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Innovation is an economic or social change resulting from a deliberate and purposeful process. Academic libraries could be substantially changed by the adoption of technological innovation in information service or made obsolete by competition from the private sector. This paper explores key issues related to innovation in academic libraries and concludes that innovation requires a conducive climate, capital investment, and a leadership that is enthusiastic and committed.

FUNDAMENTAL CHANGES in the economics and technology of academic library operations have stimulated librarians and administrators to seek ways of introducing and implementing innovation in libraries.

Zaltman has observed, "The impetus to innovation arises when organizational decision makers perceive that the organization's present course of action is unsatisfactory. When a discrepancy exists between what the organization is doing and what its decision makers believed it ought to be doing, there is a performance gap."1 Many academic library decision makers are feeling the frustration of this "performance gap." Several new ideas and innovations are serving to help close the gap, such as the proposed National Periodicals Center, shared cataloging through RLIN, WLN, and OCLC, and the interlibrary loan system of OCLC.

While these services are contributing to the efficiency of libraries, they are not sufficient, by themselves, to close the gap between current library and information service and the potential for service that could become a reality if existing technology were adapted to user information needs. These services are also not sufficient to close the gaps between user expectations and the library's ability to meet those expectations.

Lancaster has observed, "The profession seems to have its head in the sand. The paperless society is rapidly approaching. Ignoring this fact will not cause it to go away."2 In a forecast of telecommunications in the year 2000, Martino has stated, "Rather than visiting a library, any individual might be able to search the library files electronically and receive a printout of specific information or a facsimile copy of a desired document."3 During the 1980s libraries could be reduced to archival repositories because people will be accessing bibliographic data bases and text through computers in their homes and offices. These predictions while extreme and painful are indicative of trends with which librarians must deal. There is little doubt that technology can make these predictions become a reality; however, they ignore the human service functions fulfilled by libraries.

Adoption of computer and telecommunications technologies to library and information service needs will require capital and innovative thinking in the library profession. How can libraries maintain their function of human service in a machine environment? How can libraries use this technology to provide more responsive service? These questions are only two of the many that need to be addressed.

The purpose of this paper is to present issues related to the managerial aspects of...
innovation in academic libraries. The specific issues to be covered include performance gaps, incentives to innovate, nature of innovation, barriers and constraints, impact of innovation, and implementation of innovative strategies.

PERFORMANCE GAPS

Library directors, librarians, and support staff appear to agree that something is wrong in the library. In many cases, teaching faculties, students, and institutional administrators agree that the library is not performing as they would like. The performance gaps relate to the differences between services being provided and services that could be provided with the adoption of technology, relationships between library and teaching faculties, library and institutional administrations, and library administration and staff.

Perceptions of the service gap cannot be generalized. They vary from library to library and depend on faculty and student awareness of technology, budget situations, and user demands. Several library directors have expressed extreme frustration over the decreasing purchasing power of funds at a time when faculty demands for instant gratification in the form of more books are increasing. Other library directors, dealing with technologically aware faculty, are trying to find capital to provide improved information retrieval services and faster document delivery methods.

These pressures are exacerbated in some institutions by administrators who are trying to compensate for enrollment declines with greater sponsored research activity. More intense competition among faculty members for tenure and promotion causes them to place greater demands on libraries. These demands coupled with budget pressures and other barriers to innovation create a performance gap.

Growing and changing demands will place greater pressure on library administrators to enhance fuzzy mission statements with operational goals and objectives. McClure states, "One must recognize the difference between goals and objectives—they are not the same. Goals provide long-range guidelines (five years or more) for organizational activity; they might never be accomplished, and they are not measured. In contrast, objectives are measurable, short range, and time limited." McAnally and Downs indicated that the libraries have rarely done a good job of planning.

Without purpose, planning is an exercise in futility. Achievement of objectives may require the elimination as well as the addition of services and materials. In order to have operational objectives, the library, teaching faculty, and institutional administration will have to agree on specific services and materials to be provided by the library and adjust their expectations to fit the objectives. This task is particularly difficult in a large university where faculties are often in conflict with one another. Humanities faculties tend to equate good libraries with big libraries, while engineers and management people seek information rather than books. In the setting of goals and objectives, the library and academic administrators become negotiators between the warring factions.

The administration of the college or university will need to acquire a greater understanding and sensitivity to the economics of libraries in terms of costs and benefits as well as inputs and outputs. Since libraries are part of overhead costs and administrators are charged with keeping costs as low as possible, academic administrators are likely to look to the library as a place to cut costs.

Many library budget cuts are not purposeful cuts. The director is told to cut X percent from the budget and may not be given any guidance on what services or materials to cut. Academic administrators facing severe overhead cost problems engendered by a variety of federal regulations may not realize or be sensitive to the impact of undirected cuts in terms of the library's ability to serve the needs of its clientele.

Staff present a different set of problems to library administrators. McAnally and Downs observed in 1973 that library staff ranked second out of five in the growing pressures on library directors. They further observed, "It may seem strange that the director should be under attack from his own staff, or fail to receive badly needed support in relations with administration and faculty,
but it is so in many cases... They want and expect a share in policy decisions affecting themselves and the library."

Library directors have tried and are trying a variety of schemes to involve staff in the decision-making process. Dickinson has pointed out that "... 'participative management' has been used indiscriminately to mean everything from a situation wherein the library management simply seeks information and/or advice from staff members to one wherein the library is governed by plebiscite."

Despite the best efforts of many library directors to change managerial style, rely more heavily on committees, and generally involve staff in decision-making processes, staff remain dissatisfied. In recent years, staff discontent has been exacerbated by the failure of salaries to keep pace with the cost of living, changing student and faculty demands, and potential changes inherent in computer and telecommunications technologies. Some library staff members may feel that their jobs or work habits are threatened by technological innovation.

INCENTIVES TO INNOVATE

Despite the potential threat to the professional and psychological well-being of some library personnel, library administrators may have no choice but to adopt innovative strategies to meet objectives and goals in a different society. Lancaster and others have raised the question of whether libraries will be needed in an electronic world. He states that the library problem may not be lack of space or financial resources; "rather it is likely to be one of justification for existence and simple survival."

Technology can and will bring information directly into the home and office of the future. The place of the library in society will depend on how rapidly it integrates technology into its operations and how rapidly the engineers and designers of information systems will recognize the library as an important link in the system. While technology appears to be the major driving force for innovation, there are other factors contributing to the need to innovate. As technology has developed more effective and cheaper electronic computing and telecommunications devices, the economics of library operations has changed dramatically.

The rate of increase in the cost of library inputs has been consistently higher than the general inflation rate. Library output costs consisting largely of labor have not risen as rapidly. Because input costs are generally fixed costs in a library, the average cost per unit of output is rising in libraries where output levels have remained relatively constant or decreased.

Labor productivity and user productivity have been declining as collections, catalogs, and files have increased in size. The amount of capital invested in laborsaving equipment and processes is minimal in most libraries. Teaching faculties and librarians may find the term productivity offensive as it is usually related to the output of factory workers and farmers. Productivity in a library context relates the value of results obtained by staff or users from a given amount of effort in searching for information or documents.

Changing patterns of demand also provide incentives to innovate. In addition to providing course-related reading material, libraries are being asked to provide substantive information when needed and in a form that is convenient for the user. The potential of technology to provide information when and where needed coupled with the need to reduce the labor intensity of library operations is a prime motivator in innovation.

THE NATURE OF INNOVATION

Innovation is not limited to science and technology. Drucker's broader definition is "... the task of endowing human and material resources with new and greater wealth producing capacity." In Drucker's terms, innovation is economic and social change which does not create new knowledge but creates potential for action and added wealth. Sawyer defines innovation as a "useful new combination of resources." Innovation is not a device or a scheme. Rather it is a concept or a change in human activity. The concept is "continually evolving as the uncertainties are made to disappear and the targets turn into outcome." Innovation is a deliberate process rather than a chance happening or discovery. Motivating people to want to change and to implement new
plans and ideas is at the heart of innovation. “Innovation is not R & D, though it begins with research and continues with the entirely different process of development.” While research may result in invention and development may refine an invention into a finished, marketable product or process, innovation results in a change in the way people live and accomplish specific tasks. Innovation may be adoption of a technological device or process or it may be a new managerial or social process. Whatever it is, it relies heavily on human perceptions of something better in the future. This development usually is to achieve a specific purpose and is a directed effort. The development of the MARC record, shared cataloging, electronic message systems, and management by objectives represents innovations that were initiated, developed, and implemented to achieve specific outcomes. The literature of innovation, for the most part, deals with the concept in profit-making corporations. Discussions of innovation in the public sector point out that service industries and state and local governments are consumers of innovation rather than producers. The federal government is both a consumer and producer of innovation. Innovation in information retrieval and other areas of human activity was funded initially by the federal government.

**Barriers to Innovation**

There are a variety of barriers to innovation in academic institutions and libraries. These barriers relate to psychology, organizational factors, perceptions of the future, and economic factors. The psychological constraints to innovate stem from fear of change, especially planned change, and the unknown. Library staff and users accustomed to the present-day library are reluctant to give up comfortable habits and established ways of accomplishing tasks. Library staff may feel threatened by systems analysts, computer types, and others who do not speak their language and appear to have little sympathy with their problems. There may be feelings of being manipulated. “People resist being changed by other people . . .”, especially planners and innovators. Their resistance may be based on fear of change, threat of being manipulated, conflicting interests, constrained freedom of choice, or failure to see the value of the innovation. With technological innovation in libraries, users and librarians legitimately fear that the library will be more impersonal and the art of the book will die.

The organizational factors inhibiting change are both internal and external to the library. While most academic administrators believe that a library is essential to an educational institution, for some, the library has retained its “bottomless pit” image. Other administrators see innovation as a way to give the pit a bottom but either don’t know how to stimulate and reward innovative thinking or don’t want to invest the necessary capital. The lack of understanding and support leaves librarians in an impossible position of being “damned if they do and damned if they don’t.” Planning and budgeting in publically supported colleges and universities are not geared to investment and innovative activity. There is a tendency to allocate the budget on a “use it or lose it” basis rather than a planned basis leading to sufficient funding for academic services that are valuable to the institution. While many universities have obtained funds for the addition of audiovisual equipment and materials and computer-aided instruction, these innovative techniques remain underutilized in many instructional programs. The chalk and blackboard are comfortable and require little new thinking or activity.

Universities also create barriers to innovation because innovation may not be rewarded, especially in the library. Across-the-board salary increases and competitive promotion and tenure situations tend to inhibit rather than stimulate innovation. The lack of output measures of value in library operations constrains innovation. Academic administrators are more concerned with the cost of input than the value of output. They may be unsympathetic to library innovation because of focus on input and fail to see the contribution to output. Information, knowledge, and reading produce social value that cannot be easily quantified. Measurements of input versus social output or costs versus social benefit are elu-
sive and do not provide needed justification for capital investment.

Economic factors limiting innovation in the library relate to capital, investment, risk, and uncertainty. The “use it or lose it” approach to budgeting does not allow the library to accumulate capital to invest in technology or innovation. Capital appropriations generally are one-shot deals used for new typewriters, buildings, or stacks. The result of this practice is that not only are libraries technologically underdeveloped, they are also starved for capital.

University administrators appear unwilling to invest funds in innovation that will improve library staff and user productivity or make the library more efficient. Payoffs from investments in libraries are difficult to calculate. The value of the librarian is perceived in terms of the salary paid rather than the value produced. There is little consideration given to the value of user time in the library and how that time can be made more productive.

Risk and uncertainty are key factors in the process as well as the economics of innovation. Although innovation is a deliberate process, there is a risk that a particular project will fail or that results will be less than expected. “The most dramatic evidence of the risk involved in . . . innovation is the recent experience of Princeton University Library with 3M’s automated circulation system. . . .” This project ended in failure, the 3M system has been withdrawn from the market, and Princeton has returned to a manual method to charge out books.

This failure, however, is more than balanced by successful projects in many libraries; for example, the Ohio State University circulation system, a high-risk project at its inception, is a success. Implementation of shared cataloging and its by-products, involving hundreds of libraries, is another example of successful change.

Uncertainty is related to project success and failure as well as future conditions and investment. Academic institutions are facing an uncertain future with regard to enrollment, government funding, research activity, and endowment funding. In a highly uncertain economic environment, a natural tendency is to try to conserve what is at hand rather than invest for future gain.

Project selection and the process of the individual projects also contain elements of uncertainty. With many projects from which to choose and fuzzy measures of payoff and benefit/cost, management has to live with the idea that the projects chosen may not turn out to have been the best selections. “Uncertainty resides at the level of the individual project, where the ‘best’ way to proceed seldom is apparent and the individuals involved instead have to be satisfied with finding a promising way.”

Until recently, librarians have had the luxury of living in a relatively certain and risk-free environment. An innovative environment calls for new skills in risk assessment, ability to understand uncertainty, and ability to manage increased entrepreneurial activity.

THE IMPACT OF INNOVATION

Innovation has changed and will continue to change everyone’s life in dramatic ways. Downs and Mohr have identified three categories of benefits related to innovation: (1) programmatic, (2) prestige, and (3) structural.

Programmatic benefits are greater efficiency or effectiveness in accomplishing organizational goals, such as increased profit or market share in the private sector and production of improved service at the same or lower cost in the public sector.

The prestige benefit is the recognition and approval that are associated with early adoption of a new program or technology.

Structural benefits are related to individuals in the form of greater worker satisfaction or some other internal value.

Innovation in libraries, thus far, has produced both advantages and disadvantages. Shared cataloging systems have resulted in programmatic benefits for libraries but have resulted in some disadvantages for the worker. While some catalogers may feel greater satisfaction at being able to share their knowledge and skill, others may feel that the value of their professional judgment has decreased because they are prisoners of the terminal.

The potential impact of technological and systems innovations on libraries is difficult to forecast. If libraries survive as viable or-
organizations giving useful and valuable service, it is unlikely that their present forms of organization and operation will persist. It is likely that academic libraries will evolve in different ways. The small college library serving primarily instructional programs will not change in the same way as large university libraries serving research as well as instruction. There is not nor should there be uniformity among academic libraries. Each library should be encouraged to recognize the important factors and the unique elements within its own institutional setting. A "me too" approach should be used only when it is compatible with the goals and operations of the library.

As innovation proceeds, library staff and users will need to adapt to new ways of finding information and documents. The library's role in the information process will depend heavily on how quickly it adopts technology to make that process more efficient while retaining personal service.

Information technology is developing rapidly in the private sector. Libraries no longer are the sole sources of information for teaching and research faculties. Many librarians feel that this competition is unfair. In an era of tax revolts and taxpayer demands for spending limitations, competition is probably a fact of life. Competition from the private sector could reduce the importance of libraries in many areas.

IMPLEMENTING INNOVATION

Given the constraints, how can libraries adopt and implement innovative strategies? There is no recipe for transforming libraries into innovative organizations; however, experience in other kinds of organizations has identified some of the characteristics of innovators and innovating organizations.

The first characteristic is a positive attitude about the future and a belief that the future can be modified by decisions made in the present. Drucker has stated, "Innovative organizations spend neither time nor resources defending yesterday." An innovator does not concern himself or herself with the past but focuses on a vision of the future. Within innovative organizations, the climate nurtures creative thinking and change.

The climate does not develop overnight but is built over a period of time. People with new ideas and the ability to develop those ideas are rewarded and recognized in innovative organizations. "Readiness for change gradually becomes a characteristic of certain individuals, groups, organizations and civilizations. They no longer look nostalgically at a golden age in the past but anticipate their utopia in days to come."19 The responsibility for creating readiness for change and innovative strategies rests with management. Daft points out that top managers bridge the gap between the organization and technological development. Their status places them in a position to introduce change into an organization.20 They are exposed to new ideas from outside the organization and can stimulate new thinking within the organization. "The individual manager controls in large measure the kind and quality of ideas he will hear, by the questions he asks and the interest he shows in the answers. In that part of the job concerned with innovation, each manager must be responsible for stimulating the flow of ideas by appropriate questions and interest and by considerate screening of the idea he receives."21 Most of the ideas received are likely to be rejected; however, acceptance or rejection must be based on standards and appropriateness and be in harmony with organizational goals. Only a few ideas will merit further investigation and careful evaluation.

Innovative managers recognize that innovation doesn't just happen. An idea without development remains an idea, good or bad. Innovation is deliberate, purposeful, and, in most cases, a planned process or program. There is an objective or goal to be achieved that requires resources to develop an idea into a program or innovation to be incorporated into library operations. "In ... concentrating effort on the best ideas, the manager takes up the bare essence (which is the idea) and breathes life into it; he gives it form and dimension. He makes the idea his own, not in the sense of taking it from the originator, but in the sense of giving commitment, and adding the weight of his own recommendation to the request for additional development."22 Innovation and change require an organi-
zational structure that facilitates the flow of communication up and down. Ideally, innovative ideas should originate at both ends of an organizational hierarchy. Administrative ideas originate at the top and move down while technical innovation originates near the bottom and moves up. A great many words have been written about managerial styles and communication in libraries. McAnally and Downs suggest, "The director has to surrender some of his old authority and becomes more of a leader" in a more participatory environment. The staff dissatisfaction discussed by McAnally and Downs in 1973 has not abated in 1979 despite the good faith efforts of many library directors and programs, such as MRAP.

Dickinson, in his review of participative management, concluded, "Some library managers are unwilling to admit that they want and need control over the operations for which they are accountable. . . . participative management or power sharing should not—and cannot, if it is to be successful—mean an abdication of responsibility for the library on the part of administrators and managers, in the name of democracy." Innovation and idea generation rarely occur in groups. Individuals have ideas. Management is the catalyst needed to bring an idea to the point of innovation. The usual library committee structures are not conducive to idea generation or innovative thinking. In using committees in the innovative process, managers should keep the words of L. J. Peter in mind: "No committee could ever come up with anything as revolutionary as a camel—anything as practical and as perfectly designed to perform effectively under such difficult conditions." Committees are useful in studying specific issues and defining problems. A special task force drawn from appropriate departments of the library can be useful in drawing up plans to implement and integrate an innovation into library operations.

In the process of managing innovation, library users can be valuable. People responsible for developing new library programs should be sensitive not only to the user's needs but also to the user's wants. There may be substantial differences between needs and wants. If innovation is to succeed, users will need to be convinced that it is worthwhile.

A manager or library director may work at fine-tuning the climate of the library to produce innovation or new ideas and find that there is no response. He or she may proclaim in a loud voice that upward communications are welcome but find a quiet telephone or empty mailbox. If libraries are to implement significant change and staff is to be part of that change, library administrators will need actively to encourage change.

This encouragement should result in serious review of new ideas and innovation proposals as well as follow-through in development and feedback to the innovator. In addition, it may be necessary to alter the rewards and punishment system substantially so that innovators are recognized and rewarded with salary increases or perquisites.

Lastly, the library director desirous of closing performance gaps and shaping a meaningful role for the library in the future must present possibilities with enthusiasm, commitment, and confidence. He or she must communicate a sense of excitement and ability to make improvements in the future.

CONCLUSIONS

Innovation is purposeful economic and social change. If libraries are to continue their important contribution to the instructional and research missions of academic institutions, a climate conducive to change and generation of new ideas must be created. Library administrators must view innovation seriously and provide follow-through to develop ideas into innovations that can be integrated into library operations. Librarianship may be the fastest-changing and most exciting profession today. The potential to improve information service through technology is largely unrealized. Transforming potential into reality will require capital, innovation, perseverance, and leadership.

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6. Ibid., p.111.
18. Drucker, Management, p.79.
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24. McAnally and Downs, "The Changing Role," p.120.
Student circulation of books in forty-three major academic disciplines were examined for patterns of disciplinary interdependence. Percentage of books charged out by majors in their own discipline was defined as the ethnocentricity of the major. Percentage of books in a discipline charged out by students majoring in other disciplines was defined as the supportiveness of that discipline. The two concepts have little or no correlation with each other. Graduate students were more ethnocentric than undergraduates. Most disciplines were less supportive at the graduate level. Findings have implications for collection development.

University students use books in a wide variety of subjects, including those relating not only to their own major, but to other majors as well. For example, physics and chemistry students use books on mathematics, and political science students use books on history and sociology, and so on. Not all such patterns are well known nor are they explicitly built into library policy and procedure.

In a university with sixty or more academic major departments, where it is conceivable that a student majoring in one could use books relating to every other, the number of such relationships becomes horrendous—so many, in fact, that even though librarians and faculty often say that these relationships should be considered in collection building, the problem is generally ignored, and solutions are not sought.

This paper seeks to uncover some of these patterns in one university by examining (1) the extent to which students majoring in one subject will use the books of another subject and (2) the extent to which the books in one subject are read by students majoring in other subjects. A composite and economical picture of this disciplinary interdependence as it pertains to student library use has never been painted.

The term disciplinary interdependence is used rather than the term interdisciplinarity. The first term retains the identity of older established disciplines, such as physics and mathematics, while measuring their dependence on each other, whereas interdisciplinarity refers to newer disciplines, such as biochemistry, that have an identity in their own right.

This interdependence should be much broader at the undergraduate level when students have not yet fully specialized and are required to read broadly. At the graduate level, specialization should have narrowed the breadth of dependence while intensifying the depth.

Knowledge of this interdependence should have implications for library operations (circulation control, allocations, acquisition, etc.).
sitions, etc.), and in terms of political com-
petition for library funds and priorities. It
should also be a measurable reflection of
course enrollments and assignments.

THEORETICAL CONTEXT

This research can be placed in the context
of Merton's definition of disciplines as (a)
bodies of knowledge and (b) organizations of
practitioners.¹ Here, the "bodies of knowl-
edge" are all the subject fields embraced by
each academic department in a specific uni-
versity. "Organizations of practitioners" are
groups of students majoring in the fields of
those same departments.

The research is also of interest in Kuhn-
ian terms—e.g., differences in textbook
use, the research frontier, and paradigm
development.² Although Kuhn speaks
primarily of the scientist and how that per-
son uses books and journals, the scientist's
behavior should be reflected by students to
the extent they use the same books and
journals. Graduate students, i.e., those who
are more specialized than undergraduates,
variably do more research than under-
graduates. Their use of books, accordingly,
should reflect this specialization.

Sherif and Sherif comment that "each dis-
cipline needs others in a fundamental and
basic sense as a validity check on its own
generalizations and theories," and that "no
does not arrange his problems along lines
drawn by academic disciplines."³

Donald T. Campbell expands on this ob-
servation in his concept of enthno-
tricity—the tendency of practitioners to ig-
more knowledge outside of their own disci-
pline.⁴ The tendency, of course, should vary
from discipline to discipline. Campbell ad-
vocates the ideal situation, what he calls the
"fish-scale" model of omniscience—i.e.,
each discipline overlaps those adjacent to it.
He contrasts this fish-scale view with the
present situation in which disciplines over-
lap within clusters, in isolation from other
clusters. He proposes the fish-scale ap-
proach to graduate training. The study
undertaken here offers one approach to
measurement of this concept.

As a measure of Merton's bodies of
knowledge, the term supportiveness is de-
ined here as the extent to which books on
the subjects taught in a university depart-
ment are used by students majoring in
other subjects. It might be supposed that
the term basic could be appropriately used
here. However, basic usually refers to re-
search by scientists, whereas supportiveness
is defined in the context of the university
curriculum.

PURPOSE

The purpose of this research is to con-
tribute to the understanding of library use
in terms of all majors on the one hand, and
all subjects on the other—that is, who uses
what and what is used by whom. The two
phrases are not the same, as will be seen.

Use by an individual person is not exam-
ined. Use is aggregated by subject and
major, and the identity of individuals is lost,
so that we do not know which specific books
were used by any specific individual. In
other words, the study is sociological rather
than psychological in that the group—i.e.,
the major itself, rather than the person—is
the unit of interest. "All subjects" in this
paper refers to the subject matter described
by the courses listed under each academic
department in the University of Southwe-
tern Louisiana (U.S.L.) Bulletin. "All
majors" refers to departments granting at
least a bachelor's degree.

The University of Southwestern Louisiana
is accredited by the Southern Association of
Schools and Colleges. It awards degrees at
the bachelor, master's, and Ph.D. levels,
with an enrollment of approximately 11,000
students and a library of nearly 500,000 vol-
umes. It is located in the heart of French
Louisiana, which contributes much to the
color and tradition of the university. It has
advanced research programs in biology, his-
tory, English literature, microbiology,
mathematics, and computer science.

As usual in circulation studies, use is as-
sumed when a book circulates. For what
purpose a book may be used is not consid-
ered here. Specific questions considered
were:

1. To what extent do graduate and
undergraduate students use books on sub-
jects confined to their own major? That is,
to what extent is the major ethnocentric?

2. Which subject areas are most support-
ive in that they are most heavily used by
graduate and undergraduate students in
other disciplines, and to what extent? That is, to what extent does the subject matter of a discipline support majors in other disciplines?

3. What differences exist between graduate and undergraduate use? This question can be expressed by four null hypotheses: that (a) no correlation exists between graduate and undergraduate ethnocentricity; (b) no correlation exists between graduate and undergraduate supportiveness; (c) no difference in mean percentages exists between graduate and undergraduate ethnocentricity; and (d) no difference in mean percentages exists between graduate and undergraduate supportiveness. We would expect hypotheses (a) and (b) to be retained and (c) and (d) to be rejected, supporting the contention that differences exist between the two levels. Furthermore, we would expect the mean percentage for ethnocentricity to be higher at the graduate level and the mean percentage for supportiveness to be lower at the graduate level.

4. What is the difference between ethnocentricty and supportiveness? This question can be expressed by two null hypotheses: that no correlation between the two exists at (a) the graduate level and (b) the undergraduate level. We would expect these hypotheses to be retained.

**Previous Research**

Previous research along these lines, sometimes called "dispersion of the literature," has usually been confined to citation studies of scientific journals. Earle and Vickery, for example, counted citations in journals from various disciplines to determine the extent which each cited or was cited by other disciplines. Moore classified scientific journals according to the Dewey classification system, then ranked them according to how much the journals were confined to each subject category and how much they were assigned subjects related to other categories. Narin, Carpenter, and Berlt studied cross-citing among 275 journals in mathematics, physics, chemistry, biochemistry, and biology and concluded from citation patterns that these sciences were transversely related to each other in that order. Such studies are abundant. These authors can recall no similar empirical studies that have examined the cross-disciplinary use of monographs by students. Baughman, however, has argued for the study of interrelationships within and among clusters of subject literatures, demands, and disciplines in building library collections.

**Methods**

Student borrowers were classified into forty-three academic major areas. These areas are official academic departments of U.S.L. They are also among the disciplines recognized in the U.S. Office of Education, Higher Education General Information Survey (HEGIS). Monographs circulated to the students were grouped into the same forty-three academic areas, according to the books' classification numbers, using the method developed by McGrath and Durand. Two computer programs were written to process yearly circulation on U.S.L.'s UNIVAC SPECTRA 70/45.

The first, written in COBOL, processes a tape of book charges compiled from the library's IBM 357 data input system, using a file of student I.D. numbers, majors, and class years. It groups each student into one of the HEGIS categories according to his or her major, and each book's classification number into its proper HEGIS category. For each charge, the student's major and the book's subject area are not necessarily the same. The program separates charges according to whether they are graduate or undergraduate.

The second program in PL/1 arrays and prints the number of book charges into two rectangular, nonsymmetric matrices, one for graduates and one for undergraduates. The columns consist of academic majors (persons) and the rows of academic subjects (bodies of knowledge). Each cell of the matrix contains the number of books charged according to the subject of the row and the major of the column, so that the number of books charged in any subject by any major group is determined.

Four matrices for two years' circulation, 1974/75 and 1975/76, were constructed, two for undergraduates and two for graduates. Two years' data were collected since circulation patterns may change over time. The
matrices are too large to include in this paper. Instead, an excerpt with typical data is shown in table 1.

One test for the validity of subject classification can be made by examining the numbers in the diagonal. Students should ordinarily borrow more books in the subject of their own major than in other subjects. If the data showed otherwise, subject classification of departments should be suspect. Disciplines selected as examples for the matrix in table 1 all have large diagonal cells.

For undergraduate diagonal cells, nineteen of forty-three in 1974/75 were largest and twenty-eight of forty-three in 1975/76. In nearly all cases where the diagonal cells were not the largest, English literature was larger, indicating heavy dependence by all majors. For graduate diagonal cells, seventeen of eighteen in 1974/75 were largest, and sixteen of nineteen in 1975/76. These ratios would suggest substantial validity of classification.

Unit of analysis in this study was the academic major or discipline. Variables were ethnocentricity and cross-disciplinary support (supportiveness). Scores for ethnocentricity were percentages obtained by dividing each diagonal value by the total in its respective column. Scores for supportiveness were percentages obtained by dividing each row total, less its diagonal value, by the row total. Percentages were obtained for all disciplines for both academic years, 1974/75 and 1975/76.

Pearson product-moment correlations were then used to test the similarity of the percentages for the two years. Two-year correlations for undergraduate ethnocentricity, graduate ethnocentricity, undergraduate supportiveness, and graduate supportiveness were 0.83, 0.85, 0.91, and 0.80 respectively. These correlations were high enough to indicate little change of circulation patterns over two years. All subsequent analysis, therefore, was done on the averages for the two years.

Pearson correlations were also used to test the relationship between the two concepts of ethnocentricity and supportiveness. Spearman rank correlation was used to test shifting of ranks between undergraduate and graduate majors. Student's t-test was used to test the difference between means of undergraduates and graduates.

RESULTS
Ethnocentricity
Table 2 shows results relating to question 1, the extent that undergraduate students use books on subjects in their own major. Music students, for example, borrowed 924 books about music in 1974/75, but they borrowed a total of 1,271 books on all subjects, or 72.3 percent. Similarly, in 1975/76, they borrowed 71.1 percent in their own field. The average of these two percentages was 71.7.

Majors are ranked according to this average percentage. The higher the percentage, the more ethnocentric the major. That is, students in high ethnocentric disciplines read in their own subject more than they do in other subjects. The lower the percentage, i.e., the less ethnocentric, the more reading they do in subjects other than their own major. Among undergraduates, music

<table>
<thead>
<tr>
<th>Majors</th>
<th>Biology</th>
<th>Chemistry</th>
<th>Computer Science</th>
<th>Education</th>
<th>French</th>
<th>History</th>
<th>Mathematics</th>
<th>Music</th>
<th>Psychology</th>
<th>Speech</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>450</td>
<td>3</td>
<td>32</td>
<td>68</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>54</td>
<td>2</td>
</tr>
<tr>
<td>Chemistry</td>
<td>15</td>
<td>102</td>
<td>3</td>
<td>22</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
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<td>0</td>
<td>731</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Education</td>
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<td>0</td>
<td>28</td>
<td>1,672</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>11</td>
<td>41</td>
</tr>
<tr>
<td>French</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>96</td>
<td>653</td>
<td>12</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>History</td>
<td>28</td>
<td>5</td>
<td>11</td>
<td>256</td>
<td>45</td>
<td>862</td>
<td>1</td>
<td>0</td>
<td>17</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics</td>
<td>35</td>
<td>3</td>
<td>186</td>
<td>45</td>
<td>0</td>
<td>2</td>
<td>561</td>
<td>0</td>
<td>32</td>
<td>3</td>
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<td>Music</td>
<td>2</td>
<td>8</td>
<td>10</td>
<td>264</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>166</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>Psychology</td>
<td>18</td>
<td>0</td>
<td>2</td>
<td>534</td>
<td>10</td>
<td>11</td>
<td>1</td>
<td>2</td>
<td>483</td>
<td>90</td>
</tr>
<tr>
<td>Speech</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>82</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>375</td>
</tr>
</tbody>
</table>
TABLE 2
ETHNOCENTRICITY, UNDERGRADUATE LEVEL:
PERCENT OF BOOKS ON ALL SUBJECTS
CHARGED BY STUDENT MAJORS
IN THEIR OWN MAJOR SUBJECT;
RANK ORDER OF
AVERAGE PERCENT BY MAJOR

<table>
<thead>
<tr>
<th>Rank</th>
<th>Student Majors</th>
<th>Two-Year Average Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Music</td>
<td>71.7*</td>
</tr>
<tr>
<td>2</td>
<td>English</td>
<td>44.6</td>
</tr>
<tr>
<td>3</td>
<td>History</td>
<td>42.6</td>
</tr>
<tr>
<td>4</td>
<td>Electrical Engineering</td>
<td>41.6</td>
</tr>
<tr>
<td>5</td>
<td>Civil Engineering</td>
<td>36.8</td>
</tr>
<tr>
<td>6</td>
<td>Spanish</td>
<td>34.6</td>
</tr>
<tr>
<td>7</td>
<td>Architecture</td>
<td>33.8</td>
</tr>
<tr>
<td>8</td>
<td>Home Economics</td>
<td>29.6</td>
</tr>
<tr>
<td>9</td>
<td>Microbiology</td>
<td>28.7</td>
</tr>
<tr>
<td>10</td>
<td>Geology</td>
<td>25.9</td>
</tr>
<tr>
<td>11</td>
<td>Petroleum Engineering</td>
<td>24.5</td>
</tr>
<tr>
<td>12</td>
<td>Mathematics</td>
<td>23.3</td>
</tr>
<tr>
<td>13</td>
<td>Psychology</td>
<td>23.0</td>
</tr>
<tr>
<td>14</td>
<td>Fine Arts</td>
<td>21.8</td>
</tr>
<tr>
<td>15</td>
<td>Horticulture</td>
<td>21.2</td>
</tr>
<tr>
<td>16</td>
<td>Political Science</td>
<td>21.1</td>
</tr>
<tr>
<td>17</td>
<td>Speech</td>
<td>21.0</td>
</tr>
<tr>
<td>18</td>
<td>Sociology</td>
<td>20.0</td>
</tr>
<tr>
<td>19</td>
<td>Philosophy</td>
<td>19.4</td>
</tr>
<tr>
<td>20</td>
<td>Computer Science</td>
<td>18.6</td>
</tr>
<tr>
<td>21</td>
<td>Applied Arts</td>
<td>18.3</td>
</tr>
<tr>
<td>22</td>
<td>French</td>
<td>17.9</td>
</tr>
<tr>
<td>23</td>
<td>Chemical Engineering</td>
<td>17.1</td>
</tr>
<tr>
<td>24</td>
<td>Mechanical Engineering</td>
<td>16.7</td>
</tr>
<tr>
<td>25</td>
<td>Economics</td>
<td>16.5</td>
</tr>
<tr>
<td>26</td>
<td>Biology</td>
<td>15.9</td>
</tr>
<tr>
<td>27</td>
<td>Physics</td>
<td>12.9</td>
</tr>
<tr>
<td>28</td>
<td>Agriculture</td>
<td>12.8</td>
</tr>
<tr>
<td>29</td>
<td>Nursing</td>
<td>11.8</td>
</tr>
<tr>
<td>30</td>
<td>Industrial Arts</td>
<td>9.4</td>
</tr>
<tr>
<td>31</td>
<td>Accounting</td>
<td>8.7</td>
</tr>
<tr>
<td>32</td>
<td>Medical Records</td>
<td>8.4</td>
</tr>
<tr>
<td>33</td>
<td>Marketing</td>
<td>8.3</td>
</tr>
<tr>
<td>34</td>
<td>Special Education</td>
<td>6.9</td>
</tr>
<tr>
<td>35</td>
<td>Education</td>
<td>5.3</td>
</tr>
<tr>
<td>36</td>
<td>Finance</td>
<td>5.1</td>
</tr>
<tr>
<td>37</td>
<td>Chemistry</td>
<td>5.1</td>
</tr>
<tr>
<td>38</td>
<td>German</td>
<td>4.5</td>
</tr>
<tr>
<td>39</td>
<td>Journalism</td>
<td>3.3</td>
</tr>
<tr>
<td>40</td>
<td>Management</td>
<td>3.2</td>
</tr>
<tr>
<td>41</td>
<td>Geography</td>
<td>2.8</td>
</tr>
<tr>
<td>42</td>
<td>General Business</td>
<td>1.3</td>
</tr>
<tr>
<td>43</td>
<td>Vocational Education</td>
<td>0.0*</td>
</tr>
</tbody>
</table>

*Most ethnocentric.  
†Least ethnocentric.

majors are most ethnocentric; geography, general business, and vocational education majors are least ethnocentric. These results are, of course, for aggregate use. Patterns of individual use may well be different.

Table 3 shows the extent that graduate students charged out books in their own major and their ranks. Here music is again ranked highest in ethnocentricity and management lowest.

Supportiveness

Table 4 shows the data relating to question 2: the extent that undergraduate subjects are supportive of major areas other than their own. Taking music again as an example, 70.3 percent of books on music were charged out in the two years by undergraduate nonmusic majors.

The subjects are ranked according to the two-year average percentages of books taken out by nonmajors. A higher percentage indicates less book use in a subject by students majoring in that subject, and more by students majoring in other subjects. That is, the higher the percentage, the more that subject supports other academic subjects. For example, German and vocational education ranked highest in supportiveness with nearly 100 percent of the books in these subjects checked out by other majors. Nursing was least supportive, with 24.7 percent.

Table 5 shows the extent that graduate subjects are supportive of other major areas and their ranks. Here, management was most supportive and computer science the least.

TABLE 3
ETHNOCENTRICITY, GRADUATE LEVEL:
PERCENT OF BOOKS ON ALL SUBJECTS
CHARGED BY STUDENT MAJORS
IN THEIR OWN MAJOR SUBJECT;
RANK ORDER OF
AVERAGE PERCENT BY MAJOR

<table>
<thead>
<tr>
<th>Rank</th>
<th>Student Majors</th>
<th>Two-Year Average Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Music</td>
<td>87.4</td>
</tr>
<tr>
<td>2</td>
<td>Spanish</td>
<td>85.0</td>
</tr>
<tr>
<td>3</td>
<td>English</td>
<td>74.3</td>
</tr>
<tr>
<td>4</td>
<td>Mathematics</td>
<td>71.6</td>
</tr>
<tr>
<td>5</td>
<td>Sociology</td>
<td>65.3</td>
</tr>
<tr>
<td>6</td>
<td>French</td>
<td>64.1</td>
</tr>
<tr>
<td>7</td>
<td>Psychology</td>
<td>55.8</td>
</tr>
<tr>
<td>8</td>
<td>Chemistry</td>
<td>49.7</td>
</tr>
<tr>
<td>9</td>
<td>History</td>
<td>48.2</td>
</tr>
<tr>
<td>10</td>
<td>Computer Science</td>
<td>45.7</td>
</tr>
<tr>
<td>11</td>
<td>Geology</td>
<td>38.8</td>
</tr>
<tr>
<td>12</td>
<td>Speech</td>
<td>36.5</td>
</tr>
<tr>
<td>13</td>
<td>Home Economics</td>
<td>32.8</td>
</tr>
<tr>
<td>14</td>
<td>Microbiology</td>
<td>32.2</td>
</tr>
<tr>
<td>15</td>
<td>Physics</td>
<td>31.0</td>
</tr>
<tr>
<td>16</td>
<td>Political Science</td>
<td>25.0</td>
</tr>
<tr>
<td>17</td>
<td>Geography</td>
<td>23.7</td>
</tr>
<tr>
<td>18</td>
<td>Education</td>
<td>23.3</td>
</tr>
<tr>
<td>19</td>
<td>Management</td>
<td>2.2</td>
</tr>
</tbody>
</table>
Undergraduate and Graduate Differences

Results from question 3, the difference between undergraduate and graduate use, are shown in tables 6 and 7. Considerable shifting of ranks from the undergraduate level to the graduate level for both ethnocentricity and supportiveness is apparent, as the correlation coefficients in table 6 show. For example, whereas undergraduate

### Table 4
**Supportiveness, Undergraduate Level:**
Percent of Total Books Charged in Each Subject by Nonmajors in the Subject. Rank Order of Average Percent

<table>
<thead>
<tr>
<th>Rank</th>
<th>Subject</th>
<th>Two-Year Average Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vocational Education</td>
<td>100.0*</td>
</tr>
<tr>
<td>2</td>
<td>German</td>
<td>99.8</td>
</tr>
<tr>
<td>3</td>
<td>Geography</td>
<td>96.0</td>
</tr>
<tr>
<td>4</td>
<td>Finance</td>
<td>94.1</td>
</tr>
<tr>
<td>5</td>
<td>Philosophy</td>
<td>93.8</td>
</tr>
<tr>
<td>6</td>
<td>Chemistry</td>
<td>93.4</td>
</tr>
<tr>
<td>7.5</td>
<td>General Business</td>
<td>93.0</td>
</tr>
<tr>
<td>7.5</td>
<td>History</td>
<td>93.0</td>
</tr>
<tr>
<td>9</td>
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<tr>
<td>10</td>
<td>Spanish</td>
<td>92.6</td>
</tr>
<tr>
<td>11</td>
<td>Economics</td>
<td>91.8</td>
</tr>
<tr>
<td>12</td>
<td>Industrial Arts</td>
<td>91.6</td>
</tr>
<tr>
<td>13</td>
<td>French</td>
<td>90.2</td>
</tr>
<tr>
<td>14</td>
<td>Physics</td>
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<tr>
<td>15</td>
<td>Math. &amp; Statistics</td>
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<tr>
<td>16</td>
<td>Management</td>
<td>88.0</td>
</tr>
<tr>
<td>17</td>
<td>Horticulture</td>
<td>84.7</td>
</tr>
<tr>
<td>18</td>
<td>Biology</td>
<td>84.2</td>
</tr>
<tr>
<td>19</td>
<td>Psychology</td>
<td>84.1</td>
</tr>
<tr>
<td>20</td>
<td>Sociology</td>
<td>83.4</td>
</tr>
<tr>
<td>21</td>
<td>Home Economics</td>
<td>81.9</td>
</tr>
<tr>
<td>22</td>
<td>Applied Arts</td>
<td>81.6</td>
</tr>
<tr>
<td>23</td>
<td>Speech</td>
<td>79.5</td>
</tr>
<tr>
<td>24</td>
<td>Civil Engineering</td>
<td>78.7</td>
</tr>
<tr>
<td>25</td>
<td>Special Education</td>
<td>78.5</td>
</tr>
<tr>
<td>26</td>
<td>Agriculture</td>
<td>76.9</td>
</tr>
<tr>
<td>27</td>
<td>Fine Arts</td>
<td>76.1</td>
</tr>
<tr>
<td>28</td>
<td>Microbiology</td>
<td>75.2</td>
</tr>
<tr>
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<tr>
<td>33</td>
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<td>Petroleum Engineering</td>
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</tr>
<tr>
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</tr>
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<tr>
<td>43</td>
<td>Nursing</td>
<td>24.7t</td>
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</tbody>
</table>

*Most supportive.
†Least supportive.

biology majors ranked twenty-sixth of forty-three (table 2) in ethnocentricity, graduate biology majors ranked fifth of nineteen (table 3). The shift for ethnocentricity was substantial (r=0.53) and considerably greater for supportiveness (r=0.25).

Table 7 shows significant differences in the mean percentage levels for both ethnocentricity and supportiveness. The results show the mean percentage for ethnocentricity to be twice as high at the graduate level. The results also show that most disciplines are considerably less supportive at the graduate level.

Hypotheses 3(a) and 3(b) were thus retained, and 3(c) and 3(d) were rejected, as expected, supporting the contention that differences exist at the undergraduate and graduate levels.

### Table 5
**Supportiveness, Graduate Level:**
Percent of Total Books Charged in Each Subject by Nonmajors in the Subject. Rank Order of Average Percent

<table>
<thead>
<tr>
<th>Rank</th>
<th>Subject</th>
<th>Two-Year Average Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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</tr>
<tr>
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<td>Home Economics</td>
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<td>Political Science</td>
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<td>Geology</td>
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<td>Biology</td>
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<td>Computer Science</td>
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</table>

*Most supportive.
†Least supportive.
Ethnocentricity versus Supportiveness

Results for question 4 are shown in Table 8. The virtual zero coefficients (-0.03, undergraduate, and -0.05, graduate) indicate little and probably no relationship between the two concepts. Thus, hypotheses 4(a) and 4(b) were retained as expected.

DISCUSSION

Graduate student reading was more ethnocentric than undergraduate, in that graduate students showed a higher percentage of reading in their own subjects. This supports the commonly held belief that graduate reading is more specialized. Interdependence is indeed broader at the undergraduate level. Campbell, of course, asserted that graduate students were too specialized. Measurement of this specialization, as undertaken here, may provide a means for observing this specialization over time. It would be interesting to know whether students will be less or more specialized ten years from now.

It is clear from the low correlation and different percentages that the two concepts—ethnocentricity and supportiveness—are not the same and in fact are very different. One is a characteristic of the persons specializing in a discipline. The other is a characteristic of a discipline’s relevance to persons outside of the discipline.

The findings for ethnocentrism may also have relevance in terms of Kuhn’s concept of paradigm development of disciplines, sometimes referred to as hard or soft. For example, if students make more use of books in their own major, that major may be farther along the continuum of paradigm development. Inversely, the more reading they do outside of their discipline, the less well developed the paradigm.

This interpretation is cautious, since the patterns shown are not in agreement with studies showing paradigm development. For example, English, showing high ethnocentrism in this study, is not regarded as a high paradigm discipline, in Kuhnian terms. Likewise, geology, showing low ethnocentrism, would not be regarded as a low paradigm discipline. Relationship between ethnocentrism and paradigm development must remain a hypothesis, therefore.

How much the findings for supportiveness reflect theory and how much purely local conditions is very uncertain at this stage. A discipline showing high supportiveness for other disciplines may also be interpreted as having high self-supportiveness. Findings to a large extent must be a function of the local curriculum, distribution of enrollment, and size of collection.

In terms of aggregate use, the findings have obvious implication and interest to campus politics (for both ethnocentrism and supportiveness). In terms of competition for library funds and for building collections relevant to particular subject fields, faculty often argue that their teaching and research range beyond the immediate confines of their own discipline, often implying that this is not true of other areas and that allocations should take this into account. Presumably, this argument holds for student use as well. As these findings show, it is indeed true, and to a measurable degree, that library use, both by major and subjects of books used, ranges beyond the indicated discipline. The measured degree is large for some and small for others and forms a continuum with disciplines all along the scale.

The findings suggest that a better case can perhaps be made for allocation on the basis of total subject usage rather than on total major usage. After all, it is use made of the books in the collection that is of primary interest to collection builders. A third possibility would be to allocate on the basis of use in a major’s own subject (the diagonal in

<table>
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<th>Correlation Coefficient</th>
<th>Number</th>
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<tr>
<td>Graduate</td>
<td>-0.05</td>
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</table>

<table>
<thead>
<tr>
<th>TABLE 8</th>
</tr>
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<tr>
<td>CORRELATIONS BETWEEN ETHNOCENTRICITY AND SUPPORTIVENESS, PEARSON PRODUCT MOMENT COEFFICIENTS</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>Undergraduate</td>
</tr>
<tr>
<td>------------</td>
</tr>
<tr>
<td>Ethnocentricity</td>
</tr>
<tr>
<td>Supportiveness</td>
</tr>
</tbody>
</table>

*Differences significant at 0.01 level for 34df.
Patterns of the kind discussed here, though the findings are merely indicative or tentative and not conclusive, may also be used to help determine other kinds of priorities. On the other hand, it can be argued that existing university priorities—e.g., enrollment quotas, departmental emphases, curriculum completeness—strongly influence what circulates from the library.

Finally, no value judgments concerning ethnocentricity or supportiveness of students and faculty are intended here, nor should any be inferred from either the question or the results. Numerical values for these concepts, of course, are specific to the university studied because of its enrollment distribution and cannot be readily generalized from the data given here. "Acceptable" levels of ethnocentricity and supportiveness—high, low, or otherwise—do not exist and probably should not.

On the other hand, we can hypothesize that the relationship, or rather the differences, between undergraduate and graduate interdependence and the difference between ethnocentricity and supportiveness also hold at other institutions.

**FURTHER RESEARCH**

Findings for supportiveness might be more generalizable if the "main effects" of the matrix—i.e., the row and column means—were subtracted from each cell, thus offering a means of comparing one environment to another. This correction may also throw light on the paradigm question. Correlation studies may be done on the relationship between paradigm development and ethnocentricity. A multidimensional scaling of the entire matrix of majors and subjects is being undertaken. This analysis should identify clusters of subjects and clusters of majors and should measure both the degree of dependence of each discipline within a cluster and the distance between clusters. This would provide another test of Campbell's model.

**REFERENCES**

This article investigates the validity of claims that ISBD (International Standard Bibliographic Description) punctuation and conventions are a barrier to the understanding of catalog information. A group of undergraduate students were asked specific questions about the elements on catalog cards. Two sets of catalog entries were used for the test. The sets were identical in content, but one followed unrevised 1967 AACR chapter 6 rules and the other followed ISBD. The degree of correctness of the response and the response time were recorded. The test results showed a slightly greater degree and number in correctness of response to the ISBD format cards. The study indicates that the ISBD format aids, rather than hinders, reader understanding.

Secret punctuation [in ISBD descriptions]—like slashes, dashes and equal-signs—that only the "elect" can comprehend.1

—Sanford Berman

The day LC and ALA adopted ISBD was a sad day for public libraries. . . . Latin abbreviations, the truncation of "illus." to "ill." and the introduction of a variety of esoteric punctuation marks may serve the needs of the LC and Berkeley user, but it [sic] will baffle the patrons of nonresearch libraries.2

—Maurice J. Freedman

Reading these and other, similar quotations from the writings of respected members of the library profession caused us to think about the number of unsubstantiated claims and counterclaims that center on the ISBD (International Standard Bibliographic Description) conventions in cataloging. All developments in cataloging attract criticism founded on relevant and irrelevant concerns.

Even when concerns arising from fear of the Library of Congress or fear of change itself are discounted, there remains one constant theme in the criticisms of the ISBD. The theme is that articulated in the preceding quotations. Put simply, it is feared that the introduction of a new way of presenting descriptive information will create a major barrier to the understanding of that information by the "ordinary" catalog user.

As stated in the first standard edition of the International Standard Bibliographic Description (Monographs), the purpose of ISBD is to provide an internationally accepted framework for the representation of descriptive information in bibliographic records. . . . It is designed to meet three requirements for the efficient international use of such records: first, that records produced in one country or by the users of one language can be easily understood in other countries and by the users of other languages; secondly, that the records produced in each country can be integrated into files or lists of various kinds containing also records from other countries; and thirdly, that records in written or printed form can be converted into machine-readable form with the minimum of editing.

To achieve these aims it was necessary to find a way by which the different elements making up a description could be recognized, by the eye or by a machine, without the need to understand the content. The means adopted is a prescribed system of punctuation. Within any one of the main areas of the description, each prescribed punctuation mark is a signal showing the nature of the element which follows it.3

The concern expressed for the "ordinary" catalog user is based on the premise that
the punctuation and other conventions used before the introduction of the ISBD were understood by catalog users and that they had validity based on their inherent comprehensibility and their long use. Contrariwise, the ISBD punctuation and other conventions are viewed as “strange,” “alien,” “esoteric,” and downright confusing.

We set out to test these beliefs. The purpose of our small project was simple. It was to try to discern the reality behind the rhetoric and to establish the truth or otherwise of the assertion that the ISBD punctuation and conventions prevented understanding of catalog information.

Our hypothesis, also, was simple. It was that there was no significant difference in understanding as between ISBD and non-ISBD descriptions.

METHOD

Seventeen descriptions were prepared according to both sets of rules. Each description was typed on a three-by-five-inch card in the style of the unrevised 1967 AACR4 chapter 6 and on another card following the ISBD conventions. Ten of the descriptions were in English. These ranged from simple descriptions to those containing such complexities as alternative and parallel titles. The other seven were in foreign languages. Three of these were in relatively accessible languages (French, Spanish, German), and four were in relatively inaccessible languages (Dutch, Afrikaans, Norwegian). (See appendix 1 for samples of these cards.) The descriptions were alone on the cards; that is, we did not add headings, holdings, class marks, etc.

Questions were devised to accompany the cards. Six of the cards had two questions, so there were a total of twenty-three questions (see appendix 2). The questions were straightforward in that there was a simple factual answer to each. Each question was designed to test the subject’s understanding of the description. Typical questions were:

Who is the publisher?
In what city was this book published?
Is this book illustrated?
If you were recommending this book to a friend, what would you write down as the title?

The questions were put to randomly selected undergraduates using the University of Illinois Undergraduate Library. Each subject was handed four cards in turn and asked a question about each one. Undergraduate students were selected as constituting a group that could not be accused of being an elite, while having (we hoped) the basic reading and library use skills that one assumes the “average library user” possesses.

The ISBD and non-ISBD cards were interfiled in two sets, so that the first set consisted of the ISBD version of card 1, the non-ISBD version of card 2, the ISBD version of card 3, and so on, and the second set was a mirror image of the first. This ensured that each person questioned was asked questions relating to both ISBD and non-ISBD descriptions.

The questioner approached students at random and asked them if they would take part in a study by answering questions relating to catalog entries. All persons approached agreed to take part in the study. Whether this was due to their eagerness to help the library, general affability, or the Snickers candy bar each subject was given is not known. Only students were asked to participate. A total of twenty-two women and twenty-six men took part in the study. No attempt was made to question an equal number of women and men.

The questioner was equipped with a clipboard with an answer sheet. She also had a digital watch mounted on the clipboard to permit unobtrusive timing of the response. The questioner recorded the answers as correct, partially correct, and incorrect. The category of “partially correct” was added when it was realized that subjects sometimes gave too much information (including the correct answer) and sometimes gave only half of the answer. Next recorded was the time, in seconds, taken to answer each question.

As the cards were in a numbered series, the questioner knew which questions to ask, though she did not know which set was being used and did not look at the cards before handing them to the subjects, and so she was unaware of whether the card being examined was an ISBD card or non-ISBD card.

The study was carried out once as an ex-
periment. Following this “dry run,” some of the questions were rephrased and the method slightly changed. Once the changes were made, the final test was made. Each of the seventeen questions was asked eight times in the manner outlined above.

RESULTS

The full results of the project are given in appendixes 3 and 4. Salient general points are:

1. The proportion of completely correct answers was slightly higher for the ISBD (68.5 percent) than for the non-ISBD (64.1 percent) descriptions.
2. The overall correctness of answers was higher for the ISBD descriptions (fifteen) than for the non-ISBD descriptions (seven). These figures were reached by comparing the number of correct answers and, when these were equal, comparing the number of partially correct answers (see appendix 3). Six questions were answered equally correctly or incorrectly for both.
3. The proportion of incorrect answers was substantially lower for the ISBD (9.8 percent) than for the non-ISBD (17.4 percent) descriptions.
4. The average response time for the ISBD descriptions (eight seconds) was slightly shorter than for the non-ISBD descriptions (nine seconds).
5. No areas of the description revealed a markedly different level of understanding as between the ISBD and non-ISBD conventions.

CONCLUSION

The study demonstrates to our satisfaction that the primary problem in reader use of the descriptive data in catalog entries lies in the nature of that data, not in the manner in which it is presented. Further, that a systematic set of conventions, such as those embodied in the ISBD, will aid rather than hinder reader understanding. The pre-ISBD conventions were an uneasy combination of normal prose usage and arbitrary convention. The ISBD conventions have the merits of system and consistency.

It seems to us that our study could be criticized on two grounds: first, that the sample was too small, and, second, that undergraduate students at a large university are not a fair example of “typical” catalog users.

We are confident that doubling the size of the study would not have markedly altered the results. The tendencies exhibited by the results are too strong to be capable of falsification by further sampling. On the other hand, we would welcome the use of the method (or a variant of it) to examine the problem more extensively.

The second potential criticism, the use of undergraduate students, has more apparent force. We have concluded that the level of literacy and understanding among undergraduates is not abnormally high and that any users of libraries with markedly less literacy and understanding could not use any type of catalog entry.

This may lead to the conclusion that, in many library environments, the conventional catalog entry description is largely useless. This may be so, and the proposition merits further study. Our study, on the other hand, was based on exploring alternatives in the context of conventional cataloging.

If, as we believe, the study proves that the ISBD aids, rather than halts, the understanding and speed of use of descriptive data as compared with pre-ISBD descriptions, then the long-drawn-out “controversy” over the ISBD is at an end. Critics of conventional cataloging can concentrate their attacks on the real problems (silly subject headings, unsought author headings, and lack of reader orientation) rather than the “unproblem” that we believe ISBD always has been.

On an unscientific note, we must report that three of the subjects, upon having the idea of the project explained to them after they had answered the questions, asked something to the effect of “since the new way [ISBD] is obviously more understandable, why are you bothering to do the study at all?” No one expressed a contrary opinion.

REFERENCES

2. Maurice J. Freedman, "Public Libraries, the Library of Congress, and the National Bibli-


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**APPENDIX 1**

**EXAMPLES OF CARDS USED IN TEST**

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382 p. 19 cm.


Includes index.

---

**Women as a force in history: a study in traditions and realities / Mary R. Beard. -- New York : Octagon Books, 1976, c1946.***

382 p. ; 19 cm.


Includes index.

x, 87 p. 28 cm.
English and French.
Includes bibliographical references.


x, 87 p. ; 28 cm.
English and French.
Includes bibliographical references.

63 p. 19 cm. (Kleine Reihe - Walter-Raymond-Stiftung, Heft 8)
63 p. ; 19 cm. -- (Kleine Reihe - Walter-Raymond-Stiftung ; Heft 8)

320 p. 25 1/2 cm.

320 p. ; 26 cm.
APPENDIX 2
QUESTIONS USED IN TEST

1. Who is the publisher?
2. If you were recommending this book to a friend, what would you write down as the title?
3. Who is the author?
4. If you were recommending this book to a friend, what would you write down as the title?
4a. Who is the publisher?
5. If you were recommending this book to a friend, what would you write down as the title?
5a. Who wrote this book?
6. In what city was this book published?
6a. Is it illustrated?
7. What is the subtitle?
8. Who is the author?
9. In what city was this book published?
10. Who is the publisher?
11. If you were recommending this book to a friend, what would you write down as the title?
12. Who is the author?
12a. In what city was this book published?
13. Who is the publisher?
14. Who is the author?
14a. Is this book illustrated?
15. In what city was this book published?
15a. Who is the publisher?
16. Who is the publisher?
17. Who is the publisher?

APPENDIX 3
ACCURACY OF RESPONSE

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<th>Question</th>
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<td>3</td>
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<td>4</td>
<td>2</td>
<td></td>
<td>2</td>
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<td>Place of publication</td>
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<td>Publisher</td>
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<td>Publisher</td>
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<tr>
<td>TOTALS</td>
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<td>9</td>
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<td>18.5</td>
<td>17.4</td>
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<td>PERCENTAGE</td>
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<td>21.7</td>
<td>9.8</td>
<td>64.1</td>
<td>18.5</td>
<td>17.4</td>
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</tr>
</tbody>
</table>

*C = Correct; P = Partially correct; I = Incorrect.
## APPENDIX 4

### RESPONSE TIME

<table>
<thead>
<tr>
<th>Correctness*</th>
<th>Number</th>
<th>ISBD Average Response Time (secs)‡</th>
<th>Non-ISBD Average Response Time (secs)</th>
<th>Difference (secs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>1.</td>
<td>15</td>
<td>16</td>
<td>+1</td>
</tr>
<tr>
<td>-</td>
<td>2.</td>
<td>11</td>
<td>17</td>
<td>+6</td>
</tr>
<tr>
<td>+</td>
<td>3.</td>
<td>6</td>
<td>8</td>
<td>+2</td>
</tr>
<tr>
<td>+</td>
<td>4.</td>
<td>6</td>
<td>8</td>
<td>+2</td>
</tr>
<tr>
<td>-</td>
<td>4a.</td>
<td>4</td>
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<td>+4</td>
</tr>
<tr>
<td>0</td>
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<td>13</td>
<td>6</td>
<td>-7</td>
</tr>
<tr>
<td>-</td>
<td>5a.</td>
<td>7</td>
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<td>-2</td>
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<tr>
<td>+</td>
<td>6.</td>
<td>20</td>
<td>18</td>
<td>-2</td>
</tr>
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<td>-</td>
<td>6a.</td>
<td>4</td>
<td>3</td>
<td>-1</td>
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<tr>
<td>-</td>
<td>7.</td>
<td>8</td>
<td>9</td>
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<td>0</td>
<td>8.</td>
<td>3</td>
<td>6</td>
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<td>+</td>
<td>9.</td>
<td>14</td>
<td>12</td>
<td>-2</td>
</tr>
<tr>
<td>+</td>
<td>10.</td>
<td>5</td>
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<td>11.</td>
<td>8</td>
<td>5</td>
<td>-3</td>
</tr>
<tr>
<td>0</td>
<td>12.</td>
<td>2</td>
<td>3</td>
<td>+1</td>
</tr>
<tr>
<td>+</td>
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<td>3</td>
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<td>+6</td>
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<td>+5</td>
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<td>6</td>
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</tr>
<tr>
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<td>8</td>
<td>+4</td>
</tr>
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<td>-</td>
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<td>6</td>
<td>+1</td>
</tr>
<tr>
<td>-</td>
<td>15a.</td>
<td>6</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>+</td>
<td>16.</td>
<td>15</td>
<td>20</td>
<td>+5</td>
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<tr>
<td>+</td>
<td>17.</td>
<td>9</td>
<td>8</td>
<td>-1</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>176</strong></td>
<td><strong>207</strong></td>
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<tr>
<td><strong>AVERAGE</strong></td>
<td></td>
<td><strong>8</strong></td>
<td><strong>9</strong></td>
<td></td>
</tr>
</tbody>
</table>

*A = ISBD more correct; 0 = Equal correctness; - = Non-ISBD more correct.

‡All calculations to nearest second.

**15 quicker responses from ISBD descriptions.**
Factors Affecting Faculty Perceptions of Academic Libraries

Data from a survey of the teaching faculty at three academic institutions show the effects of four variables upon their perceptions and use of their libraries. Of the four—institutional affiliation, subject area, academic rank, and length of time at the institution—length of time proved most often to be the statistically significant factor. This suggests that academic librarians might intensify their public service efforts for newer faculty.

The teaching and research functions of postsecondary institutions dictate to a large extent the collections and services of academic libraries. The teaching faculty's perceptions and use of their libraries are therefore of primary concern to academic librarians. Furthermore, faculty use of the library can be a major factor in library use by other clientele, particularly students. Allen, for example, shows that the attitude of individual instructors is the most notable factor influencing student use of the library. 1

Faculty use studies tend to fall into two categories. The majority deal with the efforts of local library personnel to enhance library use by their faculty through the development of more individualized services; these works will be discussed later.

A far smaller number attempt to isolate distinct variables affecting the faculty members' attitudes and library use. For example, Nicholson and Bartlett included in their survey a question about the reasons for faculty use of the library: 56.3 percent of the uses were for research. 2 Rzasa and Moriarty's analysis also found that the principal reason for faculty use was for research purposes. 3 Dougherty and Blomquist reported physical accessibility and attractiveness to be among the more important items contributing to user satisfaction. 4

A few others have extended their research to include an examination of the relationship between variables.

Allen, in studying attitudes and use among community college students and faculty, discovered that neither level of education nor field of specialization was a significant indicator of differences for the faculty. 5

In his examination of faculty awareness and attitudes toward reference service, Nelson found that level of awareness was directly related to rank and length of time at the institution. 6

The present study is an effort at further statistical exploration of the relationship among selected variables dealing with the perception of an academic library by its faculty.

Specifically, the questions posed were: How does institutional affiliation, subject area, academic rank, or length of time at an institution affect faculty members' attitudes toward their library? And, based upon those findings, what can academic librarians do to facilitate library use by the faculty?

The data analyzed for this study stem from a survey of faculty use of the libraries at three small private institutions of higher education in Worcester, Massachusetts: Clark University, the College of the Holy Cross, and Worcester Polytechnic Institute (WPI). 7 Because the original survey was aimed at determining the viability of merging the three separate libraries, many of the questions included were pertinent only to

Jinnie Y. Davis is a doctoral candidate, Graduate Library School, and Stella Bentley is assistant librarian, Education Library, both at Indiana University, Bloomington.
tricolflege cooperation. This paper examines the items comprising the portion of relevance to faculty members' use of their own institution's library.

**METHODOLOGY**

In March 1977 a questionnaire was sent to selected faculty at the three institutions. Although the size of both the faculty and student body at each school is comparable, their academic orientation varies considerably: Clark is a liberal arts school with a historically strong graduate program; Holy Cross is basically an undergraduate liberal arts institution; WPI is predominantly an undergraduate science and engineering college.

The sampling frame was the faculty roster found in each college's catalog for the 1977-78 academic year. From these were excluded all nonteaching faculty (e.g., librarians, administrators, adjunct personnel), all non-full-time faculty (e.g., affiliate personnel), and all nonpermanent faculty (e.g., visiting professors). Thus the population consisted of all full-time teaching faculty at the three schools, a total of 474. Because of the relative homogeneity of the population, the full-time teaching faculty at each institution (a total of 121) was selected to receive a mail questionnaire.

The survey consisted of thirty multipart questions in the areas of personal background, library use, and library evaluation. The design used a five-point scale for response categories and a checklist response format to allow minimum effort on the part of the respondents. Members of the sample were assured of questionnaire confidentiality, although form coding allowed a record to be kept of nonrespondents. Two weeks after the date of receipt of the original questionnaire by members of the sample, a follow-up letter and second copy of the questionnaire were sent to faculty who had not yet responded. One week later, the staff at each library made telephone calls to the remaining nonrespondents in their respective institutions, requesting form completion and return.

The response rates for the three schools varied: Clark returned 25 usable responses out of 38, or 66 percent; WPI, 30 out of 44 questionnaires, or 68 percent. The Holy Cross faculty returned 82 percent, or 32 out of 39, of the questionnaires. This resulted in a 72 percent (87 out of 121) overall return rate.

**VARIABLES**

For this study the responses were analyzed to ascertain the significance of four characteristics of the faculty members upon their use of, perceptions of, and attitudes toward their academic libraries.

The independent variables, or characteristics of faculty members, were: institutional affiliation, subject area, academic rank, and length of time at the institution. The dependent variables cross-tabulated with these characteristics were faculty responses to twenty-three questions covering the following general areas: expectation of finding a specific item in their library; perceptions of whether student library needs are satisfied; attitudes toward the importance to their use of the library of items such as the helpfulness of the library staff, quality of the collection, library hours, convenience of access; and perceptions of the adequacy of library services for their teaching and research needs.

It was expected that three of the four independent variables, namely, subject area, academic rank, and length of time at the institution, would result in statistically significant differences in responses to these questions. Since previous research had shown that variation in library use and attitudes among faculty at all three schools was not substantial, institutional affiliation was not considered to be potentially significant.

The subject field of each faculty member was expected to yield significant differences because of the differing needs and uses of literature in the various disciplines. The significance of academic rank was posited because of the differing reasons for library use, different levels and types of courses taught, and different degrees of teaching and research experience associated with increasing rank.

Finally, the faculty member's length of stay at an institution was expected to be significant because a longer term suggested a correspondingly longer period of library
use and, hence, more familiarity with the institution's library. In addition, results for academic rank and length of stay were expected to be similar, since higher rank is usually related to length of time at an institution.

**RESULTS**

Because the data that were collected consisted of frequencies in discrete categories, the chi-square test was used to determine if there were any significant differences among faculty members in library use and attitudes, as related to subject field, academic rank, institutional affiliation, or length of time at the institution. Since this test may be used only if the expected frequencies in each cell of the contingency table are sufficiently large, it was sometimes necessary to combine adjacent categories in order to increase the expected frequencies in various cells. In addition, "no opinion" categories were dropped from the calculations, although those figures are reported in notes to the tables.

Items such as success in a specific item search, convenience of access, hours, circulation policies, quality of reference service, quality of the collection, acquisition procedures, and physical environment were expected to show significant differences when cross-tabulated with three of the independent variables. However, of the ninety-two cross-tabulations performed (for each of the four independent variables with the twenty-three dependent variables), only seven resulted in significant differences at the 0.05 level. As expected, institutional affiliation yielded no significant differences when cross with any of the dependent variables. Findings related to the other independent variables were of greater interest.

Subject field and academic rank of the faculty members each resulted in only one significant area of difference, for the same expectation question on finding specific items in the library (table 1). By subject field, the faculty members in the sciences were most positive in their evaluations, with thirty (85.7 percent) of those respondents always or frequently expecting success in a known-item search. On the other hand, only fifteen (68.2 percent) of the humanities faculty and twelve (52.1 percent) of the social sciences faculty always or frequently expected success.

In the cross-tabulations by rank, twenty-eight (90.3 percent) of the full professors always or frequently expected success for a specific item search; in contrast, only nineteen (70.4 percent) of the associate professors and fifteen (53.6 percent) of the assistant professors, lecturers, and instructors held such high expectations.

The characteristic that yielded the largest number of significant differences when cross-tabulated with the dependent variables was that of length of time at the institution. Table 1 illustrates the results concerning expectation rate: high expectations of finding specific items sought were expressed by forty-two (85.7 percent) of those who had been at an institution for seven or more years, but only by twenty (55.5 percent) of those whose length of stay was fewer than six years.

Table 2 shows the relationship of length of time to four other variables.

First, it was found that forty-three (89.6 percent) of the faculty members whose length of stay exceeded seven years believed that their students' library needs were being satisfied, while this belief was shared by only nineteen (55.9 percent) of the faculty with shorter lengths of tenure.

Also, more of those in the "7+ years"
TABLE 2

RELATION OF LENGTH OF TIME AT AN INSTITUTION TO FOUR VARIABLES

<table>
<thead>
<tr>
<th>Length of Time</th>
<th>Number of Responses</th>
<th>Yes</th>
<th>No/Neutral</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6 Years</td>
<td></td>
<td>19</td>
<td>15</td>
</tr>
<tr>
<td>7+ Years</td>
<td></td>
<td>43</td>
<td>5</td>
</tr>
</tbody>
</table>

$\chi^2 = 10.50$ 1 df sig = .001

Rank the importance of the helpfulness of the library staff in your use of [the] library.

<table>
<thead>
<tr>
<th>Length of Time</th>
<th>Ranked First, Second, Third</th>
<th>Fourth, Fifth, Sixth</th>
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</thead>
<tbody>
<tr>
<td>0-6 Years</td>
<td>21</td>
<td>12</td>
</tr>
<tr>
<td>7+ Years</td>
<td>37</td>
<td>6</td>
</tr>
</tbody>
</table>

$\chi^2 = 4.02$ 1 df sig = .04

Rate the adequacy of the speed of cataloging for your teaching and research needs.*

<table>
<thead>
<tr>
<th>Length of Time</th>
<th>Very Adequate/ Adequate</th>
<th>Inadequate/ Totally Inadequate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6 Years</td>
<td>18</td>
<td>8</td>
</tr>
<tr>
<td>7+ Years</td>
<td>38</td>
<td>3</td>
</tr>
</tbody>
</table>

$\chi^2 = 4.78$ 1 df sig = .03

Rate the adequacy of the quality of the collection in your field of interest for your teaching and research needs.†

<table>
<thead>
<tr>
<th>Length of Time</th>
<th>Very Adequate/ Adequate</th>
<th>Inadequate/ Totally Inadequate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6 Years</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>7+ Years</td>
<td>40</td>
<td>8</td>
</tr>
</tbody>
</table>

$\chi^2 = 11.79$ 1 df sig = .0006

*No opinion = 18.
†No opinion = 1.

category ranked the helpfulness of the library staff high in terms of importance to their use of the library (thirty-seven, or 86.0 percent, as opposed to twenty-one, or 63.6 percent, of the "0-6 years" category).

Finally, fewer of the newer faculty gave high ratings to the adequacy of the speed of cataloging (eighteen, or 69.2 percent) and to the adequacy of the quality of the collection in their field (thirteen, or 43.3 percent). This contrasts sharply with the positive responses indicated by those with longer lengths of stay: thirty-eight, or 92.7 percent, and forty, or 83.3 percent, respectively, felt that these two factors were adequate or very adequate.

DISCUSSION

Three conclusions stand out.

First, for most of the survey questions dealing with satisfaction or adequacy of the collection, policies, and staff of the library, there are no significant differences in the responses by school, field, rank, or length of time at the institution of the responding faculty member. Many of these results were unexpected and indicate the need for further study.

For example, the results did not support the conjecture that subject field would yield significant differences when cross-tabulated with the dependent variables. Likewise, the expectation that responses broken down by rank and length of time at the institution would be more similar because the frequent correlation between the two was not confirmed—length of time yielded five items that were significantly different when cross-tabulated, contrasting with only one item for rank.

Second, significant differences by subject field, rank, and length of time at the institution were found in expected satisfaction rate for a known item search. Again, further investigation would help to clarify these findings.

The fact that faculty in the sciences exhibited the highest satisfaction of expectations may be a reflection of the more compact nature of scientific literature, as compared with those of the humanities and social sciences. Circulation policies may also have a bearing on the matter—material of greatest use for scientists tends to be current periodical literature, usually not circulated and therefore more readily available in the library.

The inverse relationship of high satisfaction rate and lower academic rank may be attributable to various reasons, including varying levels of research needs to be satisfied. Those at the assistant professor level may be under greatest pressure to conduct publishable research and, hence, may demand more of their libraries, while tenured professors might have less urgent research needs and require less.

Additional factors to consider are the possible relationships of increased power to affect library policy with higher academic rank and of declining expectations with age (assuming a correlation between greater age and higher rank).

This suggests several strategies for the
improvement of service to the faculty. For example, subject bibliographers and acquisitions librarians may need to review their selection policies to eliminate causes of dissatisfaction, for example, through the purchase of multiple copies where necessary. Closer contact with the faculty may also be desirable for librarians to keep abreast of the faculty's current research interests and provide concomitant bibliographical support. Changes in circulation policies may also increase satisfaction rate.

Third, and perhaps the most prominent finding, is that faculty members with less time at an institution are the most dissatisfied members. There are several possible reasons for this: newer faculty are less familiar with the library and its services, they may use the library more, they may come from institutions with stronger libraries, etc.

For librarians, a noteworthy observation is that these dissatisfied faculty members are also the group that ascribes lesser importance to the helpfulness of the library staff. This suggests that librarians should focus upon new faculty members as a target for concentrated public relations and public service efforts. This is underscored by further analysis of the data.

As mentioned earlier, Nelson's 1973 study of faculty awareness of reference services found that "level of awareness varied directly with length of service at the college." That is, using ten years as the dividing line, Nelson showed that faculty who had taught at the college longer had higher mean awareness scores than those with a lesser length of tenure. A cross-tabulation of the present data using ten years instead of seven as the dividing point produced significant differences at the 0.05 level for the same items as before, with a single exception: importance of helpfulness of library staff in faculty use of the library.

The most negative response from this group of newer faculty dealt with their perception of the adequacy of the collection in their areas. It is possible that the satisfaction of the older faculty stems from their own participation over the years in collection building.

To act upon these findings, librarians may draw upon techniques proposed in the library literature. Among these activities are: first, to direct faculty attention upon the resources of the library, Koppelman suggests the arrangement of faculty orientation tours. Workshops solely for faculty members have also been conducted with success, whether focusing upon general library resources or specific areas of library service. The structuring of formal channels of communication can be achieved by means of membership on library liaison committees and, where appropriate, by librarians' attendance at departmental meetings. Uses of printed communication include the dissemination by librarians of house organs and handbooks, as well as form letters and informal memoranda. Nelson reports that informal, personal notes have been found to be particularly productive.

The involvement of librarians in the teaching process is recommended through the delivery of lectures to individual classes and through membership on academic committees outside the library, for example, curriculum committees. A basic groundwork may be laid simply by studying course schedules and becoming familiar with the academic programs of the various departments. Greater support for the research and teaching activities of faculty members may be accomplished through SDI services; the Mechanized Information Center at the Ohio State University Libraries is a working example. Other services reported as successful devices include the availability of manual current awareness systems and of comprehensive research assistance, and the compilation of topical research guides, all initiated by library staff "in anticipation of the needs of . . . users."

The strengthening of personal relationships among individual librarians and faculty is likely to be a by-product of any of the techniques mentioned above. More active approaches include the assignment of a librarian as an official liaison with faculty in each department. Finally, the merits of informal contacts through coffee breaks and open houses have been advocated by several authors. By implementing selected programs of this sort, librarians can not only help to ensure the building of collections appropriate to the interests of these groups
but also alert them at an early stage to services available in the library.

Several potential areas of research have already been mentioned. In addition, other questions raised but not dealt with in this study are: Do academic libraries have adequate collections and collection development policies to meet the needs of their newer faculty? Are senior faculty members as a whole less active in conducting research? Is their satisfaction with the library based on lowered expectations resulting from past failures? Do the interests of newer faculty tend to center on newly developing areas, in which existing library holdings are inadequate? Finally, investigating specific causes of dissatisfaction among new and lower-rank faculty would be beneficial in determining factors of which librarians may not even be aware.

REFERENCES

7. Results of the original survey are available as ERIC document ED 143 346, *The Viability of Merging Three Academic Institutions in Worcester*, by David Kaser and Jinnie Y. Davis.
8. Ibid. See p.93–98 for the specific items asked in the questionnaire.
15. Lehman, "Library-Faculty Liaison," p.102.
17. Lehman, "Library-Faculty Liaison," p.103.
22. See, for example, the articles by Holley and Rader, cited above, or Lee Lebbin's "Communication Spelled C-O-F-F-E-E" in *Michigan Librarian* 38:8–9 (Autumn 1972).
Thinking Small in a Big Way

The successful integration of microfiche into the mainstream operations of a large scientific and technical research library over a ten-year period is outlined. Microfiche collection building, announcement, reading, and copying are discussed with some emphasis on the promotion of microfiche as a viable information source for library patrons. The use of COM for various internal processing functions is described. A recent user-satisfaction survey reveals that technical reports on microfiche are now accepted within Sandia Laboratories.

Over the last ten to fifteen years that 4-by-6-inch piece of photographic film called a microfiche has been, in its library applications, roundly cursed, denigrated, appreciated, praised, and probably folded, spindled, and mutilated! The literature on microforms includes any number of basic texts and discussions of the technical aspects of production and use, as well as accounts of specific applications in other institutions.

This paper examines the policies and practices developed by the Sandia Laboratories Technical Library to acquire, process, announce, and promote the use of the technical reports literature in microfiche format. We will also discuss a number of other applications of this information medium in the library.

Sandia Laboratories is operated by Sandia Corporation, a subsidiary of Western Electric, as a service to the U.S. government on a nonprofit, no-fee basis. Sandia serves as a prime contractor to the Department of Energy (DOE) with major responsibilities for the conduct of various national security and energy projects for DOE and several other federal agencies.

The Sandia Laboratories Technical Library has a staff of fifty people and functions as two divisions: information services and technical processes. Collections include approximately 38,000 books, more than half a million technical reports (of which more than 90 percent are on microfiche), and approximately 1,500 periodical subscriptions. More than 15,000 of our periodical volumes are in 16mm microfilm.

The library collections are strong in the areas of aerospace, chemistry, energy conservation and utilization, materials, mathematics, nuclear technology, physics, and weapons research. For the last fiscal year the library’s acquisitions budget was more than $310,000. Almost all functions of the technical library are fully computerized.

The Microfiche Collection

The microfiche acquisition program began in 1969. Since then the library has acquired all technical reports on microfiche issued by the Atomic Energy Commission and subsequent related agencies—the Energy Research and Development Administration, the Nuclear Regulatory Commission, and the Department of Energy. We have also acquired technical reports on microfiche issued by the National Aeronautics and Space Administration (NASA) and its predecessor, the National Advisory Committee for Aeronautics (NACA). Since 1970 we have received technical reports on microfiche in selected subject categories from the National Technical Information Service (NTIS). Recently we have acquired the complete microfiche collection of Power Reactor Dockets issued by the Nuclear Regulatory Commission; the complete collection of

John Gardner is a library resource analyst, and Gladys Rowe a subject specialist at the Sandia Laboratories Technical Library, Albuquerque, New Mexico. This work was supported by the U.S. Department of Energy.
Bureau of Mines publications; and publica-
tions of the U.S. Congress on microfiche
distributed by the Congressional Informa-
tion Service. The total collection now
amounts to more than half a million reports
in microfiche format.

Much of this material is currently stored
in three Remington Rand Lektrievers lo-
cated close to the library circulation area.
The collection expanded so rapidly that it
became necessary to move the older mi-
crofiche to a nearby vaulted area where
they are stored on shelves in cardboard file
boxes.

Technical reports in microfiche are filed
by the alphanumeric report number located
in the upper left-hand corner of the mi-
crofiche. The only exceptions to this practice
are the microfiche for Power Reactor Docket-
s. These are filed primarily by the name
of the designated power plant and secondar-
ily by the docket number.

At the time we began to collect technical
reports in microfiche, we established a pol-
icy not to catalog or index any of the mate-
rial. Consequently, references to microfiche
are not included in our computerized re-
ports catalogs. Instead we rely on the
printed indexes published by DOE, NASA,
and NTIS. When the number of the report
is known, we refer directly to the mi-
crofiche collection.

ANNOUNCEMENT AND DISTRIBUTION
SERVICES

Newly acquired microfiche are announced
in the library's semimonthly announcement
bulletins. Data on reports acquired from
DOE, NASA, and NTIS are extracted from
the NTIS bibliographic data file on magnetic
tape. This tape extract is reformatted in-
house so that reports are grouped under the
COSATI subject categories assigned by
NTIS. A hard copy listing is then printed by
a computer. The announcement bulletin,
SCAN: Sandia Corporation Accession News,
is prepared from this camera-ready copy by
the Sandia printing services group (see
figure 1).

SCAN has a circulation of 370 copies. An
order form is included at the back of each
issue. SCAN subscribers may order reports
by annotating the accompanying order form
with the report numbers they require and
sending the form to the library circulation
group. Circulation personnel then send
master copies of the requested microfiche to
the Sandia micrographics group, where du-
licates are produced; the master copy and
requested duplicates are returned to the li-
brary; and the library, in turn, sends the
duplicate to the requester. No circulation
record is kept of microfiche sent out in this
manner. The requester retains the copy as
long as needed.

We make no attempt to check the quality
of either newly received or duplicated mi-
crofiche. However, personnel in the mi-
crographics group are responsible for re-
viewing the material being copied. When
they find microfiche of poor quality, they
are responsible for indicating that the fiche
is of such poor quality that it should not be
copied or that certain pages are of inferior
quality and the best available copy is being
sent.

In these instances circulation personnel
send the microfiche to the requester with
one or the other of two special library forms
developed to convey this information.

When hard copy is specifically requested
in order to get clearer images, the library's
reports acquisitions personnel often contact
the original publisher of the report because
the distributing agency has probably already
sent the best copy it can produce.

We have found that microfiche of poor
quality is usually created when the original
report was probably never intended for
conversion to microfilm format. This occurs
most often when the originals are transla-
tions, conference papers, periodical articles,
work typed on colored paper, or pages con-
sisting of equations, photographs, charts,
maps, diagrams, or reduced computer out-
put.

In other instances the subcontractor re-
sponsible for preparation of the microfiche
has done a poor job either in the prepara-
tion of the master or in the preparation of
the second generation microfiche for multi-
ple copy distribution. When this occurs, we
request that the distributing agency look
into the question of quality control with its
subcontractor.

USING THE MICROFICHE COLLECTION

When we began our microfiche acquisi-
32 USE OF GEOTHERMAL HEAT FOR CROP DRYING AND RELATED AGRICULTURAL APPLICATIONS. FINAL REPORT. GORDON, T. J., WRIGHT, T. C., FEIN, E., MONSON, T. R., RICHMOND, R. C. FUTURES GROUP, GLASTONBURY, CT. DEPARTMENT OF ENERGY. MAR 78. 260P. IDO-1628-4

33 GREEN FACTORIES FOR LIQUID FUEL. CALVIN, G. J., CALVIN, M. CALIFORNIA UNIV., BERKELEY. LAWRENCE BERKELEY LAB. DEPARTMENT OF ENERGY. APR 78. 19P. LBL-5660

34 PETROLEUM PLANTATIONS. CALVIN, M. CALIFORNIA UNIV., BERKELEY. LAWRENCE BERKELEY LAB. DEPARTMENT OF ENERGY. APR 78. 41P. LBL-8256


36 GREEN FACTORIES FOR LIQUID FUEL. CALVIN, G. J., CALVIN, M. CALIFORNIA UNIV., BERKELEY. LAWRENCE BERKELEY LAB. DEPARTMENT OF ENERGY. APR 78. 19P. LBL-5660

37 PETROLEUM PLANTATIONS. CALVIN, M. CALIFORNIA UNIV., BERKELEY. LAWRENCE BERKELEY LAB. DEPARTMENT OF ENERGY. APR 78. 41P. LBL-8256

38 TECHNICAL AND ECONOMIC ASSESSMENT OF METHODS FOR DIRECT CONVERSION OF AGRICULTURAL RESIDUE TO USABLE ENERGY. FINAL REPORT. BAILIE, R. C. BATTELLE PACIFIC NORTHWEST LABS., RICHLAND, WA. DEPARTMENT OF ENERGY. OCT 78. 136P. YIN-24552


40 USES OF WARMED WATER IN AGRICULTURE. FINAL REPORT. GARDEN, R. E. CALIFORNIA UNIV., DAVIS. DEPARTMENT OF AGRICULTURAL ENGINEERING. DEPARTMENT OF ENERGY. NOV 78. 59P. UCRL-13930

41 SOME COSMOLOGICAL CONSEQUENCE OF HADRON MATTER PHASE TRANSITION AT HIGH TEMPERATURE. BUGRII, A. I., TRUSHEVSKIY, A. I., AKADEMIYA NAUK URSR KIEV. INST. TEORETICHESKI FIZIKI. 1976. 18P. ITP-76-36-E

42 REVIEW AND INTERPRETATION OF RECENT COSMIC RAY BERYLLIUM ISOTOPE MEASUREMENTS. RUFFINGTON, A. CALIFORNIA UNIV., BERKELEY. LAWRENCE BERKELEY LAB. DEPARTMENT OF ENERGY. APR 78. 29P. LBL-7923

43 STEADY STATE MODELS FOR FILAMENTARY PLASMA STRUCTURES ASSOCIATED WITH FORCE FREE MAGNETIC FIELDS. MARKLUND, B. ROYAL INST. OF TECH., STOCKHOLM (SWEDEN). INSTITUTIONEN FOR PLASMAFYSIK. MAY 78. 33P. TRITA-EFP-78-09


45 PROBLEMS IN THE CHEMISTRY OF METALLIC SPECIES IN THE D AND E REGIONS. MURAD, EDMOND. AIR FORCE GEOPHYSICS LAB. HANSCOM AFB. MA. JAN 78. 17P. AD-A064 480/75L

46 AERONOMIC ASPECTS OF THE POLAR D-REGION. SWIDER, M. AIR FORCE GEOPHYSICS LAB. HANSCOM AFB. MA. FEB 76. 46P. AD-A064 482/75L

47 STUDIES OF THE DYNAMICS OF THE HIGH LATITUDE IONOSPHERE. RAITT, W. J. UTAH STATE UNIV., LOGAN. CENTER FOR ATMOSPHERIC AND SPACE SCIENCES. AIR FORCE GEOPHYSICS LAB. HANSCOM AFB. MA. OCT 78. 88P. AD-A064 539/75L

Fig. 1
Sample page from SCAN: Sandia Corporation Accession News
tions program, we saw that extraordinary measures would be necessary to sell it as a viable information source. With the assistance of writers from the public relations group, we prepared a brochure designed to sell the concept to potentially unwilling users. A small but attractive four-page brochure was produced emphasizing the positive aspects of microfiche and instructing patrons in its use.

We stressed that more reports would be available; that they could be obtained quickly; that they never had to be returned; and, finally, that both the library and its patrons would save space. A detailed description of microfiche was presented, along with additional information on how it is read and obtained. Copies of the brochure were sent to every scientist and engineer in the laboratories. Library staff members were urged to be positive in recommending the use of microfiche and not to apologize for it.

Every effort was made to make things as easy as possible for patrons using this medium of information for the first time. Through a special budget allocation, we acquired more than 150 small, low-cost microfiche readers that were distributed to the most frequent users of the technical reports literature. We also acquired three reader/printers that were sent to technical groups maintaining the largest collections of technical reports literature. Reader/printers were also made available in the library. More readers were later purchased and distributed to other users. A location-listing of readers and reader/printers was sent with every requested microfiche.

Finally, when computer-output-microfilm (COM) became a reality, Sandia Laboratories invited the major manufacturers of microfiche readers and reader/printers to exhibit their products in our auditorium. Invitations were also sent to Sandia personnel to review the equipment. A large number of interested scientists and engineers visited the exhibit and used the equipment under real-life conditions. We asked for opinions on which equipment would be most appropriate for their use. On the basis of this survey the laboratories standardized the purchase of microfiche readers and reader/printer equipment.

As technology has improved, other equipment has been studied and purchased. It is now available upon request through the office equipment group in much the same way as typewriters are issued. The standard readers are provided with twin lenses: one for 24× and the other for 48× reduction microfiche. The library presently provides four microfiche reader/printers with a variety of lenses for the use of its patrons in the library building.

Initially, reaction to the introduction of microfiche was one of grudging acceptance. An enormous amount of microfiche was undoubtedly converted into hard copy, either through the use of reader/printers, or by requesting blowback (i.e., an enlarged print made from a microimage) from the printing services group. To accommodate these requests, the printing services group acquired two step-and-repeat microfiche-to-hard-copy machines.

Our patrons have since found that it is not necessary to convert every sheet of microfiche, especially those reports of peripheral interest, to hard copy. Patrons frequently review microfiche reports on readers and then decide to convert only certain portions to hard copy or, perhaps, none at all. Just as with hard copy originals, a report is not necessarily useful just because the title sounds intriguing.

We do order hard copy reports if the requested report is more than 150 pages long or if it contains many maps, charts, photographs, illustrations, tables, graphs, or computer listings. Material of this kind is seldom legible in microfiche format. If the report is already in the microfiche collection, however, a duplicate of that microfiche is sent to the requester for review.

OTHER APPLICATIONS

There are several other applications of microfiche in the Sandia Laboratories Technical Library. The library is responsible for the subsequent distribution of Sandia Laboratories technical reports—those reports that have been prepared by or for individuals within Sandia Laboratories.

In 1974 we initiated a program to convert hard copies of all newly published Sandia reports immediately to microfiche. All Sandia Laboratories reports are cataloged and entered into a master reports file, so it was
a matter of programming to extract the basic information needed for the eye-legible portion of a microfiche from the cataloging entry for a given Sandia report.

This information is fed to a Datagraphics 4561, and strips of eye-legible 35mm microfilm listing the author, title, date, etc., are prepared and matched with the hard copy reports they represent. Each report and the 35mm microfilm strip representing it are then sent to the micrographics group. The 35mm strip becomes the eye-legible portion of the microfiche; the report itself is microfilmed on a page-by-page basis and formatted into the body of the microfiche. The hard copy report and its microfiche are then returned to the library, where they are filed separately.

At the time this project was inaugurated, we also started a retrospective program to convert to microfiche all Sandia reports published since 1962. This project, employing the same techniques, is almost completed. All Sandia reports published before 1962 are available in 16mm microfilm.

The library also uses microfiche as a by-product of many of its own internal processes. Almost all library functions are computerized—acquisitions, receiving, cataloging, and circulation of books and reports as well as the entire periodicals function. Some of the products from these systems are produced in hard copy form; others are produced in microfiche only. For example, our reports catalog is produced in microfiche; it is updated annually with both weekly and monthly supplements. The microfiche are housed in various rotary or desk stands placed next to microfiche readers or reader/printers. Many of the frequently updated tools associated with the circulation and periodicals functions are also received in COM.

ASSESSING THE PROGRAM

How well have we succeeded in our use of microfiche? From the standpoint of the library, it was immediately obvious that the space savings were enormous. We estimated that in a given year the savings (in terms of linear footage) were the equivalent of the length of a football field, including both end zones. The conversion of Sandia reports to microfiche has saved an immense amount of room. Library staff members appreciate the ease of pulling a sheet of microfiche of an internal listing and referring to that on a handy reader rather than lugging around a stack of hard copy computer output.

But none of this makes much sense if in the end library users are not happy with the situation. Following our initial decision to adopt microfiche, our approach was that we were providing patrons with the information they needed or had requested, and the format was a secondary consideration.

Naturally, some patrons did not agree with this philosophy. The standard complaints were: "You can't write on microfiche"; "You can't browse through microfiche"; "Things are hard to find on microfiche"; or "With my bifocals it gives a crick in the neck!"

Since that time many scientists and engineers new to Sandia have joined the laboratories’ staff. Many of them were already accustomed to using microfiche. The attitudes of longtime staff members have softened, and most of the recently arrived staff members had already accepted microfiche. Although it is not exactly welcomed with open arms, microfiche is now considered a fact of life.

In the first quarter of 1978 we undertook a comprehensive study of the use of technical reports by the laboratories staff. We set out to learn what kinds of people used technical reports, which subject areas were the most popular, degrees of satisfaction with reports received, the accessibility of microfiche readers, opinions concerning the useful life of a given report, and how the patron had heard about it. A large propor-

TABLE 1

<table>
<thead>
<tr>
<th>Users' Reactions to Reports in Microfiche Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>For this particular report were you satisfied with:</td>
</tr>
<tr>
<td>The form or type of copy received?</td>
</tr>
<tr>
<td>The ease of getting it?</td>
</tr>
<tr>
<td>The timeliness of getting it?</td>
</tr>
<tr>
<td>Its legibility?</td>
</tr>
</tbody>
</table>
tion of the reports requested were on microfiche so it was possible to collect a considerable amount of solid information about current attitudes toward microfiche. The results of a portion of this survey related to user satisfaction are presented in table 1.

Ninety percent of our users were either satisfied or neutral to the form or type of microfiche; 99 percent with the ease of getting a report on microfiche; 99 percent with the speed of getting a report on microfiche; and 92 percent with the legibility of the report on microfiche. More than 52 percent of our users have microfiche reading equipment actually in their office; 39 percent have readers at least in close proximity, whereas for 9 percent, location was inconvenient. Library management and staff members were considerably encouraged by these findings. We can only conclude that microfiche has arrived. It is a useful tool for librarians and for library patrons.

REFERENCES

The Stanford Library
Flood Restoration Project

The restoration project for approximately 50,000 volumes damaged in a flood at the Stanford University Libraries is described, beginning with the placing of the damaged books (which had been previously frozen in a nearby freezer facility) in a vacuum chamber for drying and their subsequent repair by a special project staff. The article describes the various tests conducted in the vacuum chamber on how best to dry the books.

On November 4, 1978, a ruptured water main flooded the basement stacks of the Stanford University Meyer Library. In an earlier article in this journal Philip D. Leighton described the accident, the initial actions by the university to rescue the damaged books, the prompt freezing of the wet books in a nearby freezer facility, and the decision to dry the books in a vacuum chamber at the Lockheed Missiles & Space Company in Sunnyvale, California. While discussions with Lockheed engineers were under way, the library employed the author to supervise the planning and daily operations for a subsequent flood restoration project.

Preliminary Organization

While we waited to hear from Lockheed about cost and availability of the vacuum chamber, a great deal of preliminary organization took place.

Three weeks following the flood, we wanted to make sure mildew was not spreading in the book stack ranges closest to the inundated area. The two levels of stacks hold 400,000 books, 50,000 of which were affected. It was important to know if fumigation of the stacks would be required. Volunteers from the student body and the Stanford Library Associates conducted a two-day check of 20,000 volumes closest to the flood area. They found only 200 books that had been missed in the original flood cleanup and no indication of mildew infestation.

After some discussion, the Stanford Libraries decided not to weed any of the 50,000 damaged books before drying. The library had deliberately selected these particular books in the past decade as part of an organized collection development program. There was a high likelihood we would want to retain everything, and it would be too difficult to locate in the freezer the few books we might weed. If the projected costs at Lockheed seemed too high, we could attempt to weed in an intermediate step between freezer and shelving in the vacuum chamber. This extra step was not finally necessary.

The next problem to consider was where to house the returning books after they had dried. There was a chance they might develop mildew because Lockheed could not fumigate them due to strict air pollution control standards. (The venting of such massive amounts of chemicals as would be required was not safe.)

Serious consideration was given to returning the books to the Meyer Library basement where we would cage off an area to house them. This would solve the difficult problem of shelving. The Restoration Office at the Library of Congress advised strongly against this move, however, because of the possibility of mildew. We certainly did not want to introduce mildew, if it developed,
into the clean stack area. Also, the stack area had no suitable work space for general cleaning and repairing of books.

The problem of a facility and shelving proved to be one of the most challenging to solve. Several site alternatives were considered and rejected due to the cost of labor to move books in and out, lack of shelving, lack of space, or disruption to library users.

Finally, we decided upon the empty library of a local junior high school (Terman), which had recently closed. The school district was happy to rent the school library, 2,400 square feet, including shelving for 10,000 books. There were also two storage rooms, 1,600 square feet, to use for empty boxes and the books we could not shelve immediately. There was plenty of space for a work area, sorting area, and development of a high humidity room. Although the site was off-campus, it was close enough to make transportation fairly easy. The building was already wired to the police and fire departments for security.

The shelving problem was solved when a local lumber yard offered to build free-standing bookcases at cost. With 120 shelf units and the available shelving in the library, we could house 35,000 books. The remaining 15,000 would go into storage boxes, unstacked, with tops open to encourage air circulation. We found this caused no problems; books acclimated quickly when shelved, and no mildew developed.

We also made contingency plans in case mildew developed at Terman in the dried flood books. The University of California, Berkeley, has a traveling fumigation chamber we could rent if necessary. This precaution fortunately was not needed.

A fresh supply of book cartons was ordered to replace damaged or deteriorated ones. These would be used at the vacuum chamber to pack the dry books for their trip to the project site. We eventually replaced 300 boxes.

Following the excellent advice in the report Museum Under Water,2 we turned our attention to renting freezer trucks to bring the books the ten miles from the freezer in San Jose to Lockheed in Sunnyvale. In our area, large freezer trucks are at a premium, rented for months at a time to haul produce. Large trucks were unobtainable for daily rental, so small, twenty-foot trucks were reserved. However, after breakdowns on the first day we used them, we decided the distance between the freezer and Lockheed was short enough to warrant the use of enclosed twenty-foot freight trucks.

In practice, the plan worked well, with little thawing occurring in the books in the three hours from the freezer to pulling the vacuum. (After considering and budgeting several alternatives for shipping books from Lockheed to the Terman project site, we found that a local mover was least expensive. This firm’s staff could load boxes, drive to Terman, and unload the boxes for less than the truck rental and labor costs if we were to do it ourselves.)

The labor force needed to move such large numbers of books from the freezer to the vacuum chamber and again to the temporary storage facility seemed impossible to assemble. We were working under several restrictions. For security and insurance reasons, Lockheed was anxious that workers be Stanford employees. From our standpoint, we wanted people who would handle the frozen and then dried and fragile books with care. The solution seemed to be to ask Stanford library staff to sign up to help at Lockheed, and we sought permission of department chiefs to use their staff. For public service staff, this meant supplying funds to employ temporary help to fill in for the volunteers. Sign-up sheets were sent to departments asking for date and time preferences.

We set up two shifts, one to unload dry books, another to load the chamber with frozen ones. We decided upon twenty people a shift and two truck drivers a day. The number twenty seemed reasonable to move 5,000 books in three hours or less with ten people unpacking books and ten loading shelves. More than twenty would cause too much congestion within the chamber. Car pools were organized when necessary. A map was drawn up detailing the difficult route to Lockheed.

Lockheed offered forklifts and their own operators to make our labor force available for book handling. The Modern Ice and Cold Storage Company also provided labor and equipment to move frozen cartons out of storage on pallets into the trucks. We re-
cruiited truck drivers from among the staff.

As the planning became more involved, a work flow chart was devised to aid in the step-by-step operation. This helped pinpoint potential trouble spots or possible problems we had not considered.

In our preliminary organization, we prepared a detailed budget that included all the alternatives we had considered for facilities, shelving, moving, and labor costs. The budget, for ease of handling, was divided into three phases: the "Emergency" phase, the "Lockheed" phase and the "Terman" phase.

The "Emergency" phase included costs from the initial cleanup, those associated with boxing, the final delivery of books to the freezer, and the costs of replacement and repair of damaged nonbook items such as book carts, carpet, sump pumps, etc.

The "Lockheed" phase included all the projected expenses involved in moving books from the freezer through Lockheed to the Terman site.

The third, or "Terman," phase included all costs for staff salaries, repair, cleaning and replacement of books, equipment, materials, labor, rental of site, telephone, etc. Finally, as part of our preplanning, we designed a checksheet to be used for each book. Every book was to be checked and routed to a destination.

The checksheets were color coded. A green stripe indicated that with minor cleaning and repair the book could be returned immediately to the library. A blue
code indicated that rebinding was necessary. A red stripe meant the book must be held for further repair or replacement. Each check sheet included space for author, title, call number, date, destination, and directions. As books were returned, the check sheets were pulled and kept as a record. Guidelines were developed to help the staff judge the condition of a book to decide how to color code the checksheets.

During this time, as questions about the welfare of the books occurred to us, we consulted Peter Waters, head of the restoration laboratory at the Library of Congress. He suggested a number of critical points (which had come up in previous freeze-dry experiments) to check with the Lockheed engineers. Concerns included pulling or releasing the vacuum so quickly that it might damage paper; heater temperatures; fumigation to prevent mildew; and shelving methods. Waters also agreed to come to California at the end of the first dried load to help evaluate the condition of the books.

On January 5, 1979, Lockheed called to say its facilities would be available to help us. The company also generously offered to absorb the cost of the project as a contribution to Stanford. A pretest to check various shelving methods was established for January 23. We were finally ready to begin.

The "Lockheed" Phase

To prepare for the pretest we selected ninety-six discarded books to fulfill our criteria. We would test four methods of "housing" for the vacuum-drying: milk crates, cardboard cartons, and two shelving methods. We needed both coated and uncoated book paper; books wrapped in freezer paper, partially wrapped, and unwrapped; and both wet and damp books. All these conditions would be found in the flood books. In previous freeze-drying at General Electric and McDonnell Douglas Corporation, milk crates and cardboard boxes had housed the books during the drying process. Both Lockheed and Stanford wondered if books would dry faster unwrapped and placed individually on heated shelving. However, we were not sure which of these two shelving positions—books upright with spines to the heated shelf back or books stacked flat on a heated shelf—would be better. Consequently, we tested twenty-four books in each of the four positions, with two in each possible category. For example, in the milk crates, we had the following arrangement:

<table>
<thead>
<tr>
<th>Wrapped</th>
<th>Uncoated paper</th>
<th>Coated paper</th>
<th>Uncoated paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 wet, 2 damp</td>
<td>2 wet, 2 damp</td>
<td>2 wet, 2 damp</td>
<td>2 wet, 2 damp</td>
</tr>
</tbody>
</table>

Two books in each category gave us a chance to compare results. Each housing method contained the same arrangement of books. The books themselves were chosen haphazardly, weighed dry, then wet, and then dry. Weight difference was recorded and moisture content noted. This was done to see if there was a significant difference among housing methods as far as drying was concerned. There were folio-sized volumes, as well as "tinies." Percentage of change was checked and recorded.

The books shelved both upright and flat were on a shelf unit tilted backwards 20° to keep the spines tight against the heated shelf back. The crates and boxes were placed on upright shelves heated on the bottom. Several hundred pounds of ice were placed on heated shelves to simulate 5,000 frozen books. The vacuum was pulled to 10⁻⁷ torr.

The chamber at Lockheed is a beautiful piece of machinery. The stainless steel interior is eighteen feet by eighteen feet by thirty-six feet. It has several portholes for viewing, an impressive instrument panel, and an immaculate assemblage of pumps underneath. To one side hangs a cryogenic panel cooled to -320°F, by liquid nitrogen.

The books were arranged, thermocouples inserted to record temperatures, and the massive door shut and locked.

After fifty-five hours the vacuum was released slowly to avoid condensation of moisture on the books. We carefully inspected each book and found eight books still not dry. These eight all had coated paper and were either wrapped or partially...
wrapped. Three were in cardboard boxes, two in milk crates, two standing upright. The books housed on a shelf, stacked flat, were all dry. But the books housed upright on a shelf looked best. There was the least amount of paper cockling and cover warping. We did discover that we would need to shelve books firmly, for support. A large book dried next to a small one would warp at the unsupported edges.

Using an Aqua-Boy, an instrument that indicates moisture content of paper, we checked the paper on all test books. Most recorded less than 2 percent moisture content (the lowest the instrument records). For book paper 5 to 7 percent is considered best. The paper felt extremely dry and fragile. The bindings were tight and broke if the books were "forced" open. It was obvious that acclimating in a humidity environment of 50-60 percent would certainly be necessary. Therefore, we made arrangements for humidifiers and fans for the Tamman site. And, in fact, we found that in four to six weeks at 50-60 percent r.h. the book paper regained enough moisture to register from 5-6 percent, and bindings opened readily again.

After discussing the pretest results, Lockheed and Stanford decided to dry the books upright, unwrapped, spines to heated metal shelf backs, shelves tilted 20°, books arranged by size when possible, because they were less distorted in this method than in the other three. There was no significant difference in drying in the pretest between housing methods. The initial difference appeared to be in having books wrapped or unwrapped. Wrapped books definitely dried much more slowly. However, during the drying of our regular loads, we noticed time and again that books stacked flat on shelves in a horizontal pile did not dry well. The three or four middle books in the stack always failed to dry in one cycle.

Lockheed started building and installing enough shelving to house 5,000 books. Special heater strips were mounted on the backs of all shelves. A large folio shelf was built to accommodate the several dozen large volumes in each load. Lockheed estimated an official starting date of February 5, 1979. We decided each load would take approximately four days to dry. The plan was to dry one load a week for eight weeks. But Lockheed discovered a schedule conflict that would necessitate two loads a week, if the books could be dried that fast. This meant rearranging all volunteers, trucks, and movers to a four-week schedule if drying time could be shortened.

On February 5, 1979, the first group of volunteers met at Lockheed where security was very tight—everyone signed in and out with badges assigned to each person. Before we started, a session was held to train volunteers in book handling, give shelving instructions, and assign work teams. The shelves in the chamber were arranged in four long ranges with two aisles. Everyone wore old clothes, soft-soled shoes to avoid marking the chamber floor, and gloves to protect hands from frozen books.

People worked in teams of two or three. One person unpacked the frozen volumes, and another carried them into the chamber and placed them on the shelves. In the chamber other volunteers arranged books by size. Volumes too tall to stand upright were laid flat on shelves. Folios went on special shelving.

All the empty boxes were stacked and hauled away by the trucks, to be brought back again to repack dry books. They could not remain at Lockheed because of the fire hazard. Several volunteers took turns removing and stacking empty boxes to one side, out of the way. Aside from the breakdown of the refrigerator trucks that delayed us, the chamber was loaded by twenty people in 24 hours.

On this first day we entertained reporters from several television stations as well as newspapers. In their enthusiasm for pictures, they invaded the chamber with cameras, coffee cups, and cigarettes—a problem we had not foreseen!

There was great applause when the door closed officially on the first load. As the vacuum was pulled, the chamber filled with fog and we lost sight of the books. At 10:00 p.m., February 5, Lockheed's liaison staff member Leon Davies called to say all was progressing well. The thermocouplers inserted in various test books were sending out data recorded on a sheet, and the books were starting to dry.

On February 8 Lockheed phoned to say
the books would be ready to check in twenty-four hours, and Peter Waters arrived in California to be present for the chamber opening.

Exactly four days after pulling the vacuum, the chamber was opened for a final check. The books looked surprisingly good but seemed very dry. Peter Waters suggested reducing drying time and keeping internal temperatures of books to a maximum of 90°F. There were a hundred larger books, stacked flat, which were not dry—particularly those in the middle of the stack. Warping and cockling were held to a minimum. Much dirt was lifted to the paper surface and could be brushed away.

Surprisingly, many books with coated paper, whose pages had blocked, were found to be released by the vacuum process. But bindings were extremely brittle, and paper moisture content did not register on the Aqua-Boy. After much consultation, Lockheed suggested a forty-eight hour drying cycle with six or eight additional hours of warm air circulation but with unheated shelves. Items still not found dry by volunteers were left in the chamber for another cycle. Each book was checked separately to be sure it was dry. This was done by quickly inserting the hand into several of the center sections where drying occurred last. Lockheed also weighed the amount of ice collected from each load. It averaged 1,800 pounds, or approximately one-third pound of water per book.

The results of the initial drying cycle
were so encouraging, we knew for the first time that we could save most of the books.

February 12 was the first full day at Lockheed, unloading one dry load and loading a frozen one. From now until the conclusion, we would spend two days a week loading and unloading 10,000 books a day. After a training session to caution volunteers about the fragility of books and to give instructions on packing, we began to unload dry books. Some volunteers carried books to others who packed carefully, making sure books would not bounce around inside boxes.

The professional movers loaded packed boxes efficiently, and all was completed in two hours! Because we had not counted upon such efficiency, we had to wait two hours for frozen books to be delivered. After this day, we planned a continuous effort with frozen books arriving soon after dry ones had left. With times for breaks, we were finished, usually by 2:30 p.m., after starting at 8:30 a.m.

Because there were no microforms or computer tapes in the flooded area, we ran some test items. We soaked microcards, silver halide, diazo and vesicular microfilm, silver halide microfiche, and computer tapes for two hours underwater, froze them for forty-eight hours at -15°F. and vacuum dried them. The microcard was ruined because the card came apart. The film itself showed no ill effect. The computer tape contents were examined, and no errors were found. Even all three microfilms ex-
hibited only minor spotting and no loss of
text. It does seem probable that longer ex-
posure to water could ruin the film emul-
sion.
Phonodiscs and photographs came
through the process well. There was no dis-
cernible damage to discs supported by their
covers during vacuum drying. Some photo-
graphs cockled slightly but responded to
pressing between sheets of acid-free paper
Sixteen-millimeter and 35mm movie film
(no nitrate film tested) can be immersed
immediately in distilled water and taken to
a processing laboratory. If done quickly
there should be no loss. Film found in the
Meyer basement sat wet for a week with lit-
tle loss to emulsion. Movie film frozen and
vacuum dried in a roll in its cardboard con-
tainer also recovered well.
The problem of relaying empty boxes was
solved when the movers agreed to accept
the emptied ones at the end of the day and
return them in their truck to be used to
pack the next load.
In order to prevent overdry spines on
books that went through more than one cy-
cle, on subsequent cycles we shelved them
with spines out, away from the heat. This
proved to work well.

THE "TERMAN" PHASE
The first load of dry books was delivered
to the Terman site where the initial ship-
ment of pine bookcases was ready. With the
help of Stanford Library Associates volun-
teers, books were unpacked and shelved for
acclimatizing. (The humidity was now at 55
percent.) Each load took approximately two
days to shelve, rather loosely, in marked
groupings. As the books came from the
chamber in no particular order, we did not
worry about shelving them in order. In-
stead, we sorted and placed them in order
before returning them to the library.
At this point, staff was interviewed and
hired for the book restoration project as
previously planned and budgeted. All would
start March 8, the projected date of our last
load. We needed nine chamber loads to
finish as there were more than the esti-
mated 40,000 items, and some items went
through more than one cycle. This amounted
to about 1 percent per load.

Three full-time and five part-time staff
were hired. Eventually, one part-time per-
son was increased to full-time. The full-time
staff were given specific areas of responsibil-
ity: one in charge of major repair, another
of sending books out for rebinding, another
of day-to-day checklist operations by the
whole staff. One part-time staff member was
given responsibility for packing and sending
books back to the library and keeping those
records. Other part-time staff spent some
time searching market alternatives for books
that would have to be discarded. We had a
form printed listing all the choices they
were to consider, such as new or used
copies, microforms, branch library copies,
copies at nearby U.C. Berkeley, discard, re-
store, photocopies, etc.
On March 15 the staff was assembled and
ready to start, with the exception of two
members who would join the staff in April.
The first few days were spent in an intro-
ductive workshop in repair techniques, re-
covering pamphlets, and conservation con-
siderations. The staff was instructed in the
sorting and checking process and practiced
until they were able to judge books. The
repair workshop was under the direction of
the full-time staff member who had worked
in the binding and finishing division of the
Stanford libraries.
When the week-long training session was
over, the Terman phase of the flood project
started in earnest. Books were sorted by
loads so we could be sure they had accli-
mated properly. Shelves were set aside for
sorting books by call number to return to
the library. Broken sets were held until
they were complete. Other shelves were
marked for specific repair problems such as
recasing, spine repairs, paper repairs, etc.
Almost all the pamphlet covers were
ruined, so several thousand were set aside
for repair. Spine labels and bookplates in
general held firm. Many books, whose cases
and bindings were sound but badly warped,
have been greatly helped by pressing. They
are misted lightly with water and placed be-
tween absorbent, acid-free paper in small
hand presses.
The thirty or forty books that showed
signs of mildew were fumigated in a
makeshift arrangement, consisting of a plastic
garbage can with a snap-on lid. Nylon lines
were strung across it inside, an inch apart in two lines on several levels. A damp towel was placed in the bottom with a handful of thymol crystals. Books were hung, supported by two lines, the lid snapped on and left for four to five days. This was done in a well-ventilated area with all leather binding checked daily. Leather tends to soften somewhat when exposed to thymol fumes.

Books needed by patrons and not available through interlibrary loan were tracked down when possible. Repairs were made, and they were sent back for use. We were successful in locating about fifty books, 75 percent of the total requested.

One of the hardest hit stack areas was a locked stack where 3,000 items were housed. Many of these were tiny volumes, no more than three inches by five inches. None were rare books, but all were special because of age, binding, size, content, or scarcity. Many of these books were precipitated onto the floor by the force of the water. Most had leather covers and original bindings. The leather swelled with exposure to water, then shrank as the books dried, distorting covers and bindings. We found that exposure to 60 percent humidity for six to eight weeks and pressing them helped. But many covers were lost, and these items, approximately 500, will be recased by our trade bindery. Others, in somewhat better shape, will be placed in handmade book boxes.

SUMMARY

One of the strongest, positive results of the vacuum process is the remarkably fine shape of the book paper. There has been minimal staining and cockling, even in the severely soaked books. Much dirt was lifted to the surface. If the books were shelved firmly and by size in the chamber, cockling and warping were reduced.

If books went to the freezer badly warped and distorted by water, they were dried in that state and tended to be extremely difficult to press or rebind. If, however, wet books could be straightened gently and with regard for bindings, they will recover in a much more satisfactory condition. A technique that worked well was to freeze the distorted books; let them thaw slightly, reshape them gently, and then vacuum dry them. We tried this with several dozen books. They held their new shape because of their frozen condition, yet appeared to withstand careful manipulation well. This
technique is good only for books with twisted covers or pages, bent boards or pages. It will not be effective for the swelling of pages in thoroughly soaked books. They must be frozen, dried, and rebound.

Although most books with clay-coated paper recovered after the vacuum process, some did not. One of our difficult problems has been the 200 to 300 books with pages blocked due to clay-coated paper. In some instances, careful flexing of pages and judicious use of a needle probe and bone folder were enough to coax pages apart. Neither cold vapor nor hot steam seemed effective.

Rewetting, freezing, and redrying as recommended by Corning also failed to help.

One experiment, which produced some results and which deserves more experimentation, involved rewetting blocked spots and pages, freezing them, and exposing them to the defrost cycle of a microwave oven. However, both animal and plastic glues attract microwaves and melt very fast, so care must be taken not to expose the book more than ten to fifteen seconds at a time. The freezing of the wet spots seemed to be more effective in the microwave oven than just wetting the paper and had the advantage of stabilizing the paper.

As of August 9, 32,000 books had been returned to the library. Approximately 1,500 books are scheduled for rebinding, 1,000 books await repair, and 15,000 still require sorting and checking. By October 1, 1979, approximately 80 percent of the total number of items should be returned to the library. The rest will be held for rebinding and repair. We will lose only 100 to 200 books. We have identified several hundred books whose paper is so brittle they will need to be microfilmed to preserve their content. However, this brittleness is due not to the flood, but to acid paper.

The Stanford University Libraries’ budget for all three phases of the flood project is $316,633. Lockheed estimates its actual costs as approximately $40,000. Eastman Kodak donated $2,000 worth of film restoration, the Modern Ice and Cold Storage Company donated approximately $8,000 worth of freezer space and labor, and various other businessmen contributed expertise, food, labor, trucks, and supplies.

It is obvious that the recovery of the Stanford books is due in great part to the fact that their exposure time to water was kept to a minimum. The chemical and biological actions were stopped by quick freezing. The vacuum process successfully dried massive amounts of material quickly and efficiently with no apparent damage resulting from the process itself. Finally, the truly magnificent volunteer effort by Stanford staff, students, and friends provided the care and labor needed to make the project the success it is.

The last book taken from the Lockheed chamber was a copy of Shakespeare’s All’s Well That Ends Well. These words appear in act II, scene 1: “Great floods have flown from simple sources.” Looking back on Stanford’s “great flood,” we realize it has had a much less damaging outcome than could have been foreseen last November.

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Letters

The Uses and Limitations of Trueswell

To the Editor:

I was somewhat astonished at the vehemence of Richard Trueswell's rejoinder (C&RL, Sept. 1979) especially as it seemed to make no reference to that particular aspect of his work of which I was most critical. I would like to close my side of the discussion by commenting on three matters.

First, I did not claim that Trueswell's basic procedure is fallacious. On the contrary, I think it is a major contribution, perhaps the best and most practical technique we have for finding out from circulation statistics how a collection is being used. If I had not thought that his procedure was both sound and useful, I would not have adopted it for my own research. But a procedure is one thing; the drawing of conclusions after using the procedure may be something else again. This brings me to the second matter for comment: Trueswell's stance with respect to library policies. In general, it is true that we should not hold researchers responsible for the use that others make of their work. We should not blame Robert Ardrey on Konrad Lorenz, or Herman Kahn on Einstein. But when a researcher knows that his or her work is being repeatedly cited in professional literature in support of a certain policy, the researcher probably has a responsibility to take a position on whether or not the use of the conclusions seems appropriate. If the researcher does not do so, onlookers are probably justified in assuming that silence implies assent. I had, of course, read Trueswell's disclaimer of any particular policy recommendations; but by publishing his article under the title "Growing Libraries: Who Needs Them? A Statistical Basis for the No-Growth Collection," he has made his research vote in a sweeping and emphatic way on the basic policy issue in question. Surely, my paraphrases do not seriously overstate the implications of that title.

The third matter is my specific use and criticism of Richard Trueswell's work. The article that I referred to from Gore's Farewell to Alexandria collection, the title of which is quoted above, is Trueswell's most recent statement of his procedures and results as they relate to book collections. If my criticism had been directed at omissions, his complaint that I have not cited other articles would probably have merit. But since I was commenting on what seems to me a mistake in what he did say, it still seems reasonable to treat his most recent statement as authoritative.

The mistake or fallacy that I was commenting on was not a matter of data or sampling procedure, but of analytical method. And the basic point of a preliminary study should be to get such methods straightened out.

Once again, my criticism is directed at the claim, developed on pages 84-86 of Farewell to Alexandria, that a core collection consisting of those books that have circulated since the established cutoff date can be expected to satisfy 99 percent of circulation requirements. More precisely, the fallacy consists in establishing the core in such a way that all books that have never circulated are excluded from it, regardless of how recently they were obtained. Trueswell is saying, in effect, that there is a 99 percent probability that the next book to circulate will have circulated at least once since the established cutoff date.

What he is justified in saying is, There is a 99 percent probability that the next book to circulate will have circulated or been added to the collection since the cutoff date. This is more than a lapse of language, it must be noted, since it is confining the core to those books that have actually circulated that leads to the famous and mistaken claim that more than half the collection could be disposed of with only a 1 percent decline in user satisfaction.

This point that I have criticized is a rather important one from the standpoint of the current debate on library policy, but a
very small one from the standpoint of judging the value of Trueswell’s contribution. I will close by apologizing for a tone that perhaps implied a fuller condemnation than I intended. I would be truly disturbed if I thought that the effect of my comments would be to discourage librarians from exploring and using the Trueswell procedure.—Seymour H. Sargent, Library Science Department, University of Wisconsin-Oshkosh.

In Search of New Horizons

To the Editor:

That is a strange review of my In Search of New Horizons in the July issue of College & Research Libraries.

Every standard reference book that I have consulted states that Admiral Robert Peary reached the North Pole on April 6, 1909, and spent thirty hours there planting flags and making observations. I wonder if Madden believes in the thoroughly discredited Dr. Cook story.

As to the question of whether the ALA is a proper publisher for such a book, it should be noted that In Search of New Horizons is a book about books, in the same category as Books That Changed the World. Even in a profession increasingly crazed about automation and computers, I assume that the ALA is still somewhat book-oriented.

I can offer no defense of my writing style, though it doesn’t seem to have stood in the way of my books selling in the hundreds of thousands of copies, and a well-known science writer, David Dietz, described it as having “clarity, force and charm.”—Robert B. Downs, Dean of Library Administration Emeritus, University of Illinois at Urbana-Champaign.

Response

To the Editor:

Standard reference works have the unfortunate habit of perpetuating the mistakes of their predecessors, as well as inventing new ones, such as the New Columbia Encyclopedia’s identification of Franz Ferdinand as a grandnephew of Franz Joseph. A dispassionate reading of the literature of polar exploration establishes that neither Peary nor Cook reached his goal, despite the claims in their self-serving narratives.

The fact that In Search of New Horizons is a book about books, which I discerned at first reading, does not cause me to modify my doubt concerning the appropriateness of its publication by the American Library Association.

I am happy that hundreds of thousands of Dean Downs’ books have been sold to readers who have a taste in style different from mine.—Henry Miller Madden, Fresno, California.
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BOOK REVIEWS


Research and publication have increased, and degree programs have multiplied over the past twenty years as the academic community has responded to the challenges of the information explosion. The prospects of declining enrollments, limited resources, and continuing inflation during the 1980s, however, are causing teachers, librarians, and administrators in higher education, as well as publishers, to recognize that substantial changes will be necessary to meet the future needs of scholarship. Scholarly Communication: The Report of the National
Enquiry addresses these issues factually and with insight and offers recommendations that deserve careful consideration and support.

Initial impetus for the study came from the interaction of a group of university press directors with officials of the National Endowment for the Humanities and the American Council of Learned Societies. Subsequently, $600,000 was provided by NEH and the Ford, Mellon, and Rockefeller foundations, and the project was begun in 1976. Members of the enquiry's board of governors were drawn from the ranks of university administrators, faculty members, librarians, editors, university press directors, and representatives of learned societies and the publishing industry.

Three major elements within the field of scholarly communication were studied—scholarly journals, scholarly books and presses, and research libraries. Factual information gathered by careful research and opinions obtained by people involved in the process of scholarly communication are presented and form the basis for a series of summaries and recommendations. The results provide "a mixed picture of a basically healthy communication system beset with numerous problems, none of them fatal, but requiring a variety of improvements if the system is to continue to achieve its purposes" (p. 5).

Journals are regarded as efficient, flexible, and effective methods of communication. The number of journals published, however, rising an average of 2 or 3 percent annually, suggests that quality and usefulness should be scrutinized more closely and net growth discouraged. The strain that subscription costs are placing on most library budgets is shown by the Higher Education Price Index for U.S. periodicals, which increased from 100 in 1967 to 288.2 in 1977. Higher journal costs unfortunately have resulted in funds steadily being diverted from acquisitions of books and other library materials.

The report expresses dual concern for the problems of university presses as well as the rising publication rate and cost of books. While stressing the importance of scholarly publishing, the report also directs attention toward the need for greater collaboration among university presses in management, processing, business, warehousing, and sales activities. Considering that book publishing in the U.S. increased from 11,022 titles in 1950 to 42,780 in 1977, and that the average hardcover book increased 143.5 percent in price between 1967 and 1977, libraries face major problems in selecting materials and supporting collection development. As a result, libraries will increasingly need to consider alternative forms of materials, resource sharing, and access to information in data bases at remote locations, while also recognizing that "the day of the comprehensive, self-contained library, if it ever existed, is irrevocably past" (p. 13).

The enquiry offers twelve principal recommendations: (1) creating a national bibliographic system linked with the Library of Congress, (2) establishing a national periodicals center, (3) forming a national library agency to plan and coordinate development of a national library system, (4) controlling journal growth, (5) seeking economies for small independent journals, (6) cooperating with the Copyright Clearance Center, (7) marketing books abroad, (8) involving uni-
versities without presses as participants in scholarly publishing, (9) broadening the role of foundations, (10) collaborating in management by scholarly presses, (11) establishing an office of scholarly communications, and (12) continuing discussion related to the intelligent use of technology.

In summary, the report affirms that "the goal to be pursued is not a continuation of business as usual, but rather the development of new ways to meet the needs of scholarship" (p.11).

The Report of the National Enquiry provides an important assessment of the problems, needs, and future options for scholarly communication in the United States. It deserves thoughtful reading, discussion, and response by all concerned individuals in the academic community.

Kenneth G. Peterson, Southern Illinois University at Carbondale.


Ranganathan's famous five laws of library science can be rewritten to fit the traditional research library:

- Books are for collecting
- To some readers their books
- To some books their readers
- Waste the time of the reader
- The library is a growing mausoleum.

The University of Pittsburgh study both sheds light on the extent to which these laws are observed and casts doubt on their validity. Its impact ought, and deserves, to be profound.

This book in fact reports three studies. Parts of all of them have previously appeared as articles, but these were mainly previews. The first study, conducted in the Hillman Library ("a central research library emphasizing the Humanities and Social Sciences"), is a remarkable longitudinal study of books acquired in 1969. By the end of 1975, 40 percent of these had never circulated, and a further 14 percent had circulated only once. If a book had not circulated in the first six years, the chances of its ever being borrowed were calculated as one in fifty. Three-quarters of the books used in the library had also been borrowed, so that borrowing is a good measure of total use. Weeding books unused after seven years would extend the life of the building by twenty-one years. This study is much the most important part of the book, partly because of its originality of approach and partly because the findings are of such importance.

The second study, on the use of journals in six science and engineering libraries, is not as interesting because its methodology is less original and its findings largely reinforce existing knowledge rather than add to it. It is also, along with its appendix, the longest part of the book. Use in these libraries was generally low, and highly concentrated on a relatively small proportion of the collections. Browsing was mainly in current and recent volumes; the great majority of older volumes were approached through specific references. There are striking differences among the six libraries, presumably explicable by local conditions (but unfortunately not generally explained). The methodology of the sample study, intended as a possible model for other libraries, nevertheless seems hardly less cumbersome and time-consuming than other methods.

The third study consists of a very detailed analysis of the costs of library use and a cost-benefit model of library operations. These are some of the most detailed and best such analyses in the literature.

The three studies are preceded and followed by brief, but thoughtful, open-minded and incisive contributions by Allen Kent and his colleagues.

The book is not perfect. It barely hangs together, mainly because the different parts have different authors. Some of the detail, especially in the journal use study, is not only unnecessary but of doubtful value (the numbers in some cells are too small to support conclusions drawn from them). Adding 25 percent of the subscription costs of each journal to allow for other costs is far too crude, since these other costs vary greatly according to journal size and frequency of distribution. The fact that most books lent to other libraries were also circulated locally hardly supports the argument for resource sharing, since there must be a good chance...
that books requested will be in use at the time. We are not told how books were selected for the Hillman Library. And so on.

The fact that the book asks at least as many questions as it answers is a tribute to it. Would the books used only once have been used at all if they had not been acquired—were they picked up by browsing? If so, this could argue either for their acquisition (because they may have proved valuable to their readers) or against (because they were not specifically identified as needed).

Is it possible to select the books that are likely to be used, or must it be accepted that selection is necessarily imprecise? If so, can one not conceive of a large intake—large outflow model, in which acquisition is likely to be used, or must it be accepted that selection is necessarily imprecise? If so, the controversy engendered both locally at Pitt as well as nationally; and the policy implications of the study, both for Pitt and for other academic institutions.

The committee's evaluation is based upon several preliminary reports of the study as well as the final report that was issued by the National Technical Information Service, prior to its publication by Marcel Dekker.

The report criticizes the study on numerous matters: its deficiencies as a case study (p.8-11); its structure, in text and footnotes, which makes "careful investigation in reporting on it a difficult matter" (p.12); its "manipulation of data" on books and journals, in terms of holdings, use, and costs. Accordingly, the study's "results do not support the validity of its root hypotheses that much of the material purchased for research libraries was little or never used, and that when costs are assigned to uses, the cost of book use will be unexpectedly high" (p.40).

The report concludes that the study represents "a clear threat and a present danger" and urges that "university administrators and librarians not be influenced by the unfounded criticisms and unwarranted recommendations expressed so forcibly by Professor Kent and his associates in their several reports" (p.46).

The committee has submitted its report for inclusion in the ERIC data base through the Clearinghouse on Information Resources, and, if accepted, the report will be available with other ERIC documents.

References


2. Thomas J. Galvin and Allen Kent, "Use of a University Library Collection," Library Journ...


Editor's Note: In July 1979 the Senate Library Committee, University of Pittsburgh, issued a forty-nine page Report on the Study of Library Use at Pitt by Professor Allen Kent, et al.

The committee states that it undertook its evaluation at the request of university faculty, administrators, and librarians for several reasons: the "very strong statements" made by Kent and his associates about the nonuse of books and journals at Pitt; the national publicity given to the statements; the controversy engendered both locally at Pitt as well as nationally; and the policy implications of the study, both for Pitt and for other academic institutions.

The report criticizes the study on numerous matters: its deficiencies as a case study (p.8-11); its structure, in text and footnotes, which makes "careful investigation in reporting on it a difficult matter" (p.12); its "manipulation of data" on books and journals, in terms of holdings, use, and costs. Accordingly, the study's "results do not support the validity of its root hypotheses that much of the material purchased for research libraries was little or never used, and that when costs are assigned to uses, the cost of book use will be unexpectedly high" (p.40).

The report concludes that the study represents "a clear threat and a present danger" and urges that "university administrators and librarians not be influenced by the unfounded criticisms and unwarranted recommendations expressed so forcibly by Professor Kent and his associates in their several reports" (p.46).

The committee has submitted its report for inclusion in the ERIC data base through the Clearinghouse on Information Resources, and, if accepted, the report will be available with other ERIC documents.
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There is an agricultural product long on the market using a catchy selling line appropriate to feminists that can aptly be applied to agricultural librarians and libraries. “You’ve come a long way, baby,” tells much about the past of agriculture and those librarians who serve it. For too long both have carelessly been taken for granted. The symposium papers published in this volume only start to tell of the increasing importance agricultural information services have assumed in the struggle to feed a hungry world.

International exchange of information on agricultural research is not a new idea, however, for many years such research was a national expression with little regard being given to other countries. Creation of the Food and Agricultural Organization of the United Nations eventually focused worldwide concerns and planted the seeds of international agricultural bibliographical information exchange.

The International Association of Agricultural Librarians and Documentalists created in 1955 brought librarians together to promote needed global exchanges and worked with FAO to develop the International Information System for the Agricultural Sciences and Technology (AGRIS), which is now issuing a computer-produced index to the world’s agricultural literature called AGRINDEX (Agricultural Research Information Index). Along with national and international organizations, several regional centers contribute input that is processed by the U.S. Department of Agriculture.

For some years I have attended various symposia and later read the printed proceedings. Seldom have I found the printed word capturing the spirit of interchange of
ideas, the kindling anew of purpose that occurs with face to face encounters. *International Agricultural Librarianship: Continuity and Change* falls into this dilemma that most likely has no answer. Still, the papers are well written and tell a story long in need of telling. Perhaps the most significant part of librarianship, computerized bibliographies—wherein agricultural libraries, if not forming the crest of the wave, were alongside others in pushing the many aspects of computer use—are somewhat minimized in these papers. Not ignored, but not exalted and perhaps this reveals a sophistication long needed. Awe of the computer is going if not gone. Someday will it be just a fancy electric typewriter?

The longtime former librarian of the National Agricultural Library Foster E. Mohrhardt was honored by this symposium and from his rich background gave a review of early bibliographic efforts. Other speakers, J. Richard Blanchard, Richard Chapin, Paula Scott, James Rhoads, John Sherrod, Donald Leatherdale, Frank Hirst, and Wallace Olsen, covered topics from one library's various methods of providing literature for agricultural scientists to what the next thirty years will require. Because the symposium was a one-day affair the volume is slim. Still, its subject is significant and in the world food picture, weighty.—Albert C. Strickland, University of Florida, Gainesville.


The author of this important contribution to library history is a young scholar (with no librarianship background) who is on the history faculty at Rutgers University. In this study she attempts to revise the standard conception of the public library as a product of democratic idealism and shows the important effects of sex roles and social class in the formation and growth of the public library and in the ideology of its leaders.

Her analysis is based on an examination of social ideals held by the leadership. The primary sources are the library reports and professional journals of the period and the published and unpublished statements by and about the individual library leaders. Garrison's work is well documented with extensive notes and sources. There is also an appendix that lists public library leaders and provides brief biographical information.

The book is presented in four major sections. Part 1 gives a profile of the selected leaders and discusses the "missionary phase" of librarianship and the "gentry stage" of library professionalism. Part 2 describes how the public library's attempts to lessen the influence of "immoral" literature were slowly replaced by a less paternalistic approach. Part 3 provides a perceptive examination of the career and impact of Melvil Dewey. Part 4 gives the reader an assessment of the impact of feminization on the public library and on librarianship as a profession.

Readers of *College & Research Libraries* will find this book of interest and value even though its emphasis is on public libraries. The influences that Garrison traces also had their effects on academic libraries, and many of the leaders were also involved in academic libraries.

This is a scholarly, yet readable, work that should be in the holdings of any library which includes even a modest library science collection. It will also be of interest to students or readers of history, sociology, and women's studies.—George S. Bobinski, State University of New York at Buffalo.


This workmanlike guide, first published in 1973 and now greatly revised and expanded, is a succinct, practical handbook for American investigators in the social sciences. Although written for the neophyte who is planning a first expedition to the archives and libraries of France, where standardization is not so highly regarded as in the United States, more seasoned scholars should also find much time-saving information in it.

Following a general introduction on the
use of French libraries and archives, there are descriptions of the most useful libraries in Paris and a similar section on archives, both arranged by broad subjects. A briefer listing of archives and libraries outside of Paris arranged by departments follows.

The length of the descriptions varies with the size and complexity of the institution; the Bibliothèque Nationale requires eight pages and the Archives Nationales eleven. In general, the following information is given: address (with specific location within a large building complex), telephone number, Metro route, scope of the collection, hours and closing days, requirements for using the collections, how to request books and manuscripts, catalogs and indexes available, copying facilities, and publications about the institution. Appendixes include bibliographies on French libraries and archives, outlines of the classification of the Archives Nationales and of departmental archives, suggestions for locating manuscripts, and a list of useful addresses for American students in Paris.

It is difficult to imagine an academic library that would not have this book on its shelves, whether it has the Répertoire des bibliothèques et organismes de documentation or not. Reading Welsch’s handbook is a little like being taken by the hand by a kindly, knowledgeable uncle. A future edition including the principal libraries pertaining to literature, the arts, and sciences would be highly desirable.—Joe W. Kraus, Illinois State University Library, Normal.


The foremost characteristic of Soviet librarianship as an instrument of the state is the basis for all library activities not only in the Soviet Union but also in other Eastern European countries under Soviet influence. This concept of librarianship has evolved in contrast to the profession as practiced in the West. Library literature in socialist countries constantly compares and differentiates the opposing philosophies.

Soviet authors attribute their professional library theory mostly to Lenin, whereas Boris Raymond in his work Krupskaiia and Soviet Russian Librarianship, 1917–1939, demonstrates that it was really Lenin’s wife, Krupskaiia, who “successfully linked librarianship with Lenin’s name by gathering and publishing his scattered remarks on the subject.” This in turn enabled her to reinforce her own arguments concerning the importance of libraries. The study, based on the author’s doctoral dissertation, is the only comprehensive analysis in English of the work and impact of this remarkable woman, who in her many speeches and writings developed the theoretical foundation of Soviet librarianship.

A review of the role of books and libraries in nineteenth-century Russia is followed by a detailed historical account of library-related events and institutional pressures from the Civil War through the periods of the “New Economic Policy,” the First Five-Year Plan, through the Stalin purges. Krupskaiia’s theories of librarianship and related fields (adult education and children’s literature) are traced to their roots: Lenin’s theory of mass communication that is directed toward the building of socialism and
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in which the party is the interpreter of the political ideology.

Krupskaia’s efforts contributed significantly to the emergence of the library as the instrument for the indoctrination of the masses, resulting in the “Bolshevisation” of librarianship. Since another responsibility of libraries is to raise the cultural and technical level of the masses, the study illustrates in addition the role libraries have played in the process of national cultural and economic development of the Soviet Union.

The extensive bibliography cites predominantly primary Russian-language sources, archival material, periodicals, and monographs, many on loan to the author from the Lenin Library in Moscow and therefore not easily accessible. The work thus provides a rich and unique source of information for all interested in librarianship in Eastern Europe. It constitutes a major contribution to comparative librarianship and is thoroughly documented, well organized, and very readable. It should be required reading in library school courses dealing with the library as a social institution in general and in comparative librarianship in particular.—Mathilde V. Rovelstad, Catholic University of America, Washington, D.C.


Most publishing house histories written by American scholars have tended to be primarily literary history, cultural history, or economic history (in that order), or some combination of those several types. The present volume, however, while not eschewing those concerns, addresses first and foremost the aesthetic qualities of the physical volumes produced by the fin de siècle Boston publishing firm of Copeland & Day.

The young Herbert Copeland, late of Harvard College, was already an experienced editor and budding literary figure when in 1893 he allied himself with the more artistic, moneyed, and somewhat flamboyant Fred Holland Day to publish books with greater aesthetic merit than was then generally available in the United States. Although inspired by the contemporary private-press vogue in England, Copeland & Day were a commercial house throughout their six-year existence. Day’s ample capital, however, enabled the firm always to cover losses incurred by any of its publications, which, despite handsome formats, found only limited markets. It was an avant-garde press. Numbered among its authors were the young Bliss Carman, Louise Imogen Gurney, Oscar Wilde, Richard Garnett, Stephen Crane, Richard Burton, Walter Pater, and Richard Le Gallienne. Good art work, careful printing, and extensive use of laid paper were hallmarks of the imprint.

Joe Kraus is a thorough and disciplined scholar, and he writes well. He has researched his subject widely for almost four decades, says the preface, and the book is certain to stand the test of time. In accord with its subject matter, this volume is done in handsome format, with fine illustrations, generous white space, good type selection, and appropriate binding. The price is a little steep, but considering the literary and artis-
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tic excellence of the book, it is probably worth it.—David Kaser, Indiana University, Bloomington.


This volume consists of seven papers read at the eighteenth conference of the Rare Books and Manuscripts Section of ACRL in Toronto, June 14-17, 1977. In his preface William Matheson of the Library of Congress states that this is only the fifth occasion for which conference papers have appeared in book form. The topic for the 1977 conference was “Aspects of the Book Trade in England and America,” and five of the participants chose the aspect of popular literature, mostly British, but with some American titles, and featuring many women writers.

“Publishers of Victorian Children’s Literature” was the topic of Judith St. John, curator of rare children’s books at the Toronto Public Library. She traces the rise of didactic stories, climaxed by the phenomenal popularity of the American Peter Parley books and their many British imitators. This was followed by a reaction resulting in more fantasy, folklore, and less obvious moralizing.

To reduce the cost of books to readers from the poorer classes, innovative publishers started selling books in cheap installments, like magazines, through charismatic “canvassers” hard-selling books piecemeal throughout the country. The entertaining story of this “numbers trade” is told by Mihai Handrea of the Pforzheimer Library of New York.

An even cheaper method of marketing popular literature was serially in newspapers. Michael Turner of the Bodleian relates how the Tillotson family of Lancashire, owners of a chain of newspapers, developed their Fiction Bureau that syndicated popular novels to newspapers all over England and abroad.

These novels were also very popular in book form, but of the thousands published
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few remain today, obviously a challenge to rare book collectors. Franklin Gilliam, proprietor of the Brick Row Bookshop in San Francisco, in his "The Case of the Vanishing Victorians" explains this situation and discusses four collectors—Sadlier, Wolff, Ray, and Parrish—who had the foresight to collect these books in their original editions.

Canadian popular publishing was discussed by Douglas Lochhead, Davidson professor of Canadian studies at Mount Allison University, who is writing a book on J. Ross Robertson, publisher of the Toronto Evening Telegram. From this research Lochhead describes Robertson's foray into publishing cheap paperback editions mostly of popular American writers from 1877 until the International Copyright Act of 1891, time enough for him to make a contribution to Canadian popular culture, or at least its Americanization.

The two remaining papers are not concerned with popular literature but make valuable contributions to the overall picture. Terry Belanger, of the Columbia University School of Library Service, writes on aspects of eighteenth-century publishing and their influence on later publishing. Robert Nikirk, librarian of the Grolier Club, narrates the activities of two members William Loring Andrews and Beverly Chew, famous rare book collectors of the late nineteenth century.

This modest paperback in the ACRL Publications in Librarianship series makes a genuine contribution to the somewhat neglected area of nineteenth-century popular bibliography. It will be a must for all library school libraries, and should have interest for more general collections in nineteenth-century literature, bibliography, and social history as well.—Budd L. Gambee, University of North Carolina, Chapel Hill.


Pollet and Haskell have produced a truly exciting book that brings to bear the collec-
tive artistic, architectural, graphic, and library expertise of more than twenty-five authors, whose training and background fully qualify them to advise on library sign systems. As librarians become increasingly more aware of the need to train their patrons to use libraries more efficiently and effectively, the need for attractive and carefully planned directional signs and other devices to guide and inform the user becomes more and more apparent.

In buildings under construction, librarians have the opportunity to make an important contribution to the planning of directional graphics. In older buildings, the librarian must often attempt to bring some order to the chaos of accumulated signs or to impose a logical system on an illogical geography without the aid of architects or graphic designers. This book succeeds in discussing the issues involved in a variety of settings and in proposing solutions to problems that often require expertise and abilities not usually found on library staffs.

The chapter topics indicate the scope and variety of the authors' approaches: orientation needs and the library setting; mazes, minds, and maps; perceiving the visual message; planning library signage systems; the role of the design consultant; sign materials and methods; the language of signs; signs for the handicapped patron; symbol signs for libraries; evaluating signage systems in libraries; signs and the school media center; an approach to public library signage; signs in special libraries; a signage system for a university library; low-budget guidance ideas; wayfinding in research libraries; a user's view; coordinating graphics and architecture; architectural techniques for wayfinding; designing open-stack areas for the user; effective library signage; a pictorial study; and technical and psychological considerations for sign systems in libraries.

An annotated bibliography on visual guidance systems offers further reading on theory and research, materials and techniques, and on such systems in libraries and in other institutions.

Barbara Marks's humorous essay on the language of signs should not be confined to this one printing, nor the soundness of her advice lost in her amusing examples. Kitty Selfridge's advice on planning library signage systems imposes upon the library scene graphic design that is common in other types of modern buildings, but rare in libraries. The pictorial study of effective library signage, contributed by the Institute of Signage Research, demonstrates that some libraries—even some of the staid old Gothic piles—have solved their signage problems in creative and exciting ways.

The exclusive use of black and white photographs in a book describing the inventive use of color graphics is an economy that should never have been permitted, but, regardless of this one slight failing, Sign Systems for Libraries breaks new ground and should be on every librarian's reading list.—Malcolm C. Hamilton, Harvard University, Cambridge, Massachusetts.


The Bibliographic Services Division of the British Library is responsible for the bibliographic control of all materials received in the library, whether print or nonprint, and for bibliographic and cataloging services available to libraries and librarians throughout Great Britain and abroad.


Through a tape service, interested libraries may acquire the catalog records produced in the division. Each library has a choice between three types of service. The complete or exchange tape is a weekly service that contains a complete record of all...
entries appearing in that week's issue of BNB. The selective tape, also a weekly service, contains only records of publications that the library states it intends to purchase or has already purchased. The third service is the local cataloging service, which is issued on microform at stated intervals; with this service a library may specify the records it wishes to receive as well as the amount of data each record should contain. Cataloging in publication is also a responsibility of this division.

All these activities are described in the tape-slide program, which explains how the data are assembled and distributed. The presentation does not provide a comprehensive coverage of the activities in the various components of the division, only an overview of the division's work. This is why the informative pamphlets on the products and activities of the division that are included in the package are of great value and deserve attention.

The twenty-five minute sound cassette, which is accompanied by a printed text, is concise, pertinent, and well written. Several voices are heard on it, and the end result is a pleasing variety of clear enunciation.

The seventy-six slides, on the other hand, are not of comparable quality. They generally exhibit a lack of imagination, have a tendency to be repetitious, and are insufficient in number. Slides of cataloging records, however, are exceptionally clear, with artistically designed and positioned arrows that direct the viewer's attention to the relevant data. A considerable number of slides simply present, in visual form, portions of the text on the accompanying sound cassette that the producers felt should be reinforced.

Even though the objective of the tape-slide program is never mentioned, it is clear from the slides used to reinforce the content of the accompanying tape and from the lengthy pauses on it that the package is intended as a teaching device. As this package is unlikely to be used as a teaching tool in this country, librarians many find these instructional techniques irritating. At thirty-five pounds, the package is an expensive means of acquiring information about the profession that can be obtained from a thorough perusal of the library literature.—Judith P. Cannan, Washington, D. C.


In spite of, or because of, its length, the title of this book does not tell us that it is an anthology and a comprehensive, annotated bibliography. As such, it encompasses a wide variety of sources and styles, out of which the compilers dissect seven broad types of writing: (1) opinion pieces pro and con the presence of women in the profession, (2) exhortations on how to be good women librarians, (3) descriptions of women's status in librarianship, (4) statistical studies including data on women, (5) statistical studies that focus solely on women, (6) regularly published news items or features, and (7) historical or sociological studies of the role of women in the field.

A preface tells us of the book's conception and gestation. An introduction reviews the varying professional and social climates within which women assumed their equivocal preponderance in librarianship. An alphabetized set of biographical notes follows on the contributors of the forty-four articles that have been chosen from British and American sources. These articles are arranged in five historical periods: "1876-1900—Emergence of an Organized Profession"; "1901-1921—The Move toward Suffrage"; "1922-1940—Between the Wars"; "1941-1965—World War II and After"; and "1966-1976—The Second Feminist Movement."

The bibliography, with its own introduction and three indexes (subject, author, and title) occupies the final two-fifths of the volume. It was compiled by searching Cannons, Library Literature, special lists such as the bibliography of the SSRT Task Force on Women and those appended to substantial works on the subject, in addition to special journal indexes, e.g., for the Library Association Record and Library Journal. The entries are arranged first by year, then by season and month, except that letters responding to articles, etc., are cited with the
items to which they relate. Although it is international in scope, it focuses on materials from English-speaking countries. There are no biographies, except for a few collections. Like bibliographies, they appear only if they have substantial significance for the topic.

Physically the book is well made and attractive. Placing the three bibliography indexes immediately ahead of the general index is convenient in a way. Typography and running titles are added to help the reader differentiate. Still, it is a challenge to find the right index quickly for the purpose at hand.

As for errors, they exist, but they are relatively insignificant, considering the accomplishment as a whole. On page 454 Darkas is a misspelling in Miss Fellows's name. But a quick review of her published works indicates that the worthy lady had a bit of trouble herself deciding whether it should be Dorkas or Dorcas. On pages 446 and 471 the index entries under "American Library Association—Task Force on Women" offer a distinction without much difference in trying to separate cleanly the "subject" from the "author" headings. The subject index citation "1973--33B" appears to be a misprint for "1973--34," and its entry for Isaac Asimov should read "1973--17A." Moreover, bibliography listings (e.g., 1971–16 and 1971–26) can be found that are not indexed under either rubric. Indexing for such related organizations as the Bay Area SSRT (1971–41 letter), the Massachusetts Task Force on Women (1972–34), and the Washington Chapter (1972–15 and 1972–22) completely elude this reviewer.

These peccadilloes are only incidental to the quantity and variety of fact, opinion, and solid perspective afforded. We have here reliable documentation of what we already knew—that the high percentage of women librarians during the past hundred years has not ensured anything like equality in salaries, administrative responsibilities, professional recognition, or related perquisites.—Jeanne Osborn, The University of Iowa, Iowa City.


Both of these American Library Association handbooks are designed for a small population of inexperienced document librarians. The local documents title is also useful for any librarian with collection development responsibility. Recognized specialists in the document field were consulted, adding to the validity of both titles. In From Press to People, LeRoy Schwarzkopf, from the University of Maryland Libraries, contributed a short explanation of regional depository libraries. Likewise, compilers of the local government manual obtained advice from area specialists, the Chicago Municipal Reference Library, and the executive committee of the Illinois Regional Library Council.

The author of From Press to People admits "that several excellent works on government publications have appeared in recent years as aids to organizing and administering government publications." This work's uniqueness is found "as a handbook for the beginning documents librarian." Within this scope, Nakata offers a realistic although limited explanation of establishing and maintaining a depository collection. It is assumed that established depositories are already familiar with these suggestions as part of required procedures by the Superintendent of Documents or in striving to achieve standards suggested by the Depository Library Council.

Coverage includes an explanation of the federal depository library program, organization and collection, the improved Monthly Catalog, data sources, and cataloging. There is also a useful section on official and nonofficial reference sources along with selected departmental library catalogs. Appendices include excerpts from chapter 19, Title 44 of the U.S. Code, instructions to depositories, and other procedural GPO regulations. The index is adequate. The text of "Guidelines for the Depository Library System" is useful only if the beginner had
no copy of the official GPO version, which seems unlikely. A list of U.S. presidents with their terms offers no utility.

Nakata includes several reproductions of check-in forms for holdings. A congressional example explaining the recording of monographic documents with a Su Doc's Cutter number is inadequate for beginners. Nakata notes that Harleston and Stoffle's Administration of Government Document Collections (Libraries Unlimited Inc., 1974) offers further alternatives for record keeping. Also, Jackson's Manual for the Administration of the Federal Documents Collection (ALA, 1955) is still useful for this purpose.

Some timely advice is offered for managing microfiche in the rapidly changing depository program. Food for thought includes weighing the economic advantages of microfiche against other considerations such as quality of available equipment, floor space for cabinets, and multiple readers. A helpful addition might have been a list of current and future GPO microfiche offerings. Beginners will need further background found in Public Document Highlights and GODORT'S Documents to the People (DtIP).

Nakata's manual is extremely readable with the content providing a neat package of necessary information. Much of the information is covered more fully by Harleston and Stoffle and by Joe Morehead's Introduction to United States Public Documents (Libraries Unlimited, 2d ed., 1978). Because beginners must be fast learners, the latter titles are suggested as priorities with Nakata's work as a "handy backup."

Organizing a Local Government Documents Collection discusses the differences of local history materials as opposed to local documents. Suggestions for acquisition, cataloging, and establishing authority files are valuable for even small public and school libraries. There is an excellent discussion of search strategies, explaining particular insights needed in making the most of municipal documents. Sample reference questions help to stimulate these insights. A thirty-one-item selected bibliography of current local document articles also contributes toward a wholehearted recommendation.

This inexpensive handbook serves as a reminder that a well-managed local document collection may plug the informational dike when federal and state publications fail for small areas.—David W. Parish, State University of New York, College at Geneseo.

International Books in Print, 1979. English-Language Titles Published Outside the U.S.A. and the United Kingdom. München, New York: K. G. Saur, 1979. 2 v. $168. ISBN 0-89664-050-7 US; 3-598-07070-5 Germany. ISSN 0170-9348. Bibliographers and acquisitions librarians should send a vote of thanks to K. G. Saur for publishing International Books in Print, 1979, though it is not quite what that title suggests. The subtitle is needed to pinpoint its scope: "English Language Titles Published outside the U.S.A. and the United Kingdom. One can ruminate on a better title during many commuting trips without great success. The important thing is that those who are looking for titles of books published in the English language finally have a single source for books from Canada, Africa, India, and Australia and, above all, a source for many countries never available before.

This first edition lists 80,000 titles from eighty-nine countries. It is an attractive, well-bound two-volume work with three-column pages that are clear and legible.

The excellent "Suggestions for Use" section found at the front of both volumes explains the general set-up and filing technicalities with pertinent examples. The main entry, usually the author, in boldface type, gives complete information. Cross-references are made from the title, coauthors, editors, translators, conferences, symposia, etc.

The "complete" information is more than we are accustomed to in other books-in-print compilations: as many as three authors and/or editors, titles of individual volumes, place or places of publication, publisher and often even distributor, paging including preliminary pages, series, prices in as many as three currencies, ISBN, and country code.

Upon discovering three columns enumerating all the groups and volumes of Numerical Data and Functional Relationships in Science and Technology, one might think this completeness was carried to an
# NEW EDITIONS IN PREP.

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extreme, but to an acquisitions librarian trying to figure out how a particular title fits into that set, it is pure gold. However, I think one reference from Hellwege, A. M. and Hellwege, K. H. to Numerical Data... would suffice instead of a column and a half of references to specific volumes.

Filing, except for initials and acronyms, follows normal library usage. It is interesting to note, in regard to names with prefixes, that, if an author's country of origin is known, the rule of that country is followed. If it is unknown or English, it follows the English system of filing under the prefix: Goethe, Johann Wolfgang von, but Von Glasen, Helmuth.

I found the series notation very helpful, and it would be great if future volumes could have a series listing or references for all volumes when the series was not the main entry. To explain: Contributions to Primatology is a main entry so all volumes are listed together giving individual titles, editors, and the usual main entry information, but Lund Studies in English has its main entry under author, so you can find that a known volume such as B. Selten's Anglo-Saxon Heritage in Middle English Personal Names is number 43, but what are the previous forty-two?

What a boon to find, for any publishers given in the entries, the complete address listed by country at the end of volume two of the IBIP. When you find Pier De Cicco's From the Wrong Side of the Bed is published by the Missing Link Press, don't despair. Just turn to the Canadian publishers and find the Missing Link Press, 78 Chelwood Rd., Scarborough, ON M1K 2K8. So also with the Belgian National Tourist Office, the Chowkamba Sanskrit Series Office or the Gambia Methodist Bookshop.

There is no question of what the country is, for each entry has a country code. Lists of country codes and currency symbols are found at the front of both volumes. The country codes are not necessarily what one would expect (Sierra Leone is WAL and Gambia is WAG), but they are the internationally accepted abbreviations for countries used in registering autos.

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of finding all those titles from Africa, Israel, Ireland, etc., what are the drawbacks to the IBIP? I found very few. Considering the number of sources from which the information must be gathered, it is amazingly complete and accurate. There may be variant forms of an author's name (as in BIP) and whether Gangoli, B. N., is a variation of Ganguli, Birendra Nath, who wrote Indian Economic Thought, Nineteenth Century Perspective, or a misprint, I don't know. I looked hard for misprints but didn't have much success! The only other item I questioned was in the list of abbreviations (also found in the front of both volumes): fasci(c)es, not fascicles.2

Probably because the information wasn't available, some main entries gave only last names for authors, which made following references more difficult, for example, “Simpson/Kafka: Basic Statistics.” Simpson and Kafka are the two authors, but if you had looked under the title you would have found a reference to Simpson. Then you would have looked through half a column of Simpkins including an entry for “Simpson, Ian S. Basic Statistics for Libraries,” which was not the title you wanted, before you came to “Simpson/Kafka: Basic Statistics.”

As for inclusiveness, I have no idea how many English-language books would be published in the eighty-nine countries covered. IBIP has 80,000 titles while BIP has close to 500,000. I found many titles I looked for, but not all. I was disappointed not to find the Directory of American Business in Germany that was published in 1976 by Seibt-Verlag in Saur's home city of Munich, but maybe it is just out of print! All in all, I think many libraries who can afford $168 will find this a very useful tool.

Thank you, K. G. Saur.—Ruth P. Burnett, State University of New York, College at Oneonta.


This work is the result of a two-part institute on quantitative measurement held at Simmons College in November 1976 and March 1977. In the first unit of the institute, participants were introduced to the concepts of statistical method and operations research and to systems approaches in the evaluation of library services. In the interim between units, participants applied these quantitative techniques to managerial problems in their own libraries. The second unit of the institute consisted of presentation and discussion of the participants' studies.

The book follows the same format as the institute. Part I, “Aspects of Quantitative Evaluation of Library Services,” consists of papers by Chen, Morris Hamburg, F. F. Leimkuhler, F. W. Lancaster, and Deanne McCutchen, which introduce basic quantitative methods and provide a reasonable perspective on their limitations and appropriate application in decision-oriented research. The papers present nothing new, but each displays the competence for which their authors are well known. Taken together, they are a sound and readable overview of quantitative approaches to library research.

Part II consists of fourteen participant studies covering a diverse range of topics from journal use in a V.A. Hospital to an acquisitions profile of the Yale University library system. The studies demonstrate the application of quantitative techniques in studies of space utilization, use of materials, use of reference services, cost-benefits of book detection systems, and user characteristics. Most of the techniques used are simple and well within the capability of most library staffs. The contributions are uneven, however, and few are of the quality to be adopted as model research designs.

Part II of this volume does serve to demonstrate Chen's point that useful quantitative studies can be conducted with modest training and unsophisticated techniques. The two-part design of the institute on which the volume is based is shown to be a successful approach to teaching quantitative methods for application in real library settings. The publication itself, however, might have been improved by selecting somewhat more exemplary studies from the literature to demonstrate the techniques.

Although there are several solid contribu-
tions in the second part, only Sandra Parker's "Conceptual Framework for the Performance Measurement of a Canadian Federal Government Health Science Library Network" is equal to the quality of the presentations of the institute staff in Part I. Parker's contribution is a highly perceptive piece that deserves to be widely read. There is also an excellent topical bibliography of recent publications using statistical approaches to research in librarianship.

This volume is a useful if not an essential contribution to the literature and should be of interest to planners of institutes as well as to librarians interested in applying quantitative methods in their libraries. —Joe Hewitt, University of North Carolina, Chapel Hill.


In 1976 Earlham College designed a series of workshops, funded by a grant from the National Science Foundation, to develop well-planned programs in science literature-use instruction. Twelve colleges, of varying size and type, sent representatives to study the techniques used at Earlham and adapt the highly successful Earlham program to their own institutions. Like Earlham, these colleges based their programs on the principle that library instruction closely integrated into the science curriculum and team taught by librarians and science faculty produces the best results.

One of the objectives of the project was to publicize the resulting programs so that they might serve as models for other colleges offering library instruction in the sciences. This book fulfills that objective.

For each college, a description of the institution and the science course provides the context for the instructional materials, sample assignments, and outline of the library instruction program. Perhaps most useful is the preproject and postproject discussion that has been included for many of the institutions. Although these transcripts of the discussions that occurred during the workshops are often confusing and speakers are poorly identified, much can be learned from them. They increase the usefulness of the programs as models, since they describe problems that occurred and possible changes to improve the programs.

The bulk of the information in this book, the program descriptions, is included on eleven microfiche stored in an envelope in the back of the book. Aside from the problem of keeping the microfiche in the envelope (they slide out easily when the book is tipped), this format seems to require a great deal more editing than was done for this book. Although a list of what is included precedes each program description, a heading identifying each page would eliminate the need to return to the beginning to see what a document is. It is often difficult to tell if the item being read was a handout for the students, an outline of what was covered in a lecture, or a part of the preparation at the Earlham workshop.

An analytical index provides access to the project descriptions. Despite problems such as blind cross-references and questionable choices for some subject headings (bibliographies on biology are listed under "library produced bibliographies, biology" with no cross reference under "biology"), this index can be very useful. The projects are indexed by size of institution, class size, student level, as well as various aspects of instruction.

The book has a wealth of ideas, practical details, and advice about library instruction in the sciences. Better editing would have made it less frustrating to use. —Janet L. Ashley, State University of New York, College at Oneonta.


The title of this work is somewhat misleading for it fails to indicate that two-thirds of its contents is represented by a translation by Tanja Lorković of the second edition of Iia Borisovna Gracheva and V. N. Frantskevich's Gosudarstvennaia bibliog-
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rafia SSSR; spravochnik (Moskva: "Kniga," 1979), a work originally compiled by IU. I. Masanov in 1952.

An introduction precedes this translation, giving the historical background and legislation concerning registration and legal deposit of works with the state agencies before and after the revolution. It also briefly touches on the current practices of these agencies with respect to cataloging, classification, standardization, and automation.

The emphasis is always on the bibliographic publications of the state agencies, e.g., the All-Union Book Chamber and the Chambers of the Republic of the Union as well as of the autonomous republics. Within that the emphasis lies on current bibliographies published periodically rather than on cumulative or retrospective bibliographies, such as Literaturno-khudozhestvennye almanakhi i sborniki, which is omitted.

The term bibliography is used on the one hand in a broad sense to cover not only monographs but also serials, newspapers, music, the fine arts [here called pictorial arts], cartography, indexes of periodicals, and reviews; on the other hand it excludes works national in scope, issued by the All-Union Book Chamber, and essential for the proper use of the bibliographies, such as works on pseudonymous literature.

The translation was particularly difficult because the terminology as used in the Russian work often does not have exact equivalents in English and vice versa. In some instances perhaps better terms could have been chosen. Examples of entries given in the original Russian are translated in appendix III (p.195-99) where the transliteration of the titles is repeated.

The titles of the individual bibliographies are generally given in translation, to which is added—at first occurrence—the transliteration of the Russian title. Since this work will be used mostly by persons with knowledge of Russian, the reverse, namely, transliteration with a translation at first occurrence would have probably been preferable. The listing of the titles in English translation in the index was also unnecessary. More care should, instead, have been devoted to the referrals. Under Knizhnaia letopis', for instance, reference is given to p.76-91 but not to p.149, 151, etc., where the same title is used in the republics.

Because of the limitations specified above and because coverage—with few exceptions—does not go back in time before the year 1917, leaving out bibliographies normally used in the course of bibliographic searching, the work is more an academic textbook than a practical bibliographic tool. However, the very detailed list of issues and description of the various supplements and indexes that make up the bibliographies will make the work useful to librarians, particularly those charged with binding.

The authors are to be commended for having brought this little-known Russian work to the attention of the English-speaking world and for having given insight into the workings of the official Soviet book agencies.—Miroslav Krek, Brandeis University, Waltham, Massachusetts.


These two books, one a survey and the other readings on building collections, together form a strong teaching instrument, since they closely complement each other.

There has been considerable revamping of the fourth edition for this new fifth edition of Building Library Collections, and it carries forward the contributions of Mary Duncan Carter (Isbell), who died in 1978. The purpose of providing a guide to the literature of library science with regard to principles, procedures, problems, selection, and acquisitions remains the same.

There has been a reduction of thirty-five pages from the fourth edition; however, the type is slightly smaller, and printing is more compact. The alterations, reformatting, and updating have not deterred readability. Virtually every chapter has been changed in some way, such as chapter one—with the checklist of selection principles relocated in
the appendices. Chapter nine, on resource sharing, is a completely new addition on an important topic in view of budgetary constrictions among most, if not all libraries.

The authors have replaced the foreword and long introduction with a brief preface, outlining what they have changed this time—chapter by chapter. There is little doubt that the fifth edition is a significant improvement over the previous editions of Building Library Collections.

They have followed through in their announcements of the previous edition by adding bibliographic annotations and listing the NICEM multisubject update service as in operation as of the fifth edition. NPAC (the National Program for Acquisitions and Cataloging) is another previously unmentioned organization that is now included. Nonbook categories have been upgraded or broadened to include maps, with recordings divided into audio and video recordings, slides added to films and filmstrips, and periodicals changed to serials. Automation is mentioned along with the latest on OCLC, Inc.

This title continues to be an excellent textbook that will be used frequently by students and teachers and by anyone who wishes to have a handy selection guide that is objective and thorough. In addition, the useful appendixes cover such important topics as selection principles, intellectual freedom, and controversial problems facing libraries.

The second edition of the Background Readings in Building Library Collections has condensed the two-volume set of the first into a single volume. The topics of several articles in the first edition have either been merged with other topics or dropped.

The scope, organization, and arrangement of the second edition should overcome some of the objections found with the first. The previous brief table of contents is now an updated eight-section heading list with the title and author of every article listed under its respective category heading.

There are three parts to every chapter or section: an introductory overview of the selections, the body of readings, and "recommended readings." There are brief biographical sketches of the contributing authors. The alphabetical index includes entries for authors, subjects, and titles. The title references, however, refer only to pages where the title is mentioned in the text rather than to the beginning page of the reading itself. While it is no great hardship to refer to the table of contents for article page numbers, they could have been included in the index as well for completeness and convenience.

This is a selection of articles with interest to students and professionals who might need a review of the subject.—G. Robert McLean, University of Toledo Libraries, Toledo, Ohio.


The theft of library materials is an issue that has plagued libraries through the years.

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Today, with inflation eroding acquisition budgets at an astounding rate, libraries cannot afford to continually replace books in lieu of acquiring new materials. Libraries must find methods that will noticeably reduce loss and theft rates. Not since the Middle Ages when scholars chained the books to the stacks has one single solution surfaced that will totally alleviate this problem for libraries. Instead, during the past fifteen years a number of theft detection systems have emerged. Current theft detection systems on the market will not completely eliminate the unlawful removal of library materials, but depending on the individual library and its specific problems, noticeable changes in the loss rate of materials can be realized in a relatively short span of time.

Nancy Knight’s “Theft Detection Systems Revisited: An Updated Survey” is the fourth in a series of Library Technology Reports on this subject dating back to July 1970. Knight, who has been monitoring library security systems since the 1960s, can be considered an acknowledged expert. Her latest study of theft detection systems expands upon her earlier report and offers the reader a more comprehensive and detailed examination of individual systems, both from the manufacturer’s and from the user’s point of view.

In this updated report Knight examines five major theft detection systems: Checkpoint System, Inc.; Gaylord Brothers; Knogo Corporation; 3M Company; and Sontronic International. Each manufacturer has answered a series of questions that enable the reader to understand the mechanics of each system. Illustrations and photographs of various equipment models are supplied as well as a list of institutions, by state, which are using the system.

Two areas of particular concern to all readers will be cost information and analysis of system success. The author includes information on the cost of each system, and costs of associated equipment such as security labels and the installation of these labels. In addition, she examines by institu-
tion the annual losses before and after installation.

Another section of interest to the reader is the "synopsis of user's experience" where the author has surveyed the field (using a good sample of various kinds of libraries—public, academic, school, and special) to determine the effectiveness of each system and its compatibility with individual libraries.

The reader who is contemplating acquiring a theft detection system will want to use Knight's report as a companion to Bahr's *Book Theft and Library Security Systems*, 1978–79. Bahr offers informative advice on conducting various inventories to help determine the needs of the system and the loss rate, while Knight's survey will be indispensable when it comes to gathering comparative information on individual manufacturers.

If Knight can be faulted for any deficiency, it would be that further editing of the manufacturers' responses would have been helpful. As it is presented, the information tends to become very tedious; a more resourceful presentation of this information would be helpful in her next report. All librarians who want to gain insight into particular theft detection systems should consult this work.—George Charles Newman, Findlay College, Findlay, Ohio


The volume includes the seven theme papers first published in the March 1979 issue of this journal as well as the sixty-six contributed papers presented at other conference sessions. They are grouped into the following sections: administration and management, bibliographic control and automation, bibliographic instruction, cooperation, economic aspects, the librarian's role, resources, and services. Many of the contributed papers include revisions and updatings not present in the microfiche copies distributed at the conference.

**ABSTRACTS**

The following abstracts are based on those prepared by the ERIC Clearinghouse on Information Resources, School of Education, Syracuse University.

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Further information on ordering documents and on current postage charges may be obtained from a recent issue of Resources in Education.

**A Survey of User Attitudes Toward Selected Services Offered by the OISE Library.** Ontario Inst. for Studies in Education, Toronto. 1978. 75p. ED 168 464. MF—$0.83; PC—$4.82.

A survey of faculty and students to assess user needs and satisfaction with collections and selected library services is described, and the resulting data are reported. Questionnaire construction, sampling and distribution, and response rate and factors are discussed. Data analysis is broken into major categories, which include responses to general questions regarding library use and general questions about the OISE library collection. The second category is further broken into the rating of books and periodicals in the specific fields of adult education, applied psychology, curriculum, educational administration and planning, higher education, history and philosophy, measurement, evaluation and computer applications, sociology, and special education. General questions about the library focus on satisfaction with library hours, difficulty in locating material, reference and information service (including satisfaction with reference services), interlibrary loan use, orientation effectiveness, circulation services, special collections (including audiovisual and curriculum resource materials), and library facilities. Conclusions are itemized from the results of each major subdivision of the questionnaire. Appendices include copies of the questionnaires used.

**Criteria for Collection Analysis in the Academic Library.** By Catherine Yancheff. 1978. 29p. ED 168 496. MF—$0.83; PC—Not Available from EDRS.

An assessment of literature from journals, reports, and monographs on criteria for the analysis of academic library collections reveals that there
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are four primary methods that have been em­
ployed in the past and are still being used: (1)
impressionistic, (2) bibliographic list comparison,
(3) measuring unit costs, and (4) quantitative
standards. Only recently have there appeared
relatively innovative approaches, such as the
application of new technology, bibliometrics, and
more illustrative sampling techniques. In addi­
tion, there have been more frequent and varied
discussions as to how the results of these analyses
might be more fully utilized. A national effort
toward developing readily available profiles of
published materials, to be used in conjunction
with institutional profiles for analytical and
evaluative purposes, would be a logical step in
collection analysis considering the fact that com­
puter technology awaits a practical application.

The Educational Information System for
Ethel Auster and Stephen B. Lawton.
Ontario Inst. for Studies in Education,
Toronto. 1978. 26p. ED 168 500. MF—
$0.83; PC—$3.32.

This report summarizes the findings of the
EISO project, which was funded in 1975 to de­
vlop, evaluate, and analyze an information dis­
semination system based upon computerized re­
trieval of bibliographies. With much of the re­
search component completed, the service compo­
nent is operational, providing Ontario educators
with on-line bibliographic references in education
and the social sciences and with access to original
documents. Findings of the report are reviewed
in four areas: (1) It identifies EISO users over the
past three years, presents their reasons for seek­
ing information, provides analyses of how infor­
mation they received impacted upon their local
situations, and identifies factors that contributed
to the use or nonuse of information received. (2)
It describes factors affecting interview effective­
ness in on-line bibliographic retrieval, outlines a
five-stage pattern or structure in negotiation, dis­
cusses the use of open and closed questions and
the part role and status play in interview relation­
ships, and develops a preliminary model of the
negotiation process. (3) It discusses a systems
evaluation model of user satisfaction with EISO.
(4) And it reviews the current status of EISO—
the result of research, development, dissemina­
tion, and evaluation.

Self-Study of the Ezra Lehman Memorial
Library. By Berkley Laite and others.
86p. ED 168 527. MF—$0.83; PC—
$6.32.

This self-study of the Ezra Lehman Library at
Shippensburg State College presents the analyses
and recommendations of two library task forces—one on organization, communication, goals and objectives, and one on user relations. The responsibility of the first group was to develop recommendations for necessary or desirable changes in the library's organizational structure and communication processes and to design an ongoing process for the formulation of goals and objectives. The internal library structure was examined using a systems approach, and a questionnaire was designed to measure staff attitudes concerning critical organizational issues. Seventeen preliminary recommendations were proposed. The second task force used data gathered in the library user survey to analyze and comment on the library’s public service functions, the collections, and the physical facilities. The survey, administered to classroom and administrative faculty as well as to a student sample, received a response rate of 47.5 percent and 58 percent, respectively. This task force proposed twenty-four preliminary recommendations. Staffing and organizational charts, organizational profile display, circulation and holdings data, the user survey questionnaire, and a memo outlining library support of the MBA program are appended.


This manual for student assistants employed in the government document section of the Eastern Kentucky University Library covers policy and procedures and use of the major reference tools in this area. General policies and procedures relating to working hours and conditions, and general responsibilities are discussed, as well as shelving rules and procedures for federal and state documents and microfiche. Circulation of government document materials and policy on keeping of statistics are included, along with sample logs and other record-keeping forms. The basic reference sources covered include the Monthly Catalog of U.S. Government Publications, ERIC'S Resources in Education, the Congressional Information Service Index (CIS), and the American Statistics Index. A subject index is also included.


This study was conducted in order to ascertain
the need for an information desk in a large research library with decentralized reference service where, on the basis of a preponderance of evidence in the available literature, a considerable demand for such a service would be expected. The desk was located in the center of the library’s entrance lobby with the intent of answering directly any questions that did not require the staff to leave the desk and referring patrons to appropriate resources or departments. Staff recorded patron inquiries on a questionnaire that provided a list of anticipated questions and space to record any that were unspecified. Classification of questions by type was determined inductively after data had been collected, and questions about the library were coded on the basis of the usual distinctions of relative complexity and need for specialized knowledge. Analysis of the data reveals that, contrary to expectations, significant demand for services usually provided by an information desk is limited to only a few weeks per year.


This report presents comprehensive recommendations in the library budget formula area for public two- and four-year institutions in Washington based on recommendations adopted by the council in 1976 with some revisions. A review and analysis of statistical data supplied by the four-year institutions and community college system in the areas of staffing, collections, use, acquisitions, and institution size, provides the basis for the recommendation that the library resources portion of the formula be stated in terms of number of acquisitions per year, based on mathematically determined relationships of acquisitions to collection size derived from the experience of comparison institutions and states. These acquisition units would then be converted into dollar amounts based on each institution’s experienced unit costs adjusted for inflation. Questions were raised regarding staff years and binding. These questions were primarily related to the interpretation of the recommendations and accompanying definitions and guidelines contained in the council’s final report. As a consequence, slight modifications to three recommendations, more explicit guidelines, and specific examples of interpretations of recommendations have been added to the “Operations Element” section of the report.

The National Library of Canada: Twenty-

Although calls for a National Library began as early as 1883, the cornerstone of the future national library was the Canadian Bibliographic Centre, established in 1950, which began work on the national bibliography and national union catalog. When the National Library of Canada was established in 1953 under the direction of W. Kaye Lamb, the National Library Act became effective and Canadian publishers were required by law to deposit two copies of each new book they published at the National Library. From 1956 to 1966, the library moved to a different building, the staff began cataloging the collections and organizing material transferred from the Library of Parliament, and the organizational structure took shape. In 1968, after another move to the National Library and Archives Building, the Office of Library Resources was created and Guy Sylvester was appointed National Librarian. Since that time, various new divisions have been created to deal with changing needs, including the automation of library service.


A survey was conducted of library users of the William Russell Pullen Library at Georgia State University to determine who is using the library, how often respondents use it, how they rate the library's various collections and services, and how the library is used throughout the day and week. The survey instrument was distributed at predetermined time periods to all those entering the library; fifty-two percent of 6,406 distributed surveys were returned. An analysis of the data was performed, cross-classifying the respondents' opinions about the library with their demographic factors and then with the time variables. Findings showed that, when compared to the general student population, a disproportionate number of males, upperclassmen, and liberal arts and business administration students were library users. Eleven percent of the library users were not affiliated with Georgia State University. No evidence of major barriers to use was found, and a large majority of students appeared to be satisfied with the library's collections and services, though faculty members' opinions were not as high. The survey instrument and data tables are provided.

OTHER PUBLICATIONS OF INTEREST TO ACADEMIC LIBRARIANS

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"Originally published as chapter 3 of Main trends of research in the social and human sciences, pt.2."


Provides access to the major critical literature about the works of 335 American and Canadian creative writers.

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Danton, J. Periam, and Pulis, Jane F., with the assistance of Wallman, Patiela Khoury. Index to
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**The MacNeil/Lehrer Report: Broadcast Review and Index**. Sanford, North Carolina: Microfilm Corporation of America, 1979– . V.1, no.1– . $20/yr.; $95/yr. microform service (microfiche or 35mm microfilm).

Published quarterly with an annual cumulation. Summarizes and indexes the daily TV MacNeil/Lehrer Report broadcasts.


“Originally published as chapters 4 and 5 of Main trends of research in the social and human sciences, pt.2.”


Provides abstracts of articles from sixty newspapers and magazines dealing with ten domestic and international events of 1978.


“Presents a biographical sketch of the Robert R. Church family of Memphis, lists the holdings of the Church family papers, and explains the scope and content of each series within the collection.”


“Originally published as chapters 7 and 8 of Main trends of research in the social and human sciences, pt.2.”


Includes all serials entered through April 30, 1979. Letter from library announces this list “includes all titles in the library’s serial collection and will be the final issue in the present format.” Library plans to issue by 1981 or 1982 a holdings list of current titles only with entries based on AACR II. The 1979 list will remain in the foreseeable future as the basic source for identifying retrospective serial titles.


First edition published in 1976 under the title Guardian Directory of Pressure Groups and Representative Associations.


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