branches, if any ______
   Number of titles ______

c. What is the estimated size of the technical report collection? ______ Reports (titles) ______ Reports (copies)

d. Estimate how many of the reports (titles) in the collection are: Locally originated ______ Offsite originated ______

e. Does the library handle classified reports? ______ Yes ______ No. If yes, give approximate percentage of the report collection that is classified ______%.

f. In addition to books, periodicals, and tech-
nical reports, does the library maintain files of:

Standards and Specifications  
Trade Catalogs  
Reprints  
Photographs  
Other

g. Does the library have the major bibliographic tools in the technical fields pertinent to the organization's main interests?
h. Does the library have a general reference collection?
i. Has the availability of other materials in the geographic area been taken into account in building the library collection?
j. Does the library receive at least one copy of each of the following types of material representing significant research and/or development done by the organization? Formal research and development reports? Informal or internal technical reports? Technical articles submitted for publication? Patents? Technical speeches? Technical reports prepared by subcontractors of the organization? Others?

6. Selection and Acquisition Practices

a. Is the library responsible for the procurement of all reference materials (books, journals, reports, pamphlets, government documents, etc.) required by the installation?  Yes  No. If no, give details:
b. Does the library have a strong collection of bibliographic tools to support the selection and acquisition of materials?
c. Is the library staff consulted in the selection of vendors and evaluation of vendor bids for the library's business? Give details:
d. Is the final decision regarding items to be acquired the responsibility of the library and its staff? Give details:
e. What provision is made to permit the technical and scientific staff to recommend library purchases?
f. What procedures have been established to permit the library to order publications directly? Give details:
g. Do the purchase procedures allow for prompt ordering of materials when speed is necessary?
h. What is the average time lapse between order and receipt of domestic trade books? Comments:
i. Does the library participate in a publication exchange program?
j. Does the library make use of coupon services for procurement of patents, society papers, etc.?  Yes  No. If no, give details:
k. Does the library take advantage of deposit accounts for procurement of government publications, photocopies from New York Public Library, etc.?  Yes  No. If no, give details:
l. Does the library participate in duplicate exchange programs?
m. Are site employees permitted to purchase books through the library at discount prices for their personal use?

Strengths:  
Weaknesses:

7. Organization and Maintenance of the Collection

a. Are the library's materials cataloged and organized in logical, easily understood ways which will permit rapid retrieval of information?
b. Does the library attempt to develop by creation or adaptation special systems for organizing and cataloging materials of special types or interest?
c. Are library materials cataloged, indexed, and/or abstracted promptly?
d. What is the backlog of uncataloged or unindexed materials?
e. Are there clearly developed criteria for the selection of technical reports to be cataloged?
f. Do circulation records permit prompt location of all items on loan?
g. Does the library require terminating employees to return all "permanent loans" or "desk copies" for the reassignment to other site personnel? Comments:
h. Is there a program for retiring or microfilming little used materials?
i. Does the library have a policy to determine which journals will be bound and which will be kept unbound?  Yes  No. If no, give details:
j. Are periodicals, and other long-life material to be retained on the shelves, promptly and securely bound?
k. Is the collection culled periodically to eliminate less valuable or duplicate copies of materials?
1. Are the technical reports, Microcards, and microforms housed in a manner which will protect them and still allow them to be withdrawn quickly?

m. Are security classification changes applied promptly to the affected publications and their catalog records? ___Yes ___No. If no, give details:

n. Are new materials of current interest conveniently available for browsing?

Strengths:

Weaknesses:

8. Services

a. Does the library provide:
   - Reference services
   - Literature search services
   - Interlibrary loan services
   - Material on indefinite loan
   - Translating services
   Languages:
   Initiate bibliographies where it is felt a need exists
   Route journals
   Selectively disseminate information
   Keep records of and issue lists of the organization's publications
   Maintain and service a collection of reprints of papers authored by the personnel at the site
   What other services does the library perform? Enumerate:

b. Are literature searches performed by technically trained library personnel?

c. Can the library take advantage of the services of outside agencies such as specialized information centers for literature searches and data location?

d. Is quick-order translation available by translation specialists on the library staff?

e. Is photocopying equipment available at the library so that users can obtain photocopies of library materials promptly?

f. Are Microcard and microfiche readers and/or reader-printers available in the library?

g. If Microcards and microfiche are circulated, are there sufficient readers and/or reader-printers located in the technical work areas?

h. Does the library issue accession lists, tables of contents, library bulletins, or similar publications to inform its clientele of available new materials? ___Yes ___No. If yes, give titles and indicate frequency and coverage:

i. Are the library's services available at times other than the conventional work week?

j. Are the library's unclassified collections available at times other than the conventional work week?

Strengths:

Weaknesses:

9. Public Relations

a. Is there a regular program of orienting new employees to the services and resources of the library?

b. Is there a definite arrangement for the library to get feedback from its customers concerning the quality and extent of services provided?

c. Does the library publish a guide to its resources and services?

d. Does the library have a library committee composed of representatives of the group served?

e. Does the library have an exhibit or display program?

f. Does the library provide assistance to other libraries, including college and public, in such matters as recruitment, sharing advances in information science, teaching, etc.?

g. Does the library offer consulting service to individuals or groups who are interested in organizing personal information files or retrieval systems?

h. Does the library have a well-defined policy regarding service to: Members of the AEC complex? Outside organizations? Members of the public?

i. Does the library circulate serial holdings lists to other libraries?

Strengths:

Weaknesses:
The American Theological Library Association
DONN MICHAEL FARRIS

The American Theological Library Association was organized in 1947 at a meeting in Louisville, Kentucky, convened by the American Association of Theological Schools and attended by fifty seminary librarians. The role which the AATS played in the establishment of the ATLA marked the beginning of a close formal and working relationship between the two bodies. The constitution of the ATLA defines its purpose as "to bring its members into closer working relations with each other and with the American Association of Theological Schools, to study the distinctive problems of the theological library, and to promote library service and librarianship among the institutions of AATS and theological education in general." The ATLA has whenever possible scheduled its annual meetings to coincide in time and place with the biennial sessions of the AATS; and an appointed representative of the AATS is a member of the Executive Committee of the ATLA.

Annual conferences of the association have been held without interruption since the organizational meeting in 1947. The twentieth conference convened again in Louisville in June 1966. Plans call for the ATLA to meet in Chicago in 1967, St. Louis in 1968, and Pittsburgh in 1969.

ATLA offers three kinds of membership. Full membership at $8.00 a year is open to librarians serving on the library staffs of institutions which are members of the American Association of Theological Schools. Associate membership at $6.00 a year is open to "persons interested in, or associated with, the work of theological librarianship." Libraries of schools which are members of the American Association of Theological Schools are eligible for institutional membership. There are now approximately 350 full and associate members and 113 institutional members of the ATLA.

Responsibility for the affairs of the association lies with the Executive Committee composed of the current officers, the immediate past president, four elected members-at-large, and the representative of the AATS; but much of the work of the organization is carried on by a number of standing committees and two permanent boards.

The Board on Periodical Indexing publishes the Index to Religious Periodical Literature, certainly the outstanding bibliographical achievement of the association. Volume 1 appeared in 1953, indexing thirty-one journals for 1949-1952, while volume 6, appearing in 1965 and covering 1963-64, indexed 104 titles and initiated the policy of publishing a two-year cumulative volume. All six volumes of the Index are currently in print. The Index office is located in the McCormick Theological Seminary Library, 800 West Belden Avenue, Chicago, Illinois 60614.

The Board of Microtext, working with an initial grant from the Sealantic Fund, Inc., operates on a nonprofit basis to produce microfilm and Xerox copy for the association and others. Its efforts are directed to the filming of materials required by members of the association and for research in theology.
especially material that it is not commercially feasible to film, or will not be filmed otherwise. The board now has on film a substantial body of manuscripts, monographs, serials including lengthy periodical runs, and denominational records. Microfilm is supplied at a uniform price to any customer; a list of titles and prices is available from the ATLA Board of Microtext, Yale Divinity School Library, 409 Prospect Street, New Haven, Connecticut 06511.

The Committee on Building and Equipment provides information and advice on new equipment and the planning of buildings both at the annual conferences and throughout the year. The Committee on Cataloging and Classification arranges discussion and workshop sessions on these subjects at the conferences and is currently investigating ways of developing larger opportunities for the employment of cooperative cataloging procedures in theological libraries.

The Periodical Exchange Committee supervises the exchange of duplicate periodicals among the members of the association. The Committee on Reprinting has been responsible for bringing back into print fourteen important theological titles that had long been unavailable. The Committee on Statistical Records compiles for the association statistics on the holdings, acquisitions, staffing, and expenditures of its member libraries.

The Bureau of Personnel and Placement provides a clearinghouse for information concerning positions that are open and persons who are available in the field of theological librarianship. The present director of the bureau is Miss Harriet V. Leonard, Divinity School Library, Duke University, Durham, North Carolina 27706.

The ATLA issues two regular publications. The Summary of Proceedings appears annually following the conference and includes the minutes of the conference business sessions; committee, board, and other reports; papers and addresses delivered at the conference; and current information on the organization and membership of the association. The Proceedings are edited by the executive secretary, Thomas Edward Camp, School of Theology Library, University of the South, Sewanee, Tennessee 37375.

The ATLA Newsletter established in 1953 and published quarterly in February, May, August, and November, contains news of the association and its membership, articles concerning theological librarianship, and some news of broader interest. The Newsletter is indexed in Library Literature. Its editorial office is located at the Divinity School Library, Duke University, Durham, North Carolina 27706.

Other publications of the association include A Bibliography of Post-Graduate Masters' Theses in Religion edited in 1951 by Niels H. Sonne; and Selected Basic Reference Books, Periodicals and Check Sheets for Self-Study and Evaluation of Seminary Libraries issued by AATS in 1954 and revised and reissued in 1958 as Aids to a Theological Library.

The generosity of two foundations has been of paramount importance to ATLA in its efforts to improve the quality of theological libraries and theological librarianship in the United States and Canada. With a series of grants to the association, beginning in 1958, the Lilly Endowment, Inc., has made possible scholarships and fellowships to staff members of AATS libraries wishing to complete or supplement their professional education. A new provision in the grant for the present year also permits scholarship aid to persons preparing to enter the field of theological librarianship.

The Sealantic Fund, Inc., with grants of $875,000 in 1961 and $436,750 in 1964, made possible the five-year operation of the ATLA Library Development Program, under which the gifts from the Sealantic Fund have been distributed on a matching basis to more than eighty theological libraries for the purchase of library materials. A new grant of $35,000 from the Sealantic Fund this past summer provides for the establishment of a fellowship program specifically for senior theological librarians.

Officers of the ATLA for 1966-67 are president, Roscoe M. Pierson, Librarian, Lexington Theological Seminary, Lexington, Kentucky; vice-president, Arthur E. Jones, Jr., Librarian, Drew University, Madison, New Jersey; executive secretary, Thomas Edward Camp, Librarian, School of Theology, University of the South, Sewanee, Tennessee; and treasurer, Peter N. VandenBerge, Librarian, New Brunswick Theological Seminary, New Brunswick, New Jersey.

112 Special Libraries
Factors Affecting the Costs Of Library Photocopying

Occasionally questions are raised about the rates charged by the Engineering Societies Library for photocopying. As other libraries also receive inquiries about their rates, it seems desirable to examine the factors that affect library photocopying costs. The factors considered here are those affecting the service of the Engineering Societies Library, but with minor modifications they should be applicable to any library providing an extensive photocopying service on a self-sustaining basis.

Most inquiries appear to be based on one or more of three factors—1) low-cost figures advertised by photocopy equipment manufacturers, 2) low rates some colleges and universities give their students and faculty members, and 3) charges for some commercial photocopying.

For obvious reasons photocopy equipment manufacturers give figures based on only the direct out-of-pocket cost of using their equipment. Colleges and universities generally require the faculty and students to check their own references and to make their own photocopies. Commercial photocopying can be done at lower cost than library photocopying because the user provides the material and usually gets it to and from the copier.

Following is a list of service operations involved in the photocopying done by the Engineering Societies Library, which serves a large and varied clientele mostly by mail. Not all orders require all of these service operations, but all listed operations are factors in the establishment of the self-supporting, non-profit rates charged by the Library for photocopying.

- Answering inquiries about the availability in the library of a specific publication. Such inquiries are made in person, but more often by mail or telephone.
- Handling incoming and outgoing mail.
- Envelopes and postage for correspondence, as well as for sending the photocopies by first-class mail to expedite delivery.
- Providing quotations on the cost of a copy.
- Providing pro forma invoices when required as is often the case in handling requests from foreign countries.
- Getting the volumes or items from the shelves and back to them. This must be done, when quotations and pro forma invoices are supplied, as well as when a photocopy is supplied.
- Identifying references which all too often are incomplete and incorrect, many apparently due to careless or hasty work. To identify and correct such references requires work by a trained and knowledgeable librarian. It cannot be done by a clerk.
- Preparing and sending invoices, or maintaining deposit accounts.
- Sending follow-up statements when accounts are not paid in a reasonable time.

The services required to provide photocopies are the major factor in determining the cost of photocopying by a library. The cost of the copy itself is a minor factor at the Engineering Societies Library, which is using the newest and most economical photocopying equipment available.

Engineering Societies Library policy requires that photocopying service charges cover the direct costs of the service. This makes it possible to provide the service without drain on the important but limited funds provided by the twelve engineering societies which partially support the Library. These funds are primarily used to acquire and organize for use an extensive collection of published and unpublished materials, and to provide reference, information, and referral service by mail and telephone as well as in person in the reading room. The allocation by the societies is not used to support all services of the Engineering Societies Library. Services such as photocopying, literature searching, and translating are made possible by the availability of the collection of the Library, but other than for this form of subsidy these services must be virtually self-supporting.

RALPH H. PHELPS, Director
Engineering Societies Library
New York

FEBRUARY 1967
Government and Libraries

FEDERAL LIBRARY COMMITTEE

THE FEDERAL LIBRARY MISSION: A Statement of Principles and Guidelines has been approved by the Federal Library Committee and transmitted to the Bureau of the Budget for presentation at the February 1967 meeting of its Executive Officers Conference.

This conference, which consists of the principal executive officers of federal agencies, is concerned with overall administrative problems of the federal government.

The Mission Statement, with its guidelines for adequate library service, represents the application of basic management principles to the problems of library service within the federal government. It consists of an introduction, a summary presentation of the Federal Library Mission, followed by a series of fifteen guidelines designed to place federal library services on a sound basis of service and support.

The summary statement of Mission is given below.

The Federal Library Mission

Definition and Scope

Federal libraries support the missions and programs of their agencies principally by providing bibliographically related information services. To achieve this objective they have at least four basic responsibilities.

1. To collect and organize pertinent recorded information, in whatever form required, to meet managerial, research, educational, informational, and other program responsibilities;
2. To provide ready access to their materials and to assist users in locating required information;
3. To disseminate pertinent information from their collections on a selective basis;
4. To make their collections and services known to present and potential users.

Library Functions

To discharge these basic responsibilities, federal libraries perform a range of tasks including assistance to users through literature searching, reference service, bibliographic work, professional guidance to readers, lending and borrowing materials, and by supporting these services through selecting, acquiring, cataloging, indexing, and abstracting pertinent materials. The effective performance of these functions requires continuing appraisal of the information needs of the agency.

Relation to Federal Community

The collections of federal libraries constitute an important resource for providing information needed in the daily operation of the government, and in the conduct of agency research programs. Interlibrary lending, interagency reference assistance, cooperative cataloging, literature searching, and other forms of cooperation are essential to full and efficient use of this resource.

Relation to Research Community and the General Public

Increasingly, a community of interest has developed among federal and non-federal library users. Federal libraries support those missions of their agencies that relate to non-governmental groups by extending their library services to other libraries, research institutions, and the general public.

PAUL HOWARD, Executive Secretary
Federal Library Committee
Library of Congress
Washington, D. C.

Samples, Please

SLA Headquarters would appreciate receiving sample copies of special library annual reports, staff manuals, handbooks, and periodical lists for its files and for use in answering requests. Send to Library and Archives, Special Libraries Association, 31 East 10th Street, New York 10003.
Library Literature Gleanings

Library Resources and Technical Services, Fall 1966, includes several articles on the new catalog code—principles, administrative implications, and so on. This issue also has an article by C. D. Gull on "Structure of Indexing Authority Lists"—"The . . . chart is an attempt to develop a logical or mathematical model of the relationships and characteristics which are common to typical lists of subject headings in libraries, and of thesauri, descriptors, uniterms, keywords, etc., in scientific and technical information centers," pages 507-511.

"Comprehensive Dissemination of Current Literature" by C. R. Sage appears in the October 1966 issue of American Documentation. Abstract: "A resume of the Ames Laboratory Selective Dissemination of Information (SDI) System is presented and its potential for future generation computers is discussed. The system is compared with other operational SDI systems with particular emphasis on the design differences. The Ames Laboratory system's adaptability to different input tape compositions and subject coverage is shown through a study of the results of twenty-six production runs made from two distinct document sources. A detailed analysis of the Ames Laboratory SDI System is made for a forty-run period in 1965, including a discussion of shortcomings of the system and suggested solutions to eliminate certain areas of 'noise.'" Also "The Scholar and the Future of Microfilm" by R. R. Dickison discusses the integration of microfiche into present systems.

The Assistant Librarian for November 1966 carries an interesting account of a visit by members of the Association of Assistant Librarians (Group of the Library Association) to Denmark: "Engelske Biblioteksfolk visit Denmark, the AAL tour, 1966, reported by Martin Underwood, Camden Public Libraries."


Clifford J. Maloney has an article in the Autumn 1966 Indexer on "Practical Preparation of Internal Indexes," pages 81-90. He defines an internal index and discusses indexing procedures and current research. Bibliography.

Wilson Library Bulletin for November 1966 carries an article entitled "IFLA/FIAB Report" which gives an account of the fall meeting in the Hague. The December issue has a series of articles on "Data Processing in the Library," pages 382-420. Included are the following: Communications Networks for Libraries, Data Processing in an Academic Library, Information Processing in NASA's Library, Computer Potential in Maryland, LAPI, and the Data Service Bureau, Decatur: Pioneer in Data Processing, An Automated Library in New England, Columbus' Conversion to Data Processing. "Perpetual User Studies" by Lauren B. Doyle is the subject of an article in Dataation, October 1966. The subtitle, "Prerequisite for information management," indicates the theme of the discussion, and the author concludes: "If knowledge of information use is to be truly representative, we must begin by defining a national user population. If knowledge of the user is to be kept current . . ., we must monitor the user population perpetually."

Aslib Proceedings, March 1966, includes "Documentation of Documentation; a survey of leading abstracts services in documentation and an identification of key journals" by Alan Gilchrist. The article covers services studied, coverage, publication delay, and others.

Glorieux Rayburn, Librarian
School of Library Service Library
Columbia University, New York City
National Library Week

ORIGINAL PAINTINGS HELP TO WIN NLW AWARD

When the Scientific and Technical Communications Department of the 3M Company, St. Paul, took second place in the 1966 SLA National Library Week Publicity Contest, it was the late Anita Fdez, 3M's librarian, who accepted the citation scroll and a check for $25—the latter donated to the Heart of America Chapter—for her firm. In the following account, written shortly before her death, Miss Fdez reports on the activities and efforts that won 3M Technical Library the well-deserved honor.

In the rush of preparing for the 1966 SLA National Convention, the 3M Technical Library took time to prepare an agenda for National Library Week. The agenda promoted the theme "Keep growing—Read" by encouraging the employees to use 3M libraries. Within the brochure, the 3M Technical Library staff, hours, statistics, subject areas, and services were outlined. The leaflet was mailed to approximately six hundred technical employees so as to arrive on their desks Monday of NLW. An additional six hundred copies were printed to be distributed throughout the year to new 3M employees.

In addition, in an effort to encourage personnel to visit the library, six original local artists' works were purchased and hung in the reading room, and a reproduction was bought to be hung in the stack area. The announcement of the new pictures was made through the library bulletin, of which five hundred and seventy copies were mailed to technical personnel throughout the company. The library bulletin also notified recipients that the various library publications from previous years were on display in the reference room.

As in past years, the library provided commercial posters, bookmarks, and mobiles to the other six libraries at 3M as well as displaying posters and mobiles, posting newspaper articles regarding NLW, and distributing bookmarks in the Technical Library.

It was felt that with the strenuous national convention activities, we were again successful within 3M in promoting NLW.

AN OPEN-END STORY on National Library Week, written specially by L. Quincy Mumford, Librarian of Congress, is now being prepared. All those interested in receiving a copy of the story, which is designed for publication in house organs, etc., are invited to write to SLA Headquarters.

PROMOTION AIDS INFORMATION—NLW 1967

"Explore Inner Space—Read" and "Reading Is What's Happening" are the dual themes featured on the National Library Week Program's promotional materials this year (April 16-22, 1967). For free descriptive brochure, including order blank and prices of individual items please send a postcard to: Promotion Aids Brochure, National Library Week, One Park Ave., New York 10016. Deadline for all promotion aids orders is March 24th. Materials available this year are:

- "Explore Inner Space—Read." Poster (17" X 22"), eight colors, op-art lettering design by Vera Deutsch. The poster, shown above, is printed on glossy stock and varnished.
- Bookmark, eight colors, on coated and varnished card stock.
- Five-piece mobile in eight colors.
- Streamer (9" X 25"), eight colors, printed on glossy stock and varnished.
- Postal card, eight colors, reproduction of poster.
- "Reading Is What's Happening." Poster (17" X 22"), bright four-color photo art of teenagers derived from jacket design of Books and the Teen-Age Reader by G. R. Carlson. It is printed on glossy stock and varnished.
- Table tent (10" X 13"), double-faced, with photo art, legend and "National Library Week 1967" printed on it.
- Button (2" in diameter), white letters on red background.
- Booklet, three-color, 12-page, contains concise statement of NLW organization, some of its achievements, and updated library facts.
Classifying by Geographical Prefix

Dewey-based libraries whose interests can be defined in geographical terms might consider the use of geographical prefixes in classifying their materials. The majority of Esso Standard Eastern’s information requests are concerned with particular regions or countries; our personnel and subject specialists usually require data on a topic as it applies to an area or country, for example, fertilizer production in Pakistan. Hence, we decided to construct geographical notations that would be prefixed to the classification number proper. A complete schedule for the total world geography was devised, geared specifically to Asia and Oceania (the company’s main interests), but also providing for the back-up materials maintained on other areas. The general outline runs thus:

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Region</th>
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</thead>
<tbody>
<tr>
<td>NA</td>
<td>North America</td>
</tr>
<tr>
<td>LA</td>
<td>Latin America</td>
</tr>
<tr>
<td>EU</td>
<td>Europe</td>
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<tr>
<td>AF</td>
<td>Africa</td>
</tr>
<tr>
<td>NE</td>
<td>Near East</td>
</tr>
<tr>
<td>SA</td>
<td>South Asia</td>
</tr>
<tr>
<td>SE</td>
<td>Southeast Asia</td>
</tr>
<tr>
<td>FE</td>
<td>Far East</td>
</tr>
<tr>
<td>OC</td>
<td>Oceania</td>
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<tr>
<td>AN</td>
<td>Antarctic</td>
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<tr>
<td>AR</td>
<td>Arctic</td>
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<tr>
<td>SA</td>
<td>South Asia</td>
</tr>
<tr>
<td>SE</td>
<td>Southeast Asia</td>
</tr>
</tbody>
</table>

Beside each general prefix the number 1 designates materials dealing with the region as a whole, or with two or more countries equally. SA1, for example, includes works on South Asia in general, and works treating both India and Pakistan. Further enumeration is made for the individual country. Thus, SA2—India, SA3—Pakistan, and so on to provide for all the countries or territories in a particular area. If necessary, provision is made for further delineation by the use of a, b, c. Thus SE8, Malaysia, is subdivided into SE8a—Malaya, 8b, 8c—Sabah, and 8d—Sarawak. Materials not concerned with any specific area are assigned the general class number only; thus, the U.N.’s *Yearbook of International Trade Statistics* is classified in 382 only, with no geographical prefix.

The prefix system works advantageously for both the Information Center staff and the company user. Constant contact with materials on a particular area lends itself to ready memorization of such a simple notational device. The cataloger automatically knows the prefix, and the reference librarian and clerical assistant are able to refer inquirers quickly to a particular section. The physical item itself is also helped, since it is not burdened with the long Dewey classification number provided for in the area tables; the class number proper does not have to be carried out further than the basic number offered. Finally, since the shelf list gives a very good immediate idea of the size of the present collections on a particular area or country, deficient areas can be augmented if necessary or desirable.

Excepting the familiar objection attached to single location of item, which our subject catalog attempts to solve, the only disadvantage that has arisen with this prefix system are the difficulties involved in the change of status of individual countries or territories.

The reference collection is the only cataloged collection where the geographical prefix system is not used. Since this collection is kept to a minimum of essential materials, proliferation of prefixes would only unnecessarily complicate their handy use.

A similar system of geographical designation is also used by the Joint Library of the International Monetary Fund and International Bank for Reconstruction and Development for its collection. The scheme is a numeric-alphabetic combination that designates individual countries only. Hence, Australia becomes 9R and Pakistan 8T. (A complete description with schedule of the classification scheme was published in *SLA Finance Division Bulletin* 18:1-12, January, 1956.) The principle in both schemes, however, is the same: keep area materials together. A copy of the complete schedule may be obtained upon request.

Matthew J. Vellucci
Assistant Librarian
Esso Standard Eastern, Inc.
New York, New York
Aid Requested for ISA List Revision
The RTSD Joint SS/AS Committee to Revise the List of International Subscription Agents requests the aid of all librarians, but especially serials and acquisitions librarians. New or corrected information on agents listed in *International Subscription Agents*, ALA, 1963, is invited, as well as information on new agents. The Committee particularly requests information about agents who specialize in subject areas or in countries not represented, or poorly represented in the 1963 edition. Recommendations and suggestions may be sent to Roma Gregory, Chairman, at Bowling Green State University Library, Bowling Green, Ohio 43402.

Radio–Television–Film Festival
To encourage wider and better use by libraries of radio, television, and films and to recognize outstanding programs in these areas, the Public Relations Section of the American Library Association will sponsor its first radio, television, and film festival and seminar during the Association's annual conference to be held in San Francisco the week of June 25, 1967.

During the festival, five awards will be presented for those radio, television, and film productions of libraries which, in the opinion of the judges, represent the best use of the three media.

Any library or library system is eligible to enter the competition, provided their entries were produced and used between June 1, 1964, and December 1, 1966.

Entries should be submitted by March 25, 1967, to Miss Kathleen Molz, c/o Television Information Office, 745 Fifth Avenue, New York 10022.

SPECIAL COURSES
The University of Maryland invites senior administrative personnel of large public, research, and academic libraries to participate in a two-week seminar to study library organizations, July 17-29, 1967. Topics to be studied are leadership, motivation communication, personnel, decision making, problem solving, financial planning and control, performance appraisal, and the impact of technology upon library organizations.

University of Illinois Graduate School of Library Science announces a graduate course in June 1967 on Medical Literature and Reference Work. The course is designed as a part of the curriculum for the preparation of medical librarians and considers representative reference and bibliographical aids in the medical and health sciences.

The National Institutes of Health Library is offering a fourth Medical Librarian Internship Program to begin August 27, 1967, providing the interns with an overview of all aspects of the library program in a biomedical research institution.

University of Illinois announces the Fifth Annual Clinic on Library Applications of Data Processing to be held April 30-May 3, 1967. The clinic is designed primarily for those actually working with mechanized procedures, especially computers, or who are seriously interested in the use of computers for library purposes.

Electronic Information Handling Conference II will be held in mid-April in Pittsburgh. Co-sponsored by University of Pittsburgh, Western Michigan University, Goodyear Aerospace Corporation, and the Office of Naval Research the objective of this conference is to promote information exchange and to stimulate interest in testing and evaluation of information handling systems.

Indiana University Graduate Library School and the Indiana State Library announce a Personnel Institute for library administrators to be held in the Student Union Building of the Indiana University Medical Center, Indianapolis, March 3-4, 1967. The program will be designed for library administrators from all types of libraries who have supervisory responsibilities. Lectures and discussions will cover topics such as recruiting, applicant appraisal, incentives, salary, public relations, performance evaluation, psychological and social environment, training orienta-
tion, and attributes of a good supervisor/manager.

The Emory University Division of Librarianship will sponsor a four-week Library Management Institute, July-August 1967. Designed for librarians with supervisory responsibilities, special attention will be given to analysis of library processes, efficient use of personnel, and the application of management principles and techniques from business and industry.

The University of Minnesota, Twin Cities Chapter, and American Records Management Association will jointly sponsor the Sixth Conference on Records Administration, April 20-21, 1967. Conference theme is “Records Today; Information Tomorrow.”

The National Archives and Records Service, General Services Administration will hold a symposium “Putting Information Retrieval to Work in the Office” at the Washington Hilton Hotel, Washington, D. C., May 8-10, 1967. Special attention will be given to storage and retrieval of computer produced data, and computer based systems for production of a variety of user reference tools, publications, miniaturized records, etc.

University of Illinois Graduate School of Library Science will host the International Conference on Education for Librarianship, June 12-16, 1967. The conference will be partially supported by a $7,500 grant to the library school from the Council on Library Resources. Subjects to be covered include history and present status of education for librarianship, organization and operation of library schools, teaching methods, and research and advanced study. Speakers will come from this country as well as from Europe and Latin America.

Beginning June 19 the library school offers a special four-week course “Administration and Use of Archival Materials.” The course will cover all main aspects of the selection, arrangement, physical handling, and use of the common types of archival materials. It will be of use to librarians, historians, and to those responsible for archives of government agencies, colleges or universities, and private companies.

Beginning July 17 the library school will hold a three-week Seminar on Computer-Based Systems for Libraries. The first session will be generally directed to the needs of public, school, and junior college librarians; the second session to those of college or university and special librarians.

MEMBERS IN THE NEWS

Richard S. Angell, Chief of the Subject Cataloging Division at the Library of Congress, has been appointed Chief of the newly created Technical Processes Research Office in LC’s Processing Department.

Samuel Baig, formerly with CBS Laboratories, Stamford, Conn., has been appointed Chief Librarian at Kollsman Instrument Corporation, Elmhurst, N. Y.

Harry F. Cook has recently retired as Director of the Air Force Library Service, a position he held since 1945. He plans to spend a year of travel in Europe.

Andrew Eaton, Director of Libraries at Washington University has been named Vice President and President-elect of the Association of Research Libraries. Dr. Eaton has also served as President of the Missouri Library Association.

Phyllis R. Epstein has been appointed Head of the Medical Library of Winthrop Laboratories, New York, succeeding the late Mrs. Mildred Clark, who was also a member of SLA. Miss Epstein was previously Chief Librarian at U.S. Vitamin and Pharmaceutical Corporation.

Elizabeth Brooks Flowers, former Assistant Director of the Union Catalog of Medical Periodicals of the Medical Library Center of New York, became Assistant Reference Librarian of the New York University Medical Center Library.

Jeannine Ann Green, a former cataloger at the University of Wisconsin’s Memorial Library, has been appointed Chief Librarian of the National Industrial Conference Board in New York.

T. K. S. Iyengar, former Science Librarian of the John Crerar Library has joined the staff of the Chicago Medical School as Chief Librarian and Assistant Professor of library science.

February 1967
GEORGE L. LEWICKY, the former Assistant Project Director of Library/USA at the New York World's Fair and Administrative Assistant for Indexing Services at The H. W. Wilson Company has recently been named Chief of a newly established Office of Personnel Administration at that company.

CATHRYN C. LYON, Head Technical Library Division, U.S. Naval Weapons Laboratory, was elected President of the Dahlgren Chapter of the Federal Professional Association.

THOMAS L. MINDER, Special Assistant to the Director, will be on leave from the staff of University of Pittsburgh Libraries to accept his appointment as Director of the Pittsburgh Regional Library Center, which is sponsored by the Pittsburgh Cooperative Library Group.

JAMES K. PAGE, JR., has been appointed publisher of the Natural History Press, a division of Doubleday. He joined Doubleday in 1958 and held successive positions of assistant sales promotion manager, editor, and editorial director.

HAROLD L. ROTH, President of the New Jersey Library Association and Director of the East Orange Public Library Association, has been elected vice-president in charge of library and institutional relations for the Baker & Taylor Company.

LLOYD FELIX WAGNER, former Chief of the Library Services Division of the Federal Aviation Agency, has been appointed Director of Libraries at the Catholic University of America, Washington, D. C.

In Memoriam

EVA LOU FISHER, formerly Chief Librarian, Missiles and Space Division, Lockheed Aircraft Corporation, died December 31, 1966. Mrs. Fisher was editor of SLA's popular publication *A Checklist for the Organization, Operation, and Evaluation of a Company Library*.

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SLA Sustaining Members

These are in addition to the Sustaining Members for 1967 listed in the January 1967 *News & Notes*.

AEROSPACE CORPORATION
AMERICAN CAN COMPANY, Research Center
AMERICAN CYANAMID COMPANY
AMERICAN ELECTRIC POWER SERVICE CORPORATION
AMERICAN GAS ASSOCIATION
THE AMERICAN TOBACCO COMPANY
BELL & HOWELL RESEARCH CENTER
BOSTON CORPORATION
BRIDGEPORT PUBLIC LIBRARY
CARRIER CORPORATION
CHICAGO MEDICAL SCHOOL LIBRARY
CONSOLIDATED EDISON COMPANY OF NEW YORK
THE DOW CHEMICAL COMPANY, Rocky Flats Plant
FEDERAL RESERVE BANK OF NEW YORK
THE FIRST NATIONAL BANK OF BOSTON
THE FORD FOUNDATION
FORD MOTOR COMPANY
GENERAL DRAFTING COMPANY, INCORPORATED
GENERAL MOTORS CORPORATION
HARVARD GRADUATE SCHOOL OF BUSINESS ADMINISTRATION
IDAHO STATE UNIVERSITY LIBRARY
INDIANA STATE LIBRARY
INTERNATIONAL BUSINESS MACHINES CORPORATION
LINDA HALL LIBRARY
A. C. McClurg & COMPANY
MCKINSEY & COMPANY, INCORPORATED
MANSELL INFORMATION/PUBLISHING LIMITED
MARATHON OIL COMPANY
MINNESOTA MINING & MANUFACTURING COMPANY
MISSOURI STATE LIBRARY
NATIONAL LEAD COMPANY
NEW YORK UNIVERSITY LIBRARIES
OFFICE OF THE STATE LIBRARIAN, Honolulu, Hawaii
OHIO STATE LIBRARY
THE OKLAHOMA STATE LIBRARY
PENNSYLVANIA STATE UNIVERSITY
PERGAMON PRESS, INCORPORATED
PITTSBURGH PLATE GLASS COMPANY, Barbentown, Ohio
THE PORT OF NEW YORK AUTHORITY
C. W. POST COLLEGE
QUEBEC IRON AND TITANIUM CORPORATION
RADIATION, INCORPORATED
ROCKFORD PUBLIC LIBRARY
SAN JOSE PUBLIC LIBRARY
SQUIBB INSTITUTE FOR MEDICAL RESEARCH
STANDARD OIL COMPANY (New Jersey)
STECHERT-HAFNER, INCORPORATED
SUFFOLK COOPERATIVE LIBRARY SYSTEM
TECHNICAL BOOK COMPANY
TRW SYSTEMS
UNION ELECTRIC COMPANY
UNITED STATES STEEL CORPORATION
UNIVERSAL OIL PRODUCTS COMPANY
UNIVERSITY BINDERY
UNIVERSITY OF CONNECTICUT, Wilbur Cross Library
UNIVERSITY OF HAWAII LIBRARY
UNIVERSITY OF MARYLAND
UNIVERSITY OF NEW MEXICO
WayNE STATE UNIVERSITY
WYETH LABORATORIES, INCORPORATED
ZEITLIN & VER BRUGGE
Off the Press . . .

BOOK REVIEWS


Anyone involved in making an alphabetically arranged book catalog, list, index, or bibliography in machine-readable form will be pleased to see this book. A major problem with data processing equipment and even more with computers is alphabetical sorting. Libraries wishing printed lists to match their card catalog filing have been stymied by the filing order built into the machines. At the University of Rochester Library, experimentation with three programming languages, FORTRAN II (for IBM 7047), AUTOCODER (for IBM 1401), and, currently, DYSTAL (for 7047 and 360/50), has led to the conclusion that rules, like the ones prepared by Hines and Harris, would be a great blessing.

In their introduction, the authors state that their code "is intended for a divided catalog—that is, one which places authors, titles and subjects in separate alphabets—rather than for a dictionary catalog, which interfiles them . . . [because this] poses far fewer filing problems." The book then gives the proposed computer filing code, a broad set of rules for general order. Machine filing, of course, requires a program and, although not stated, it is obvious from the instructions given that this program is also a broad one for general sorting and not full of sub-routines for special cases. The code is followed by a section on preparation of catalog entries for filing, giving specific wording, lettering and spacing requirements since these are all-important in determining order. Then there is a chapter on manual filing, with its own index.

Following this, the new code is discussed in terms of the present A.L.A. Rules for Filing Catalog Cards. An example of the proposed filing rules is given and, for purposes of comparison, this is the list used for dictionary catalog style in the A.L.A. Rules. At the end there is an index to the whole book, arranged by the proposed new rules.

The new code is an excellent beginning. Hines and Harris have been quite conservative in changing existing rules. After all, much in the present A.L.A. Rules is the result of arbitrary decision, with or without rationalization. For example, titles beginning with numbers could perfectly well machine file as numbers after Z, which would avoid the syntactical and grammatical problems involved in spelling them out. (For example, is 1820 dix-huit cents vingt or [un] mille, huit cents, vingt?)

There is still more to do, as Hines and Harris point out. Science libraries will have to work out arrangements for titles that contain Greek letters, formulas, etc. Libraries with millions of cards in their files will find oddities not covered by the computer code and preparation sections. Special user needs or prejudices or the development of new list programming languages of the DYSTAL type may make it advisable to reconsider the decision against programming for "as if spelled . . ." filing (i.e., file U. S. as if spelled United States).

One minute criticism—it is too bad the filing example was not published as a photo-offset reproduction of actual computer print-out. Typesetting somehow detracts from the book's excellent presentation.

PHYLLIS A. RICHMOND
University of Rochester Library
Rochester, New York


Microfilm Norms is an excellent compact guide to recommended practices for producing 35mm microfilm. It is concerned with microfilm intended for short-term use or for permanent retention in archives, libraries, or other depositories. This publication is a successor to A Guide to Microfilming Practices prepared in 1954 by the ALA Committee on Photoduplication and Multiple Copying Methods under the chairmanship of Donald C. Holmes of the Library of Congress. He continues as a member of the Committee on Library Standards for Microfilm of which Peter R. Scott of M.I.T. is Chairman. Members of this committee are well qualified by knowledge and experience to provide information on microfilm practices that will help the librarian to judge quality.

One significant statement made by the Committee is that "the production of microfilm of good quality is a responsibility shared by the library or other purchasers and by the laboratory producing the microfilm." Increased use of microfilm and improvements in methods
# Cumulative Statement on SLA Nonserial Publications in Print as of September 30, 1966

<table>
<thead>
<tr>
<th>Date</th>
<th>Title of Publication</th>
<th>Cost</th>
<th>Number Printed</th>
<th>Copies Given*</th>
<th>Copies Sold</th>
<th>Total Receipts to Date</th>
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<td>1949</td>
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<td>Handbook of Scientific &amp; Technical Awards in the U.S. and Canada 1900-1952</td>
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<td>Translators and Translations: Services &amp; Sources, 1st ed.</td>
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<td>Checklist for the Organisation, Operation and Evaluation of a Company Library</td>
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<td>Guide to Metallurgical Information</td>
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<td>Guide to Special Issues &amp; Indexes of Periodicals (O.P.)</td>
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<td>2052</td>
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<td>1858</td>
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<td>1962</td>
<td>Guide to Russian Reference &amp; Language Aids</td>
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<td>1962</td>
<td>Dictionary of Report Series Codes</td>
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<td>1386</td>
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<td>Directory of Business &amp; Financial Services, 6th ed.</td>
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<td>Special Libraries: How to Plan and Equip Them</td>
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<td>1964</td>
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<td>1965</td>
<td>Translators and Translations: Services and Sources in Science and Technology, 2nd ed.</td>
<td>$22,860.98</td>
<td>3582</td>
<td>82</td>
<td>1323</td>
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<td>1965</td>
<td>Business and Industrial Libraries in the U.S. 1820-1940</td>
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<td>1023</td>
<td>41</td>
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<td>1965</td>
<td>Guide to Metallurgical Information, 2nd ed.</td>
<td>$5,768.05</td>
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<td>804</td>
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<td>144</td>
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<td>1966</td>
<td>Special Libraries: A Guide for Management</td>
<td>$6,940.32</td>
<td>5500</td>
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</tbody>
</table>

* See page 123 for Notes
for producing it have led to the development of standards to insure uniform quality and practices. These should be acquired for use with Microfilm Norms for proper understanding and application. Standards of the United States of America Standards Institute (formerly the American Standards Association) may be obtained as a package called USA SI Microform Standards. Specifications MIL-M-9868 and M-1-1965 are also required and are available from the National Microfilm Association (P.O. Box 386, Annapolis, Maryland 21404).

Descriptions of technical and bibliographic targets and also page arrangements are very useful information and well presented. The technical explanation on reduction ratios and image orientation has been simplified so that it is easily understood. Quality requirements for first generation films and also for duplicate films are well covered. Related definitions and illustrations are included.

The publication is a contribution to the education of the librarian on microfilming methods. It will be useful to those concerned with microfilm programs by acquisition, loan, reference, or service. The responsibility for complying with acceptable practices now has been clearly placed on the librarian as well as on the technician. This has been done by providing an appropriate tool to do the job, Microfilm Norms.

LORETTA J. KIERSKY, Librarian
Air Reduction Company, Inc.
Chairman, SLA Reprography Committee

Linda Hall Library Serials Holdings

Ready for distribution in late February 1967 is the first Serials Holdings in the Linda Hall Library. Each successive issue will be cumulative, recording new titles as well as new holdings, and after the initial issue one or two cumulations will be prepared for 1967. The first issue will include detailed holdings notes for all current titles in the serials collection; all Russian, Japanese, and Chinese titles; all titles entered under the letters A-B and most or all titles under C; and some additional noncurrent titles. The handling charge for the 1967 issues, which will not be available separately, is $20. Orders should be placed before February 1 with the Library at 5109 Cherry Street, Kansas City, Missouri 64110. After distribution of Serials Holdings, requests for photocopy and interlibrary loan service will be handled.

DOD Mechanized Library Plans

A survey of the mechanized systems in the Department of Defense technical libraries and documentation centers has been completed by Booz, Allen Applied Research Inc., and is available as AD 640 100 from CFSTI, Springfield, Virginia. Hard copies are $7.00 each and microfiche is $1.75. The basic report describes and analyzes various efforts made to automate these libraries. The study indicated needs for improved communication between librarians and computer personnel and a better understanding of user needs.

Systems Analysis and Design for Libraries

Rensselaer Polytechnic Institute announces a grant to Edward A. Chapman, director of libraries, and Paul L. St. Pierre, assistant director for operations, from the Council on Library Resources. The $4,470 grant will allow them to prepare a monograph "Systems Analysis and Design as Related to Library Operations," to be published in 1967 by John Wiley and Sons, Inc., in its "Information Sciences Series." The book to be designed as a guide will provide a working knowledge of standard methods, procedures, and tools the librarian can use in analyzing and evaluating operating problems. The book originated in two ten-week staff training programs attended by representatives of public, educational, and special libraries from northeastern New York. A preliminary draft of the proposed monograph was used as the basis of a symposium of the SLA Upstate New York Chapter in September, 1966.
Initiating a Library Automation Program
Now Available

Four talks in the lecture series *Initiating a Library Automation Program* have been collected and reproduced by the Documentation Group of the Washington, D. C. Chapter of the Special Libraries Association. The papers are: *The Problem Solving Routine* by Thomas Minder, *Why and What to Automate* by Richard A. Evans, *How to Begin* by John J. Nicolaus, and *Where and When to Begin* by Herbert S. White. Copies are available at $1.00 each from Sarah Thomas, 10427 Montrose Avenue (Apt. 104), Bethesda, Maryland 20014.

Directory of Geoscience Libraries
in the U.S. and Canada

Information provided by this preliminary directory includes full name and address of library; full name of parent organization, if any; and name of head of the library. A more comprehensive edition is planned, expanding the number of libraries listed, and containing additional information such as special collections, subject orientation, holdings, services, staff, and in-house publications. A limited number of copies of the preliminary edition are available, free of charge, from GIS Secretary, Earth Sciences Library, 204 Geology Bldg., University of Colorado, Boulder, Colo. 80302.

Significant Changes for CA

*Chemical Abstracts*, the sixty-year-old omnibus of chemical information will feature a number of significant changes in 1967 to reflect the increased volume of chemical information which it must process as well as the demonstrated needs of the users of this information. Traditionally issued biweekly, *Chemical Abstracts* will become a weekly publication in 1967, with the Biochemistry and Organic Chemistry Sections to be received by subscribers the first week of the cycle, and the Physical and Analytical Chemistry, Macromolecular Chemistry, and Applied Chemistry and Chemical Engineering Sections scheduled for the following week. Beginning with the first issue of Volume 66, each abstract in *CA* will be individually numbered to facilitate specific identification. Numbers will be continuous throughout a full volume. Column numbers and letter fractions will then no longer be used to identify abstracts.

Present CAS plans call for *CA* to be completely computer produced by 1969.

Revised Word-Abbreviation List
for USASI—Z39.5

Copies of the revised word-abbreviation list for USASI (formerly ASA) Z39.5 (1963) "American Standard for Periodical Abbreviations" are now available from National Clearinghouse for Periodical Title Word Abbreviations (NCPTWA), c/o Chemical Abstracts Service, University Post Office, Columbus, Ohio 43210, Attn.: Mr. J. L. Wood, Head Librarian.

The Z39.5 word-abbreviation list was revised and enlarged under a grant from the National Science Foundation. Copies are being made available to users at printing and handling cost —$1.50. Quarterly supplements that will keep the revised word-abbreviation list up to date are to be published beginning March, 1967. The annual subscription price for these is $2.00.

New Distribution Date for
LTP Publication No. 10

Distribution of LTP Publication No. 10, *Development of Performance Standards for Binding Used in Libraries, Phase II*, has been unavoidably delayed. Distribution will be made as soon as possible, hopefully no later than March 1, 1967.

Applied Science & Technology Index
Expanded

Following a complete study by the ALA Committee on Wilson Indexes, the subscribers to *Applied Science & Technology Index* voted to expand the index's coverage effective with the January 1967 issue. The periodicals indexed increased from 195 to 225 with 52 new titles. Part of the timeliness of *Applied Science & Technology Index* is reflected by this change—periodicals in the fields of physics, aeronautics and space science, automation, information retrieval and computers, and general engineering have more than doubled. Periodicals in the fields of industrial and nuclear engineering have also increased. Five periodicals in the field of mathematics are indexed as opposed to only one previously. Also showing an increase are periodicals in the fields of construction, electricity and electrical communication, and general science.

JOURNAL NOTES

The *Journal of Typographic Research*, an international quarterly published by the Press of Western Reserve University, will be devoted to critical investigation and experimentation that contribute to a better understanding.
of typography's role within the communication process. In addition to original research, the journal will publish abstracts, book reviews, conference reports, and similar items. Emphasis is on scholarly studies, basic and applied, in the sciences, the liberal arts, and the graphic arts. The editorial board includes top authorities in the field from England, Holland, and Sweden, as well as the U.S.A. French, English, German, Italian, and U.S. typographic design specialists serve on an advisory council. Subscriptions, $6 for individuals and $10 for institutions, should be sent to Journal of Typographic Research, 2029 Adelbert Road, Cleveland, Ohio 44106.

MATHEMATICAL BIOSCIENCES an international quarterly will be published by American Elsevier Publishing Company, 52 Vanderbilt Avenue, New York 10017, the first issue to be released in March. The new journal will publish mathematical papers of both research and expository type devoted to the formulation, analysis, and numerical solution of mathematical models in the biosciences, including biology, physiology, bioengineering, ecology, as well as psychology. The price for volume 1, (4 issues) 1967, is $20 plus $1 postage.

BIBLIOGRAPHY OF MEDICAL REVIEWS, cumulated annually since 1956 by the National Library of Medicine, has now been published in the form of two pilot issues to be distributed throughout the biomedical community for review and to determine interest in its possible widespread distribution as a separate monthly subscription publication. Issue No. 1 contains a sixteen-page listing of citations by subject and a six-page listing of authors, the citations are to reviews indexed in the October 1966 Index Medicus. Copies of the pilot issues are available on request from the Assistant to the Director, National Library of Medicine, 8600 Rockville Pike, Bethesda, Maryland 20014. Subscription rate from the Government Printing Office would be approximately $1.75 for the monthly publication and $1.25 for the annual cumulation.

CURRENT CONTENTS OF CHEMICAL SCIENCES, published by the Institute for Scientific Information, 325 Chestnut Street, Philadelphia, Pa. 19106, is a new weekly information service to assist chemists in keeping up with new developments being reported from research laboratories around the world. A companion publication to ISI's Current Contents of Life Sciences and Current Contents of Physical Sciences, the new weekly features structural dia-

grams representative of compounds mentioned in each article and a unique subject index of chemist-selected terms from which the computer creates all possible Permut-Pairs. The journals listed in CCCS cover theoretical chemistry, organic synthesis, analytical, physical and inorganic chemistry, polymer chemistry, surface chemistry and catalysis, chemical engineering and other chemical technologies. Author index and address directory is included.

THE PHILOSOPHER'S INDEX, a quarterly to serve scholars and students and teachers of philosophy. Each issue includes both a keyword and an author index. The new publication aims at listing all significant philosophical periodicals published in English in the U.S. and abroad, selected philosophical journals in other languages, as well as selected interdisciplinary periodicals relating to philosophy. The annual subscription price (four issues) is $8.50 (single copies $2.50) and subscriptions should be mailed to the Philosopher's Index, Bowling Green University, Bowling Green, Ohio 43402.

SUBJECT GUIDE TO FORTHCOMING BOOKS a bi-monthly, subject-arranged index of U.S. books to be published over a five-month period will be published by R. R. Bowker Company, 1180 Avenue of the Americas, New York 10036. The new periodical will cover all types of books and classify them under some two hundred subject headings. An outgrowth of Forthcoming Books, this publication is designed to up-date Subject Guide to Books in Print. It is estimated that, in the course of a year, the new guide will publish 50,000 advance listings of over 20,000 new books. A year's subscription (six issues) costs $7.50. A combined subscription to Subject Guide and to Forthcoming Books is offered at a reduced rate of $18 for both publications.

BULLETIN is the official publication of the recently founded Israel Society of Special Libraries and Information Centres in Tel Aviv (P.O. Box 20125). It contains descriptions of Israeli special libraries, current information about cataloging and classification (with special emphasis on UDC), library mechanization, bibliographies of library literature and reference works as well as news about the activities of its members. The text is mainly in Hebrew but the first issue carries an introduction in English. The society publishes also original papers in a series entitled Contributions to Information.
RECENT REFERENCES

Librarianship


Reports on extension resources and services of State library agencies for 1961, updates information contained in the 1955-56 issue, and reports on changes made in state agencies during the first five years of operation of the Library Services Act program.


Summaries of eight papers presented at these seminars conducted at Lehigh as part of a National Science Foundation grant.


An authoritative study of the important changes that have occurred in the publishing world over the last few decades. Originally published in 1965 under the title La Révolution du Livre, this translation edition contains several minor modifications prepared by the author.

Bibliographic Tools


An annotated list of those papers and books which are considered most helpful to the librarian who wishes to study the problem before discussion with computer scientists. The material is divided into four broad groups: general, information retrieval and dissemination, library systems, and printed indexes.


A survey and analysis of some of the principal and most notable works existing on the subject to provide a selective introduction to the wide field of fine arts. Separate title and subject indexes.


A selected, annotated list of 176 references to books, pamphlets, magazine articles, lists of subject headings, and mechanized and hand-sorted punched-card systems suitable for organizing small collections of engineering books and other related material in the field of engineering. Selection and use of individual systems are discussed in the introduction. Subject index.


The fifth issue of an annual bibliographic survey which includes all books, pamphlets, and articles but generally omits news articles, editorials, book reviews, or notes. Prices of books and pamphlets are given if they are available. Certain foreign works, and some U.S. or Canadian editions of British publications are also included. Author index is appended.

Dictionaries


German, English, French, Spanish, Russian—the work gives more than 10,000 terms for use in research as well as forestry practice. Technical terms relative to forest products are included only when of direct interest to forestry work.


A selected guide to introduce the reader to various groups of dictionaries and to some of the leading titles in each group, such as general language, foreign language, and special purpose dictionaries. More than 200 works are discussed in detail preceded by pertinent comments on defining and on using dictionaries. Contains separate, alphabetically arranged title and subject indexes.

Directories


Descriptive guide which lists more than 300 libraries including those of all federal government agencies, college and university libraries, as well as libraries of historical and learned societies, industrial organizations, and private institutions. Subject index.


Contains details of 110 industrial, academic, and public libraries in the areas of Northumberland, Cumberland, Westmorland, Durham, and Teesside. Includes a six-page subject index.

Seventeenth issue of a comprehensive compilation of international statistics relating to: population; manpower; agricultural, mineral, and manufacturing production; energy; transport; external trade; prices; national income; finance; social and cultural subjects. All information is given in English and in French.

**Encyclopedias**


Sponsored jointly by the editors of American Fabrics Magazine and Prentice-Hall, Inc., this richly illustrated reference work offers a wealth of information spanning 8,000 years of textile history, manufacture, and practical uses in industry and the home. Features a ninety-page Dictionary of Textile Terms providing complete, authoritative definitions of thousands of textile terms in common usage today.

**Indexes and Indexing**


Includes the documentation of the 54th, 55th, and 56th sessions of the Council and of all meetings held throughout the year. The index is arranged alphabetically as a combined author and subject list of headings with subheadings.

**Proceedings**


Complete proceedings of the fifth reliability and maintainability conference held July 18-20, 1966, in New York. Includes a cumulative index of papers presented at that conference which is divided into the following three sections: title list of all published papers of the four sessions; alphabetical author index referenced by serial numbers, to their respective contributions; and a classification code index in which all papers are grouped by subject.

*Kane, James F. and Carter, Elizabeth W.*, eds. *Increasing the Productivity of Collegiate Schools of Business*. Coronado, Calif.: American Association of Collegiate Schools of Business, 1966. v, 111 p. pap. $1.75. (Order from Executive Secretary, AACSB, 101 No. Skinner Blvd., St. Louis, Mo.)


Conference proceedings of the ninth military librarians' workshop held November 3-5, 1965, at West Point, U.S. Military Academy. Papers presented are listed alphabetically by title in the table of contents, a list of attendees is appended.


Proceedings of the second international conference sponsored by the Nonferrous Committee of the Institute of Metals Division, the Metallurgical Society, American Institute of Mining, Metallurgical, and Petroleum Engineers held at Philadelphia, October 15-17, 1965.


Report of the title conference held in Chicago September 19-22, 1965. Contains the papers presented and abstracts of the panel discussions. A list of conference participants is appended.

**Miscellaneous**


Presents the consensus judgment of the ten federal government agencies which participated in the study of energy research and development. Also available from Government Printing office is a much more detailed and comprehensive companion volume entitled *Energy R&D and National Progress* by A. B. Cambell.


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Contains papers, including five English-language contributions, presented at the 25th anniversary celebration of the title organization, reporting on developments in the fields of documentation and building techniques. The table of contents provides the full title of individual papers read, a list of contributors, complete with addresses, is appended.


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