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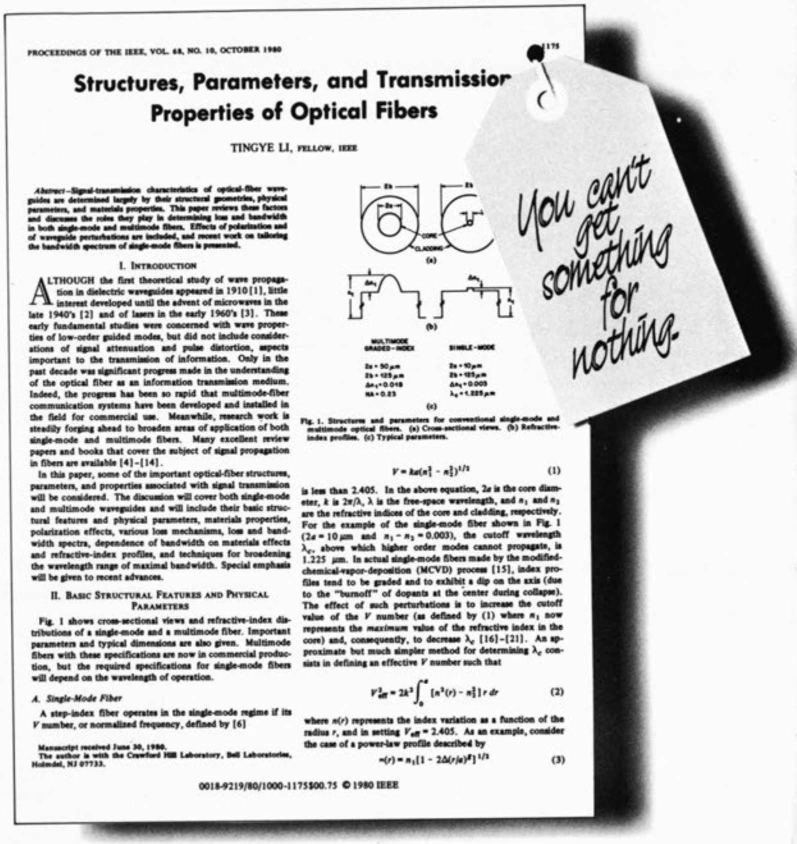

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Structures, Parameters, and Transmissio Properties of Optical Fibers

TINGYE LI, FELLOW, IEEE

Abstract—Signal-transmission characteristics of optical-fiber waveguides are determined largely by their structural geometries, physical parameters, and materials properties. This paper reviews these factors and discusses the roles they play in determining loss and bandwidth in both single-mode and multimode fibers. Effects of polarization and of waveguide perturbations are included, and recent work on tailoring the bandwidth spectrum of single-mode fibers is presented.

I. Introduction

ALTHOUGH the first theoretical study of wave propagation in dielectric waveguides appeared in 1910 [1], little interest developed until the advent of microwaves in the late 1940's [2] and of lasers in the early 1960's [3]. These early fundamental studies were concerned with wave properties of low-order guided modes, but did not include considerations of signal attenuation and pulse distortion, aspects important to the transmission of information. Only in the past decade was significant progress made in the understanding of the optical fiber as an information transmission medium. Indeed, the progress has been so rapid that multimode-fiber communication systems have been developed and installed in the field for commercial use. Meanwhile, research work is steadily forging ahead to broaden areas of application of both single-mode and multimode fibers. Many excellent review papers and books that cover the subject of signal propagation in fibers are available [4]-[14].

In this paper, some of the important optical-fiber structures, parameters, and properties associated with signal transmission will be considered. The discussion will cover both single-mode and multimode waveguides and will include their basic structural features and physical parameters, materials properties, polarization effects, various loss mechanisms, loss and bandwidth spectra, dependence of bandwidth on materials effects and refractive-index profiles, and techniques for broadening the wavelength range of maximal bandwidth. Special emphasis will be given to recent advances.

II. Basic Structural Features and Physical Parameters

Fig. 1 shows cross-sectional views and refractive-index distributions of a single-mode and a multimode fiber. Important parameters and typical dimensions are also given. Multimode fibers with these specifications are now in commercial production, but the required specifications for single-mode fibers will depend on the wavelength of operation.

A. Single-Mode Fiber

A step-index fiber operates in the single-mode regime if its V number, or normalized frequency, defined by [6]

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Fig. 1. Structures and parameters for conventional single-mode and multimode optical fibers. (a) Cross-sectional views. (b) Refractive-index profiles. (c) Typical parameters.

$$V = ka(n_1^2 - n_2^2)^{1/2} \tag{1}$$

is less than 2.405. In the above equation, $2a$ is the core diameter, k is $2\pi/\lambda$, λ is the free-space wavelength, and n_1 and n_2 are the refractive indices of the core and cladding, respectively. For the example of the single-mode fiber shown in Fig. 1 ($2a = 10\,\mu m$ and $n_1 - n_2 = 0.003$), the cutoff wavelength λ_c, above which higher order modes cannot propagate, is 1.225 μm. In actual single-mode fibers made by the modified-chemical-vapor-deposition (MCVD) process [15], index profiles tend to be graded and to exhibit a dip on the axis (due to the "burnoff" of dopants at the center during collapse). The effect of such perturbations is to increase the cutoff value of the V number (as defined by (1) where n_1 now represents the *maximum* value of the refractive index in the core) and, consequently, to decrease λ_c [16]-[21]. An approximate but much simpler method for determining λ_c consists in defining an effective V number such that

$$V_{eff}^2 = 2k^2 \int_0^a [n^2(r) - n_2^2]\, r\, dr \tag{2}$$

where $n(r)$ represents the index variation as a function of the radius r, and in setting $V_{eff} = 2.405$. As an example, consider the case of a power-law profile described by

$$n(r) = n_1[1 - 2\Delta(r/a)^g]^{1/2} \tag{3}$$

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Guest Editorial

Rare Books and Manuscripts

When he was president of ACRL, David Weber proposed an expansion of the association's publication program. Among his specific suggestions was a journal directed at rare book and manuscript librarians. This idea attracted immediate attention, in part because it caught in motion, so to speak, an already active movement within the Rare Books and Manuscripts Section of ACRL to produce just such a journal.

Special collections librarians form a relatively large subgroup of ACRL, and their section has an active history. Its annual pre- and postconference institutes are about to enter their twenty-sixth year. Papers read at them have frequently appeared in print, sometimes over an ALA imprint, occasionally over the imprint of an independent publisher. RBMS committees engage in projects concerning cataloging standards, security of library materials, professional ethics, and additional topics of immediate concern to special collections and other librarians. They have produced many draft statements and standards that have appeared in the pages of *C&RL News* in recent years.

Despite their numbers and energetic activity, special collections librarians have not felt that their communication needs have been adequately served by ACRL's publication program, or by other independent journals and publishers. There is, of course, an extensive and international *bibliographical* press. Codicology, paleography, the study of incunabula, the seventeenth-century American book trade, German romantic book illustration, and setting by formes in late sixteenth-century English printing offices all have their appropriate journals, from *Scriptorium* and the *Gutenberg Jahrbuch* to *The Papers of the Bibliographical Society of America* and *Publishing History.*

But librarians whose responsibilities include the care and feeding of books and manuscripts within the special collections operations of libraries, public and research, private and special, find no journal concerned with the *librarianship* of special collections librarianship. They need a journal through which to communicate their professional concerns with one another.

Weber's expression of this need was cheered by many within RBMS. But the hard work of translating expressed need into forthcoming reality was a task undertaken by ACRL's Publications Committee, chaired by Joanne R. Euster. Some particularly arduous preliminary studies were the work of an ad hoc subcommittee chaired by Nicholas Burckel. Two successive editors of *C&RL,* C. James Schmidt and Charles Martell, provided crucial assistance and hospitality for the venture through the good offices—here gratefully utilized—of *C&RL.* Throughout this entire process, then Executive Director Julie C. Virgo cheerfully extended valuable advice and assistance.

And now we are ready to see if there really is a need for such a journal.

If its proponents are right, then a substantial amount of material of concern to special collections librarians awaits an outlet for its publication. Moreover, the existence of such an outlet should encourage people in the field to study questions with an eye toward publication of their results rather than toward internal implementation only.

What kinds of studies will this journal entertain? Simply put, its planners envisage a *C&RL* for special collections librarians. From the recruitment and training of special collections personnel, their career patterns, and demographic characteristics, to the planning and mounting of exhibitions, creation of exhibition catalogs, and reports on procedures that advance or retard the physical care of exhibited materials, to basic questions about the provision of reference and supervisory assistance in special collections reading rooms, patterns in the use of special collections materials, the architecture, security, and physical environment of special collections facilities, the management of professional and nonprofessional special collections staff, and the articulation of collection development policies—without forgetting matters related to donor relations and money—*anything* that concerns the *librarianship* of special collections librarianship will be welcomed.

But other matters remain to be worked out. What sort of columns should the journal contain apart from its articles: book reviews (and, if so, of what sorts of books)? personnel announcements? correspondence? institutional acquisitions? What sort of advertising should it accept: antiquarian booksellers? want lists? position announcements? These are open questions. While we hope that the papers by Clifton H. Jones, William Joyce, and Richard C. Berner included in this issue of *C&RL* will suggest something of what the editor and editorial board will be looking for, any and all suggestions—and any and all potential contributions—will be gratefully received and seriously considered as preparations go forward for the appearance of our first issue late in 1985. Please direct communications to Joan M. Friedman, Chair, RBMS Publications Committee, Yale Center for British Art, Box 2120, Yale Station, New Haven, CT 06520.

DANIEL TRAISTER
Curator, Special Collections, University of Pennsylvania

Integration or Separation: A Preface

Donald Farren

The Rare Books and Manuscripts Section of ACRL responds to the needs and concerns of librarians and specialists responsible for the care, custody, and use of rare books, manuscripts, and archives. The section also provides means by which librarians and specialists engaged in such work can communicate with others in the library world and beyond. The work of the section is carried out by twenty standing and ad hoc committees, which provide continuing education and which regularly produce standards and guidelines applicable to rare books and special collections work. The section has recently begun issuing a newsletter.

A major effort of the Rare Books and Manuscripts Section is its annual conference, which is scheduled just prior to the ALA Annual Conference and is located close to it. These conferences are intended to serve closely the current interests of the members of the section. For instance, in 1983 in Los Angeles the conference was held on the theme "The Enemies of Books Revisited," that is, on the conditions that limit the effectiveness of the work of rare book and special collections librarians. In 1984 in Austin the conference was held on the theme "Collecting the Twentieth Century."

At the Annual Conferences of the American Library Association, the Rare Books and Manuscripts Section cosponsors programs with such ALA units as the Preservation of Library Materials Section of the Resources and Technical Services Division, the Map and Geography Round Table, and the Library History Round Table; the section also offers its own general program meeting. The general program meetings of the Rare Books and Manuscripts Section are intended to appeal to a broad range of library interests, offering views from the perspective of rare books and special collections work. At the 1984 Dallas Annual Conference, for instance, the Rare Books and Manuscripts Section general program meeting was held on the theme "What Do I Do with My Rare Books?: Answers for the Librarian and the Patron."

The three papers that follow represent remarks made in a panel discussion that constituted the Rare Books and Manuscripts Section general program meeting at the 1983 ALA Annual Conference in Los Angeles. The theme of that meeting was "Manuscripts and Archives/ Rare Books and Other Printed Material: Integration or Separation?" The issue dealt with by the panelists was whether manuscripts and archival materials are better separated from or integrated with rare books and printed material in special collections. Three thoughtful practitioners offered different perspectives on the issue: Clifton H. Jones, who is director of the DeGolyer Library of Southern Methodist University, Dallas; William L. Joyce, who is assistant director for Rare Books and Manuscripts at the New York Public Library; and Richard C. Berner, who was head of the University Archives & Manuscripts Division in the University of Washington Libraries, Seattle, a post from which he is now retired.

Jones was responsible for describing and evaluating the separate traditions, conventions, patterns of training and experience, and peer group identification of

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archivists, manuscripts librarians, and librarians dealing with rare books and other printed materials. Joyce was responsible for describing and evaluating the administration of manuscripts and archives integrated with rare books and other printed material. Berner was responsible for describing and evaluating the administration of manuscripts and archives separate from rare books and other printed material. Quite naturally, the panelists' remarks ranged beyond the strict limits of the topics assigned them, both in their initial presentations and in the general discussion during the question-and-answer period.

There are no fixed solutions to the issues dealt with in these papers. In fact, some aspects of the same issues were taken up again in a panel discussion held during the 1984 annual meeting of the Society of American Archivists in Washington. The panel discussion on the theme "The Challenge of Integration: Promoting Special Collections in the Parent Institution" was organized by the Manuscript Repositories Section of the Society of American Archivists, which invited Washington-area members of the Rare Books and Manuscripts Section to participate.

These three papers reflect the thinking of the panelists at the time they delivered their remarks. By now their thinking has advanced by reason of further contemplation, consultation, and experience. It is hoped that readers of these papers will likewise be inspired to continue and to advance their thinking on the issues presented.

Remarks on the Integration of Special Collections

Clifton H. Jones

Increasingly stringent budgets, library automation, and the anticipated imposition of the USMARC format for both print and non-print materials have encouraged special collections repositories to reevaluate their roles within libraries. During the past several decades, rare book librarians, archivists, and manuscript and other special collections curators have developed their own acquisition, processing, cataloging, and access standards for their collections. Gradually, libraries have accepted the necessity for separate procedures. However, while the unique needs of users of special collections are better served, the special collections repository, as a result of its independence, has been isolated from the mainstream of library development. Also, individual collections within the repository are often isolated from one another. This paper offers a brief history of the development of separate standards for archives, rare book, and manuscript collections; a description of the impact of these standards on the administration of repositories; and a discussion of the prospects for the integration of collections within the repository itself and of the repository within the mainstream of libraries.

The integration of component collections within special collections libraries is certainly not a new question. In fact it was not too many years ago that more than a few libraries cataloged manuscripts following much the same standards as they did for their books. However effective that particular form of integration may or may not have been, the issue—perhaps specter to some—of integration is again reappearing, prompted by two primary factors.

The development of new bibliographic standards alone raises the question of compatible cataloging formats, not only for the various forms of printed materials, but also for such special collections materials as three-dimensional artifacts, graphic materials, manuscripts, and possibly even archival collections. The soon-to-be issued Library of Congress interpretation of AACR2's chapter on manuscripts, for example, accepts USMARC for manuscripts, while at the same time stressing the importance of the finding aid; OCLC has addressed the question of standard format for manuscripts in the use of its data base; and RLIN, at a project at Yale, is addressing the same question for its own system. These efforts all represent a form of integration, because once a record of a manuscript or special collections' holding is entered into the common data base, it is integrated with all other records already there. If an acceptable machine-readable format for manuscripts appears, conceivably one can be devised for other non-print materials as well.

The full effect of bibliographic standards in automation won't be felt until sometime in the future. Today, perhaps the prime motivation for integration of special collections is financial. With shrinking budgets in libraries, it is becoming increasingly difficult to justify traditional approaches in the administration of special collections. It is ironic that it is by no means unusual for an administration to authorize an expenditure of several thousand dollars for a rare imprint, only to balk

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at the high cost of processing a gift collection of several hundred titles which that same administration may have accepted as a favor for a donor seeking a tax deduction. Frustrating, perhaps, but the lack of support is a fact of life. The labor costs of special collections are high in acquisition, cataloging, promotion and development, and public services. While we may argue that virtually all of our programs are underfunded, special collections, like any other program in a library, must justify its existence through its productivity. Its productivity will ultimately be measured, I feel, on the basis of its use, although the value of the status and prestige that it lends to its parent institution will remain a factor.

Special collections, like all other library programs, will be under increasing pressure to justify their operations. For illustration, it is not that unusual, even today, for special collections to acquire a manuscript collection in a field without considering whether their other collections, much less the general library, can properly support that acquisition with complimentary primary and secondary source material. Such acquisitions will have, at best, restricted research value. Special collections will, as a consequence of budget cutbacks, find themselves under pressure to write collection development policies in order to define acquisition fields for all of their collections. The right hand within special collections will, perhaps for the first time, know what the left hand is doing. It will become increasingly costly for special collections to compete effectively for the budget dollar if its own voice is divided into several competing collections. In short, the budget crisis will force special collections both to justify its operations and to compete more effectively for financial support.

The forces of automation, bibliographic standardization, and budget cutbacks raise the question of integration. Even if we accept the definition of integration as the adoption of certain common bibliographic and administrative standards and processes for the various holdings in special collections, that does not justify integration, if indeed it can be justified. Joyce and Berner will be arguing their cases for and against integration. My task is to describe and analyze the various factors that have so far encouraged the separation of archives, manuscript, and rare book collections—three of the more important collections found in special collections—and to comment briefly on future prospects of integration.

Special collections programs have not yet achieved integration due to a series of interrelated factors. It is partly a question of the history of the field and the diversity of the formats of holdings found in special collections. Many special collections originated in the donation of a private gift to a library which may have included not only books, but also such materials as personal papers, memorabilia, and photographs. Admittedly, a library often accepted material more for the status and prestige that the gift conferred than for its potential research value. As additional gifts were accepted, the body of disparate materials grew large enough that the library could establish a special collections unit. I have not come upon a better working definition of special collections than a repository for all those collections that a library does not know what else to do with. The result has been that a special collections repository typically holds a considerable diversity of materials.

Gradually, libraries have accepted the need for differing acquisition, processing, and accessing methods for the different collections commonly found in special collections. By accepting different management methods for rare books, archives, and manuscripts, libraries may have insured that the integrity of each format is respected, but the approach also encourages the independent administration of each collection.

With the acceptance of separate management procedures for the major formats in special collections has come the increasing appreciation for the need for appropriately trained staff. The M.L.S. remains significant, of course, but the field of archives in particular, has established its own standards in education and training.

Archivists can trace the origins of their profession to at least as early as the French

Revolution, but it was not until the 1930s that the profession gained impetus in this country with the establishment of the National Archives and subsequently, the organization of the Society of American Archivists. The SAA, while it has not yet established formal educational standards or accreditation procedures for training programs, nonetheless has led a very effective effort in education through its publication program, its workshops and seminars, and its active conference schedule. As a result, general libraries have come to accept, if ever so slowly, the special administration of an archives—that an archives is to be administered by archival conventions, not by standard library procedures.

The history of the rare book profession is considerably different. Allied much more closely with general librarianship than archives, this profession reflects the history of the rare book collection. Since many collections were originally established on the basis of their aesthetic value, it should not be surprising that the rare book librarian is often more concerned with a title's rarity than with its research value. Actually, that perception of the rare book librarian may be based more on stereotype than reality. Today, most rare book librarians readily acknowledge the potential research value of their collections; the problem is often convincing others outside the rare book collection of such potential. There remains a strong tradition of the scholar-bibliographer in rare books, but the M.L.S. has become the required credential. Rare book description differs greatly from archives, of course, although it does stress provenance. Generally, rare book description accepts standard cataloging rules, while placing greater stress upon certain USMARC fields.

The educational and professional differences between those working with archives on the one hand and rare books on the other represent the extremes in the range of educational traditions in special collections. At least one other group of professionals, however, has distinguished itself in recent years.

Manuscripts curators are neither wholly archivist in their outlook nor librarian. Some are trained as archivists, some have an M.L.S., a few are trained in both areas. The field has not yet developed its own educational or training standards, but the collections that manuscript curators control have dictated the development of procedures specific to the needs of manuscript collections. While a few manuscript collections continue to catalog manuscripts on an item-by-item basis (a procedure which may have some justification in a literary collection), many other repositories have adopted, at least in part, general archival principles. Most libraries today do accept that manuscripts are not to be managed as printed items, which are, by and large, collections of personal papers, but nonetheless differ from the management of an institutional archives. In administering their collections, manuscript curators have adopted methods and ideas from both libraries and archives, and with good results, I believe. The finding aid, an archival tool, has been used to great advantage, but since access through provenance is, by itself, of limited effectiveness, many manuscript curators have borrowed the idea of subject access from libraries and use entries in a card catalog to index their finding aids.

Not only do educational and processing standards differ, but so does the use of rare books, archives, and manuscripts. Research use of most rare book collections is seldom high; the great majority of research requests in college and university archives are administrative in nature; but almost all requests in manuscripts relate to historical or related research. The type of use in all these areas, however, may be changing.

Differences in professional standards, conventions, and education have been exacerbated by a major shift that has occurred in many special collections repositories. Certainly, a few special collections libraries retain the proud tradition of the rare title or manuscript. Other special collections, however, are changing, if they have not already done so, to collections that emphasize specific subjects. This shift involves the challenging conversion of collections from being defined loosely (e.g., by the acceptance of all-too-often unrelated gifts) to collections defined by formal collection development policies. The result is that once a library defines its acquisition program, a special collections program has the opportunity to acquire materials in the areas of its greatest strength. As the subject strengths of collections have thus become evident, research use increases. Increasing research use will encourage further changes in the administration of these special collections repositories, thereby separating them from the more traditional programs.

As such, the emergence of subject-oriented special collections has signaled a major shift in the character of special collections. I repeat that rare items and fine bindings continue to hold a very respectable position in the traditions of special collections; but just the same, the research value of the holdings in special collections is—if ever so slowly—becoming recognized, even outside of the field of special collections itself. Such outside recognition is critical if support for special collections is to improve. Above all, special collections represent a repository of primary source research materials. However strong a general library's research collection may be, it cannot effectively support research in history and related fields without comparably strong special collections. The research value of archives, manuscripts, and subject collections is self-evident (at least it is, once the collections are processed and accessible), but the aesthetic reputation of rare books should not obscure their potential research value either. Thus, while the shift to subject emphasis in many special collections may indeed have encouraged the further separation of archives, rare books, and manuscripts, the emergence of subject-oriented collections has also raised the possibility of greater support for the programs due to greater use of the collections.

I mentioned earlier that the pressures of automation and the resulting pressure for common bibliographic standards, and budget justification are among the forces pressuring for integration in special collections. To raise the issue of integration is not to justify that process, but simply to recognize what may occur as a result of these forces. In my own view, the possibility of providing better access to holdings provides the one good reason for integration. Budget justification may be a good motivation, but it alone is not a sufficient reason for integration. If a library's special collections' prime value to an institution is its prestige, as is often the case, integration loses its importance. On the other hand, in a research-oriented collection, integration offers the prospect of insuring, for example, that a scholar examining manuscripts will also be directed to materials of value in the program's subject collections, its archives, rare books, and, for that matter, to holdings in other libraries once the holdings of special collections are entered into the common database of a bibliographic utility. However, if integration offers the promise of more effective access, it also offers dangers.

It must be remembered that the separation of archives, rare books, and manuscripts is the result of necessity. In the case of the rare book, it has been possible to rely on the standards of the *Anglo-American Cataloging Rules*, but both archivists and manuscript curators have been forced to develop their own procedures to insure the integrity of their holdings. It is not a question of one set of traditions or standards being right and the others wrong; rather it is simply that the essential, basic conventions of each field must be respected if all the holdings in special collections are to be managed effectively. If rare book librarians, manuscript curators, and archivists are to accept integration, they must be assured that those principles they feel to be essential to the management of their particular collections are not being challenged heedlessly.

The appearance of bibliographic standards and pressures upon budgets may have raised the issue of integration; the individual traditions and conventions of archives, manuscripts, and rare books may have led to their separation; and the emergence of the research-oriented special collections may have cemented that separation, but, nonetheless, I wonder if the prime force, which will determine if integration is to be achieved or forgotten, is not far more elementary in its nature than any of these factors.

Special collection programs and those individuals who work within special collections enjoy an independence, not only in respect to the management of their own individual collections, but also in the larger sphere of the parent institution. The status and prestige of the collections, the mystique of the fields involved, and the specialized skills that archivists, manuscript curators, and rare book librarians have acquired have insulated special collections from the scrutiny that is common to all other programs in a library—few library administrators know enough about work in special collections to judge its effectiveness. As such, the issue of integration concerns not only the administration of separate collections within special collections, but also the role of special collections within the general repository.

Undoubtedly, archivists, rare book librarians, and manuscript curators appreciate their independence. If integration threatens that independence, what is likely to be their reaction? I suspect that few individuals would willingly give it up, at least not without a fight.

A second way to perceive this independence is to view it as isolation. A library administrator may respect the independence of an archives, for example, but that archives may be facing a very uncertain future if, in its isolation, the archives is forgotten at each budget cycle. This afternoon, our panel will raise the question of integration and discuss its pros and cons in respect to collections *within* special collections. Perhaps an even more important question, considering the competition for the budget dollar, is the integration of special collections within the mainstream of libraries. The prospect of integration at either level is not good.

I fear that the chief obstacle to integration will probably not be the objections involving bibliographic standards or education, but will be the desire of many to protect the often very personal bailiwicks that so many collections within special collections have become, and the desire to protect the status that so many professionals associate with their collections and with their own particular specialities, even at the great cost of isolation.

If the essential conventions and standards of rare books, archives, and manuscripts can be protected, integration may certainly represent a viable alternative to the traditional administration of special collections. It is regrettable that its future is likely to be determined by the desire to protect empires and by questions of status.

Rare Books, Manuscripts, and Other Special Collections Materials: Integration or Separation?

William L. Joyce

The management of special collections units in contemporary research libraries rarely offers such draconian choices as "integration" or "separation" of those units. Nonetheless, separate patterns of training and experience, variable procedures and conventions in handling materials, and different traditions need to be reviewed before developing administrative structures for special collections units. Factors such as changing patterns of research use, technological innovation, and scarcity of resources, however, appear to indicate that closer administrative ties among special collections units managing disparate materials are indeed at hand. Moreover, the proliferation of types of materials found in special collections, the growing awareness of the concept of "intrinsic value," and the importance of involving special collections staff in cooperative collection development programs point to the importance of identifying integrated management structures for special collections departments.

In considering the most appropriate means of managing manuscript holdings, as well as collections of rare books and other special collections materials, the choice is rarely as stark as the alternatives of "integration" or "separation." These terms conjure images rich in historical resonance, but somewhat remote in terms of library economy. Moreover, administrative alternatives are rarely so draconian or presented with such finality. And yet, given the current interest in how to organize and manage special collections within a larger institutional framework, the relation of unpublished to published research materials is of more than passing interest.

Very often, special collections are at least partially underwritten by restricted endowment funds that are no longer sufficient to cover the funds' original purposes. The parent library makes up the deficits, but there is a price for these special collections units to pay: administrative independence and autonomy. (It is worth observing that the phrase "special collections" is an occasion for some mischief, in that the word "special" connotes exclusiveness and distinctiveness. Ironically, this is the very result that administrators often are seeking to avoid.)

For those libraries that contain both published and unpublished research materials, however, closer ties between them appear to be at hand. If indeed it is true that these units are being administratively combined, it would be well to consider first how they might be different by reviewing separate traditions, conventions, and patterns of training and experience. Then, we might discuss some of those factors that seem to indicate that those closer ties are at hand.

Traditions, conventions, and patterns of training and experience among archivists,

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manuscripts curators, and librarians argue for separation and distinct professional identities. This separateness is manifested in education and training, the handling and processing of collections, and research interests.

Rare book librarians derive their professional identity primarily from their masters degrees in library science. Their degrees, together with the identity nurtured by the American Library Association, provide for those who chose rare books as their occupation a clear-cut professional purpose readily understood by most. By contrast, archivists come to their profession from a variety of academic backgrounds, no one of which has been established as the principal avenue to professional success. Archivists do have a professional association, but the current president has selected as his theme "archivists and society" in an effort to explain the work of archivists and their larger purposes to society generally. While there are several archival training programs, and the number is growing, archivists are still being trained as historians, public administrators, and various other academic disciplines, as well as librarians.

Manuscripts curators initially were identified more with librarianship, especially those who entered the field prior to World War II when many manuscript collections were handled primarily like collections of discrete items. More recently, as personal papers increasingly have taken the appearance and nature of institutional records, the archival influence has become more apparent among curators.

Archivists have derived their principles and practices primarily from their European colleagues who, in the nineteenth century, developed the ideas of provenance (material grouped by its office or origin) and *respect des fonds* (documents organized according to their original filing order). These ideas find primary expression in what the National Archives and Records Service calls "inventories" and the Library of Congress has termed "registers." The primary purpose of these finding aids is to describe documents as a collective entity whose principal meaning and identity derive from the context in which they are found.

From the middle of the nineteenth century, librarians have followed a different approach to organizing and cataloging the materials that they manage. Essentially, this consists of identifying a title, author and other essential characteristics and recording them on cards. In contrast to the work of archivists, librarians work with the individual items, and regard them as cultural artifacts designed to meet a specific cultural purpose. Classification by subject is an important aspect of this activity. Archivists view records as being part of a collective unity in which documents derive meaning from their context and must, therefore, be described collectively. The documents are arranged by their functional origins, not identified by their cultural purpose.

As in most other respects, manuscripts curators hover uneasily between archivists and librarians, borrowing from both, but finding a comfortable place with neither. Initially, manuscripts curators found their primary interest to be in the techniques of librarians, but lately, more have found archival techniques congenial, particularly in light of the changing nature of manuscripts collections which have become more institutional as well as bulky.

The research interests of rare book librarians have been traditionally in bibliography (both descriptive and analytical) and printing history, as well as the study of the book as a cultural artifact (its purpose, audience, and use). The bibliographical approach is primarily borrowed from British librarians, while the view of the book as a cultural artifact is associated principally with the interests of the *Annales* school of historians who now dominate French higher education.

By contrast, the research interests of archivists have been focused on preparing administrative histories so that they can understand the contexts in which documents were produced, as well as studying their signs, stamps, endorsements, markings, and other physical attributes. Manuscripts curators have been traditionally and characteristically found in both camps, with interest in both the codex form of manuscripts as well as the document considered in and by itself.

Rare book librarians have an advantage over archivists and manuscripts curators inasmuch as their activities are fully integrated into the core functions of libraries. While there are often problems in dealing with specific items and library procedures may develop some "glitches," rare books can be readily integrated into the parent library's collection development, accessioning, cataloging, conservation, and reference services.

Archival procedures do not find such ready adaptability. Accessioning is done collectively, not by item, while arrangement and description cannot be undertaken by the library technical staff without substantial retraining. While there may be similarities between library and archival materials in terms of conservation and reference services, there has been little record of substantial archival involvement in the formulation of collection development policies in the nation's major research libraries. This is cause both for reflection about the overall relations between librarians and archivists and for concern that more progress has not been made in such a central aspect of library management.

It is true that traditions and conventions have led to a complex set of relations between librarians, archivists, and manuscripts curators. In recent years, however, there also have been a number of factors that have conspired to lead to closer ties among these three groups. These factors are changing patterns of research use, technological change, and what might be directly, if somewhat ambiguously, described as "administrative reality."

A major change in the situation of research libraries has been the changing nature of research conducted in such repositories. Research projects are more interdisciplinary, and scholars are using a wider range of sources, particularly for those topics related to social history. In the past, scholars tended to select categories of sources that corresponded to their topics. Today, there is a wide-ranging interest in topics that combine social, intellectual, and other sources. Genealogical research has boomed in recent years. There also has been a growth in public policy research, while diplomatic, political, and cultural topics seem to have lead scholars into broader, more eclectic fields of research.

The major consequence of this trend towards broader research topics is that scholars need source information that is generic and not limited to particular documentary or artifactual forms. Subject access takes on proportionally greater importance, because scholars are not as likely to know such a broad range of sources. It is, therefore, the responsibility of archivists, librarians, and curators to work together to develop means of getting more information about diverse research sources into the hands of scholars.

A second factor that has narrowed the procedural differences among librarians, manuscripts curators, and archivists is that of technological change. The recent nature of this change has confused the relation between information and the medium in which it is carried. Whether an artifact is a book, microfilm, handwritten or typed document, or newer technological product, it is distinguished from the information it contains. For example, a videodisc can carry both graphic images, text, and music. As one medium develops the capacity to carry different kinds of information, such as the case of machine-readable records, there is increasing emphasis on cataloging the information, not necessarily the medium carrying it.

This trend is likely to be reinforced by the MARC formats in which data elements and their relation to one another are ever more similar. The categories carrying information in the MARC formats are becoming broader and more adaptive. The growing interest in and emphasis on subject access will promote the further breakdown of the differences in formats. A critical factor in the continuing development of similar formats will be the formulation of adaptive and flexible authorities and thesauri that can be applied across formats.

A third factor that is breaking down differences among librarians, archivists, and curators is administrative reality. In an age of scarcity, effective use of existing resources becomes more important, and duplication of services must be reduced if not eliminated. To accomplish this, staff must be knowledgeable about collections in a variety of formats and media so that patterns of staffing achieve maximum flexibility. Common catalogs and common photoduplication procedures can further reduce duplication of services, while common priorities of preservation can promote closer coordination among special collections units.

Another factor that can lead to integration of special collections units is that there has been a proliferation of materials in special collections beyond those of rare books, pamphlets, newspapers, and manuscripts. Photographs and ephemera are the most prominent of these materials. Both are amenable to the application of archival methods.

The growing use of the concept of "intrinsic value" in determining preservation and conservation priorities is another means by which distinctions between archivists and librarians are reduced. The concept applies equally to published and unpublished materials, and is important in extending the distinction between the medium and the information it carries. Librarians and archivists will work more closely in determining preservation priorities and in applying the concept of "intrinsic value."

A final area about which archivists and rare book librarians should be equally concerned is collection development. Neither the RLG conspectus project nor the ARL project appear to incorporate effectively special collections materials, though certainly interinstitutional collection development projects should do so. This is especially true if library administrators are to make progress in integrating research collections units into the ongoing cooperative programs developed by research libraries.

When ascribing the attribute of being "separate" to any unit in any organizational structure, there is an implication of, on the one hand, autonomy and independence, and, on the other, of isolation, lack of participation, and distance. Because they are no longer sufficiently funded, special collections units can no longer operate as duchies, principalities, or other autonomous and independent entities, if indeed they ever could. In order to reduce duplication of services and combat separation and isolation, special collections units have been formed in many libraries containing rare books, manuscripts, and archives.

As special collections librarians, curators, and archivists face changing patterns of research use, dramatic technological changes, and stark administrative realities, it does indeed appear to be time to emphasize cooperative solutions to common problems through integration of services and administrative structures.

Manuscript Collections, Archives, and Special Collections: Their Relationships

Richard C. Berner

Manuscript collections have evolved into sizable collections that must be handled more effectively if they are to be integrated fully with other relevant materials. There are two main reasons for this. First, manuscripts have been treated as discrete items representing the accidental documentary remains of the past and have become dissociated from related items. As discrete items their status as rarities may be enhanced, but this has discouraged the creation of comprehensive controlled information sources. Second, since twentieth century materials now constitute the bulk of most major manuscript collections, the traditional "rarities" approach is no longer satisfactory. An examination of the public archives tradition provides some answers as to how manuscript might be treated. However, few directors of special collections departments are likely to adopt processing and intellectual controlled programs that originated from the public archives tradition. Thus, manuscript collections will continue to lag in their development and will be less accessible to users as a result.

Special collections units were formed for administrative convenience in libraries to take care of miscellaneous nonconforming library materials such as photographic collections, incunabula, and historical and literary manuscripts; "archives" of the institutional variety are a more recent addition to the list. Traditionally these materials have been administered by existing techniques and practices of librarianship because more suitable practices either had not been developed to handle them, or practices were underdeveloped, or suitable practices that had been developed were considered irrelevant.

Many of these "odds and ends" have become sizable collections. This is particularly true of manuscript and institutional archival records. The scale of such collections demands that they be treated on their own terms, both intellectually and administratively; otherwise they cannot both be treated adequately and integrated fully with all other relevant materials.[1] A look at the historical development of special document collections shows why this is so.

First, let us turn to historical manuscripts. Normally, such materials were acquired opportunistically and were not the conscious product of a coherent collection development policy. Private collectors sold or donated their collections to libraries or historical societies, and these collections served as a nucleus for future institutional collecting.

What these manuscripts also represent are the accidental documentary remains of the past, collected then made publicly accessible in libraries and historical societies. The items and clusters of items that

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were accessioned had become dissociated from related items with which they were once joined in series. They were considered not only "rare" but prestigious to own.

The combination of being rare and separated from related items with which these materials were formerly linked suggested that they be treated like books. And, since there is only one body of knowledge to deal with books—librarianship—this is the way they were treated, *as discrete items.*

Item catalogs, special subject indexes, shelf lists, and other finding aids gave provisional access prior to calendaring. Given the accidental nature of the materials, these techniques sufficed until collecting of twentieth century materials began in earnest in the 1930s. By the mid-1950s these twentieth century materials constituted the bulk of most major manuscript collections.

The "register" was added by the Library of Congress in the 1950s to the above array of finding aids.[2] In combination, these aids represent what I characterize as one of the chief elements of the Historical Manuscripts Tradition. Each finding aid was the coequal of the other because there was no single point from which the information in them could be approached as in a union catalog. This system persists although it has been rendered obsolete by Chapter 4, Manuscript Collections, of the AACR2.[3]

With this historical backdrop in mind, let us turn to another line of development, that of the Public Archives Tradition (PAT). From the start it was agreed that library practices were inapplicable, and that governmental agency records should be kept according to their origins instead of being distributed among preconceived subject and form classes.

Collections of twentieth century materials share all of the essential characteristics of public archives due to their integral or organic character. In the PAT, record items derive their meaning from their original association with other items in the same and related record series. To deal with massive twentieth century collections effectively, methods for intellectual control were borrowed from the PAT.

A further complication, in academic libraries at least, is that administratively these historical manuscript collections remained in special collections units even after the collections had developed beyond the embryo stage. Often there is more than one category of manuscript collection at a single institution. Collections are usually autonomous, even to the degree that there may be no union catalog of all the manuscript collections at that institution—an ironical by-product of the Historical Manuscripts Tradition. Further, it is in the nature of special collections units that each component tends to be independent on the basis of format, but, nevertheless, initially each is treated technically as though existing techniques of librarianship could provide suitable access. Inevitably, disillusionment follows and either alteration of library techniques occurs or collections are abandoned altogether.

Recently, college and university archives have been added to academic library collections. They constitute the largest growth sector in the archival field since the mid-1960s. Usually, these also are administered separately but under a special collections director whose background is in rare books or premodern manuscripts. The main problem is to link the parts together by developing appropriate methods of intellectual control and access. But collecting itself must be guided by coherent policy if there is to be a foundation on which linkages can be structured.[4]

Institutional archival programs try to achieve authoritativeness by means of record management techniques that were developed originally in the National Archives to control the life cycle of records.[5] Collecting efforts for manuscript collections of all types have not benefited from this records management perspective. The one exception is at those institutions with standing archival agreements with private corporate bodies and individuals which guarantee the transfer of inactive records and papers on a regular basis to the manuscript collection. This trend is growing and is realistic if our objective is to maintain the integrity of the documentation. In such cases, the manuscript collection staff serves as records manager for the person or corporate body whose records are transferred to custody of the manuscript repository.

In addition to serial continuity, collecting must aim at comprehensiveness. No one issue is adequately documented from the records of only one single participant if there is more than one party to an issue. If comprehensiveness is to be a major factor in collection development, the collector must acquire related sources or know related sources at other repositories.

To attain their common goal, repositories which have authoritativeness as an objective must cooperate. Indeed, since the late 1960s cooperation has been gradually displacing competitiveness. But cooperation needs to be in concert so that the growing network of archival sources will become rationalized deliberately.

A similar transition must take place in the orientation of directors of special collections units if the records and papers of contemporary society are to be collected and administered successfully. The directors of such collections typically came from rare books backgrounds and they have carried over that orientation to manuscript collecting and administration; they must adapt to changed needs and environments. Authoritativeness and comprehensive coverage as goals conflict with the rarities approach to collection building.

Records appraisal also poses a nagging problem. Mass must be reduced to manageable proportions for the benefit of the repository and the user alike. With twentieth century materials now constituting the major portion of the typical manuscript collection, the motive for collecting has changed to that of seeking a fullness of documentation that makes possible authoritative research.

Essentially, appraisal is a records management function. It is accomplished mainly by means of records disposition and retention schedules, which are the first formal appraisal documents. There is now general agreement that records management should be the foundation for any institution's own archive. It follows that a manuscript repository also must perform these records management tasks on the twentieth century papers and records it collects. This records management direction takes the program even further out of the Historical Manuscripts Tradition and calls into question the appropriateness of its place under a special collections administrator.

Thus far, two dynamic factors have been identified that help to distinguish manuscript collections and institutional archives from other materials that fall under library administration. These are collection development and intellectual control, with control responding to the collecting. Together, they constitute a dynamic equilibrium, unconscious though it may be—methods of control have changed as the nature of collecting has changed.

Scale is a major factor to consider. If the aim is comprehensive coverage and continuity of major record series, then programs must be developed to achieve these objectives as efficiently as possible. Storage space, processing procedures, finding-aid systems, and information-sharing are important considerations in the implementation of necessary programs. Also, records management must become an integral element of the program. One wonders if the traditional special collections division is appropriate to administer such collections in addition to its other components of far lesser scale and complexity.

Scale also affects the methods of control that are chosen. Processing and intellectual control programs must abandon those practices that are rooted in the Historical Manuscripts Tradition and instead fully incorporate procedures of the Public Archives Tradition. This means abolition of traditional cataloging with its randomness and, instead, articulating arrangement and description as two parts of a single control process, and a control document must be produced from the indexing. The inventory format is the only format devised thus far that is suitable for use as a control document. Indexing from it can be under control at all times. That a controlled information source for cataloging is a novel idea is its own commentary on the state of the art.

This radical departure is one that few directors of special collections units are prepared to take emotionally and intellectually. And, if they choose this radical departure in order to cope with twentieth century collections, will they still be able to justify administering these collections as part of a special collections unit, or for that matter, other comparable special materials collections that have reached maturity? The incongruity seems blatant. Little is lost to a special collections unit by allowing manuscript collections and institutional archives to become autonomous; to be administered in terms of their own characteristics. Both scale and technical considerations seem to justify autonomy.

Modern manuscript collections and institutional archives are no longer infantile, but are vigorous progeny requiring that they be treated on their own terms.

REFERENCES AND NOTES

1. The historical background can be read in Richard C. Berner, *Archival Theory and Practice in the United States: A Historical Analysis* (Seattle: Univ. of Washington, 1983).
2. The register was adapted by the Library of Congress from the preliminary inventory format employed by the National Archives, and was inspired by Solon J. Buck when he became head of the Manuscripts Division upon resigning as archivist of the United States in 1948. The register is divided into several sections, the main ones being a scope and contents note, biographical outline, serials listing, and a container list. The scope of contents note provides the only source for added entries, while the container list would be the richest source if used for that purpose. See passim, Chapter 3, and Katherine Brand, "Development in the Handling of Recent Manuscripts in the Library of Congress," *American Archivist* 16:99-104 (Apr. 1953); and "The Place of the Register in the Manuscripts Division of the Library of Congress," *American Archivist* 18:59-67 (Jan. 1955).
3. See Berner, passim, Chapter 6. AACR2 Chapter 4 on manuscript collections recommends that cataloging be done from the "whole collection," which means that it be done from the actual manuscripts, and not from a secondary source such as one or more finding aids. To correct for this impractical recommendation, a task force draft report generated by the Manuscripts Division of the Library of Congress has recommended that finding aids be used as the principle source of cataloging information. Lacking here is any idea that there should be a controlled information source.
4. For some of the most challenging thought on this problem see F. Gerald Ham, "The Archival Edge," *American Archivist* 38:5-13 (Jan. 1975); and "Archival Strategies for the Post-Custodial Era," *American Archivist* 44:207-16 (Summer 1981).
5. Although there is voluminous literature on records management, a useful introduction may be found in Wilmer Maedke, Mary Robek, and Gerald Brown, *Information and Records Management* (New York: Glencoe, 1974), p.1-38.

Trash or Treasure? Pop Fiction in Academic and Research Libraries

Robert G. Sewell

Since the 1960s, there has been a growing interest in popular culture as a phenomenon worthy of academic study. Undergraduate and graduate courses and research publications in this area have proliferated. This activity requires libraries to collect research and teaching materials that are often considered unsuitable, popular trash. Because of its format, pop fiction is the most congenial of all the popular culture materials to collect, but it presents many problems. Some libraries have established separate or special collections for pop fiction; others have collected pop fiction without specific academic programs and integrated it into general collections. Usually, libraries have reacted according to local demands for pop fiction. It is clear, however, that coordination and planning on regional and national levels are needed in the development of pop fiction resources.

An incident occurred several years ago at a major academic library which demonstrates some of the problems related to building research collections in new areas, in this case the area of popular culture. An extensive collection of novels on which films had been based was donated to the library. The books were to be kept intact as a special collection in the rare book facility. The collection was an important resource for cinema studies and English. Somehow the original concept of the collection was lost and the books were processed according to normal gift procedures. When the titles were searched, some were marked as duplicates. Furthermore, a large percentage of the books were shabby, yellow-looking paperbacks of popular fiction—mysteries, westerns, and science fiction. The whole assortment seemed an unimpressive addition to the library's prestigious research collections. A few books were added to the general stacks, but the majority were either thrown away or put up for sale at a semi-annual book sale.

This was an unhappy event in the history of the library. The benefactor was furious over the loss of a collection which he had assembled with great care for many years. The library staff was embarrassed and apologetic, although some felt their actions were not totally unjustified. Why should pop fiction be collected by academic and research libraries, let alone be placed side-by-side with books of fine printing and illustrated manuscripts?

This article explores popular culture studies in higher education and how libraries are responding to the needs of popular culture specialists. Special focus will be given to pop fiction in book format, the most congenial to present-day libraries.

POPULAR CULTURE STUDIES

In order to understand the resource needs for popular culture studies, we must begin by assessing the field and its role in higher education. A statement by

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the Popular Culture Association, which was founded in 1969, describes the purpose of the association and defines popular culture studies:

> The Popular Culture Association was founded to study thoroughly and seriously those productions, both artistic and commercial, designed for mass consumption. The founders were convinced that this vast body of material encompassed in print, film, television, comics, advertising, and graphics reflects the values, convictions, and patterns of thought and feeling generally dispersed through and approved by American society.[1]

What is important in this statement for our concerns is that materials *designed for mass consumption* are analyzed to discover *patterns of thought and feeling generally dispersed through and approved by American society.* The very objects surrounding us in our daily lives are important research materials. They are primary sources for understanding society's values and sensibilities. In this way, what some consider the commercialized trash of mass society takes on significance for the popular culture researcher such as the social historian, English professor, or sociologist.

The main focus of this article will be on pop fiction: genre or formula fiction—science fiction, the western, the mystery or detective novel, the romance, even the super-hero comic book—as well as its antecedents, the "broadsheets" or newspaper "supplements" of the 1840s and the dime and nickel novels published in the latter half of the nineteenth and early twentieth centuries. The staples of nineteenth century pop fiction were, as today, romance, violence, and adventure. The distinguishing feature of pop fiction is its adherence to the genre formulas demanded by readers. The modern romance caters closely to popular tastes. Formulas are highly refined and targeted to specific audiences. For instance, the Rapture Romance series published by New American Library includes questionnaires in the back asking the readers what they liked or disliked about the book, and their socioeconomic status and age. With these data and sales figures, the editors establish "fiction factories" in which authors crank out endless versions of the same formulas with only minor variations.

The degree of creativity and innovation in pop fiction is greatly restricted by the formula approach and the work's values as an example of belles lettres is marginal. The importance of such works to the researcher is that, as escapist literature, they represent the longings and desires of a mass audience. The collective fantasies embodied in these works can be analyzed to determine "the mood of the people" at various times and locales.

POPULAR CULTURE RESEARCH

While the scholarly study of folklore and popular culture existed before the 1960s, the popular culture movement in American colleges and universities began in the social and intellectual ferment of that decade. The most significant developments in popular culture scholarship and teaching occurred at Bowling Green State University. In 1967, Ray B. Browne came to Bowling Green as professor of English. Subsequently, he established the Department of Popular Culture, the Center for the Study of Popular Culture, and the Popular Press, which began publishing the *Journal of Popular Culture.* Two years later, the Popular Culture Association (PCA) was founded and a newsletter was distributed.

Several significant scholarly monographs in popular culture studies were published in the early and mid-1970s. Russel Nye's *The Unembarrassed Muse* was published in 1970.[2] This was the first major, comprehensive scholarly work on the popular arts in America and is considered to be a watershed in the development of popular culture scholarship. In his 1974 book, *Popular Culture and High Culture: An Analysis and Evaluation of Taste,* Herbert Gans defends "popular culture against some of its attackers, particularly those claiming that only high culture is a culture, and that popular culture is a dangerous mass phenomenon."[3] This defensive attitude was quite common at the time among popular culture scholars, who met considerable resistance from their academic colleagues. The acceptance problem has been exacerbated because traditional canons of taste and esthetics are not appropriate to the critical investigation of the popular arts. John Cavelti's 1976 book, *Adventure, Mystery and Romance: Formula Stories as Art and Popular Culture,* argues that new esthetic approaches are required when evaluating this type of material, approaches embracing the notions of formulas, genres, and archetypes.[4]

In addition to these major scholarly monographs, a flock of scholarly popular culture journals has emerged since the late 1960s. The first of these was Browne's *Journal of Popular Culture.* Others are *Journal of Popular Film and Television, Journal of American Culture, Popular Culture Scholar, Popular Culture, Popular Music and Society, Clues: A Journal of Detection,* and *Journal of Cultural Geography.* Most of these journals are published by the Bowling Green University Popular Press, which also publishes about ten new books each year devoted to popular culture. There are also other journals which occasionally publish articles about popular culture. To help sort some of this out, the Popular Press once published *Abstract of Popular Culture,* but unfortunately this publication has ceased.

POPULAR CULTURE CURRICULA

In conjunction with the growth of popular culture scholarship, there has also been an increase in the number of courses offered in popular culture studies. In *Currents of Warm Life: Popular Culture in American Higher Education* (1980), Mark Gordon and Jack Nachbar documented the nature and trends in popular culture curricula.[5] Based on an extensive survey, they determined that 1,993 courses in popular culture studies were being taught at the 307 colleges and universities in the U.S. which reported. Follow-up checks of course bulletins and other estimates increased the total to between 12,000 and 20,000 courses.[6] The number of new courses rose from 20 in 1968 to 134 in 1979. The peak year was 1974 when 156 courses were taught for the first time.[7]

Gordon and Nachbar also reported that 258 courses were taught each year in popular fiction with 14,939 enrollments. The subdivisions are:

Subdivision	*No. of Courses*	*No. of Enrollments*
Detective fiction	39	1,934
Science fiction	85	5,387
Westerns and romances	41	3,143
Other popular fiction	93	4,475
TOTAL	258	14,939

The mean enrollment was no less than 48.[8]

The rapid rise of scholarship and teaching in popular culture during the 1970s has leveled off but the demand for these courses is steady and strong. Moreover, forty percent of the survey respondents predicted an increase in the number of courses to be offered in the future. Forty-six percent believed that the number of courses would remain at present levels. Gordon and Nachbar concluded:

> This survey clearly suggests that schools, programs, and departments sensitive to student demands and flexible about their future are already finding popular culture courses a valuable part of their offerings. Popular culture's struggles for life during its academic infancy are over. Teachers of popular culture may now look forward with confidence to the maturity of their subject matter as an important contributor to American higher education.[9]

POPULAR CULTURE STUDIES AND LIBRARIES

Characteristically, academic libraries have reacted slowly to changes in teaching and research trends. The reasons are complicated and varied but among the most important are the traditional axiom of collection development, "build on strength," and the lack of coordinated planning between academic departments and libraries. Academic libraries have refrained from collecting in the field of popular culture material and, as a result, library research and collecting have lagged behind the work of popular culture scholars and teachers. Nevertheless, the rapid rise and self-proclaimed mature status of popular culture studies have important implications for academic libraries.

Barbara Moran found a lack of:

> Data on the number of libraries that have begun to systematically develop collections in popular culture but most estimates are that the number

is disappointingly small. The major reason for this lack of response to a new field of study seems to be that popular culture brings an entirely new element to the academic library and most librarians have not accepted popular culture materials as appropriate for inclusion in the academic library.[10]

Wayne Wiegand, an embattled advocate of popular culture collections, places the blame on the resistant attitudes in library schools and libraries:

> Academic library collection development has an inertia of its own which is aided and abetted by the academic librarian's preconceived predilections, conservative training and book oriented practical experience. Add to this, tacit (if not conscious) support of an academically conservative, culturally elitist faculty on most campuses, and one can readily see the reasons why popular culture proponents receive little support from academic librarians in building collections of popular culture materials.[11]

The works of Moran and Wiegand appear in *Twentieth-Century Popular Culture in Museums and Libraries*. It is the first research monograph dealing with this aspect of librarianship. Few articles have appeared on the subject. Gordon Stevenson's "The Wayward Scholar: Resources and Research in Popular Culture" (1977) was one of the first.[12] In contrast to the conclusions in *Currents of Warm Life* that popular culture's struggle for life is over, Stevenson and other advocates of popular culture collections in academic libraries realize that they are still on the defensive.[13] They know, "What librarians have traditionally identified as 'trash,' 'entertainment,' and 'escape literature' are the basic resources of popular culture research."[14] The debate on high culture versus low culture resources has still not been resolved.[15]

POPULAR CULTURE AND LITERATURE COLLECTIONS

Fred Schroeder has pointed out that "by and large, it can be said that, historically, popular collections in research libraries are accidental and unwanted bequests of antiquarian scholars and monomaniac nostalgics."[16] Whatever their origins, one can locate them in a variety of information sources. In the fifth edition of Ash's *Subject Collections* (1978), one can find several relevant if inconsistent subject headings:

- Adventure and Adventures
- Comic Books, Strips, etc.
- Detective and Mystery Stories
- Dime Novels
- Fiction
- Fiction, Gothic
- Fiction, Western
- Pulp Magazines
- Science Fiction

One does not, however, find any heading under Popular Literature, Fiction, or Culture, even though there are "see references" for Popular Art, Popular Music, and Popular Periodicals.

The Directory of Special Libraries and Information Centers, 6th ed. (1981) indexes only three pertinent subject categories: Comics, Popular Culture, and Science Fiction. The most comprehensive list of popular culture collections appeared in the 1977 issue of the *Popular Culture Association Newsletter* under the title, "National Finding List of Popular Culture Holdings and Special Collections" compiled by Michael T. Marsden.[17] Eighty libraries are listed in alphabetical order with details on the contents of their collections. Later issues of the newsletter contain descriptions of other collections. Elizabeth Cummins Cogell has also published an extensive descriptive listing of science fiction library holdings in *The Science Fiction Reference Book.*[18]

Within the realm of popular culture, pop fiction is probably the least troublesome to libraries since it appears in book or magazine format and can be easily cataloged and shelved, unlike collections of post cards, hubcaps, and match boxes. Pop fiction does, however, present many thorny issues. There is the fundamental problem of attitude and predilection: what is the relative value of pop fiction as opposed to "serious" literature? Even if this issue is resolved, there are technical and practical problems as well: Is there money and space for the tremendous volume of pop fiction which could be collected? How much effort and finances should be devoted to the preservation of mass market paperbacks and pulp magazines?

In order to discover how academic and research libraries are dealing with these issues and to uncover the nature of established collections of pop fiction, a questionnaire was sent to a selected number of libraries. Telephone calls were made and further correspondence was conducted to amplify the questionnaire responses. The survey sought to ascertain why pop fiction is being collected, how the material is organized and cataloged, and what the collection development policies are in this area. Also surveyed were collection use, preservation problems, and future prospects.

Pop fiction materials are stored primarily in separate popular culture libraries or collections, as special collections within rare book or special collection divisions, and integrated into general literature collections. In the latter arrangement, materials are difficult to locate and describe since they are in a sense "lost" in the general stacks. The general stacks, however, are usually the largest repositories of pop fiction. Several profiles of important separate collections of pop fiction follow. These profiles demonstrate how libraries have consciously addressed the problems of collecting pop fiction.

Popular Culture Library at Bowling Green State University

The Popular Culture Library at Bowling Green State University was founded in 1969, two years after Ray Browne established the Center for Popular Culture and the Department of Popular Culture. The library's holdings include over 50,000 books, comic books, dime novels, Big Little Books, and paperback fiction plus more ephemeral items such as post cards, pennants, and greeting cards. The collection began with large donations to the English department. Some of the original pop literature collection contains "main stream" authors and the general collection has works of pop fiction. The popular culture librarian and the English librarian are now exchanging materials and insuring that the collections are housed properly.

All pop literature book material is cataloged and is represented in the main card catalog, a separate card catalog for the Popular Culture Library, and the automated catalog. There is a sizable uncataloged backlog for which only minimal records exist. The pop fiction collection is integrated with other cataloged materials in the library.

The Popular Culture Library is one of the few academic libraries in the country which has a well-defined collection development statement for popular culture materials. In the area of pop fiction, the library collects in all areas of genre fiction with special emphasis on science fiction, as well as dime novels, pulp fiction magazines, and comics on a selective basis. The library comprehensively acquires works of certain authors, such as Ray Bradbury; certain publishers; and designated series, as well as award winners (e.g., Edgars and Nebulas), and Marvel and D.C. comics. The popular culture librarian believes the prospects are good for the expansion of the collection, partially because there is a large backlog on hand to be processed for the collection.

A source of some concern for the library is the almost exclusive reliance on donations for its pop fiction material and the drop off in the rate of donations. The materials budget for the Popular Culture Library is only five hundred dollars annually, and most of that goes to "support materials," such as indexes and reference works. The library may have difficulty fulfilling its mission with this meager budget. However, since the popular studies program and the collection at Bowling Green are well known, the library receives many gifts each year. Library use is increasing as the popular culture academic program expands and as researchers arrive at this mecca of popular culture studies.

Nye Popular Culture Collection at Michigan State University

The only other academic library with as strong a commitment as Bowling Green to its general popular culture collection is Michigan State University Library. The collection was established in 1968 and has been developed largely at the instigation and with the aid of Russel Nye, author of *The Unembarrassed Muse* and a pioneer in popular culture studies. This collection is in the Special Collection Division.

The entire collection of popular fiction consists of over 35,000 volumes of which about 17,000 are comic books. Other components of the collection are juvenile literature and adult pop fiction. These areas cover materials from the mid-nineteenth century to the present and include over 400 dime novels with a nearly complete Deadwood Dick series from which University Microfilm International produced its film edition. There is a substantial representation of genre fiction: about 3,000 detective and mystery novels, approximately 1,750 volumes of science fiction, over 3,000 westerns (mostly published between 1900 and 1950), and over 2,500 romance novels, especially from the Harlequin series. There are also extensive holdings in pulp magazines, mainly for mysteries, westerns, and science fiction. A large vertical file is kept of science fiction "fanzines."

The current collection development policy mandates that only juvenile literature, such as Tom Swift and Nancy Drew stories, and comic books, particularly Marvel and D.C. publications, should be actively collected. There is no specific budget for pop fiction. It is purchased from the general special collections budget. The categories of romances, mysteries, and westerns are essentially in a passive state and are acquired through gift only, except when specified gaps in the pop fiction collections are identified and designated as target areas. The science fiction collection has continued to grow since the Michigan State University Library became a depository for the Science Fiction Writers of America in 1972.

The Nye Popular Culture Collection and other special collections at Michigan State have low priority for cataloging because these collections are noncirculating and the staff can locate every item in the collections. Within the Popular Culture Collection, the juvenile literature is cataloged first, and about half of that is fully cataloged. There are files of author cards made from acquisition records, and all uncataloged materials in popular fiction are shelved by genre and within genre by author.

The overall use of the collection is increasing each year. While student use has declined, use by scholars in the region has grown significantly. Although there is no specific program or department of popular culture at Michigan State, courses on popular culture that are taught in subjects such as English, sociology, and history use this collection as do researchers in various disciplines.

The special collections staff have produced two useful guides to the popular culture collections: *The Russel B. Nye Popular Culture Collection*[19] and *Finding Materials on American Popular Culture in the MSU Libraries.*[20] The former is a description of the collections and provides a brief history of each of the genres of pop fiction held in the collection. The latter is an excellent finding guide and reference manual that briefly describes the holdings and lists bibliographies, indexes, and reference materials for each category of pop fiction.

San Francisco Academy of Comic Art

One of the largest and most dynamic research collections of popular fiction is directly administered and not connected with any other academic institution. It is Bill Blackbeard's San Francisco Academy of Comic Art, a nonprofit research and study center. The academy and its library were founded in 1967 because of Blackbeard's personal conviction of the necessity to save the American printed comic strip at a time when most institutional libraries were destroying their bound newspaper files after purchasing microfilm editions. While the main emphasis of the academy is the comic strip, it provides a center for the unified study of all popular narrative arts.

The academy's library has holdings of at least one million comic strip tearsheets and pages, twenty-two thousand unbound periodicals, and approximately twelve thousand volumes of pop fiction. Blackbeard says the collection contains virtually all American comic strips from 1896; the most representative, extant collection of pulps;[21] and a major research collection from 1800 to date of mystery/crime fiction. In addition to collecting in all areas of genre fiction with the exception of the romance or "love story manque," the academy has collections of cinema adaptations and Hollywood/show business novels. Western fiction is accepted as donated but is rarely sought out. There are separate collections of Doyle/Sherlockia, Hammett/Chandler, Baum/Oziana, Alice in Wonderland, Dickens, Cruikshank, Gorey, and others.

A good deal of this material comes to the academy in the form of donations. But unlike the other collections discussed in this article, at least as much material is purchased as is received through gifts and exchange. There is no consistent materials budget; it all depends on what comes on the market and what Blackbeard can afford. All purchases are made from his personal funds, which he raises from his book royalties. A variety of sources and techniques are used to acquire materials. Besides solicitation of gifts and canny buying in bookstores and at auctions, Blackbeard frequents garage sales and trades duplicates and unwanted material with other libraries and collectors.

There is no catalog for the fiction collection but the books are arranged by genre and author so the user can immediately locate desired material and the staff is aware of all material in the collection. While there are no catalogs or bibliographies of the academy's holdings, one can locate material held in the collection by consulting standard reference works. For instance, the mystery/crime fiction collection contains virtually all titles listed in Ellery Queen's *The Detective Short Story: A Bibliography,*[22] and the science fiction magazine file contains all titles in Donald Byrne Day's *Index to the Science-Fiction Magazines, 1926–1950.*[23]

The library at the San Francisco Academy of Comic Art is open to the general public on an appointment basis, but fundamentally it is a research facility available to serious scholars. While the use of the library has, as a result, not been heavy, it has been significant. Since the academy opened in 1967, forty-seven books based on research from materials held in the library have been published, apart from the thirty-three edited by the academy itself. The prospects for the expansion of the popular fiction collection, let alone the comic strip collection, appear to be very good indeed, far better in fact than those in academic libraries. The personal commitment and savvy of the academy's director seem to assure its good fortune.

Hess Collection at the University of Minnesota

The Hess Collection, which is part of the Children's Literature Collections located in Walter Library at the University of Minnesota, is one of the oldest and largest collections of pop fiction in the country.[24] It was established in 1954 when the library received a bequest of George Hess who collected dime novels as a hobby. The Hess Collection now contains seventy thousand dime and nickel novels published from 1860 to 1890, approximately eight thousand children's series books, five hundred Big Little Books, and twelve hundred comic books. The novel collection contains almost complete sets of the various series of Beadle and Adams dime and nickel novels. It is such a comprehensive collection that University Microfilm International was able to base its microfilm edition almost entirely on the publications of Beadle and Adams in the Hess Collection.

One can locate many of the books in the Hess Collection by consulting Albert Johannsen's three volume bibliography, *The House of Beadle and Adams and Its Dime and Nickel Novels.*[25] All of the dime and nickel novels have catalog cards for general series, and within those series there is a listing of authors and titles according to the numbered sequence, i.e., analytical cards. There are comprehensive lists citing title, author, and number for all Big Little Books held in the collection. A Department of Education Title II-C grant has provided cataloging for the Hess Collection and made it available on RLIN.

The use of the Hess Collection is reported to be increasing among students and faculty in American and English literature, American studies, and Library Science. There have been many articles and dissertations based on the research materials in the Hess Collection.[26]

Library of Congress

The Library of Congress is the largest storehouse of pop fiction in the country.

This material is dispersed. Some of it is easy to locate in special collections, but most of it is not clearly designated and is integrated into general collections. The Rare Book and Special Collections Division has several collections of pop fiction described in *Special Collections in the Library of Congress*[27] and *The Rare Book Division; A Guide to Its Collections and Services.*[28] Some of the collections represented in these sources are the Armed Services Edition Collection (an archival set of paperbacks published for the American Armed Forces, 1943–47), The Big Little Book Collection, The Dell Paperback Collection (a virtually complete set from 1943), the Dime Novel Collection, and the Pulp Fiction Collection (popular American fiction magazines, 1920s–1950s). There are two published catalogs of special collections in the Rare Book and Special Collections Division: *Children's Books in the Rare Book Division of the Library of Congress,*[29] and *Catalog of Broadsides in the Rare Book Division.*[30] These written sources do not represent all the pop fiction materials held in this division. Many children's books, broadsides, and popular books of fiction concerning Abraham Lincoln are integrated into the Alfred Whital Stern Lincoln Collection.

There are, as well, many other locations of pop fiction materials in the Library of Congress. For instance, the Serial and Government Publications Division has a huge collection of comic books. The great bulk of pop fiction in the Library of Congress has been acquired through copyright deposit. Since 1870, two copies of every copyrighted work have been sent to the Library of Congress. The vast majority of this has been cataloged and put into the general collections. While some of the works produced in today's fiction factories are not copyrighted, most are. If the scholar of pop fiction is looking for a particular work, it is most likely it will be found eventually somewhere in the vast holdings of the Library of Congress.[31]

Other Libraries

Pop fiction is scattered in collections all over the country. Some special collections are thriving because of strong research and study interest on campus; others may be donations that have not been developed or maintained. In the Special Collections Division at the University of Kansas Library there is a collection of over five thousand volumes of science fiction. Having held seminars and workshops on the genre in the past, the English department at Kansas has now established the first Center for the Study of Science Fiction in the country. The center's activities are under the direction of James Gunn and Stephen H. Goldman. In contrast, Kent State University Library established a special collection in 1967 of five hundred Armed Service Editions, a few hundred comic books, six hundred mystery and detective novels with special strengths in the works of Raymond Chandler and Stephen R. Donaldson, and some examples of dime novels. Most of the material was acquired through donations, but there is no plan to expand the collection.

Pop fiction is also found in general collections. Identifying the holdings and collection development practices in these cases is difficult and a vast undertaking, far beyond the scope of this paper. One can make, however, some tentative assessments and observations.

For members of the Research Libraries' Group there is some documentation on collection development patterns in pop fiction. The *RLG Collection Development Manual*[32] lists the levels of intensity of collection in specified subjects for all its member libraries. Under the category of Special Genres and Types of American and English Literature the following relevant subdivisions are given: Science Fiction, Westerns (Fiction), Detective and Mystery Stories, and Comic Books, Strips, etc. From these data, one discovers that the American Antiquarian Society collects science fiction on level four (comprehensive), Columbia University Libraries acquire detective and mystery stories on level four, and Colorado State University Library purchases western fiction on level four. The regional interest in western culture at Colorado State clearly justifies its collection patterns. But the reasons for the American Antiquarian Society's interest in science fiction and Columbia's in detective and mystery stories are not immediately apparent, although the presence of that famous mystery fan, Jacques Barzun, on campus may have something to do with it.

Upon probing deeper into the situation, one discovers what the Antiquarian Society means by science fiction. The society acquires American printed materials issued before 1877 and places special emphasis on the popular manifestations of literature, religion, technology and science, and the arts. Within this context science fiction makes sense for the society.

At Columbia the circumstances are more puzzling the more one looks into them. In a letter dated October 25, 1982, the head of the reference department, Eugene Sheehy stated:

> The Columbia University Libraries do not maintain a popular fiction collection as such, and it is not in an area in which we do systematic collecting. Some popular fiction does come into our collection via the various blanket order plans in which we participate, but this is the exception rather than the rule. Some older materials of that nature come to us by gift, but titles are added on a very selective basis in such cases.

This statement may seem at odds with the data in the *RLG Collection Development Manual* indicating that Columbia collects detective and mystery stories on a comprehensive level. I suspect, however, much the same might be said about the University of Illinois at Urbana-Champaign Library. Except for the H. G. Wells Collection,[33] the library does not have a separate pop fiction collection and no mention of pop fiction is made in its acquisition policy statement. The library does have, however, large holdings of pop fiction of the formula variety. There are, for instance, numerous works of Robert Heinlein, Ray Bradbury, Dashiell Hammett, Agatha Christie, and Zane Grey, and nearly complete runs of *Astounding Science Fiction* (later Analog), Ellery Queen's *Mystery Magazine, Galaxy, Magazine of Fantasy and Science Fiction,* and the *Omnibus of Crime* series edited by Dorothy Sayer. Thus, with no explicit emphasis on pop fiction, this type of material was and is being collected.

The pop fiction which finds its way into academic libraries has not been collected exclusively or, perhaps not primarily, as research material. Much of it has been acquired for leisure reading for undergraduate libraries. When books lose their popularity, they are transferred to the main stacks. They become "research materials," as they grow older and become more scarce.

One observation that can be made about the authors of pop fiction collected by the library is that they exhibit some regard for traditional writing skills. For instance, the University of Illinois catalog has twenty-two entries for Dashiell Hammett but not a single one for Mickey Spillane. There is no question that Hammett is writer of greater talent than Spillane. But should not the library have some representation of the works of an author who has practically outsold the Bible?

This pattern of acquisition seems to hold for other libraries that collect pop fiction but do not specifically have a policy to do so. The better written, the more likely it is to be acquired. The romance genre, which is held in the lowest esteem because of its generally poor literary quality, is the least collected among the pop fiction genres. Science fiction, which is the least formularic in approach—its readers demand innovation and imagination—and is often written by mainstream novelists, is most collected. While detective stories and mysteries may have been and are being collected more for leisure reading, science fiction now seems to be thought of and acquired as research material. A recent special issue of *Special Collection, Science/Fiction Collections: Fantasy, Supernatural & Weird Tales,*[34] offers some confirmation of this observation. The two most rapidly growing research collections of science fiction are the J. Lloyd Easton Collection at the University of California-Riverside[35] and The Science Fiction Collection at Texas A & M University.[36] While these two collections are in the forefront, they are by no means alone in their specialized collecting endeavors.

CONCLUSION

Scholarly interest in popular culture and popular literature is widespread in America today. While to date only Bowling

Green State University has a full-fledged department of Popular Culture, most U.S. colleges and universities offer courses in some aspect of popular culture. It is difficult to bring all of popular culture studies under one umbrella since the concept of popular culture is so broad and interdisciplinary. In a sense, it is defined by the kind of materials used for research and teaching—products of mass production made for quick and popular consumption. The implications for collection development and management are complex and demanding, and, to a large extent, not yet fully understood.

The academic library community is beginning to come to grips with some of the problems of popular culture collecting. A literature of popular culture librarianship is developing and some libraries collect relevant and appropriate resources. There is little systematic planning at a local, regional, or national level concerning popular culture and popular literature collecting. Most academic libraries rely heavily, if not exclusively, on donations for popular culture resources. The Popular Culture Library at Bowling Green has only a five hundred dollar annual budget and most of that goes for support material. The Library and Center for Popular Culture do, however, have active development programs for the solicitation of gifts. Many popular culture collections are essentially dead in that there is little or no actual or planned expansion. Among those libraries in the survey, the private and independent San Francisco Academy of Comic Art has the most active and innovative plan for the purchasing of popular culture and literature resources.

The bibliographic control of the collection surveyed seems to be primitive or totally lacking in most cases. Only the Popular Culture Library at Bowling Green has cataloged most of its holdings. For the time being, Michigan State University plans to catalog only its juvenile literature materials. One bright note in this area is that the Hess Collection at Minnesota is being fully cataloged and made available on RLIN, due to the federal grant received for this purpose. This action suggests that there is concern for bibliographic control and that some actual national planning is taking place. Many collections have files (not real catalogs) for series and authors. Where popular culture materials are organized as a separate entity and where good bibliographic control is lacking, popular literature collections are arranged by genre and authors. Librarians contend that this arrangement also provides relatively satisfactory access to the materials. In libraries in which pop fiction is not distinguished from other kinds of literature, full cataloging is the rule. But bibliographic control is still a major problem.

Because popular culture materials are products of mass production and often ephemeral in nature, preservation is an important problem. The mass market paperback and pulp magazine formats of most popular literature genres make preservation and conservation a universal problem for all libraries. A typical statement on preservation from the survey is: "Much of the material is in paperback and is printed on poor paper. It will not stand hard use. Some materials must be restricted to use by serious scholars." Some special collections such as Minnesota's Hess Collection, the Nye Collection at Michigan State, and collections of mysteries and children's books at Yale's Beineike Library are housed in temperature and humidity controlled environments. The San Francisco Academy of Comic Art presents a unique situation. Since the Academy is located near the sea with continual nonpolluted and lightly moist air circulation and a mean temperature of sixty to sixty-five degrees, the material is in a natural and ideal atmosphere and shows few signs of aging. In most libraries, however, pop fiction is unprotected and in various stages of deterioration. Perhaps the experimentation at the Library of Congress on the mass deacidification of books will help prolong the life of this material. At the New York Public Library, extensive microfilming is being done of pulp fiction materials. But first the books and magazines must be identified and selected for treatment. In many cases, it seems that preservation measures are only undertaken when popular culture materials become objects of nostalgia or are in danger of extinction. Early planning and preventative action would, of course, be easier and ideal. But all of this is a matter of priorities.

Academic and research libraries have diverse responsibilities and demands made upon them. Crucial decisions are being and will be made concerning what to collect and preserve of our cultural heritage. We may be in a situation where we must decide if an obscure literary magazine containing a fugitive poem of Ezra Pound should be preserved or if *Astounding Science Fiction* should get priority treatment. Should some library be acquiring the ten to twenty Harlequin novels being published monthly? These are controversial questions. Individual libraries will be making these decisions but there should also be regional and national planning by scholars and librarians as well. The Popular Culture Discussion Group of the American Library Association's Young Adult Services Division, the Popular Culture Association, the Research Resources Unit of the National Endowment for the Humanities' Research Division, and the Department of Education's Title II-C programs division are important forums for discussion of needs and priorities. In an academic world in which, along with Shakespearean scholars, there are scholars of Mickey Mouse and Agatha Christie, what may be regarded as today's trash could become a research treasure of tomorrow.

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Financing New Technologies, Equipment/Furniture Replacement, and Building Renovation: A Survey Report

Gary M. Shirk

This survey describes the methods that large academic and public libraries use to finance the implementation of new technologies, to replace equipment and furniture, and to renovate buildings. The range of methods used by libraries and the factors leading to their use are investigated. Approximately twenty different financing methods are used, but no library uses more than nine of these for any one area of expenditure. Operating funds are the principal source for capital expenditure.

Few librarians would deny the importance of financing capital expenditures in libraries. Constructing buildings and filling them with library materials are, afterall, prerequisites for providing a full range of library services. However, in recent years as building programs become more difficult to initiate, libraries have become more interested in and concerned about the financing of other areas of capital expenditure, especially new technologies, equipment and furniture replacement, and building renovation. When the discussion among library managers and fiscal officers turns to financing new technologies such as cable television, satellite communications, microcomputers, etc. or more mundane projects like reupholstering furniture or adding air-conditioning to a nineteenth century building, more questions than answers are generated. What methods do similar libraries use to finance these areas of capital expense? How do they determine which method to use? Are some methods better suited to one of the areas than to others?

Published literature on library financing yields few answers and the search for information is difficult and often unrewarding. Although access may be possible through subject terms such as "accounting and bookkeeping" or "grants-in-aid," the researcher must access the literature through more general terms such as "automation," "information networks," "building for the handicapped," "tax or building campaigns," and "cable television."

General sources for information about capital financing and fund-raising in libraries surface readily. The *Bowker Annual* usually includes a section on legislation, funding, and grants. This section reports the library use of LSCA funds, general revenue sharing, and block grants.[1] There

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are also several accounts of federal support for libraries.[2,3,4] In "Extra-institutional Funding: Management and Strategy for Survival," Boaz provides a brief introduction to fund-raising, particularly grants seeking.[5] Other sources such as Boss,[6] Corry,[7] and Waters[8] also provide valuable fund-raising insights. However, the literature does not report how libraries finance important, but not particularly newsworthy, capital expenditures.

This paper attempts to fill the gap by reporting the methods used by a selected group of large North American libraries to finance capital expenditures. Specific objectives of the survey were:

1. To provide a list of financing methods used by different types of libraries for three areas of capital expenditure: new technologies, equipment and furniture replacement, and building renovation.

2. To describe the factors which determine the financing method chosen.

3. To describe the methods most frequently used by different types of libraries for each of the three different areas of capital expenditure.

The survey describes the methods used by the responding libraries; it does not provide data to be generalized for all libraries. Any differences noted are therefore real differences among the reporting libraries. Hence, participating libraries can compare their financing methods with similar libraries. To permit comparisons among peer institutions the participating libraries are listed by group in Appendix A: Public, University—Private, and University—Public. Results for individual libraries are not presented.

METHODOLOGY

Survey packets were sent to 102 large libraries in the U.S. and Canada listed in the LAMA/LOMS Budget, Accounting, Costs and Finance Committee's 1980 publication *Library Business and Fiscal Officers Directory*. Each packet consisted of a cover letter, 2 pages of definitions, and a 2½ page questionnaire. The questionnaire was designed to be self-administered in approximately ten minutes by an informed library administrator or fiscal officer. The primary task of the respondent was to indicate all the financing methods that had been used in the past five years to finance new technologies, equipment and furniture replacement, and building renovation. To assist the respondent, the questionnaire listed eighteen potential methods and provided space for listing others. The respondent was also asked to indicate the type of library, the most frequently used methods for each of the three capital expense areas, the library's total annual budget, its equipment and furniture budget, and its building maintenance and repair budget. Lastly, space was provided for additional comments.

Seventy-seven of the libraries responded and the rate of return was high for all three types of libraries. Upon receipt, the questionnaires were coded and keypunched. Because inferential analysis had not been planned and could not be supported by the methodology, only simple tables were required. The Statistical Package for the Social Sciences was used for generating base tables. These were further summarized so that the results for each area of capital expenditure could be compared visually. Comments were summarized manually.

RESULTS

Generally, the survey instrument posed few difficulties for the respondents. However, two problems emerged. First, despite the inclusion of brief definitions for most of the terms used, some respondents (Canadian librarians in particular) found some of the wording unusual or ambiguous. Second, the complexity and variety of financial reporting systems made comparisons based upon total annual budgets, equipment and furniture budgets, and building maintenance and repair budgets virtually impossible. Nevertheless, the comments suggest that building maintenance is usually included in the parent institution's budget while equipment repair is usually the responsibility of the library.

Financing Methods Used

All eighteen financing methods listed in

TABLE 1

FINANCING METHODS, BY TYPE OF EXPENSE AND TYPE OF LIBRARY

	New Technologies				Equipment/Furniture				Building Renovation			
Method	Public Lib. (%)	Univ: Pub. (%)	Univ: Priv. (%)	Total (%)	Public Lib. (%)	Univ: Pub. (%)	Univ: Priv. (%)	Total (%)	Public Lib. (%)	Univ: Pub. (%)	Univ: Priv. (%)	Total (%)
Operating funds	95.2	89.7	52.9	83.1	90.4	92.3	52.9	83.1	76.2	71.8	29.4	84.4
Special state or federal approp.	19.0	30.8		20.8	19.0	17.9	5.9	15.6	14.3	25.6	5.9	18.2
Federal grants	52.4	33.3	17.6	35.1	57.1	17.9		24.7	23.8	2.6		6.5
State grants	42.9	10.3		16.9	23.8	12.8		13.0	9.5	5.1	5.9	6.5
Private foundation grants	28.6	17.9	52.9	28.6	28.5	12.8	29.4	20.8	9.5	2.6	17.6	7.8
Special purpose tax levies					4.8			1.3		2.6		1.3
Publicly sold bonds	9.5	2.6		3.9	14.3	5.1		6.5	19.0	5.1	5.9	9.1
User fees/charges	14.3	35.9	35.3	29.9	23.8	15.4	23.5	19.5	14.3	5.1	11.8	9.1
Library fines	14.3	5.1	11.8	9.1	38.1	5.1	11.8	15.6	23.8		17.6	10.4
Gifts, bequests, endowments	23.8	15.4	58.8	27.3	38.1	23.1	47.1	32.5	19.0	15.4	41.2	22.4
Depreciation reserve			17.6	3.9		5.1	17.6	6.5	4.8	7.7	5.9	5.2
Land/building sales	4.8	2.6		2.6	4.8	2.6		2.6	4.8	2.6		2.6
Equipment sales	4.8	7.7	5.9	6.5	4.8	12.8	5.9	9.1	4.8	2.6		2.6
Book sales	4.8	2.6	5.9	3.9	23.8	5.1	17.6	13.0	4.8		11.8	3.9
Loans from parent institutions	4.8	5.1	7.6	7.8	4.8	2.6	29.4	9.1		5.1	11.8	5.2
Loans from others	4.8	2.6		2.6	4.8	2.6		2.6	4.8			1.3
Lease/payback plans	4.8	5.1		3.9		7.7	11.8	6.5				
Coop. purchasing		7.7	11.8	6.5		2.6	5.9	2.6				
Other	9.5	10.3	41.2	16.9	19.0	10.3	35.3	18.2	14.3	10.3	47.1	19.5
Reporting libraries (Number)	21	39	17	77	21	39	17	77	21	39	17	77

the questionnaire had been used by some libraries in the past five years. Over 80 percent used operating funds for all three areas of expenditure, and approximately 25 percent reported using gift funds for each of the three areas. Other financing methods are used with less frequency and vary by expenditure type (table 1). While 35 percent reported use of federal grants for new technologies, only 25 percent used this source for equipment or furniture replacement and just 7 percent used it for building renovation. The usage of foundation grants paralleled federal grants: 29 percent, 21 percent, and 8 percent respectively. User fees, a very different source of funding, followed the same distribution: 30 percent, 20 percent, and 9 percent respectively.

Public and private institutions use some funds differently. For example, in new technologies and equipment and furniture more than 90 percent of public libraries and public university libraries used operating funds while only 53 percent of the private university libraries did. On the other hand, almost 60 percent of private university libraries used gift funds for new technologies while less than 25 percent of the public institutions used this source. This difference in the use of gift funds can also be observed in the areas of building renovation and equipment and furniture replacement.

Public libraries and university libraries, both public and private, differ in their use of financing methods. Forty-three percent of public libraries used state grants for new technologies while only 10 percent of the public university libraries did. However, 35 percent of the university libraries used user fees for new technologies, but just 14 percent of the public libraries did so. In building renovation and equipment and furniture replacement there are no clear differences between public and university libraries.

Roughly 17 percent of all libraries used methods not listed in the questionnaire. A list of these methods is presented in table 2. Although generalization is risky, private university libraries seem to rely upon more entrepreneurial sources than the public institutions; and public university libraries appear more entrepreneurial than public libraries.

Frequency of Method Use

Operating funds are clearly the most frequently used source for all three expenditure areas by all types of libraries reporting: 73 percent for new technologies; 79

TABLE 2

OTHER FINANCING METHODS USED, BY TYPE OF LIBRARY

Public Library	University: Public	University: Private
Unrestricted five-year tax levy	Capital grants from provincial government	Special church appropriations
Friends of the library purchases	Gifts/purchase of surplus inventory	Non-recurring allotments from university for capital expense
City capital outlay fund appropriation (equipment for new buildings only)	Campus wide competition for special equipment funds	Fees from other institutions for providing shared access and other services
Special county appropriations	Plant funds (rented mineral rights)	Photocopy income
	Sale of university owned utilities	University physical plant funds through planning proposals
	Capital funds raised by the university through private subscription	Special University funds for specific purposes
		Capital improvement reserve

TABLE 3

FINANCING METHODS MOST FREQUENTLY USED, BY TYPE OF EXPENSE AND TYPE OF LIBRARY

	New Technologies				Equipment/Furniture				Building Renovation			
Method	Public Lib. (%)	Univ: Pub. (%)	Univ: Priv. (%)	Total (%)	Public Lib. (%)	Univ: Pub. (%)	Univ: Priv. (%)	Total (%)	Public Lib. (%)	Univ: Pub. (%)	Univ: Priv. (%)	Total (%)
Operating funds	75.0	85.7	47.1	73.0	75.0	91.7	52.9	78.7	66.7	65.6	28.6	59.1
Special state or federal approp.	5.0	2.9		2.7	5.0	2.8		2.7		18.8		9.1
Federal grants	10.0	2.9		4.1	5.0			1.3	5.6			1.5
State grants									5.6	3.1	7.1	4.5
Private foundation grants			11.8	2.7	5.0		11.8	4.0			14.3	3.0
Special purpose tax levies												
Publicly sold bonds	5.0			1.4	5.0			1.3	11.1			3.0
User fees/charges		2.9	5.9	2.7								
Library fines											7.1	1.5
Gifts, bequests, endowments	5.0		5.9	2.7			11.8	2.7			21.4	4.5
Depreciation reserve			5.9	1.4						3.1		1.5
Land/building sales												
Equipment sales												
Book sales			5.9	1.4		2.8		1.3				
Loans from parent institutions		2.9	5.9	4.1								
Loans from others												
Lease/payback plans							5.9	1.3				
Coop. purchasing												
Other		2.9	11.8	4.1	5.0	2.8	17.6	6.7	11.1	9.4	21.4	12.1
Reporting libraries (Number)	20	35	17	74	20	36	17	75	18	32	14	66

TABLE 4

FACTORS DETERMINING CHOICE OF FINANCING METHOD, BY TYPE OF LIBRARY

Public Library	University: Public	University: Private
Availability	Availability	Availability
Operating budget level	Univ. admin. policy	Type of project
City, county policies	State laws and regulations	Amount required
Amount required	Amount required	Univ. admin. policy
State library priorities	Type of project	Fund-raising success
Probability of approval	Operating budget level	Operating budget level
	Eligibility	U.S. government grant policy
	Probability of approval	
	Source interest in the project	
	Restrictions on funds	

percent for equipment and furniture replacement; and 59 percent for building renovation funds (table 3). Within expenditure types, a lower percentage of private university libraries cite operating funds as the most frequently used source than do the public counterparts.

Five financing methods (special purpose tax levies, sales of land/buildings, sales of equipment, loans, and cooperative purchasing) were not cited as "most frequently used" by any library. Private university libraries use more financing methods.

*Choice of Method**

The availability of funds was the most frequently cited factor by all types of libraries for the choice of a particular financing method (table 4). Three other factors emerged as important for all types of libraries: (1) city, county, or university policies, (2) amount of funds required for the project, and (3) operating budget level. The type of project was cited as important by university libraries but was not mentioned by public libraries. Not surprisingly, state laws and regulations appeared frequently to affect the choices for public university libraries but were not critical factors for either public libraries or private university libraries.

Range of Methods

The range of methods used by any one library to finance the three types of capital expenditure is limited. No library used more than nine of the nineteen financing methods for any area of expenditure in the past five years (table 5). Over 60 percent used no more than three of the methods. The average number of methods used drops from over 3.0 for new technologies and equipment and furniture replacement to just over 2.0 for building renovation. In all areas of expenditure, the average number of methods used was highest for public libraries and least for public university libraries.

CONCLUSION

This paper has reported the results of a survey of financing methods used by seventy-seven North American libraries. Although the methodology chosen for the survey does not permit conclusions about libraries generally, we can draw conclusions about the responding libraries, and we can compare one library's situation to the group of institutions listed in Appen-

*Respondents were asked to list the factors which determined their choice of financing method for any of the three areas of capital expenditure. The author standardized the terminology for the factors, divided them by type of responding library and listed them in order of frequency of citation.

TABLE 5

RANGE OF FINANCING METHODS USED, BY TYPE OF EXPENSE AND TYPE OF LIBRARY

Range of Methods	New Technologies Public Lib. (%)	New Technologies Univ: Pub. (%)	New Technologies Univ: Priv. (%)	New Technologies Total (%)	Equipment/Furniture Public Lib. (%)	Equipment/Furniture Univ: Pub. (%)	Equipment/Furniture Univ: Priv. (%)	Equipment/Furniture Total (%)	Building Renovation Public Lib. (%)	Building Renovation Univ: Pub. (%)	Building Renovation Univ: Priv. (%)	Building Renovation Total (%)
10 thru 19												
7 thru 9	9.5	2.6		3.9	19.0	7.9		9.2	9.5			2.6
4 thru 6	28.6	31.6	35.3	31.6	23.8	18.4	35.3	27.7	14.3	13.2	17.6	14.5
1 thru 3	61.9	65.8	64.7	64.5	57.1	73.7	64.7	67.1	71.4	76.3	70.6	73.7
None (or no response)												
Average number of methods	3.33	3.03	3.29	3.17	4.00	2.66	2.94	3.09	2.48	1.74	2.12	2.03
Reporting libraries (Number)	21	38	17	76	21	38	17	76	21	38	17	76

dix A. Four general conclusions can be reached:

1. Approximately twenty different financing methods are used by the reporting libraries to finance new technologies, equipment and furniture replacement, and building renovation; but no library uses more than nine for any one area of expenditure.

2. A combination of parent organization policy and local, state, or federal regulations may be the most important limitation on the number of methods used.

3. Most participating libraries choose operating funds for financing these capital expenses. As one respondent commented, "so far we have been blessed with enough funds from regular income sources (tax levy and city/county service contracts) that we have not had to turn to special methods to fund new technologies, equipment, etc."

4. Given the wide range of financing methods, it seems that there are no significant obstacles to the array of financing methods that libraries have available to them.

These are reassuring conclusions if the traditional sources of library income, operating budgets in particular, become insufficient to fund new technologies, equipment and furniture replacement, and building renovation. If you are a library administrator or fiscal officer, you may have more financing alternatives than you thought. Ask yourself: If peer libraries have used a particular financing method, why can't your library? Is your library's dependence upon operating funds a realistic posture for the next decade? If your library uses three or fewer financing methods, how are peer institutions able to use two to three times as many? Are the obstacles you see in using new financing methods truly insurmountable? If necessity is the mother of invention, perhaps the survey results presented in this paper can assist in the birth of a stronger financial structure for your library.

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APPENDIX A: LIST OF SURVEY PARTICIPANTS

Public Libraries

1. Brooklyn, N.Y.
2. Buffalo & Erie County, Buffalo, N.Y.
3. Cleveland, Oh.
4. Contra Costa County, Pleasant Hill, Calif.
5. Cuyahoga County, Cleveland, Oh.
6. Dallas, Tex.
7. Fresno County, Fresno, Calif.
8. Jefferson Parish, Metairie, La.
9. King County, Seattle, Wash.
10. Memphis & Shelby County, Memphis, Tenn.
11. Miami, Fla.
12. Milwaukee, Wis.
13. Montgomery County, Rockville, Md.
14. Prince George's County, Hyattsville, Md.
15. San Bernardino, Calif.
16. San Diego, Calif.
17. San Diego County, San Diego, Calif.
18. San Francisco, Calif.
19. Seattle, Wash.
20. St. Louis County, St. Louis, Mo.
21. Tulsa City-County, Tulsa, Okla.

Universities: Private

1. Brigham Young University, Provo, Utah
2. University of Chicago, Chicago, Ill.
3. Columbia University, New York, N.Y.
4. Cornell University, Ithaca, N.Y.
5. M.I.T., Cambridge, Mass.
6. New York University, New York, N.Y.

7. Northwestern University, Evanston, Ill.
8. University of Notre Dame, Notre Dame, Ind.
9. University of Pennsylvania, Philadelphia, Pa.
10. University of Pittsburgh, Pittsburgh, Pa.
11. Princeton University, Princeton, N.J.
12. University of Rochester, Rochester, N.Y.
13. Stanford University, Stanford, Calif.
14. Syracuse University, Syracuse, N.Y.
15. Vanderbilt University, Nashville, Tenn.
16. Washington University, St. Louis, Mo.
17. Yale University, New Haven, Conn.

Universities: Public

1. University of Alberta, Edmonton Alberta, Canada
2. Arizona State University, Tempe, Ariz.
3. University of California, Berkeley, Calif.
4. University of California, Riverside, Calif.
5. University of Cincinnati, Cincinnati, Oh.
6. University of Colorado, Boulder, Colo.
7. Colorado State University, Fort Collins, Colo.
8. Florida State University, Tallahassee, Fla.
9. University of Georgia, Athens, Ga.
10. University of Hawaii, Honolulu, Hawaii
11. University of Houston, Houston, Tex.
12. University of Illinois, Urbana, Ill.
13. Indiana University, Bloomington, Ind.
14. Iowa State University, Ames, Iowa
15. University of Kentucky, Lexington, Ky.
16. University of Maryland, College Park, Md.
17. University of Massachusetts, Amherst, Mass.
18. McMaster University, Hamilton Ontario, Canada
19. University of Michigan, Ann Arbor, Mich.
20. Michigan State University, East Lansing, Mich.
21. University of Minnesota, Minneapolis, Minn.
22. University of Missouri, Columbia, Mo.
23. University of New Mexico, Albuquerque, N.Mex.
24. University of North Carolina, Chapel Hill, N.C.
25. Ohio State University, Columbus, Oh.
26. Penn State University, University Park, Pa.
27. Purdue University, West Lafayette, Ind.
28. Queen's University, Kingston Ontario, Canada
29. Rutger's University, New Brunswick, N.J.
30. Southern Illinois University, Carbondale, Ill.
31. State University of New York, Buffalo, N.Y.
32. State University of New York, Stony Brook, N.Y.
33. Temple University, Philadelphia, Pa.
34. University of Tennessee, Knoxville, Tenn.
35. Texas A & M University, College Station, Tex.
36. University of Washington, Seattle, Wash.
37. Wayne State University, Detroit, Mich.
38. University of Western Ontario, London Ontario, Canada
39. University of Wisconsin, Madison, Wis.

Process Not Product in Course-Integrated Instruction: A Generic Model of Library Research

Constance A. Mellon

Pre-writing, writing, and editing are viewed as recurring stages in the writing process. Composition courses embodying this view often have a library research component. In order to blend the writing process with an appropriate introduction to the library, the University of Tennessee at Chattanooga developed a generic model of library research. This model has three stages: pre-library, library awareness, and library competence. Each parallels a stage in the writing process. Library use is presented as a series of activities including searching, retrieving material, evaluating material, summarizing, and, if necessary, retracing earlier steps.

Most faculty agree that college students should acquire the ability to do research. Yet, research is a way of life to many who teach in higher education, an activity so familiar that they rarely pause to analyze it or to consider its complexity. Thus it is difficult for faculty to understand the dislike students exhibit toward research papers, their uncertainty of how to begin, and the poor quality of the papers they produce.

In many instances, freshman English instructors, sometimes supplemented by instruction librarians, have been responsible for teaching college students how to do research. The traditional methods of teaching research have evolved from a linear, product-oriented model. The instruction librarian focuses on tool use or search strategy, the product of which is the vaguely described "information about your topic." The English instructor focuses on selecting topics, preparing an outline, and presenting information. The product of this activity is the equally vague research paper. Since the emphasis tends to be upon a product appropriate to a specific discipline, little consideration is given to the transferability of the subject matter from one discipline to another. There is, however, a new movement in higher education which lays the groundwork for the concept of writing as process. When writing is examined as process, or in terms of recurring stages, the link between retrieval and use of materials and the circular nature of the link are far easier to see.

WRITING AS A PROCESS

Within the last decade research on writing has moved from an examination of the written product to an exploration of the process through which the product is created. Most writing theorists describe a three stage process: a pre-writing stage during which the writer explores the topic of the proposed piece of writing, a writing stage during which the writer is concerned with expressing his/her ideas for a specific audience, and a rewriting, or edit-

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ing, stage during which the writer evaluates and reworks his/her piece of writing.

During the first stage of the writing process, the writer is not concerned with an audience. Rather, the task is to explore the topic, what the writer already knows about the topic, and what the focus of the written piece should be. The technique most commonly used at this stage is freewriting. Beginning with a topic, the writer writes steadily for a short period, putting down thoughts as they occur. The writer does not let the pencil stop moving even if circles or loops must be drawn. This technique is sometimes called "looping." James Moffett suggests that this technique allows the writer to tap into a stream of consciousness, thus discovering personal knowledge, interests, and conclusions about a topic.[1] This stage represents the writer talking without a concern for the audience, style, or the rules of grammar.

During the second stage, the writer composes the message to be presented. Attention is given to the audience as well as to style, syntax, and choice of language. The task of writing is presented as a series of drafts and revisions rather than a single attempt to prepare a finished product. Students are assisted in their revision of various drafts of their papers through individual conferences with faculty and by peer evaluation.

The final stage, rewriting, can range from simply proofreading and polishing to major revision based on peer review and self-evaluation.[2] Individual conferences and group work with peers help to match writing style with intended audience. Editing for grammar and spelling is also emphasized as an important final activity in the preparation of the paper.

Most theorists consider the process recursive rather than linear. Thus, no clear-cut, linear stages can be observed; rather, the writing activities shift back and forth among the stages as the written product grows, changes, and develops. Focus on the recursive nature of the writing process stems from the work of researchers such as Perl[3] and Flower and Hayes.[4]

GENERIC MODEL OF LIBRARY RESEARCH

Starting with the concept of writing as process, a group of faculty at the University of Tennessee at Chattanooga (UTC) met daily as part of a summer project to examine the freshman composition course which includes an introduction to the research paper. The group included representatives from the arts, the sciences, the social sciences, composition, and the library. One objective was the development of a process model of library research.

The first step in developing the model was the conceptualization of what the group coined the "generic" approach to library research. As the group discussed research, it recognized that, in addition to a discipline specific concept of library research, there was also a more general research need. Thus "generic" research is defined as the need to locate sufficient information for research papers in other introductory courses such as general education courses. The aim is to identify general principles with lifelong application rather than the simple acquisition of facts for immediate use. The generic model broadens the definition of "information sources" to include communication with experts and personal observation.

The model (see Figure 1) is conceptualized in three stages: pre-library, library awareness, and library competence. During the pre-library stage, the need-to-know is generated. It begins when the potential researcher selects or is assigned a research topic. Using techniques of invention such as freewriting or brainstorming, the student explores existing knowledge of a topic and begins to choose a focus for research. As the limits of personal knowledge are explored, the student reaches a point where the insufficiency of that knowledge is recognized. This is the point we have labelled "library readiness."

The second stage, library awareness, involves the conscious recognition of the need-to-know. Here the motivation to seek additional information is increased. At this stage, the student begins notetaking. Basically, this is talking to oneself about new information being acquired. As the student reviews these notes and begins to evaluate the adequacy of initial sources, the need for more information is generally recognized. This provides the transition into the final stage of the model.

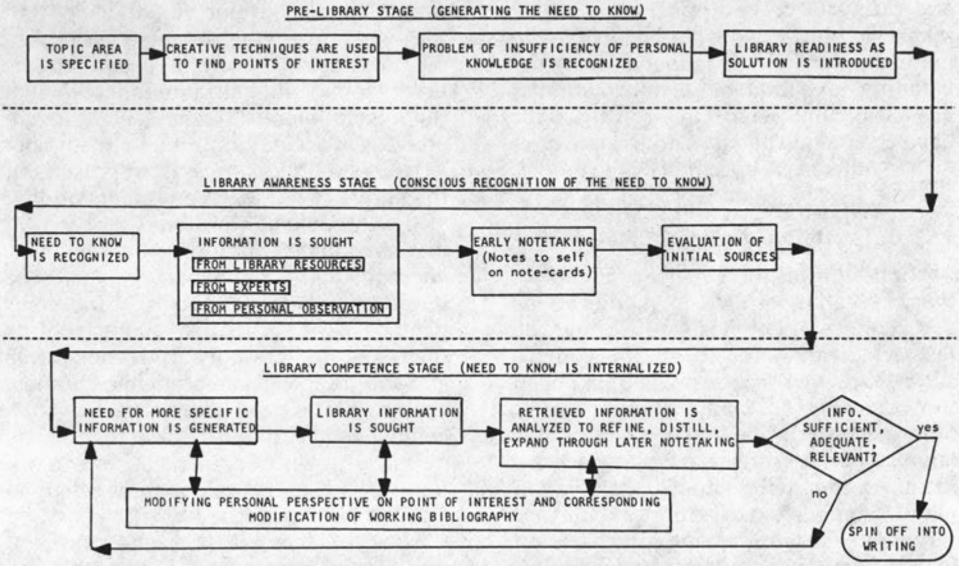

FIGURE 1
Generic Model of Library Research

As the student enters the library awareness stage, simple instruction should begin on the bibliographic organization of the library and the use of either fact or finding tools immediately applicable to the information need. This introduction is most effective if students have at least an elementary competence in summary, paraphrase, and bibliographic form—the basic tools of note-taking. It is not enough for students merely to master the technical aspects of a tool such as an index. They must be able to identify and retrieve relevant information of potential use to the product of their research efforts.

One of the conflicts encountered at this stage is the balance between success and frustration. As all experienced researchers know, library research is a problem-solving activity with more dead-ends than successes. Students need to be exposed to the reality of the dead-end as well as to the benefits of a successful search. While it is unlikely that a first search will yield too much success, it may well result in too much frustration. It is therefore very important for the composition instructor and the instruction librarian to cooperate and closely monitor this initial library experience. In this way, the student can be guided to an experience that is both realistic and rewarding.

The third stage of the model is the library competence stage. The aim is to develop in the student a competence in the library research skills being taught and used in the composition course. At this stage it is assumed that the need-to-know has been internalized to the point where the student is motivated to continue library research. After the information initially retrieved is evaluated, the student generally becomes aware of its insufficiency. This generates a need for specific information. Since the library has been presented as one solution to the problem of insufficient knowledge, the student is inclined to return to the library to seek further information. This is the first step in a recursive process of search, retrieval, and evaluation. As new sources of information are located and examined, students are encouraged to analyze these sources in order to refine, distill, and expand their ideas about the research topic. This process continues until the information retrieved is viewed as sufficiently adequate for the student to begin writing the paper. Once again it must be remembered that process, by its very nature, is not linear and does not occur in neat, predictable steps. The student who has begun to write may find, through the influence of the developing text, that more information is needed or that perspectives on the topic have changed. This may necessitate a return to other steps specified by the model.

THE MODEL APPLIED TO BEGINNING COMPOSITION

Application of the generic model of library research resulted in modifications and changes of emphasis in teaching the research component of beginning composition. While writing as process had been the focus of UTC's composition program, library research was not viewed as nor taught as process. Research paper assignments in the composition course varied widely from section to section and the topics were selected without consideration for the availability of materials, bibliographic format, or reference tools needed to satisfy information needs. Many composition teachers, unfamiliar with the bibliographic organization of the library and the concept of search strategies, relied on the "scavenger hunt" assignment in order to orient students to library resources. Since instructors frequently did not know if their assignments could be effectively completed within the constraints of the library's resources, the result was often frustrated reference librarians, anxious or hostile students, and irritated composition teachers. Thus, when topics for research papers were assigned, students were unprepared for the rigors and disappointments of library research. Teachers were left with the impression that library resources were inadequate.

As the generic model of library research developed and grew with input from librarians, composition teachers, and instructors from other undergraduate disciplines, it became clear that the traditional methods of assigning research papers and introducing library research were inadequate. Participants in the summer project decided that three areas should be emphasized in the development of library instruction activities: attitudes toward the library and librarians, limitation of research topics to provide positive experiences rather than frustration for students, and the development of print materials to supplement instruction in the use of specific library tools. Since attitudes are pivotal to the development of competent researchers, it was decided that the following objectives should be stressed in presenting the library to students: an understanding of the intrinsic role of library research in undergraduate education; a sense of benefit to result from effective library use; the development of an attitude of library competence in the student; an appreciation of the reference librarian's professional role and the complexity of academic libraries; an understanding of library search as challenging rather than frustrating; and a redefinition of library success as competence in search processes rather than as number of items retrieved.

After the four-week summer project, during which the generic model of library research was developed, the director of composition, in consultation with the coordinator of library instruction, integrated the model into the suggested format for fall classes. Application of the model was made easier because the composition program had been designed around the concept of writing as process. The process emphasis led many beginning composition teachers to design their courses around a series of short research papers, rather than one long paper.

Since library readiness is dependent upon the mastery of some basic skills as well as a need-to-know, the first research paper taught these skills. Students selected a topic from a required book of readings and used this material as research information. The skills of summary, paraphrase, and bibliographic form were emphasized and the problem of plagiarism was addressed in a controlled setting from a uniform information source. Therefore, before their initial use of the library for research, students experienced a simplified version of the process required to produce a research paper.

The second assignment was a library research paper. Information sources were limited to journal articles which could be found in *Readers' Guide to Periodical Literature, Social Sciences Index,* and *Education In-*

dex. This limit was established because (1) journal articles are easier for beginning researchers to read and to summarize than books, and (2) non-circulating journals are readily accessible. Students were introduced to the concept of index use through the familiar *Reader's Guide*. They were then led to other Wilson indexes which provide more scholarly sources of information without requiring mastery of a technical jargon that is beyond the knowledge of most freshman.

To arrive at the point of "library readiness," composition teachers worked with students to define and explore topics from a controlled list that was developed with the help of the reference staff. Each of the four or five topics was checked in the indexes to verify that enough information was available and accessible in the library to support students' research efforts. Accordingly, library instruction sessions were developed around specific topics, focused on specific tools, and offered to students who recognized their need-to-know.

Library instruction sessions were designed to incorporate the concept of generic versus disciplinary research. The students were told that as undergraduates they would often be expected to follow a systematic process in order to complete a research assignment. They were shown how to define and narrow a topic using subject headings, subheadings, cross references, and titles of articles in indexes. This technique saves time and frustration for beginning researchers since topic narrowing with indexes assures that relevant information is readily available. To increase the likelihood of a successful search the need for a problem-solving approach to finding terms was stressed. In addition, the program provided a simple overview of library reference tools, and a basic research strategy with practice in its use (see Figure 2).

Since the library instruction session is relatively straightforward, it was originally thought that the composition teacher would conduct it after briefings by the library faculty. However, evaluation data indicated that approximately eighty percent of the students in every class mentioned that the "friendliness" and "knowledge" of the librarian alleviated their fear of library research. Thus, although the goal of both the writing program and the library instruction program was integration of library skill development into the fabric of the composition course, it was decided that a single session taught by a librarian should be retained.

Composition teachers differed in their

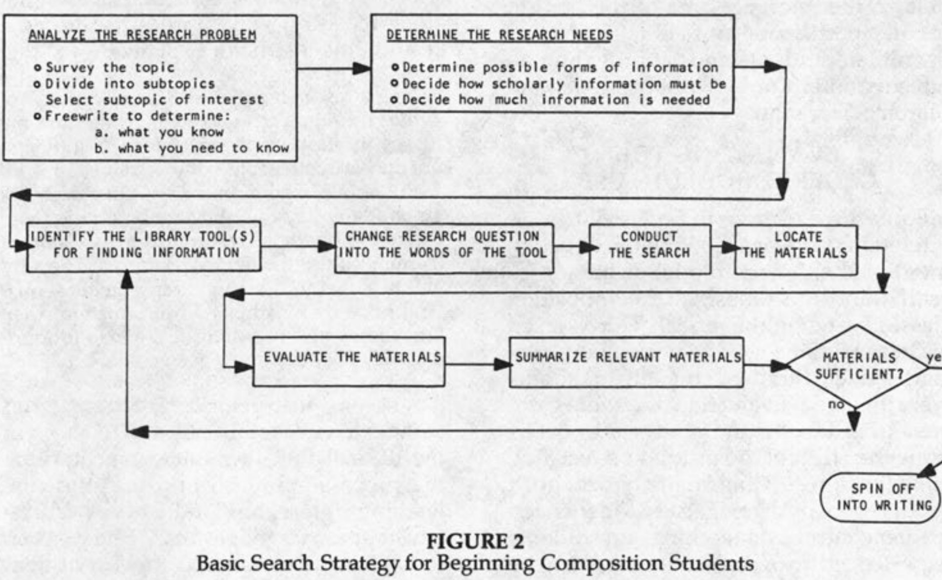

FIGURE 2
Basic Search Strategy for Beginning Composition Students

approach to the third research paper. Some repeated the entire process used for the second research paper. Others preferred to have students apply that process to a research project involving the use of other library tools. For the latter group, students were required to use newspapers in support of an opinion paper on a current topic. Students responded well to this assignment; so well in fact that *Newsbank*, previously almost unused, became one of the most popular tools in the reference collection.

The integration of library instruction into the writing program evolved slowly over a three year period. In developing the library instruction program, the initial focus was beginning composition, a course required of all students. This assured some entry level information search skills. Two years were spent in building links to the composition faculty and determining the best concepts to be presented. Since its introduction the teaching model has been evaluated and a number of revisions and refinements have been made.

In addition to the systematic introduction to library research, the new composition course provides an opportunity for reference librarians to work more closely with composition faculty. Approximately one-third of the class sessions are now held in the reference area of the library. Faculty participate by fielding questions from their students and by providing an effective interface between students and reference librarian.

EVALUATING THE GENERIC MODEL IN USE

Forty-three sections of English 102 were offered in the year following the development of the generic model of library research and the redesign of composition classes based on the model. Thirty-seven of these sections used the new course design. Seven hundred and fifty students were involved. Evaluation data were gathered from faculty and students to determine the effect of the process on teaching and learning. Comments from both groups were positive. Faculty experienced greater control over teaching and students experienced growing confidence in the search, retrieval, and use of information.

Composition faculty were asked to state in writing their observations and attitudes about the new teaching approach. Responses were consistently positive, with all faculty describing the search for information as an integral part of the research paper process. One faculty member expressed it in this way:

> Research is a process, of course, but this semester's work has convinced me that the process is not a matter of finding a topic, locating sources, doing bibliography cards, writing a draft and then writing a final paper. These are steps in writing a research paper, but the real process involves much reading, writing, and wondering. These activities do not necessarily occur in any order, and they most certainly must be repeated a number of times in the research process. For the students to realize that this process leads to the best paper, these activities must be built into the paper assignment.

Other composition teachers talked about the "relationship between the search process and the creative process," and described the writing of a research paper as "a process of thinking, reading, sorting, and writing," and discussed the intellectual growth of students in terms of "their ability to assimilate and use information."

All composition teachers who used this process felt that it was successful and that their teaching was more effective as a result. One instructor explained:

> Taking a research assignment and working together through each succeeding step not only makes the task much easier for the students, but they are better able to understand and work with the information they find. On a daily basis, students say that they are becoming more comfortable with the research process. They are learning to use the library resources. They are able to gather information to answer questions. And once they gather that information, they seem better able to assimilate it and to produce focused, organized, and even readable papers.

A second instructor comments, "After some extensive rethinking and redesign of my 102 syllabus, I was able to incorporate the process approach into the students' learning of research, and I have been really happy with the results." She went on to explain her reasons: "I feel confident that, for the first time in a long while, these students are going to know how to handle a research assignment in the future, in any general education class."

A third instructor explained it this way:

> By the end of the semester, most students were handling most facets well. Because we emphasized the skills involved at each stage and they had a chance to develop these skills, most students now feel quite at home in the library and are pleased with their new ability.

Students in the composition classes were required to keep journals. In the journals they commented on their experiences gathering information and writing the research papers. Students were also asked to write evaluations that discussed the positive and negative aspects of learning to use the library. Over ninety-five percent expressed satisfaction with the new way in which the library and its resources were integrated into course design. While earlier class evaluation data emphasized tool use, the evaluation data from classes integrating the generic model reflected the beginnings of a process orientation. One student explained that she "was now able to locate the same source of material by using different angles," while another declared, "I also discovered that there really was a system to finding a path through the materials at our disposal." Overall the comments provided an excellent reflection of the awakening of process.

In addition to their beginning awareness of process, many students described an initial freeing of "library anxiety." They began the semester dreading the library, but ended it with confidence in their ability to use library resources. One student explained that she was "absolutely frightened about the idea of working in the library. I was sure everyone else would know what to do and I was certain I would be the only panicky one in the group." By the end of the semester her feelings had changed. "Now," she said, "I feel very confident whenever I go into the library."

A second student declared, "I have had a complete change of attitude toward the UTC library." He describes how his "terrible fear" of the library turned into confidence, ending on the exultant note: "It is unbelievable how much information is contained in the UTC library and it is all there waiting for me to use it!"

While some students recorded traditional complaints about the availability of specific journals, access to copy machines, and the temperature of the building, there were few negative comments on the process by which they were taught. In fact, only three suggestions for improvement appeared with any regularity: a tour of the library; two sessions rather than one because of the amount of material covered by the librarian; and more training in the use of microform.

These comments graphically illustrate the growing confidence and pride expressed by students as they began to search for, retrieve, and use information in a more proficient, process-oriented way. Demonstrating, discussing, and guiding students through the research process was time-consuming, but rewarding. One composition teacher declared, that the effort paid off handsomely. Students were responsive and exhibited growing confidence in their own abilities.

IN SUMMARY

The concept of writing as a process produces changes in the teaching of beginning composition that require corresponding changes in the presentation of library instruction. The recursive nature of the composing process demands that library use be viewed as a series of recurring activities that include searching, retrieving, reading or skimming material to evaluate its applicability, summarizing relevant material, and analyzing retrieved information for adequacy and sufficiency. This process continues until the student stores enough information to reach the rhetorical goals set for the proposed research paper. To help students achieve this process orientation toward library research, composition teachers and instruction librarians need to develop an integrated approach to teaching. This requires an understanding and respect for the expertise of the other.

While much attention in higher education is currently being directed toward the concept of writing as a process, little thought appears to be given to how this new concept affects the presentation of library instruction. With the exception of Flower and Hayes,[5] writing process models do not mention the impact of library-retrieved information on the writer. Therefore, it is up to the instruction librarian to alert composition faculty to the desirability of inserting library as process into research writing as process. Instruction librarians who put forth the necessary effort will find that it "pays off handsomely" through the increased motivation and positive attitudes that students have toward library research and its role in the total research process.

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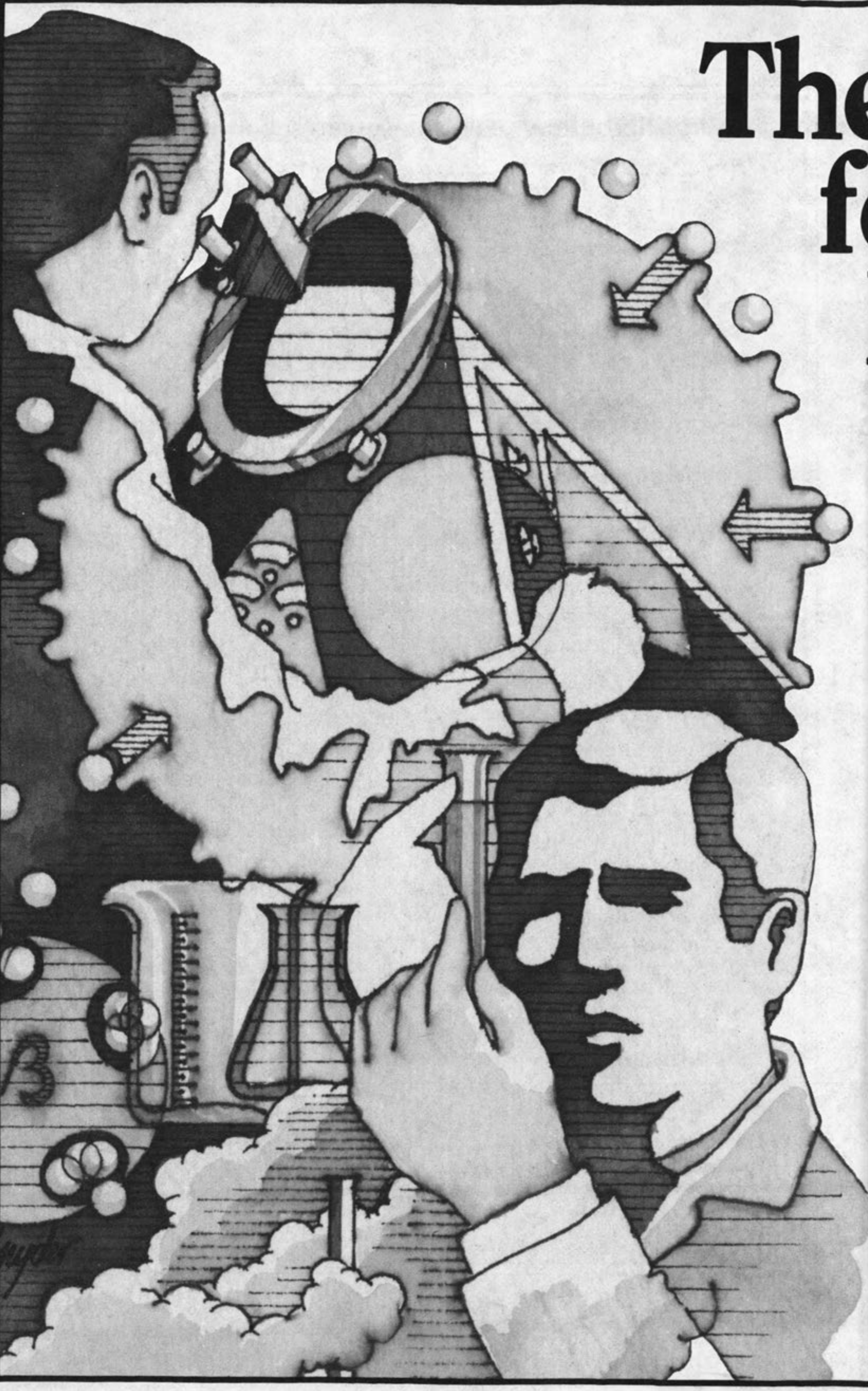

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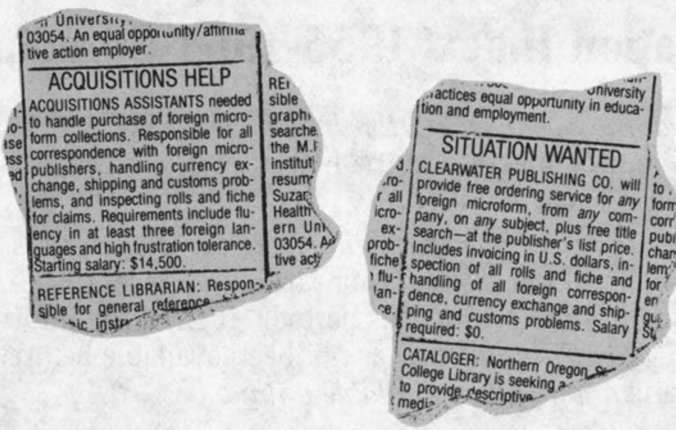
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Librarians and Teaching Faculty: Partners in Bibliographic Instruction

David Carlson and Ruth H. Miller

The integrated model of bibliographic instruction (BI) appears to be the preferred method of instruction despite such concerns as high cost in time and personnel. But even more crucial concerns are (1) a critical dependence on teaching faculty, (2) the difficulty of achieving a consistent, even program of instruction, and (3) the problem of transference of library knowledge from one course to another. As more emphasis is placed on research strategies than on specific tools, it becomes clear that the relationship between librarians and faculty is the major element in a successful BI program.

It is surely a sign of maturity when bibliographic instruction (BI) can be seriously discussed as a separate discipline rather than just another subfield of librarianship.[1] Within the past two decades there has been a tremendous growth in BI programs and literature. Yet, despite all this activity and interest, it is impossible to identify an approach or concept that clearly defines the movement. For some, BI is little more than traditional reference service with a library orientation tour for freshmen students added on. For others, it represents a pervasive approach based on "concepts, theoretical frameworks, and mental processes that guide sound library research."[2] Methods also differ widely. Workbooks, computer-assisted instruction, credit courses, non-credit courses, point-of-use instruction, integration, term paper clinics, and pathfinders are all legitimate, well-used approaches to reach the common goal of teaching students how to use the library.

One reason for this diversity of approach is the sometimes hectic growth of BI itself. As a movement, it has roots and some history.[3] The frequent exchange of ideas in the literature and activity in the classroom, however, indicate that the maturing of the discipline is a recent phenomenon. Another reason for the many approaches to BI is that each has its own unique strengths and weaknesses.[4] Diversity allows the librarian to choose the most appropriate approach in view of available resources and institutional strengths. The librarian usually chooses the method that will best meet the objectives of the BI program. For example, is the program to be selective and reach only certain target groups such as freshmen or is the approach to be comprehensive without excluding any group or subject area? The librarian should assess these important factors in order to ensure that the best approach is selected.

This paper focuses on critical factors regarding the effectiveness of the course-related or course-integrated mode of BI. Course-related or course-integrated programs share three common characteristics:

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1. Integration with the Curriculum. Instruction is given as part of subject-specific classes in the curriculum. Typically, the classes have an assignment such as a term paper to complete that involves use of the library.

2. Faculty Involvement. Because instruction on the use of the library is given as part of subject-specific classes, librarians must work extensively with and have the cooperation of the faculty who teach these classes.

3. Group Instruction. Lectures are given by librarians to groups of students in a class and not to individuals. This does not preclude small group instruction or individual assistance.

These basic characteristics set the integrated approach apart from other models of BI. Apart from this, however, course-integrated programs differ widely. Often these differences relate to the extent of the interaction between librarian and faculty member. In some programs the librarian's role is quite limited, and a BI lecture is given solely to meet the requirements of the course assignment; here BI is approached strictly as the means to a specific end. In other programs, BI is an integral part of the course, almost inseparable from primary course content. In this case, the librarian and faculty member may work together as a team. Course objectives and course design are built around library assignments.[5]

Integration offers important advantages: flexibility, the ability of the librarian to reach a relatively large number of students at one time, and increased motivation for students to learn through the class assignment. Other important benefits are the heightened visibility of the library and the enhanced role of the librarian in the educational process.

> Course-related instruction can have a large impact on the courses themselves, the students, and even the curriculum, by exposing both students and faculty to sophisticated research skills and to a wider range of library materials than they normally would have used. Course-related instruction can be a great image builder for both the library as the center for learning and knowledge and the librarian as a serious researcher and professional interested in furthering the teaching-learning process. Librarians get to know faculty and students more intimately and can offer suggestions on teaching and researching procedures.[6]

The role and image of the librarian can change substantively in an integrated approach. In lecturing to classes, the librarian is seen clearly by students as an active participant in the educational process, rather like a guest speaker with specialized expertise in an area of interest to the class. Thus, integrated BI allows the librarian to move away from a role of passive guardian and caretaker of the collection to that of active participant, teacher, and information specialist. The most important benefit of integration, however, is that through the relationship developed between librarians and faculty, "the nature of the courses themselves may change, with more emphasis placed on independent library investigation as an integral part of the course."[7]

Heightened visibility and increased participation of librarians in the educational process enable these educational and curricular changes to take place. These changes are especially important to academic librarians who believe they are a critical part of the educational process but often have little to show for that belief. These changes are the direct result of librarians going outside the library to work with faculty and to teach students in the classroom. By definition, this type of activity is integrated. No other approach enables the librarian to take such an active and effective part in the educational role of the institution.

In addition to these important benefits, integration receives "a good press." The program at Earlham College is one of the oldest, most effective and successful programs in the country. Evan Farber and other librarians at Earlham have been instrumental in the promotion of BI. Earlham librarians have pointed with pride to their program as an example of integrated instruction that is effective for the library and is an essential part of the educational process. Who could fault them?

Because of the unique and important advantages of integration and the success of the Earlham model, it is not surprising that many librarians view this model as the preferred method of instruction.

> Conference presentations and informal conversations at bibliographic instruction meetings in the last few years have been filled with assertions that course-related and course-integrated instruction are the ideals to be achieved.[8]

Or, as another author asked after reviewing the advantages offered by the integrated approach,

> What prevents course-related instruction from **universal acceptance** as the preferred means of library instruction?[9]

Once the integrated model is accepted, what impact will it have on the curriculum? Will the program be as successful as the one at Earlham? What factors will both hinder and promote the achievement of BI goals? These are the questions that maturity brings. These are the questions that now face BI librarians.

PROBLEMS OF THE INTEGRATED MODEL

In reviews of the integrated approach to BI, administrative problems are most frequently identified and discussed. Some of these are as follows:

1. Cost in Time and Personnel. In an integrated program, the librarian spends a significant amount of time preparing for lectures. This has been identified as "one of the major problems" of integration.[10] One recent estimate is that the time needed to prepare a single presentation is ten to fifteen hours.[11] This is clearly a significant cost, considering a librarian's other day-to-day responsibilities. Fortunately this high investment is lessened if the presentation is repeated frequently. Thus, once a presentation is fully developed and refined to the satisfaction of the librarian and the teaching faculty, only the review and update of resources are necessary before reuse. It must be noted, however, that this base of experience is built only with time and "no matter how many times a core lecture is reused, at least a half day is involved in careful reformating or modification."[12]

2. Coordination and Scheduling. Because this form of instruction is so dependent on integration with the curriculum, the librarian must coordinate and respond to a flexible class schedule. Among the necessary and basic functions that must be performed for the program to function are: knowing the size and location of the class, gathering information about changes in class assignment, working with timing constraints imposed by the lecture, and contacting professors.

Other characteristics complicate the coordination of integrated programs. First, instruction is typically needed all at once toward the beginning of each term. Second, key variables change from term to term and year to year. Of course, the extent of these problems is directly related to the level of instructional activity. The coordination of five to ten lectures per term is trivial but the coordination of two or three lectures a day during the first few weeks of a term can be a formidable administrative problem. Moreover, unlike the time required for lecture preparation, the work of coordination does not substantially decrease over time.

3. Materials Development. Nearly all integrated programs use a variety of instructional materials to supplement lectures: slides, transparencies, handouts, books, or a combination of these materials. Each type of material has different requirements for handling and use. All require time to organize and maintain. Some can be costly to duplicate and need to be redesigned with each new lecture.

Two other administrative problems are the teaching skills of the librarian and the difficulty of evaluation. The problems of preparation time, coordination and scheduling, and materials development should not be minimized. However they are all administrative concerns over which the librarian has a great deal of control. Demands on time and personnel constraints can be controlled by limiting the number of lectures and the material used for teaching; difficulties of coordination can be solved through the application of efficient procedures and effective lines of responsibility.

These administrative concerns are not the primary, critical areas that ultimately will determine the effectiveness of an integrated program. Rather, they are only the problems that appear most formidable for a new program. Other problems over which the librarian has less control are much more troublesome and may have a greater impact on a program's ultimate success. The authors have identified three such areas. They are (1) a critical dependence on teaching faculty, (2) the difficulty of achieving a balanced program of instruction, and (3) the problems of transference of library-based knowledge from one course to another. Beyond simple identification, discussion on these areas in the literature has been limited. Effective solutions to these difficult problems will not come quickly or easily, but the first valuable step toward maturity is usually an identification and appreciation of the complexity before us.

THE CRITICAL ROLE OF FACULTY

No matter how hard librarians work, without the cooperation and support of teaching faculty, the BI program will be unsuccessful or severely limited. This happens because the attitude of the faculty is a major determinant in the response of students to the program. As Raymond McInnis notes:

> More than any other factor, the value the classroom instructor attaches to library research determines the students' interest in use of library materials. Instructors give direction and motivation to students as to how library materials are to be used in meeting course requirements. Their influence is most often the difference between a perfunctory use of materials and dedicated examination of the rich store of scientific literature typically available in most college libraries.[13]

Most reference and BI librarians will affirm the accuracy of McInnis' observation. More than any other method of instruction, the integrated model is extremely dependent on faculty for success.

The dependence of the BI librarian on the faculty member manifests itself in several ways. The initial and most obvious manifestation, of course, is the difficulty of convincing the faculty member to allow the BI librarian to address the class at all. On every campus there are faculty with no interest in using BI in their classes. Among faculty willing to schedule presentations, there is a wide diversity of interest in and value attached to BI. For some faculty, the presentation will never be more than a filler for a session that they must miss. Others approach BI with interest but with little knowledge of its value or purpose. Once lectures are scheduled, faculty who are enthusiastic and knowledgeable about BI may work with the librarian to produce assignments encouraging students to use library resources creatively and systematically.

On the other hand, if a professor uses BI out of some vague feeling of obligation but with no definite sense of its value, students will easily perceive this attitude. Students will then have an ample excuse to view the BI session—or the assignments—as unimportant. Even when the librarian is welcomed into the class, there is seldom any chance to participate in determining the nature of the assignment itself. Preparation becomes more difficult and the librarian is denied involvement in the evaluation of the final product. The absence of involvement and authority is not lost on students.

While the librarian is not usually involved in the assignment, the faculty member often has specific ideas and suggestions about the library presentation. Faculty may insist on specific, and often inappropriate, sources being presented to the class. At best, these suggestions support a specific assignment, and the inclusion of the suggested resources, made on the basis of the faculty member's experience with the research literature, may be a valuable addition to the librarian's presentation. On the other hand, the inclusion of a source because of the professor's appreciation of it, regardless of its suitability for the students and the assignment, may complicate the presentation and confuse the students.

Occasionally a professor will devise a bibliographic treasure hunt for students, with the idea that this process will teach them a great deal about using the library. This is a list of questions for which students must find highly specific answers, frequently in obscure or unfamiliar sources or by subtle means. While this may be of value in some contexts and even enjoyable if freely chosen, such a method is likely to confuse and frustrate many students, especially those for whom libraries are unfamiliar or even alien places. Instead of emphasizing a research strategy or demonstrating how to proceed systematically, such exercises emphasize randomness and suggest that one may just as well ask the librarian to find things because there is no meaningful system or discoverable order. Many faculty who use BI expect their students to be told only about specific tools rather than concepts on research strategy and are satisfied, frequently even impressed, with modest nods to the theoretical. While it is important for the faculty member to be present when lectures are given and to be involved in the BI process, he or she should not be encouraged or expected to designate the specific tools to be presented.

The integrated model usually gives the librarian at least one and seldom more than four class sessions. The best use of that limited time can be made if the professor has a well chosen assignment, a supportive attitude, and awareness of the uses and purpose of the library and BI. Librarians may insist on a library assignment as a prerequisite for a classroom presentation, but they can hardly insist on a "proper" attitude and an "approved" assignment. While the "instructor provides the stimulation and motivation necessary to get most students seriously concerned about engaging in research," the librarian provides the process for doing so effectively.[14] This means working with both faculty and students.

CONSISTENCY OF INSTRUCTION

One advantage of a separate course in library skills is that the student population is clearly defined and it is possible to tailor presentations precisely. The workbook approach has similar advantages. Both modes provide control over who takes the class and may even offer control over when it is taken, e.g., as a graduation requirement. With the control provided by a workbook or a separate course, the librarian works with a relatively uniform level of library skills and progresses in a logical, predetermined series of lectures and exercises to teach library skills. The greater similarity in the students' experience and the greater likelihood of correctly targeting problem areas increases the opportunity for successful presentations.

The integrated model, however, gives the librarian very little control over who is reached or when. In making a presentation to a specific class, the librarian may have to lecture to students at several different levels of library skill and knowledge. The material in the presentation will be completely new and unfamiliar to some; for others it will be full of the same basic resources used in other lectures, explained yet again.

Student motivation is a key element in any instructional program, and one sure method to destroy it is through repetitive instruction.[15] One possible response to this problem is to allow those students who feel that they do not need the instruction to leave. However, an invitation to leave for a qualified few frequently results in the unqualified departure of many. Students who know only the use of *Reader's Guide* and the card catalog may think there is no reason for them to remain for further instruction. They will not have been made aware of or exposed to the complexity and variety of other sources. It is unfortunate that almost all students—regardless of their actual level of bibliographic skill—regard their skills as being quite good and view themselves as competent library users.

There is an even greater problem resulting from the wide diversity of library skills among students. In the attempt not to lose those for whom the lecture is the first library presentation of any sort and not to alienate those for whom it is repetitive, the elaboration of lectures that present a consistent, logical progression of skills is an elusive goal. It is extremely difficult to progress beyond fundamental library resources and research skills when the librarian cannot assume a common base of knowledge on which to build.

The lack of control over who receives instruction can also result in a very uneven program. The inclusion of a library instruction presentation is dependent on the cooperation and voluntary support of individual faculty members. As classes are taught by different professors, the degree of receptivity toward the inclusion of a library presentation will vary. Indeed, it is possible to have two or more sections of the same course taught during the same term by different professors with some sections receiving BI and others not. By graduation there can be a wide range of library skills, not just in the student body as a whole but even within disciplines.

One means of dealing with this problem is to impose a structure on the BI program. For example, the Earlham program is:

> . . . gradated into four levels of instruction, according to students' needs. Briefly, these four levels may be identified as: pre-freshmen coming from high school with varying library knowledge, freshmen writing their first 'research' paper, juniors beginning their majors, and seniors trying to integrate their four years.[16]

Another approach taken at the University of Evansville is to offer a formal program of progressively more complex library instruction to a school or department and have it approved by the teaching faculty as a group. At Evansville specific classes are selected to receive library instruction and specific educational objectives to be achieved with each level of instruction are identified.[17] It can be extremely difficult, however, to get a group of faculty to agree on a proposal that, in essence, mandates the inclusion of specific subject material. Another response to the problem of consistency is to restrict instruction to those classes where a common level of library skills can be assumed. This may severely limit the number of class presentations.

TRANSFERENCE OF LIBRARY KNOWLEDGE

The third area of concern is the transferability of library knowledge from one course to another. Even for highly motivated students who are receptive to BI and recognize its value, it may be extremely difficult for them to transfer such knowledge to other courses or even to other assignments. It is helpful if students are guided through specific assignments, but then what? If nothing else, students may learn to depend on librarians. This is progress of a kind but hardly the sort of independence that should be encouraged.

If students are to function independently in the library, they must be taught more than the use of specific tools. Because evidence suggests that BI works best when related to the research needs of specific courses[18] and students are more likely to retain information when they are actively involved in using it, instruction should not become too theoretical. Of course, balancing the practical with the theoretical in any discipline is never easy. BI librarians must continue to familiarize themselves—as well as students and faculty—with learning theory for instruction and the work of the cognitive theorists.[19] This may help them to achieve the best combination of the theoretical and the pragmatic.[20]

There is now greater emphasis in the BI literature on teaching students a conceptual framework, encouraging them to examine evidence rather than answer questions.[21] Frick suggests that the way in which students obtain material for research may be more important than the material itself.[22] If we agree, instructors should work at presenting more than just specific titles and a bibliography in an attempt to teach what Frick calls "(1) discrimination or judgment and (2) an understanding of bibliographic structure."[23] Frick offers four levels of bibliographic awareness: (1) specific titles useful for certain tasks, (2) types of sources, (3) knowledge of disciplines and the need for the use of different sources, and (4) knowledge of the structure of the literature.[24] Teaching students how to learn is crucial if BI is to be more than first aid for a specific assignment. Another basic task is to prepare students for literacy in information gathering and use.

Until recently, bibliographic instruction has lacked a conceptual foundation. As a result, many librarians have been inadequately prepared for BI work. Relatively few librarians have studied learning theory or what has been called "social epistemology," an interdisciplinary study which supplies the scholarly underpinning for BI and focuses on how knowledge is generated, communicated, organized, and presented. Raymond G. McInnis' *New Perspectives for Reference Service in Academic Libraries* provides the best articulation of this "epistemological approach." He states that students should:

> . . . be informed, first, of the underlying processes and practices of inquiry characteristic of particular disciplines; second, of the patterns of the published research literature emanating from these activities; and third, that developing and refining research skills require thoughtful attention and deliberate practice. Three related premises are that there is a tacit logic of research strategy; that this logic can be raised to the level of awareness; and that research strategy itself can be refined by its intelligent and purposeful application. In short, it is desirable that students gain the craft skills of the instructor-researcher.[25]

Considerable effort must be expended to begin a BI program. Once the groundwork is established, the next step is to educate the faculty by demonstrating "the relationship of libraries, library use, and library instruction to these new ideas about educational methods."[26] Convinced faculty can and often do persuade other faculty. If faculty lack an understanding about the need to develop a progression from elementary to advanced research techniques, then librarians must work to reorient them. Several writers have pointed out that "the faculty has limited understanding of the intellectual processes involved in sophisticated library competence."[27] While some faculty do little or no library research, others do a great deal. Often, however, this is accomplished within the somewhat narrow confines of topic, method, or subdiscipline. Even successful researchers may not consciously understand the process they use and so may not be effective in helping undergraduates begin their research. All librarians have dealt with faculty who are reluctant to ask for help. Some may even admit that they have "forgotten" how to use the library, but few find it easy to admit to the need for help.

One of the most successful attempts to deal with this situation is described by Anne Grodzins Lipow in "Teaching the Faculty to Use the Library: A Successful Program of In-Depth Seminars for University of California, Berkeley, Faculty."[28] The seminars are well advertised and well attended. Faculty response has been positive. Her conclusion is that:

> . . . the myth that faculty won't admit to their lack of library know-how is exploded. We now know that (1) many, if not most, faculty need an update course; (2) many faculty need guidance in elementary concepts and tools in addition to the more advanced ones; (3) if given the opportunity, faculty want to be educated about the library; (4) although it is true that most faculty may neither understand nor appreciate the crucial role of librarians in the information-retrieval process, faculty can be educated about this role, and no one but librarians can do that job.[29]

Thus, the responsibility rests with librarians to absorb these ideas and develop ways of presenting them to faculty and students. As Beaubien notes, "Only when BI librarians grasp the substantive intellectual basis for what they have themselves been doing all along at the reference desk will they be able to teach their students to extrapolate to ever higher levels of complexity."[30] While the success of BI is highly dependent on teaching faculty, success with the faculty still depends upon librarians.

CONCLUSION

It is useful to consider why administrative concerns have been the focus of so much attention in the BI literature even if they are not as critical as other concerns discussed here. One answer is that administrative problems are the most visible and the most formidable when a program is initially undertaken. An indication of the maturity of the field is that now other factors more critical to the success of developed programs can be addressed.

The Earlham model of integrated instruction is a well-established, mature program that has addressed the problems discussed here. But before using Earlham's approach as a solution, it is important to recognize the uniqueness of Earlham's situation.

> One important factor in our favor, for example, is the educational climate which encourages, even demands, library use. The size of most classes is small, and the faculty, who are concerned more with good teaching than research and publication, have built a curriculum that includes a variety of seminars, tutorials and independent study programs. A second factor permitting the program's development is the unusual rapport between librarians and teaching faculty. Such cooperation is essential. . . .[31]

Earlham's program is unique, and one must

> know the institutional context in order to understand it and appreciate it: our program—as indeed is true of most educational programs—was designed for and has been shaped by its context; it is not an exportable package.[32]

Elsewhere, Farber refers to Earlham as the ideal context for library instruction and describes that context as a prelude to discussing the BI program itself.[33]

There are significant environmental factors affecting the problems of integration at Earlham but very few librarians could claim these as characteristic of their own institutions.[34] Nonetheless, even at Earlham librarians have referred to the persistence of such problems as "too much library instruction,"[35] "student motivation,"[36] and the critical relationship between librarians and teaching faculty.[37]

While it is certainly instructive to see how Earlham has resolved its problems, we must recognize Earlham's singular qualities as we seek out solutions that draw on the particular strengths and unique qualities of our own institutions.

Whatever the institutional environment, BI instructors must be flexible and creative by introducing new research strategies and techniques into changing curricula and tailoring them to meet student needs. Two additional guidelines can be offered:

1. Establish collegial relationships with the teaching faculty beyond the classroom/BI interaction. If the goals are to reach other classes and other faculty, to make more creative use of BI, and to develop more intensive skills in students, then we must have the trust of the faculty and a shared belief that what we have to offer is important and valuable. Development of trust and the sharing of values are not simply the result of classroom lectures or presentations to faculty meetings on BI. Participation on campus-wide committees, informal interaction, attendance at departmental seminars and presentations, cooperative development of the library collection, and many other activities unique to each individual campus all contribute to establishing the kind of relationships with faculty that are necessary for successful, integrated BI.

2. Maintain an awareness that the opinions and comments of students about BI presentations are valuable and should be heeded. There is a temptation to regard student complaints about BI as unsolvable or simply invalid and therefore to disregard them. Teaching faculty struggle constantly with the problem of how much weight to give student evaluations. This is no less difficult in BI. Yet regardless of the accuracy of a student complaint, it should be addressed by the librarian. The worst approach is to assume that the librarian knows best and to continue as before. While complaints may not impress the librarian, they can influence the faculty who may tire of defending the inclusion of BI in the classroom and discontinue their involvement.

This paper has explored the critical role of teaching faculty in integrated instruction and the issues of consistency and transference. A careful reading, however, will show that these two themes are related. Consistency and transference are two particularly important outcomes of the relationship between librarians and faculty. They deserve special, separate attention.

Our intention has not been to criticize the relationship between teaching faculty and librarians. Like most partnerships there are problems that must be worked out. The better each partner understands the other and the important role each plays in the achievement of mutually shared goals, the healthier the relationship will be and the more likely it is that the partnership will be a long and successful one.

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Research Notes

An Experimental Design to Test Sponsorship and Dating Effects in Library Questionnaire Design

Ruth A. Pagell and Edward J. Lusk

The effects of sponsorship and return date on the response rate to a university library questionnaire were examined. A survey of personal computer utilization was sent through campus mail to all Wharton School faculty and M.B.A. students. Fifty percent of the surveys had a return date; fifty percent did not have a return date; fifty percent of the surveys had a library return address; fifty percent had a Wharton faculty address. The response rate for M.B.A.'s was significantly higher when both a return date and faculty address were included. Faculty response was not affected by either sponsorship or return date.

Two factors which are often used to stimulate response rates in surveys are prestigious sponsorship and affixing a return date to the questionnaire. Increasing the response rate is important because it reduces the potential bias from nonrespondents and facilitates generalizing to a larger group given the respondents' viewpoints. This paper reports the results of a study that examined these two factors in a library survey.

EXPERIMENTAL DESIGN

The Lippincott Library of the University of Pennsylvania was interested in collecting information on the utilization of personal computers for online searching for both students and faculty of the Wharton School of the University of Pennsylvania. The questionnaire was one page and asked thirteen questions, some with multiple answer options. The two populations of interest were the Wharton teaching faculty, defined as Research Assistants, Standing Faculty, and Adjunct Professors (N=226), and M.B.A. students (N=1323).

Questionnaires sent to all members of both groups were experimentally arranged a follows:

- 50 percent of the questionnaires had a return date affixed. The return date was one week after the distribution date.
- 50 percent of the questionnaires had no return date.
- 50 percent of the questionnaires had the following return address:

  Intramural Mail
Ruth A. Pagell
On-Line Search Coordinator
Van Pelt West/CH

- 50 percent of the questionnaires had the following return address:

Ruth A. Pagell is head of public services in the Lippincott Library and instructor of decision sciences and Edward J. Lusk is associate professor at the Wharton School, University of Pennsylvania, Philadelphia, Pennsylvania 19104.

Intramural Mail
Edward J. Lusk
Associate Professor/Wharton
Vance Hall/CS

The research hypotheses for both groups were:

H1: The questionnaires with the faculty return address will be returned more frequently than will the questionnaires with the library return address.

A multi-based online search was conducted to locate articles addressing the topic of sponsorship of surveys or questionnaires. No articles concerning this particular topic appeared in the ERIC, LISA, or Information Science databases. However, the subject has been reported in the literature of other disciplines, where it is concluded that university sponsorship specifically, and relatively more "prestigious" sponsorship in general, has been shown to be useful in many situations to stimulate questionnaire responses.[1-3] Blumberg, Fuller, and Hare offer a few counterexamples.[4]

In this study, it was assumed that the faculty return address would be equated with a university sponsorship.

H2: The questionnaires with the return date affixed will be returned more frequently, until the return date passes, than will the questionnaires with no return date affixed.

A corrolary to H2 is that after the return date has passed, questionnaires without a return date will be returned more frequently than those questionnaires with a return date.

Research suggests individuals will return the dated questionnaires more frequently by the specified return date compared to questionnaires with no return date affixed.[5-7] But it has also been found that after the return date passes, undated questionnaires are received more frequently.[8-10]

In our survey, the questionnaires were distributed one week before spring break. This period was selected because, according to the Director of Admissions, most of the students typically "wrap things up" before the break. After the break, the returns were expected to be negligible.

RESULTS

The returns during the seven day period are represented in Table 1. After one week, 96.5 percent of the M.B.A. questionnaires had been removed from their mail folders. The two research hypotheses are supported by the data for the M.B.A. students ($p<.075$ and $p<.025$ respectively). The relationship between sponsorship and affixing a deadline for the M.B.A. students is represented by the following:

The Classification Table

	Lusk	Pagell
DATED	66	39
NOT DATED	36	44

The X^2 test for homogeneity yields $p<.025$. The odds ratio for this classification table is 2.06 with a standard error of .43. Therefore, the return of dated questionnaires with faculty sponsorship is slightly greater than twice that of undated questionnaires without such sponsorship.

Finally, eleven faculty and three M.B.A. questionnaires were returned after the affixed return data. Of these, twelve were not dated.

DISCUSSION

The faculty and M.B.A. students seem to react differently regarding faculty/library sponsorship and questionnaire dating. There may be numerous plausible explanations for these differences. However, given our methodology, such explanations are conjectural. More importantly, given the results, two sets of guide-

TABLE 1
QUESTIONNAIRE RETURNS

	Dated		Not Dated		
	Pagell	Lusk	Pagell	Lusk	Total
M.B.A. Students	39	66	44	36	185
Wharton Faculty	11	15	15	15	56
Total	50	81	59	51	241

lines are suggested in surveying these two groups:

I. Surveys of faculty can be conducted without faculty sponsorship without inhibiting the return rate. Such questionnaires should not have return dates affixed.

II. Faculty sponsorship and return dates seem likely to increase return rates for M.B.A.'s.

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A Periodicals Access Survey in a University Library

William Watson

Unavailability of periodicals when they are needed has been a recurrent complaint about the University of British Columbia Library system. In most branches, periodicals are allowed to be borrowed after they have been on the shelf for a month, excepting a few anchored sets. To some users this practice is quite wrong, provoking protests such as, "I never get the issue I want," and, "We should be able to count on finding every issue of every journal available on the library shelves." We have considered the possibility of reducing or eliminating circulation of periodicals, but we know there are many readers who would be seriously inconvenienced by limited opportunity to use them in other locations and over an extended period of time.

To consider this specific question, whether or not to continue to circulate periodicals, as well as to determine whether there were ways in which access to periodicals might be enhanced, the university librarian appointed a Committee on Access to Periodicals. The committee recommended that a survey was needed to determine the actual extent of unavailability of periodicals.

THE FIRST SURVEY, NOVEMBER 1983

Specifications for the first survey, initially the only one planned, were that it would take place during the busiest part of the fall session. It would measure the availability of a representative sample of periodicals across the library system. It would not be an opinion survey but a practical determination of what part of the sample was available for immediate use, what was available in due course, and what was not available except through interlibrary loans.

After some trial and error it was found that workable lists could be computer-produced and the lists could be completed by hand by members of the committee and two or three volunteers. Lists of three hundred active subscriptions each were run for 13 locations and lists of one thousand titles for two other locations. Entries included call number (except for a few uncataloged items), title, frequency (where it had been established), and a brief, incomplete, statement of holdings. The librarians supplied random numbers identifying the issue to be searched for each title listed. Because the holdings statements were kept brief they did not always provide sufficient information for a decision as to what would be a valid search.

Librarians were asked in each case to mark down from a random-number table or from dice a number specific enough for a searcher. They were to prefer a volume and issue number to a date whenever there was a choice. In some cases, particularly periodicals with numerous volumes and numbers per year, where the random number would offer a choice from two or more issues, they were to choose the most recent one. And if the holdings seemed to be largely complete (no more than three "missing" statements) the librarians would pick any suitable number including that of a missing item. Where there were more gaps in the holding statements (more than three "missing" statements) the choice of an issue to be searched would be confined to those the library would be expected, from the evidence, to have. Where the information provided in the holdings statements was wanting, or incomplete, or contradictory, that entry was to be eliminated from the search.

The intent was to focus on periodicals

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from the last 10 years, still on the active subscription lists, which might reasonably be assumed by a person capable of using the library catalogues to be held by the library. There was an implicit assumption that material in backfiles from more than 10 years ago would not be less available than the more recent and more heavily-used periodicals.

The lists coded by the librarians were provided with columns representing places or conditions believed to be likely for the periodicals. Searchers were told how to interpret the coding and asked to write on the lists any information they thought would help to explain what they had discovered in the searching.

During the period October 31 to November 6 inclusive, the lists were farmed out to the locations and the division heads were asked to make sure that the searching was completed during those seven days. Except for a few problem entries, this condition was satisfied.

SURVEY 1 FINDINGS AND CONCLUSIONS

The tabulated findings of the November survey are shown in Table 1. Explanation of the categories is given in Appendix A.

The committee made several observations based on the findings and their interpretation.

One observation was that 78.45 percent of the material was on the shelves readily accessible to the user. And another 7.62 percent was accessible at the time with staff aid. These two general categories accounted for 86.07 percent of the periodicals surveyed.

TABLE 1

AVAILABILITY OF PERIODICALS, NOVEMBER 1983 SURVEY

	Number	Percent
Available directly		
On shelf bound	2,974	55.16
On shelf unbound	1,256	23.29
	4,230	78.45
Available indirectly		
In sorting area, etc.	301	5.58
In another division	110	2.04
	411	7.62
(Cumulative subtotal)	(4,641)	(86.07)
Available within a fortnight		
On shelf after first search	70	1.3
Misshelved	23	0.43
In the bindery*	115	2.13
In process in LPC	7	0.13
On loan	97	1.8
On hold	2	0.04
In use in the library	1	0.02
	315	5.84
(Cumulative subtotal)	(4,956)	(91.91)
Not available		
Declared missing	20	0.37
Retain current issues only	30	0.56
Not received†	224	4.15
Do not hold	77	1.43
Lapsed	14	0.26
Not found	71	1.32
	436	8.09
(Total)	(5,392)	(100.00)

*Material is at the bindery itself for two weeks and can be rushed if circumstances warrant the additional costs. Prior to going to the bindery and after return, the material is waiting to be processed for varying periods of time. Again, it can be retrieved if necessary, but at some cost. Most of the time, unless the item wanted has just been dispatched to the bindery, the statement that it can be produced for a user within two weeks is valid, but in practice it is not advertised.

†Much of this "not received" material will arrive and be made available in due course.

Another observation was that if the potential user was able to wait a short time, anywhere from an hour to two weeks, another 5.84 percent of the periodicals could be obtained. The cumulating subtotal of the available category was 91.91 percent of the sample.

The most distressing observation was that 8.09 percent of the periodicals could not be located. Some of them—perhaps one half—would come along later, but at least at the time all were inaccessible. (On interlibrary loan they would take from one to six weeks to be delivered, depending on the source.)

Some 4 percent of the sample had either disappeared for reasons unknown, or were never part of UBC's holdings, or were discarded as no longer useful. It was observed that some would turn up as mysteriously as the way they went missing.

The committee, lacking a yardstick, did not determine whether there were any unusual problems to tackle. Whether 1.32 percent not found and 0.37 percent declared missing are high figures for these categories was unclear. (We would appreciate receiving any objective comparisons.)

Three conclusions were reached. The first was that with only 1.85 percent of the material in the hands of another borrower or being held for another borrower, the circulation of periodicals could not be considered a serious obstacle to access to periodicals.

Another was that the staff needed regular reminding that as many issues as possible should be on the open shelves where they are directly accessible to users rather than behind the scenes where they can be reached only with help.

The third conclusion was that a second, more limited survey was wanted, similar to the first, but focusing not on a random cross section of periodicals but on a careful selection of most used periodicals. This additional survey was conducted in March 1984.

THE SECOND SURVEY, MARCH 1984

On March 5 and 6, 1984, two hundred of the most heavily used periodicals held by the science division of the main library were tested for availability. That division provides a reference service for the sciences excepting life sciences, mathematics, forestry, and agriculture, all covered by other branches. The three science reference specialists each chose 65 to 70 titles which their experience showed to be most heavily used. Coincidentally the total arrived at was precisely two hundred.

For each of the two hundred titles, one set of randomly selected issues from the period 1974 to 1983 inclusive, and another set from the year 1983 only, were searched. The results of the second survey are shown in table 2.

CONCLUSIONS FROM SURVEY 2 FINDINGS

Three categories from the 1983 sample

TABLE 2

AVAILABILITY OF HEAVILY USED SCIENTIFIC PERIODICALS, MARCH 1984 SURVEY

	1974–83		1983	
	Number	Percent	Number	Percent
On shelf	171	85.5	78	39
In sorting area, etc.	14	7	49	24.5
On loan	9	4.5	2	1
In the bindery	3	1.5	58	29
On shelf after first search	1	0.5	—	—
Misshelved	—	—	1	0.5
Not received	—	—	10	5
Not found	2	1.0	2	1
Total	200		200	

Notes: The items on the open shelves were directly available to the users, while the ones "in sorting area, etc." (local prebindery, morgue, storage) could be located with staff help. Those on loan, in the bindery, on the shelf after the first search, and misshelved, would become available in due course, most of them within a fortnight. The three items from the 1974–83 set found to be in the Bindery were all 1983 issues.

call for special comments. The ten items "not received" were made up of five which had already been claimed and five known to be slow to arrive. One of those claimed involved a single missing issue, subsequent issues having arrived, while the others represented subscriptions that had run into problems needing to be resolved. There were 58 items in the bindery and another 49 available only with staff assistance. Of the latter group, many were in the science divisional prebindery. Altogether, some 85 items from a sample of 200 were not immediately or not directly available because of binding. Of the 85, about 55 were retrievable with staff help from within the division or by being "rushed" from the Library Processing Centre.

To interpret the results of this science survey in the context of the system-wide survey of November, it is best to consider the 1974–83 sample and the 1983 sample separately. The 1974–83 set is directly comparable with material covered in the earlier survey except that it was chosen as most heavily used while the earlier survey was a general cross-section.

It is remarkable that 85.5 percent of the most-used science periodicals were on the open shelves available for use, comparing favorably with the 78.45 percent of the earlier sample. Another 7 percent were available with staff aid, and 6.5 percent would become available after a wait. One percent of the sample could not be found.

Again, the committee concluded that circulation did not appear to be a significant barrier to access, as only 4.5 percent of the most-used periodicals were out on loan.

From the 1983 set, 39 percent of the issues in the sample were directly available and 24.5 percent were available with staff aid, for a total of 63.5 percent available within a few minutes. This proportion is considerably less than the 86.07 percent quickly available in the November survey. The difference is entirely accounted for by the 29 percent of the material "in the bindery" in the science survey.

In the remaining categories there were no significant differences between the results of the earlier survey and those of the survey of the 1983 science sample.

On material out for binding, it should be noted that the science survey was made at a time of year when a great deal of binding is done, just when the preceding year's indexes have arrived and the volumes are complete. As the head of the science division observed, "While there is no 'good time' for binding, this may well be the best time." Users who read issues as they arrive on the shelves have already done so, while those who approach journals through abstracting and indexing services will be waiting for the abstracts to arrive.

GENERAL CONCLUSIONS

The committee undertook several other related investigations and came up with twenty recommendations, which can be summarized as:

- No change in circulation policy for periodicals was indicated.
- Better physical facilities should be provided for periodicals as soon as feasible.
- Improvements in housekeeping arrangements, computing systems, staff training, prebindery operations, and

work priorities would enhance the availability of periodicals.

The November survey called for about a person/month's staff time and the March survey for four person/days' time. The committee considered that the time had been well spent in providing a good working answer to the specific question on circulation and the general question of periodical availability. They hope, at the same time, that it will be ten years before another survey is wanted.

APPENDIX A: PERIODICALS ACCESS SURVEY—MEANINGS OF THE CATEGORIES

1. On the shelf—bound. The item was located on the open shelf in the stacks accessible to the public.
2. On the shelf—unbound. Found on the shelf or in the box where unbound material is kept. In the case of unbound government periodicals in the main library, the proper place is the government publications division. In the case of other unbound periodicals, locations are the humanities and social sciences periodicals area or the science periodicals area.
3. In the sorting area, a divisional prebindery or morgue, in storage, or in any area where items can normally be located only with staff help.
4. On loan. The loan is recorded either on the automated system or in the manual circulation file.
5. In the bindery, including the Library Processing Centre Prebindery. Not in a local prebindery, for which see 3 above, but unavailable for immediate consultation or loan.
6. Identified as "missing." The item had been traced previously and not being found had been listed as missing prior to the survey. It may be long overdue or unaccountably missing. Whether a replacement copy has been ordered or not is normally shown on the circulation fiche.
7. On hold. Being held aside for another borrower. Usually such an item can be briefly consulted by the seeker, but not borrowed until the other user has had an opportunity to obtain it.
8. On the shelf after the first search. This one was not on the shelf when first sought, but it was there by the time a second search was made usually three or four days later. It was probably in use or waiting to be reshelved after use.
9. Misshelved. Located, but not where it was meant to be found. Often this sort of material can be spotted by experienced staff members.
10. In another division. The item was found to be in another division than the one where it was sought. This category includes divisional reference collections in the main library. It also includes material which has been transferred from one location to another, and material whose current issues are kept in one location, bound volumes in another. In almost all cases the information on location in the microcatalogue is correct.
11. Not received. This category includes material that has not, or not yet, arrived, though it might have been expected to be there. If the library has or had a subscription which appears to cover the period represented by the number searched, it was considered a valid search. For numbers which would seem to belong to the latter part of 1983, for instance, they would be considered fair game. If not checked in, such an item would be identified here as "not received." Probably more than half of the "not received" items will arrive in the next few months.
12. Do not hold. This category was used for items that turned out to be outside the scope of the holdings list. If the checklist was unspecific, or incorrect, or misleading about when the subscription began and if the item identified for searching was found to predate the actual subscription it was marked "do not hold." Similarly, if a backfile with lacunae was purchased and if the search was for an issue or volume missing from the set, the "do not hold" box was marked. Most items so identified cannot be expected to arrive.
13. Lapsed. This designation covers two main types of material: titles which went out of existence or for which the library subscription was cancelled; and those where the lapse seems to have escaped attention for an unknown reason. Most of the suspended and cancelled periodicals are properly identified in the microcatalogue. Where the lapse has been inadvertent and is just being discovered, it will not be reflected in the microcatalogue.
14. In process in the Library Processing Centre. The item has been checked in but not yet delivered to the shelf, or it has been removed for processing.
15. Library retains current issues only. Ephemera. This category covers newsletters and the like. The holdings that are maintained are from the current year, or the last two or three years, depending on a judgment that has been made as to their useful life. The statement is carried in the microcatalogue.

16. Not found. This is the catch-all category to which an item is consigned whenever it cannot be located and no reason is determined. Presumably some items have been lost or stolen, others are in transit or in use. After time has been allowed for an item to turn up a decision is made whether to attempt to replace it. The gifts and exchanges unit may be able to obtain a free copy, or it may have to be purchased.

Using Time-Series Regression to Predict Academic Library Circulations

Terrence A. Brooks

Four methods were used to forecast monthly circulation totals in 15 midwestern academic libraries. In a test of one-month forecasting accuracy, the dummy regression method, a sophisticated forecasting method for cyclical data, exhibited the smallest average error. In a test of six-month forecasting accuracy the monthly mean method, a naive forecasting method for cyclical data, exhibited the smallest average error. Straight-line predictive methods, both naive or sophisticated, had significantly greater error in both accuracy tests. A remaining research question is, Why do naive forecasting methods outperform more sophisticated forecasting methods with monthly library circulation data in long-range forecasts? It is suggested that high levels of randomness in library-output statistics inhibit the performance of sophisticated forecasting methods.

INTRODUCTION

A time series is a chronological sequence of observations on a variable.[1] An example from the field of librarianship of such a variable is circulation check-outs. Library circulation counts are commonly compiled on a daily basis and aggregated into monthly or semester reports. A series of these monthly counts is a chronological sequence of observations on the variable library circulation. Consequently, it is fair to conclude that the most typical type of statistical data libraries produce is time-series data. Library literature, however, reveals little awareness of the ways that time-series data can be used for forecasting and planning.

Time-series regression techniques are regression procedures used to predict future values of a time series. They are unique only in that they use past values of a time series to predict future values of the same time series. This paper reports the application of two types of time-series regression to the problem of forecasting academic library circulation.

FORECASTING

"In library planning and decision-making, predictions are invariably required."[2] Despite Hamburg's statement, there has not been much theoretical work or practical application of forecasting methodologies to library statistics. This is in sharp contrast to the acceptance of forecasting in other disciplines. Forecasting, or trend analysis, is considered an integral part of scientific management and rational decision making. Makridakis and Wheelwright[3] describe forecasting as a tool that permits management to shield an organization from the vagaries of chance events and become more methodical in dealing with its environment. Like bureaucracies everywhere, academic libraries need tools that will enhance planning and rational decision making.

Filley and House[4] would characterize most academic libraries today as third-

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stage growth organizations. Large and complex, these organizations have developed beyond the early rapid growth stages identified by Filley and House and now have become institutionalized with a corps of bureaucrats who plan, organize, direct, and control. Many academic librarians are similarly charged with the tasks of planning, organizing, directing, and controlling library operations. One tool to help accomplish these managerial tasks is forecasting.

There are two forecasting studies in library literature worthy of note. The first is by Drake,[5] who considered linear regression as a predictive technique. She concluded that straight-line trend projections are not the most efficient predictors in all library situations. The reason is that library data, especially circulation data, show monthly or seasonal fluctuations. Cyclicity may be one of the reasons that forecasting techniques have had a retarded application to library statistics. Cyclicity in library-output statistics means that a variable such as monthly circulation fluctuates up and down throughout the academic year. Such cyclical data demand forecasting techniques that can model their seasonality.

The most sophisticated forecasting study in library literature to date is by Kang.[6] He forecasted the requests for interlibrary loan services received by the Illinois Research and Reference Centers from 1971 through 1978 using several methods, including methods that can model cyclical data, and found regression to be the best predictive technique. He used a weighted regression formula that gave less predictive value to older observations, and greater weight to the most recent ones. The generalizability of Kang's study is severely limited, however, due to the fact that data from only one library was used.

METHODOLOGY

The purpose of this paper is to evaluate time-series regression forecasting methods with academic monthly library circulation totals. Time-series regression is a methodology that is new to library and information science, but has been used extensively in the social sciences, business, and economic literatures.

Makridakis and Wheelwright[7] give two versions of time-series regression approaches. The first time-series regression approach uses independent variables that are past values of the time series itself.[8] An example of such an approach would be using the monthly circulation totals of several months past as the predictor of next month's circulation total. This simply means that a library's circulation time series is regressed on itself at a certain time lag. There are two caveats with this technique. First, it produces a straight prediction line and thus should suffer the same problem of poor fit that was noted by Drake. Second, it is a new application, meaning that the choice of time lag has not been studied sufficiently with academic library circulation data. Hence, the choice of any particular time lag is completely arbitrary.

The second time-series regression method uses qualitative or dummy variables.[9] In the context of multiple regression, a dummy variable is a special independent variable that can take only a limited number of values such as 1 or 0. To use dummy regression for forecasting, some monthly totals of the time series are tagged by a 1, while other months of the year are given 0s. The result is a multiple regression equation that can model the seasonal patterns of library circulation totals and should perform as a more efficient predictor than straight-line methods.

To provide benchmarks for performance comparisons two averaging methods were also used as forecasting methods. These averaging methods were used because they represent the most direct and naive approach that any academic librarian could use for forecasting. For instance, a future circulation total could simply be forecast from the average of all past values of the time series. Alternatively, a particular future monthly total could be forecast from an average of past values of that particular month.

In all, four forecasting methodologies were used with Minitab,[10] a statistical software program, and circulation data from several libraries:

1. Dummy time-series regression was

used to find an equation to predict one month and six months in advance for each library. This is a sophisticated forecasting method that can model cyclical data.

2. Lagged time-series regression was used with each library's data lagged one month and lagged six months. The decision to use a one-month time lag and a six-month time lag was arbitrary. This is a sophisticated forecasting method that makes straight-line predictions. It cannot model cyclical data.

3. A simple average was made of each library's circulation totals to provide a straight-line benchmark for comparison purposes. This is a naive straight-line forecasting technique.

4. A monthly average was computed for each library for one month and six months in advance. This provided a seasonal benchmark for comparison purposes. For instance, if January and June represent the forecasts for one and six months, then data from previous Januarys would be averaged to give a forecast for the month of January. Similarly, previous Junes would be averaged to give the June forecast. This is a naive forecasting method that can model cyclical data.

DATA

A random sample of fifteen academic libraries in the Midwest submitted monthly circulation data for analysis. The states of Illinois, Ohio, Michigan and Missouri were each represented by three academic libraries, Iowa was represented by two academic libraries, and Minnesota by one academic library. The holdings of these fifteen libraries ranged from a maximum of four million book titles down to a minimum of two hundred thousand book titles.

Ten libraries contributed time series of 60 months' duration, three libraries contributed time series of 72 months' duration, one contributed 66 months, and one contributed a time series of 53 months. The most recent six months' data for each library were set aside to provide a basis for evaluating the performance of each of the four forecasting methods. Forecasts were made with each method for each of the fifteen libraries for one month and six months in advance. Each forecasted monthly total was then compared to the actual total reported by the library and an absolute percentage error (APE) was calculated. The average of the APE values for each forecasting method (the mean absolute percentage error) was then found.

An accurate forecasting method would, relative to other methods, have a small mean absolute percentage error (MAPE) across the sample of the fifteen academic libraries. An analysis of variance was performed comparing the MAPEs to see if there was a statistically significant difference among the four forecasting methods.

RESULTS

Table 1 shows the results of forecasting one month in advance. The dummy regression method had the smallest MAPE followed by the monthly mean method. These methods are capable of modeling the seasonal patterns of academic library circulations. The two straight-line prediction methods followed with the largest MAPEs.

TABLE 1

ANALYSIS OF VARIANCE OF MEAN ABSOLUTE PERCENTAGE ERROR FOR ONE-MONTH FORECASTS

Methods	n	MAPE (%)	SD (%)
Dummy regression	15	12.22	11.08
Monthly mean	15	15.52	12.65
Lag 1 Regression	15	26.26	15.45
Simple mean	15	30.19	25.48

Analysis of Variance

Source	df	SS	MS	F	
Factor	3	3288	1096	3.74	(p=.0160)
Error	56	16391	293		
Total	59	19679			

An analysis of variance (ANOVA) test on the difference among the MAPEs of the four methods proved to be statistically significant (p=0.0160). Since the null hypothesis of no difference among the population MAPEs was rejected, a multiple comparison of the sample means was indicated. The Neuman-Keuls procedure, as outlined by Meyer[11] was used. A significant difference ($p < 0.05$) was found between the MAPEs of the dummy regression and simple mean methods. There was insufficient evidence that any other pair of means differed significantly.

Table 2 shows the results of forecasting six months in advance. Dummy regression and the monthly mean methods, the two techniques that can model the seasonal patterns of academic library circulations performed better than the straight-line methods. But the relative positions of each technique have changed: the averaging methods now outperformed regression methods in both the cyclical and straight-line cases.

An ANOVA test on the difference among these MAPEs proved to be statistically significant (p=0.0166). The Neuman-Keuls procedure showed that the monthly mean method had a significantly ($p<0.05$) lower MAPE than the other three methods.

DISCUSSION

The results of this study show the superiority of forecasting methods that can model the cyclicity of academic library statistics. In a test of one-month accuracy, the sophisticated dummy regression method was superior. In a test of six-month accuracy, the naive monthly averaging method was superior.

The outstanding unanswered question at this point is why the monthly averaging method does so well in long-run forecasting relative to the performance of more sophisticated methods. It may be due to the fact that sophisticated forecasting methods are sensitive to random fluctuations in library time-series data. Random errors in library time series such as monthly circulation totals spring from all manner of human and mechanical sources; they are akin to static interferring with a radio transmission. It is a popular theme in library literature to castigate library-output statistics for their lack of reliability and validity. Childers[12] even portrays different types of library-output statistics as having different levels of random error based on the method of collection of the statistic. It would appear that high levels of randomness are preventing sophisticated forecasting techniques from modeling library circulation data closely and accurately. When sensitive methods are used to predict the future, their forecasts are wider off the mark than less sensitive methods. The phenomenon of the success of simpler methods has been observed in other studies[13] comparing forecasting methods. The next step in researching library-output statistics would seem to be measuring the amount of randomness in library-output statistics.

TABLE 2

ANALYSIS OF VARIANCE OF MEAN ABSOLUTE PERCENTAGE ERROR FOR SIX-MONTH FORECASTS

Methods	*n*	MAPE (%)	SD (%)
Monthly mean	15	12.38	10.71
Dummy regression	15	15.30	13.51
Simple mean	15	39.16	38.45
Lag 6 Regression	15	39.63	42.08

Analysis of Variance

Source	df	SS	MS	F	
Factor	3	9864	3288	3.71	(p=.0166)
Error	56	49652	887		
Total	59	59516			

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Letters

To the Editor:

John Olsgaard's article, "Characteristics of 'Success' among Academic Librarians," [*C&RL* January 1984] addresses an important question: "what makes the successful librarian different from the unsuccessful librarian?" I read it with interest, hoping for information on the qualities which result in success in our profession; perhaps such traits as organizational ability; an interest in many aspects of the profession besides one's immediate job; a high level of energy; the ability to express oneself well and convince people; the ability to formulate precisely the information needs of others, even though expressed vaguely; high ambition; technical competence for the job; and also more practical matters such as having the time to invest in one's career outside of regular working hours. Which of the above are relevant to what aspect of the profession, and what other qualities are relevant to success?—I hoped to learn. Olsgaard, however, finds that success is composed of very different characteristics, namely:

—preferably being male
—being in one's forties
—living in the North-East or West
—having an MLS, preferably from a highly ranked school (how can one get a professional job without one, let alone be successful in it?)
—having a bachelor's degree (how can one get an MLS without one?)—preferably in the Humanities (what does "preferably" mean here?)
—having published (but only one or two articles).

I have no quarrel with Olsgaard's study; but I hope this is not the way the profession wants to consider success. The above profile may well be true, as far as it goes, but how *useful* is it? It hardly seems to further us in our search for "measurable standards of success that would guide performance evaluation committees and library school educators," to use Olsgaard's words—or job application evaluation committees, which could also do with some guidelines. If I am evaluating a woman librarian from the Mid-west aged 35, of how much use to me is it to know that the average successful librarian is probably male, ten years older and lives elsewhere?

I am also not very happy with Olsgaard's sampling framework: the list of successful librarians in *Who's Who in Library and Information Services.* I find *Who's Who*'s criteria disquieting: they beg the question of what "successful" means. Evidence of active participation in professional organizations; activity in support of libraries and information services; contributions to the literature (per se no indication of an evaluation of their quality)—all these imply successful $\approx$ visible. What they mainly require is *willingness* and *time,* more than ability. Since a male librarian is a lot more likely than a female to have spare after-work hours (assuming they both have families), then if these are three of the five criteria of success, it follows logically that men have "a greater chance of being successful" than women. Yet we haven't begun to evaluate how good our "successful" librarian is at his or her job.

I would have hoped that past success is judged on solid evidence of ability on the job, plus *contribution* to the profession in general; the guidelines as quoted consider only *participation*. Of course there are many people whose contributions and/or success meet any criteria we may manage to devise. But it is much harder to establish criteria that will distinguish between the successful, the moderately successful, and the marginally successful—which is often our task in performance evaluation. We have to ask ourselves what we are trying to do, and why. Measure past success, or predict it in the future? Well, perhaps both. But our main reason for analyzing the already successful is surely to aid us in predicting the same potential condition in others. So what we would really like are criteria for future success, for distinguishing the likely-to-be-successful from the less-likely. Which glow-worm will become a star is a problem not addressed by criteria that define success in terms of the number of committees sat on or papers published. It would be potentially more useful to know the type of personality, or personal qualities, that result in a librarian's being successful; I suspect success is the result of traits of character, innate ability at something, and a few wise career choices. The latter are crucial: a successful administrator is not necessarily a successful reference librarian. But then I am judging success as competence on the job, not visibility.

I repeat: I am not disputing Olsgaard's findings, I am arguing against the danger of our accepting that the line of enquiry they represent is really relevant. It seems to me that a more fruitful line of attack is that of Denis and Mackesy in their article "Personality and Professionalism," (*Argus*, 11:63–74, May–Aug. 1982). I agree that this sort of thing is more difficult to do (and a quick review of the literature reveals that librarians don't seem to have been doing very much of it). Meanwhile we need to do some thinking about how we define "success" and why we want to know about it.

JUDITH G. KOREN
Head of Technical Services
Technion-Israel Institute of Technology, Haifa, Israel

To the Editor:

In reply to Charles McClure's criticism [*C&RL* September 1984] of our research project ["Tenured Librarians in Large University Libraries," *C&RL* March 1984] we wish to reassure readers of this journal that the survey, while by no means perfect, was carried out with thought and care.

When a librarian comes up for tenure at SUNY Buffalo the primary question in the mind of the president is, "Would this librarian receive tenure at comparable institutions?" Thus it was important for us to find out about the subgroup of academic librarians who had already received tenure at large university libraries. As should be clear from the title of the article, we never claimed that the results would be generalizable for all academic librarians.

Every member of the population had an equal opportunity to respond. We encouraged response by assuring anonymity, including stamped preaddressed return envelopes, and making the questionnaire easy to fill out. By assuring anonymity we made it impossible to follow up on non-response, so we ended up with a 52 percent accidental sample of 530 individuals from a total population of 1,026. In simple random sampling, 530 cases is sufficient for a tolerated error rate of 5 percent at a confidence level of 95 percent or a tolerated error of 6 percent at a confidence level of 99 percent. Even though, strictly speaking, we did not have a random sample we felt we were within the bounds of reasonable precision.

We found no reason during the analysis of the data to believe that the half of the population which responded was different in any significant way from the half which did not respond. A cynic might assume that people who had not published would be less likely to respond, however there were only two questions about publishing out of 35. We were willing to have the questionnaire published. Copies are available from the authors.

We did not find any longitudinal data covering individual productivity in the literature. We had an immediate need which we fulfilled by asking the individuals themselves and we felt a responsibility to those individuals to publish our findings. We thought it would be of interest to the profession, for instance, that more people have published articles than have presented papers. In a university setting where professors are evaluated on their ability to get grants, it may be helpful to be able to show that it is very unusual for a librarian to get a grant.

We hope someone else will do a more sophisticated study to update and improve our information about the professional productivity of academic librarians. We learned a great deal the hard way in carrying out this survey and welcome constructive criticism and instruction for improving our future research efforts.

KAREN F. SMITH
State University of New York at Buffalo
(for TAMARA U. FROST, AMY LYONS, MARY REICHEL)

To the Editor:

I am not one to carry on a lengthy correspondence through letters to the editor; however, the views of Robert E. Skinner [*C&RL* May 1984, p.227] represent a serious distortion of my original position, and I feel that I must set the record straight.

At no point did I suggest that "a strong knowledge of algebra" should be required of librarians. On the contrary, I argued that an elementary knowledge of algebra should be expected of all liberally educated people, and elementary algebra was all that was contained in the appendix to Donna Lee Kurkul's article.

I am well aware that students' abilities in mathematics, science, and even reading and comprehension have decreased in recent years. However, the Sputnik issue is a red herring. No one is suggesting that graduate librarians should have backgrounds in trigonometry, calculus, differential equations, and so forth. These are the things that are needed in the space race; however, without rudimentary algebra, librarians cannot even do straightforward studies of the kind Ms. Kurkul was reporting, let alone take advantage of contemporary technology. If librarians, particularly academic librarians, do not have such fundamental knowledge, they invite the contempt of the people whom they serve, particularly those in an academic environment.

Perhaps it was enough in Mr. Skinner's day to equate the liberal arts with the humanities, but today that won't wash. Much to their credit, our students seem to know that, and I have yet to find one who cannot understand the meaning of an expression like "Let X=10."

CHARLES H. DAVIS
Dean, University of Illinois at Urbana-Champaign

To the Editor:

I am more annoyed than offended by Frank Immler's notice of *Special Collections* in Beverly Lynch's review column of "Selected Journals . . ." [*C&RL* March 1984, p.119–20], which—speaking of delays—arrived the second week in June.

My annoyance stems from Mr. Immler's indifferent and offhanded treatment of the contents of the publication, the expertise of the guest editors, and the authority of every one of the librarians and others who have worked so hard to make their contributions. All of our contributors (except guest editors) are unreimbursed for hours of their time which they have volunteered in order to share their knowledge and collections. It does seem to me that the excellence of reviews in the subject journals of the fields we have covered—Theatre, Biochemistry, Geriatrics & Gerontology, Science/Fiction, Banking & Finance—represents more responsible, considerate, professionally critical and qualitative evaluations of substantive use.

Mr. Immler's sorry cry about schedules indicates that he has certainly not considered the difficulties of trying to manage a publication schedule with over a dozen untrained writers—all of them with prime responsibilities to their jobs. And I am shocked to think that there can be professional librarians who measure costs in relative terms of dollars per page against the substantive content of any worthy publication.

It is not my place to explain nor defend the publisher's policies of issuance nor of pricing. I am not privy to the finances of our publisher. I do know that profits are hardly excessive though, and overhead is managed carefully. There is an acceptable way of looking at publishers critically (it is called "objectively") and when the library press has one who honestly cares about the library profession, we had best start off with some display of appreciation.

LEE ASH
General Editor, *Special Collections*

To the Editor:

Reviewing a serial, even one only four issues old, inevitably leads to generalizations: one looks at organization, purpose, themes, recurring features, whatever patterns a prospective reader or purchaser can expect. One such pattern is production history. That of *Special Collections* struck me as severely damaging to an enterprise which in other ways seemed reasonably attractive, so damaging that I chose to detail this matter rather than to annotate yet another abridged table of contents and contributors list. In doing do, I did not intend to castigate Mr. Ash, though I am of course aware that the staffs of many professional journals suffer the conditions he describes in his letter and still maintain a good production record.

Production problems at *Special Collections* seem larger than simply not making deadlines. Mr. Ash disclaims responsibility for some of the problems mentioned in my review, [*C&RL* March 1984] and perhaps rightly so. I can only assume, then, that the problems lie with the publisher, Haworth Press. At any rate, the problems remain, and they are serious, in that they undermine the publisher-subscriber relationship.

Here is my view of that relationship from the point of view of "I," a subscriber addressing "you," a publisher. If I subscribe to a quarterly, I expect you to publish it four times a year. If you decide to publish a double issue, I expect it to be roughly the equivalent of two single issues. If you decide to publish three issues of roughly the same size and content (as is the case with *Special Collections*), I expect you either a) to call your journal a tri-something-or-other, or b) to refund a quarter of the subscription price I paid you. If you do not meet my expectations, then I may feel that you have violated the agreement that exists between a subscriber and a publisher that accepts his/her money. Whatever your intentions may have been with your journal, it should not surprise you that, upon surveying the results and feeling exploited, I think it important to communicate my misgivings to my friends and colleagues.

FRANK IMMLER
Principal Bibliographer, University of Illinois at Chicago

IN FORTHCOMING ISSUES OF *COLLEGE & RESEARCH LIBRARIES*

The Knowledge Business: Economic Issues of Access to Bibliographic Information
by Carlton Rochell

A Proposed Method for Reducing Periodical Subscription Lists
by Robert N. Broadus

Journal Subscription Acquisitions: The View from the Library
by Stephen J. Bensman

Ratings of Journals by ARL Library Directors and Deans of Library and Information Science Schools
by David F. Kohl and Charles H. Davis

Selected Reference Books of 1983–84
by Eugene P. Sheehy

Selecting Rare Books for Physical Conservation: A Model for Decision Making
by Lisa B. Williams

Using a Microfiche Holdings List to Access and Retrieve Periodicals and Serials: A Study of Student Success
by Paul T. Adalian Jr., Ilene F. Rockman, and Ernie Rodie

Recent Publications

BOOK REVIEWS

Bowen, Howard Rothmann. *The Costs of Higher Education: How Much Do Colleges and Universities Spend Per Student and How Much Should They Spend?* San Francisco: Jossey-Bass, 1981. 287p. $16.95. LC 80-8321. ISBN 0-87589-485-2.

This book was published nearly four years ago, but it still seems too little known by academic librarians who must cope with the problems of higher education costs and participate in the debate at their own institution on how to control them. This is unfortunate because the book is increasingly well known to academic administrators. It has been widely reviewed and frequently quoted by commentators on higher education, who admire it for the lucidity of its arguments and the succinctness with which they are stated. These are summarized in Bowen's revenue theory of cost and the five laws of higher educational costs which flow from it. The theory "is that an institution's educational cost per student is determined by the revenues available for educational purposes." Costs are not driven by a rational effort to match needs to outcomes, but by inputs: faculty-student ratios, number of library books, range of facilities and equipment, etc. From this theory five laws are derived:

1. "The dominant goals of institutions are educational excellence, prestige, and influence."

2. "In quest of excellence, prestige, and influence, there is virtually no limit to the amount of money an institution could spend for seemingly fruitful educational ends."

3. "Each institution raises all the money it can."

4. "Each institution spends all it raises."

5. "The cumulative effect of the preceding four laws is toward ever-increasing expenditure."

After reading these laws one might expect Professor Bowen to argue for greater economy in the deployment of educational resources and perhaps a reduction or reallocation in what is spent, but he does not. True, he believes that "the variance in unit cost among institutions is far wider than it should be in a democratic society" and "that institutions at the lower end of the distribution are inadequately financed" and "do not have the resources to provide an acceptable education." However, this is not to be construed as an argument for the "tearing down of the more affluent institutions" but for supporting and improving the less affluent which are "an indispensable part of the higher educational system." Indeed, Professor Bowen advocates increasing expenditure to raise the quality of deficient institutions to what he calls the Newman-Dewey standard. [Cardinal Newman is quoted approvingly as wanting an alma mater to number its children one by one; John Dewey is invoked as wanting every child to be educated as a wise parent would educate his own.] The total additional expenditure needed to achieve this result would be about eight to ten billion dollars (in 1980). This would increase total costs by 20 to 25 percent.

Bowen's vision of what this education should be is not narrowly utilitarian but based on the liberal learning ideal in which the communication and cultivation of values plays a dominant role. He believes that this country needs to give greater attention to the maintenance of its institutions and especially to higher education as a vehicle for educating people of all ages. A citizenry educated to its full potential in an aesthetic and cultural sense, as well as an intellectual one, is, for Professor Bowen, the best foundation of a productive and humane society.

This vision of education and society is one which most librarians are likely to share, but Professor Bowen's book is far more than a hortatory injunction to virtue. It is a trenchant analysis of cost trends in higher education and of the financial environment in which academic libraries exist. This environment has been one of increasing scarcity until recently and still is for many institutions. There is greater and greater pressure for economy in the allocation of resources. Libraries, in particular, have often been singled out as a part of the higher educational enterprise which demands greater scrutiny. The 80-20 rule (20 percent of a library's holdings satisfy 80 percent of a library's use) has been invoked by some as proof that librarians are not responding to either the realities of library usage or educational finance. Authors, such as George Keller in his *Academic Strategy*, believe that academe will see a new era of planning in which rational decision making and the measurement of performance will play a greater role.

Academic librarians are likely to be increasingly caught up in this struggle to define what the role of their parent institution is and how it should respond to changes in its environment. There will be a continuing battle between what Keller calls the incrementalists and the planners. The incrementalists largely eschew planning and rely on politics to gain a larger share of the institutional budget; the planners, without going to the extremes of operations researchers in attempting to quantify the measurement of institutional activity, believe in the desirability of matching inputs to outputs and in demanding some way to measure performance.

Librarians haven't been very good at devising output measures. Most of our measures are input measures of the number of books we have, etc. We know very little of output measures, of how well we satisfy our users, for example. Admittedly, such output measures haven't been very useful up to now. As the economist, Jeffrey Raffel, observed, after a study of libraries, the welfare of libraries seemed to him more dependent on political than economic analysis. This is likely to remain true, but, given the current economic climate, academic librarians are also well advised to begin the development of output measures which they can use to manage libraries more effectively and to win from their administrations the finances which they need to do it well. Professor Bowen's book is not a blueprint for how to do this, but it does provide a lucid examination of the economic environment in which academic libraries exist. An appreciation of this is a necessary first step in understanding the context of library finance and in equipping librarians to participate in the continual debate about the proper allocation of resources that goes on on every campus.—*Richard J. Talbot, University of Massachusetts, Amherst.*

Gilreath, Charles L. *Computerized Literature Searching: Research Strategies and Databases*. Boulder, Colo.: Westview, 1984. 188p. (Westview Special Studies on Information Science and Management) $22. LC 83-23319. ISBN 0-86531-526-4.

Pritchard, Eileen, and Paula R. Scott. *Literature Searching in Science, Technology, and Agriculture*. Westport, Conn.: Greenwood, 1984. 184p. $29.95. LC 83-18471. ISBN 0-313-23710-7.

Wilson, Concepción S. *Online Information Retrieval in Australian Academic Libraries*. Kensington, N.S.W.: School of Librarianship, Univ. of New South Wales, 1983. 362p. $20.

The proliferation of electronically accessible information and its effect on librarianship has been discussed widely. One aspect of this is a debate concerning the ambivalent and uncertain future role for librarians as intermediaries in the process of online data base searching. Predictions waver between those based on hope-filled confidence in information organization expertise which will ensure librarians a continuing role as searchers, advisers, and trainers, and those based on resignation to a diminishing or disappearing role as access technology becomes increasingly end-user oriented and document delivery systems grow in both number and efficiency. While very different in their purposes and in their approaches to online searching, all three books under consideration express, more or less directly, this professional ambivalence and uncertainty.

Online Information Retrieval in Australian Academic Libraries, Wilson's library school master's thesis become book, is the most openly and directly ambivalent of the three books. It reports the results of a survey intended to monitor "the general characteristics of the growth of online information retrieval services in academic libraries" in Australia. The bulk of the book describes in detail the methodology used in the survey and presents the results obtained by concentrating on four areas: (1) numerical facts, such as number of academic libraries offering searching, number of searchers per library, vendors involved, databases used, etc.; (2) charging policies and promotion of data base searching services; (3) the effect of online availability on printed subscriptions; and (4) characteristics of the search intermediaries (librarians), the end users, and the interactions between the two. The remainder of the book consists of an introduction, a literature review describing the results of other surveys in North America and Europe, appendixes which include a copy of the survey questionnaire, and a discussion of the apparent implications of the survey results.

The results obtained in the first three categories, numerical facts, changing policies, and effects on printed subscriptions, are comfortably predictable. Eighty-three percent of the eighty-six Australian academic libraries provide online searching and only one quarter of these offer free searches. Dialog is the most commonly used vendor and ERIC the most frequently accessed database, with PsychInfo and Medline close behind. Online searching has led to no consistent alteration in printed subscriptions. It is in what the survey reveals about search intermediaries and their relationships to end users that Wilson finds cause for ambivalence and uncertainty concerning the future. Most end users are, unsurprisingly, faculty. The majority of search intermediaries believe these end users are neither inclined nor able to conduct their own searches. These low expectations of end users can only be wondered at in light of Wilson's additional discoveries that, at most of the academic institutions surveyed, librarians performed too few searches to remain proficient (even at the shockingly low proficiency requirement of one search per week) and that, in terms of the actual search process itself, interaction between end users and search intermediaries is generally quite low. Other findings of interest include the facts that only one third of the 246 search intermediaries claim any subject expertise, and only four out of the total number perform online searching as even half of their jobs.

Wilson's survey results for Australia do not differ significantly from the results of American and European surveys. Because of her results and their consistency with other findings, Wilson's discussion of future trends reflects a high degree of pessimism. She asks some unsettlingly relevant questions: If librarians as search intermediaries are essential, what is the unique skill they have? Could software intermediaries be as or more effective? If librarian intermediaries are to remain the online experts, how can they maintain proficiency? Given the high cost of electronic access, is it reasonable to expect often inadequately trained search intermediaries to exploit effectively information technologies? As a consequence of her survey results, Wilson, while coming to no fixed conclusions, predicts an uncertain future for librarians in the online retrieval process.

Charles Gilreath's *Computerized Literature Searching: Research Strategies and Databases* is a well-written, well-organized book. After discussing the basic ideas behind computer searchable files, Gilreath examines the databases available and the peculiarities of searching in the various subject areas, including biological and physical sciences, social sciences and education, humanities, business, and law. A glossary of terms and various figures expand on textual explanations. Gilreath's book, however, has a major problem. Because it embodies the ambivalence and uncertainty of the library profession toward its future role in online searching, it lacks a clear audience.

Gilreath intends the book for end users, both those using mediated search services and those "who plan to profile and conduct their own searches. . . ." While some subject specialists might benefit from reading the explanation of computer literature search systems, those end users seeking an intermediary would undoubtedly expect this searcher to know from experience what Gilreath's book contains and more. Librarians having to search in an unfamiliar subject area, another potential user according to Gilreath, will be better off with the *Directory of Online Databases* and vendor documentation. The information in *Computerized Literature Searching* falls so short of what the end user wishing to conduct his/her own searches would need, that one suspects Gilreath of following up on a suggestion Wilson makes in the discussion of her survey results: that search intermediaries "adopt a 'closed shop' or 'guild mentality' and try to prevent end users from receiving searching skills." That Charles Gilreath, a veteran searcher and author of CAIN and Agricola user guides, produced a clear, well-written book for no one in particular is a concrete indication that the profession is sitting squarely on the fence.

Online data base searching is the focus of only one chapter in Pritchard and Scott's *Literature Searching in Science, Technology and Agriculture*. This guide to scientific literature, as the authors explain in the preface, "is arranged to correspond to the order of procedures in which a person would undertake a literature search." Carefully explained definitions and examples of primary and secondary sources, detailed discussions of formulating a search strategy and limiting a topic, and instructions on how to cite various sources in a bibliography make this a useful guide for the authors' intended audience, college undergraduates and beginning level science graduate students. Lists of abstracts and indexes in various scientific fields are included in an appendix, leaving the body of the text free for in-depth illustrations on the use of complex reference tools (e.g., *Biological Abstracts* or *Index to Scientific and Technical Proceedings*). The organization and clarity of *Literature Searching* make it a worthwhile textbook choice for a research methods class.

Computer literature searching is integrated into the guide through inclusion of a chapter devoted to "computer retrieval" and an appendix listing science data bases, their vendors, and their dates of coverage. Consistent with the rest of this clear but detailed book, the searching chapter lucidly describes the advantages and disadvantages of going online for information and the steps involved in the process. Since beginning researchers in a field need intermediaries at virtually all stages of a search for information, for Pritchard and Scott to list "making arrangements with a librarian or a company" as the first step in setting up a data base search seems sensible. In no other chapter, however, including those which explain complex abstracts or indexes, is a librarian their initial recommendation. With the intention, it appears, of producing educated consumers of information technology, Pritchard and Scott provide diagrams illustrating Boolean logic and examples of actual searches on Dialog, SDC, BRS, and Medline. While, as search intermediaries well know, an educated consumer can be a great addition to an online search process, in the face of the detail the computer retrieval chapter provides, it is fair to ask why end user oriented systems like "Knowledge Index" or "BRS After Dark," are not even mentioned. Given the authors' stated intention to arrange the book according to the logical order of an information search, it is also surprising that online full-text data bases and reference files, like *Kirk-Othmer Encyclopedia of Chemical Technology* and "Super Index," have been omitted from the chapter on secondary sources. Since online searchability of such databases is significantly altering the whole research process, especially in the sciences, beginning researchers ought to be familiar with these options.

These curious omissions in an otherwise detailed literature guide hint at a certain territoriality and suggest an amount of uncertainty. In an age when personal computers are becoming commonplace in dormitory rooms, instructional literature research guides may need to take on a considerably different form. Use of *Literature Searching* in a research methods class would require the instructor to expand the definitions provided for the use, scope, and access to computerized files.

Despite their diversity, these three books uniformly offer evidence of uncertainty and ambivalence among librarians concerning their future role in the online searching process. Wilson, confronted with disturbing survey results, has little choice but to question the necessity of poorly trained librarian intermediaries. Gilreath's attempts to give end users and librarians alike a piece of the pie relegate his book to a no-person's-land. Unsure about where information technology belongs in library instruction, Pritchard and Scott narrowly define its possibilities and confine it safely to the discretion of the librarian expert. Electronic information is not only here to stay, it is, in increasingly numerous cases, all there is. In the face of this reality, librarians seem justifiably insecure about whether either of these phrases apply to themselves.—*Constance Miller, University of Illinois at Chicago.*

Financial Planning for Libraries. Ed. by Murray S. Martin. New York: Haworth, 1983. 140p. $20. ISBN 0-86656-118-8.

Readers of the *Journal of Library Administration* will recognize this work as volume 3, numbers 3/4, Fall/Winter 1982. This special issue of the journal, guest edited by Murray Martin, has now been published as a hardcover monograph. Contextually, however, it remains a collection of nine articles, not chapters, preceded by Martin's introduction outlining issues in academic library financial planning. The work is divided into two parts: I. General Financial Principles and II. Issues in Specific Budget Categories. Although linked by the underlying theme, the articles have no further relationship. Each retains its own style, level of scholarship, specificity, and level of treatment.

Since all but one of the authors works in the academic arena, it is no surprise that their articles are directed to academic librarians and draw examples from academic libraries. Harold Jenkins directs his article, "Returning to the Unified Theory of Budgeting: An Umbrella Concept for Public Libraries," to public library administrators. Unfortunately, it offers nothing of real substance for these readers. Jenkins argues that it is time to give up jingoistic budgeting approaches and return to planning and budgeting techniques characterized by the administrator's clear understanding of the library's mission and operation. Although there's little to dispute regarding these principles, there's not much substance either. Besides, it's remarkable that anyone could write about public library planning and budgeting today without even a casual reference to Vernon Palmour's *Planning Process for Public Libraries* (1980) which has had an inestimable impact on thinking is this area.

For those interested in academic library budgeting or planning/budgeting generally, the remaining articles may prove useful. Although weakly researched, Duane Webster's paper, "Issues in the Financial Management of Research Libraries," is a cogent appraisal of the current financial environment of large academic libraries. His advice for internal and external strategies for meeting the challenges of this environment are too general to be of direct use but provide a well-targeted outline for more detailed study.

Edward R. Johnson's "Financial Planning Needs of Publicly Supported Academic Libraries in the 1980s: Politics as Usual" reports a survey of library administrators in fifty-five medium-sized academic libraries. His observations and conclusions are based upon the opinions of the thirty-eight administrators that completed and returned the survey. As such, some readers may find this distillation of opinion useful, but most of it will not provide insights for anyone who is familiar with present academic library problems and needs.

In his "Planning and Finance: A Strategic Level Model of the University Library," Jerome Yavarkovsky provides the book's most substantive article. He describes a two-dimensional model which relates elements of income and expense (one dimension) to the library's service programs (the second dimension). For library administrators now learning to use microcomputer spreadsheet software, the article provides an extremely useful conceptual structure. Yavarkovsky correctly notes that the usefulness of the two-dimensional model depends upon the definition of financial variables and service programs for which he suggests definitions. Although he mentions data collection and, from time to time, comments on relationships of expense and income to values in the service program dimension, these are not treated in any depth. It is up to the user of the model to determine how income and expense will vary depending upon the level of activity and service program configuration. The model provides a useful way to visualize how changes in services impact the library's financial environment.

Bommer and Charba's "Academic Library Decision Support Systems" is the book's most thought provoking article. It focuses on the management information needed for more effective planning and decision making. The authors succeed in clarifying the link between various levels of decision (strategic planning, management control, and operational control), decision tasks, and specific information needs in eight functional decision areas. The article ends with a brief discussion of "Decision Support Systems" (DSS) and a model for a DSS to support decisions in an academic library. It is a satisfying glimpse of the concept that readers may want to pursue further in the authors' 1982 monograph, *Decision Making for Library Management*.

The four articles in Part II look at issues in budgeting for personnel, collection management, interlibrary loan, and miscellaneous expenditures. In "Salary Planning," Paul Gherman covers a full range of personnel issues bearing on salaries. Like most surveys of issues, it is valuable primarily for those needing a basic introduction. The article's general thrust suggests more ability to impact salary structures than is often the case in academic library environments. It is difficult to dispute, however, the need to develop a strong, articulate voice in these matters; so, the attention that Gherman recommends we give to salary planning is important despite our apparent inability to affect salary structures directly.

Fred Lynden's "Financial Planning for Collection Management" provides a very useful guide to data sources for collection development planning and budgeting. Although he notes factors to be considered in developing a budget, he does not propose a process or model. In his conclusion, Lynden argues that proposing a single course of action would be inappropriate because every institution has its own idiosyncracies. Just the same, one wonders if a model, providing a framework for budgetary planning while allowing for individual differences among institutions, could not have been added to this otherwise useful discussion.

Sherman Hayes salutes the Rodney Dangerfield areas of expense in his "Budgeting for and Controlling the Cost of *Other* in Library Expenditures: the Distant Relative in the Budgetary Process." The article defines "other" expense as those library expenditures which are neither personnel or library materials. Hayes discusses the size and composition of these other expenses, then ends with a list of techniques to control these costs. Although there's no reference to LAMA Budgeting, Accounting, Costs and Finance Committee's 1980 pamphlet, "Planning Guide for Managing Cutbacks," readers interested in cost controls may find it a useful addition to Hayes' article.

Finally, in "Interlibrary Loan and Resource Sharing: New Approaches," Noelene Martin discusses the impact of bibliographic networks on the concept of resource sharing. This paper illuminates emerging issues and discusses their financial implications. Although it would provide very little practical assistance in budget planning, this paper may trigger some rethinking of internal resource allocations for interlibrary loan and collection development.

This collection of articles provides an often interesting sampler of issues in library financing. In some articles, it approaches the substance of a buffet dinner but, ultimately, lacks the fulfillment of a well designed, satisfying meal.—*Gary M. Shirk, Yankee Book Peddler, Inc.*

Saffady, William. *Introduction to Automation for Librarians.* Chicago, American Library Assn. 1983. 312p. $35. LC 83-7164. ISBN 0-8389-0386-X.

The author indicates that "this book is intended for librarians, information specialists, library school students, and others who want a tutorial survey . . . of information processing technology. . . ." The first section of the book would also serve very well for any individual, even one not particularly interested in libraries, who needs a basic understanding of computers and how they work.

The first section of the book, entitled "The Fundamentals," sets forth a basic introduction to computer hardware, software, and various data processing concepts, such as batch and online processing, separate file and database management methods of data organization, centralized and distributed processing, and types of computer networks. There is enough historical background to make the reader understand how hardware and software capabilities have changed, but there is no attempt to provide a complete history of the field. The paragraphs on binary coding and the table comparing ASCII and EBCDIC coding schemes are a much clearer presentation than most such explanations.

The emphasis is on systems capable of running large-scale library applications, with a brief comment on microcomputers. There is also a separate chapter on automated office systems, including facsimile transmission, videodiscs, copying machines, microfilm, dictation equipment, and automated text processing. This is an extremely important area that many librarians overlook in their desire to automate bibliographic processes and to provide their users with online access to the commercial data bases.

The second section of the book, which is almost exactly half of the total work, deals with library applications of automation, with separate chapters on computerized circulation control systems, automated cataloging, automated reference service, and automated acquisitions and serials control. In the chapter on cataloging, the sections on the MARC format and the bibliographic utilities are particularly useful.

As is always the case with Mr. Saffady's work, the book is well and clearly written. It is provided with numerous useful illustrations and has an extensive list of suggested readings at the end of each chapter. It should be read by all librarians who are, or are going to be, involved with library automation. Unfortunately, as is always the case with a work of this sort, it is already somewhat out-of-date; hopefully, plans for a future editions are being made.—*Louis A. Schultheiss, University of Illinois at Chicago.*

Bulick, Stephen. *Structure and Subject Interaction: Toward a Sociology of Knowledge in the Social Sciences.* New York: Dekker, 1982. 250p. (Books in Library and Information Science, No. 41) $35. LC 82-17140. ISBN 0-8247-1847-X.

In the final chapter—entitled "So What?"—of this brave and thoughtful book, Stephen Bulick summarizes the questions he has asked and the conclusions he has drawn: "The two themes mainly in the author's mind during the course of this work were the sociology of knowledge and the development and maintenance of library collections. It was almost a revelation to come to the conclusion that the latter may be a practical application of the former. Or, more accurately, its operational extension." (p.160) Readers who have followed his argument to its conclusion will almost surely agree that the link between these seemingly distant domains, first suggested by James C. Baughman, has been established.

Recognizing that circulation data can speak to the same bibliometric questions to which citation analysis has long been applied, Bulick examines the degree to which disciplines use their own literatures or borrow extensively from others. Those which rely heavily on endogenous literatures are considered to be "analytical" disciplines whose paradigms, in Kuhn's sense, are well developed; those which borrow heavily from other fields are "synthetic" and have less full and mature paradigms.

Using his measures this way, Bulick argues that economists' focused, or "ethnocentric" use of materials shows a degree of consensus on basic issues of theory and technique not matched by the other social sciences. Geography, with its notoriously unfavorable balance of trade with other disciplines, is ranked lowest on these measures, leaving sociology, anthropology, and political science somewhere in between.

Bulick's discussion of the individual social sciences incorporates a skilled and informed interleaving of the history both of the several disciplines themselves and of their treatment by the LC classification scheme. We too often think of the latter as received from above, but Bulick reminds us that in its developmental stages, LC was an emerging commentary on and attempt to organize emerging disciplines.

Bulick's most interesting conclusion, based both on patterns of cross-disciplinary use and on various measures of association which assess the conjoint reading between pairs of disciplines, is that the boundaries of the individual social sciences may never become as clear as those of the physical sciences. But the social sciences as a whole, with their communal interests in literatures within social science and its special cousin, history, may be blending into a unified social science.

This is not a perfect book. It is somewhat specialized, in that the structure of branch libraries at Pittsburgh necessarily excluded the sciences from consideration, and Bulick chooses not to discuss the humanities. One might ask for more consideration of use patterns between specific pairs of disciplines and of what this means. One can quibble with the misuse of the term "sociology of knowledge" or argue that the Bradford/Zipf distribution tells us little of interest to librarians that a simple J-curve of use does not convey and that it does not merit the attention Bulick gives it. One can definitely become upset, as I imagine Bulick himself is, that an important table is mislabelled—readers should bring themselves to note in their library copies that the column headings of Table 6.23 should all slide one place to the right.

Imperfect? Of course, and fascinating. The only serious flaw with this book is that we are ignoring it. Reviews have been few and only some 120 OCLC libraries have cataloged it. Either librarians are unsure that an understanding of the disciplines they serve has anything to say about how they should conduct their business, or there is something wrong with the system of gatekeepers that is supposed to help us sort out the big books from the little books.—*Paul Metz, Virginia Polytechnic Institute.*

Career Profiles and Sex Discrimination in the Library Profession. Prepared by Kathleen Heim and Leigh S. Estabrook. Chicago: American Library Assn., 1983. 82p. $15. LC 83-3838. ISBN 0-8389-3282-7.

Results of statistical surveys frequently pose more interesting questions than those which prompted the survey in the first place. Heim and Estabrook's project is no exception. The task that Heim, Estabrook, and the ALA Committee on the Status of Women in Librarianship (COSWL) set for themselves was a comprehensive career study of librarians, examining in particular the differences in status (salary, administrative responsibility, career advancement) between female and male members of the American Library Association. *Career Profiles and Sex Discrimination* reports the results of their research but, in a mere 46 pages of text, accomplishes much more.

As principle investigators Heim and Estabrook are quite explicit about the dual purpose and goal of their research, this study was designed not only to provide data useful for analyzing and evaluating the status of women within the library profession, but also, as the researchers state, to "contribute to the positive image of women in librarianship by virtue of the quality of the research." From the preface, where that statement appears, and continuing throughout the work, the reader is constantly reminded of the difficulties facing women in our (numerically) female-dominated profession. This study documents the "how" and "where" of gender-based differences in salary and status. It goes beyond that by anticipating the "why."

Estabrook and Heim succeed admirably in fulfilling both goals set for the study. The research is comprehensive (within the stated limits of the population surveyed) and the methodology sound, but its greatest strength is that it calls into question carefully nurtured assumptions about women and work.

The monograph itself is deceptively simple. It's short, barely 41 pages of text. The language is clear and concise (interpretation of the data doesn't require a tortuous interpretation of the interpretation). Heim and Estabrook clearly want the results of their research to be accessible to the widest possible concerned audience. They do not obscure their findings by adding unnecessary embellishments or, as is so often the case in reports of survey research, by "speaking in tongues," addressing only the initiated.

The first two chapters introduce the study. Chapter One is a detailed literature review; it examines previous studies upon which the researchers drew and notes the areas of possible investigation that have been overlooked. The second chapter, "Methodology of the COSWL Study," describes at length the design of the questionnaire and introduces the population surveyed. The researchers are careful to point out that the population in question consists of members of the American Library Association and is therefore predominately female and predominately white. To its credit, the survey is not presented as a definitive portrait of librarianship.

The final questionnaire (included in the appendix) consisted of 37 questions covering four major areas: overall career pattern, current or most recent job situation, educational background and professional involvement, personal and family data. The rationale for each section of the questionnaire is fully discussed allowing this chapter to be read both as a description of a completed project and as a model for future research. It was particularly gratifying to note that the section on personal and family data offered, along with the standard categories "married, divorced, single," the option "part of a long-term committed relationship."

Chapter 3, "Analysis of Major Findings," provides the heart of the study. Statistical tables accompany the narrative discussion of the findings. These findings, while interesting and important, serve mainly as tangible evidence of the existence of a situation many have long suspected: significant differences in status and salary are found between women and men in the library profession. Even when the researchers controlled for personal, career, or professional variations, sex was found to be an important determinant of salary.

As a member of the Committee on the Status of Women in Librarianship (though not serving on COSWL during this project) and past-coordinator of the SRRT Feminist Task Force, I may appear to some as a less than impartial judge of a study of this nature. On the contrary, I believe that constant involvement in issues affecting women in librarianship has made me read more critically and accept less readily research on these issues. Heim and Estabrook have completed a study that belongs on every library director's bookshelf, and should be required reading in library school management courses. Apart from the information it gives us about ourselves, this study serves as model of conscientious, principled survey research. I recommend it highly for the questions it answers and the issues it raises.—*Ellen Broidy, University of California, Irvine.*

Communicating Public Access to Government Information: Proceedings of the Second Annual Library Government

Documents and Information Conference. Ed. by Peter Hernon. Westport, Conn.: Meckler, 1983. 153p. $35. LC 82-14334. ISBN 0-930466-59-4.

This volume is based on papers delivered at the second conference held in Arlington, Virginia on March 26 and 27, 1982. In the preface to *Collection Development and Public Access of Government Documents,* the volume based on the first conference proceedings, Peter Hernon emphasized the underlying theme of a need for research in, and innovative approaches to, documents librarianship and "more critical evaluation of underlying assumptions." This same theme is repeated by Hernon in the preface to the second conference proceedings. The theoretical base of documents librarianship has been ignored and these annual conferences are presented in the hope of stimulating future research.

The first two papers, however, follow the public access theme but are practical in nature. Bernadine Hoduski in "Political Activism for Documents Librarians" enumerates concrete steps to take in influencing publishers and policy makers and gives examples of past successes in increasing access to materials. Joseph Caponio, now director of National Technical Information Service, presents an overview of the agency, what it collects and disseminates, and long range goals of the 1980s. Of particular interest is the section on nonbook formats available, i.e., government patents, software, and data files.

Nonprint formats are covered in the next two papers. Kathleen Heim explores government-produced machine-readable statistical data as a component of the social science information system. The first section, detailing the scope of the social sciences and their information needs is long and detailed. The second section is a tighter presentation and covers Federal data file access policies and strategies for developing access. She stresses the need for librarians to facilitate access to this important part of the information system.

Charles Seavey gives an overview of government map publications with historic background and details of current map output. Bibliographic and political problems of access are highlighted.

Michael Tate presents a subject access theme with his paper on American Indian discontent with government reports. It is an interesting account of how government reports have adversely impacted the Indian. He delineates problems connected with official definitions of who is Indian and the effect this has on the census. He also reveals problems with access to Bureau of Indian Affairs files that prove frustrating to researchers.

Two papers are research reports. Peter Hernon and Charles McClure present a preliminary report of a pilot study on quality of reference in academic depositories. On the basis of unobtrusive testing in seventeen libraries, they found that correct answers were provided only 37 percent of the time. The authors argue that such a low rate of accuracy impairs access to depository collections and raises questions about the effectiveness of the depository system in meeting the public's information needs. The authors make several recommendations for further study.

John Richardson looks at the nature of research in government publications by analyzing theses and dissertations completed since 1928. He too recommends further research.

The eighth paper is on the struggle to pass a Freedom of Information Act in Canada. R. Brian Land gives an account of the many bills introduced and a comparison with the U.S. law.

Each paper has references that are consolidated in a bibliography at the end. A summary of papers is provided by Gary Purcell. The theme of access is followed to a greater or lesser degree in all the contributions, except for Richardson's.

The topics are interesting, but diverse. The work is for documents librarians who wish to keep abreast of the literature and for those seeking research topics in the field. It does not serve as a basic text on the topic as does Hernon's and McClure's latest publication, *Public Access to Government Information* (Ablex Publishing, 1984).—*Michele Strange, Northwestern University.*

The Bibliographic Control of Official Publications. Ed. by John E. Pemberton. New York: Pergamon, 1982. 172p. $25. LC 82-12358. ISBN 0-080-27419-6.

The Bibliographic Control of Official Publications, edited by John E. Pemberton, is a collection of essays dealing with a variety of systems developed to code and file government publications.

Pemberton's preface states that this book has been produced with the object of "stimulating progress towards the establishment of a comprehensive system for the bibliographic control of official publications, and identifying the principles upon which a new and definitive coding scheme could be based."

In my opinion, this book does nothing to bring about an effective and comprehensive system of bibliographic control for government publications, but it is effective in setting out the dimensions of the problem and in describing the approaches some librarians have taken to cope with them.

This is a book about coping. The problems described by the eleven librarian contributors from Australia, Canada, Great Britain, Ireland, and the United States are familiar to anyone who has administered a sizable collection of publications from more than one government jurisdiction. Government publications are voluminous and comprise an unwieldy mix of substantive monographs, periodicals, serials, pamphlets, and mimeographed documents—many of which are issued as single sheets. Users require access by provenance and by type of document (annual report, legislative bill, treaty, etc.) as well as by personal author, title, subject, and series. Standard cataloging systems don't handle government publications well, AACR2 has made the situation worse, and many libraries have policies against providing full cataloging for them. The document librarian is left to devise a scheme appropriate for his or her collection and users that is cheap, quickly and easily applied by library technicians, and sufficiently flexible and expandable to provide for perpetual changes in government organization structures, publication patterns, and areas of interest. This is a virtually impossible task. And, Pemberton is right. What is needed is the development of a comprehensive scheme that can be applied in any situation. A sound theoretical foundation is prerequisite to that, and this book does not provide it.

The librarians writing here share their problems, relate their discovery that no available scheme will work for them, and describe the system developed for their particular situation. I, in turn, have looked at the system each of them has developed and have understood both why they were developed and why each of them fails to meet my needs. Regretably, I have found nothing here to reduce my bias against locally devised systems that present problems in authority control and that keep government publications isolated from the bibliographic mainstream in either union card catalog or online format.

This book will be of some interest to library school students and to librarians struggling with the issue of bibliographic control for government publications. I am disappointed that it is so thoroughly a collection of tales of "how I do it in my library" and that it is so bereft of theory. I'm sure that many libraries have already purchased this book because it was issued as No. 11 in Pergamon's "Guide to Official Publications" series, but $25.00 is a very hefty price for a slim volume of only 172 pages.—*Carol Turner, Stanford University.*

Broadus, Robert N. *Selecting Materials for Libraries.* New York: Wilson, 1981. 2d ed. 479p. $18. LC 81-650. ISBN 0-8242-0659-2.

This work, which first appeared in 1973, has now been published in a second edition, showing considerable rewording of the text, but without expanding on the scope or depth of coverage. It remains a basic text for introductory courses in library science, rather than a thorough working manual for the practicing librarian, who would want more substantial details. The focus remains on the small to medium-sized general library.

The first one hundred thirty pages give an overview of the principles and basic means and aspects of selection in a concise manner which serves well as an introduction to: the role and nature of selection in different types of libraries; the fundamental principles of selection; the role of use studies and citation analysis; the structure of the publishing industry; how to judge a book for content and physical quality; the use of guides to recommended books; and book reviews.

Approximately ninety pages are then devoted to the special nature of selecting the following types of materials: free materials; public documents; periodicals; reference works; out-of-print, reprint, microform materials; and non-print materials (thirty pages).

The last half (two hundred pages) presents a series of discussions of various broad subject fields consisting of a description of the fields presented in such a way as to make one basically aware of their general content, the types of materials encountered, and problems and principles of selection unique to each subject field.

The author clearly states that this book is intended for use in introductory first courses on book selection in library schools, and as such it is useful. It is the purpose of an introductory text to present the basic elements of the topic and their interrelationships without involving the student with great amounts of detail. However, the usefulness of a text is greatly enhanced if it includes clear references to recommended supplementary readings from the literature which will carry the reader into the refinements of the subjects and answer any specific questions or desire for additional general information that might arise. The footnotes do not really serve the same function and, given the brevity with which many topics are treated, such a list of recommended readings would be most useful in this book. Broadus gives a brief explanation of the various aspects of publishing and selection, but this serves only as an introduction; details and solutions to problems encountered in their application must be sought elsewhere.

It is also readily apparent that the coverage of topics is sometimes uneven: approval plans are passed over in just sixteen lines; judging the content of a book is given less than one and one-half pages; but eight pages are devoted to quantitative measurement through use and citation studies. One would like to see more about the former, but not less about the latter.

Overall, however, this book does a fine job of imparting the importance of selection by librarians for the properly guided growth of a library's particular collection.—*Thomas L. Mann, Northwestern University.*

The Development of National Library and Information Services: Papers Given at the First Library Association International Workshop, London, 1981. Ed. by Edward Dudley. London: The Library Assn., 1983. 214p. £15. LC 82-240549. ISBN 0-85365-784-X.

The 15 papers included in this book were delivered at the First Library Association International Workshop held in London from August 24 through September 3, 1981. The workshop was structured so that there were "three separate but interrelated seminars," to cover broadly the themes of national library and information service development, the influence of social and technological change on library and information services (LIS), and education in libraries.

According to the editor of the book, Edward Dudley, the workshop attracted "some of Britain's leading practitioners and theorists in major areas of LIS development" to address "problems of some international relevance and then to seek to demonstrate British experience and response to those problems."

The first part of the book (Seminar 1) is concerned primarily with the role and function of national libraries, public libraries, academic and scientific libraries (defined very broadly to include school and special libraries), and bibliographic services in the development of national library and information services. The first paper in the book takes a more generalized view of "the nature of planning in relation to the LIS environment," particularly as it is applied in different political and social contexts.

Seminar 2 addresses the effects of social change and technological change on the provision of library and information services. Also included in this second seminar is a paper on using a systems approach to library planning, and one on the role of low-level technology and mechanized systems, which are more readily available to libraries than high-technology systems, in libraries.

Seminar 3 is concerned primarily with the effect on libraries of new developments in learning and teaching, educational policy, and library users in educational institutions. There is also a paper in this part on the development of library and information services in new academic institutions. Except for the final paper, the papers in the third seminar should be of interest to academic librarians because they are concerned exclusively with academic libraries. The final paper, however, belongs more properly in the first seminar because it deals with the national and international provision of interlibrary loan and document delivery, and not at all with education.

There are some problems with the papers that may reduce interest in reading the book. First of all, the speakers used British experience almost exclusively as examples in their presentations. For example, the paper on the role of the public library in national LIS speaks of the development of British public libraries and their present governance, which seems to diverge significantly from practice in American libraries.

Second, it is unfortunate that, although the workshop was held in 1981, this book was not published until 1983. Some of the topics, e.g., technological change and development, in particular, may give a good résumé of activities at the time of the workshop, but subsequent developments have affected its usefulness adversely, and there are now more up-to-date publications available.

Third, each speaker posed a "question for consideration by discussion groups." Each question was related to the topic the speaker had presented and was general enough in nature that the workshop participants could offer concrete solutions and suggestions based on their own experience. Because this was an international workshop, it would have been interesting to have included the conclusions of the group discussions in the book to augment the obvious British bias of the speakers.

One of the primary themes of virtually all the papers is change. Speakers were concerned with planning for change, the effect of social, educational, and technological changes on libraries, the changes in government involvement in libraries, and the changes in financial support for libraries with the then current economic recession.

In addition, several speakers discussed the advantages and disadvantages of centralization versus decentralization of various library and information services at the national level, particularly in terms of the creation and distribution of bibliographic records, the acquisition and interlibrary loaning of material to satisfy user needs, the need for fulfilling national library functions, and the extent of government involvement in libraries.

The need for planning was another prevalent theme of the workshop, particularly in terms of coping with change, anticipating the future, participating in cooperative or national activities, and ensuring greater effectiveness and efficiency at less cost in library and information services.

As Edward Dudley says in the introduction, the "workshop did not seek to come to conclusions . . . however, as the papers testify, explicitly or implicitly, . . . there are problems, questions for agenda papers . . . which are of common, if not universal significance."

In spite of the fact that the book is not prescriptive and does not offer solutions to the problems raised, still it does raise some interesting points for consideration in planning for library and information services on the national level.—*Ann Glascoff, Governors State University.*

Hyman, Richard Joseph. *Shelf Access in Libraries.* Chicago: American Library Assn., 1982. 189p. (ALA Studies in Librarianship, no.9) $12.50. LC 81-22764. ISBN 0-8389-0357-6.

This book is about the past, present, and future of various shelf arrangements in different types of libraries and of direct access to library materials. The major thesis of the book is "that the special shelving schemes in various types of American libraries imply that traditional shelf classification has lost much, sometimes all, of its value." The major schemes, Dewey and LC classifications, are modified in most libraries when it comes to arranging items on the shelves. Typical modifications include shelving by type of book (reference works), by format (microforms and other media), by type of user (children's literature), or by size, among the myriad possibilities. Where there is direct access, shelf arrangement should present users "with worthy selections arranged in suggestive patterns." Since classification schemes are so universally modified in order to facilitate direct access, the author suggests that close classification for the shelves is not worth the time and expense it demands.

Hyman has treated these topics in earlier works; this treatment is long and detailed. The initial chapter traces the evolution of shelf classification and direct access from ancient times through the nineteenth century. Problems and ambiguities of shelf classification receive more elaborate attention in the second chapter. Three subsequent chapters deal with the various shelf arrangements adopted in public libraries, in school libraries and media centers, and in academic and research libraries. The final chapter looks at the future of direct access and includes observations on the future of shelf classification research. The appendix is a reprint of a shelf arrangement used in a public library. Although the arrangement was never fully implemented and was finally abandoned, it serves as an example of shelf arrangement not tied directly to a traditional classification system designed for a catalog.

An ALA press release says that this book aims to help librarians who must decide on when and how to classify for shelf access by readers. If so, it falls short of its mark. The book is really a compendium of relevant studies—many of them classics. The author provides critical commentary, though readers may not always agree with his analyses. The work is highly repetitive and presents no original conclusions. It will be quite useful for students of library science; others in the profession are likely to read it with a certain amount of *déjà vu*. Nevertheless, there are so many studies included here, that even the seasoned reader will find something new.

Hyman's view of the future of research into shelf classification is not hopeful. One fear he has for research using analysis of electronic access is the potential for invasion of privacy. This reviewer does not believe that analysis of users' reactions to and uses of information necessarily implies a regimented information society. In fact, transaction log analysis offers great potential in identifying patterns of user behavior. The political and social dangers alluded to by the author are avoidable. With the rise of online catalogs, there will be increased opportunities for research. As such catalogs become more sophisticated, we may be able to study more scientifically the phenomenon of browsing—an activity heretofore defended primarily on an intuitive basis. Otherwise, Hyman's assumption may hold up: "The future of direct access is most to be assured because of the human craving for browsing. More than any other factor, this promises the survival of book libraries and shelf-classified collections."—*Robert Allen Daugherty, University of Illinois at Chicago.*

ABSTRACTS

The following abstracts are based on those prepared by the ERIC Clearinghouse of 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.

Branch Libraries in ARL Institutions. SPEC Kit 99. Association of Research Libraries, Washington, D.C. Dec. 1983. 115p. ED 239 617. MF—$0.83; PC—not available from EDRS.

In response to a May 1983 Association of Research Libraries (ARL) survey, 94 university library members (90 percent of this category of ARL membership) provided information and documents about current library branches, changes during the last five years, and current and planned automation activities. It was found that 63 respondents (68 percent) considered their library systems centralized, with a main library and/or central processing facilities; that 94 respondents listed 1,008 branches with either centralized systems administering an average of 6.4 branches or decentralized systems administering an average of 12.6 units; and that 58 libraries (65 percent) reported branch library automation, with most projects involving circulation systems (40) and online catalogs (14). This document presents survey results; policy statements regarding branch libraries from Iowa State University and University of Kentucky; documents on closing or consolidating branches from Ohio State University, University of Cincinnati, and Queen's University; documents on establishing new branches from University of Chicago, University of New Mexico, and State University of New York, Albany; and documents on automation from Queen's University and University of Texas, Austin. Also provided are a seven-item bibliography on branch libraries, centralization, and decentralization; a concise summary of related issues and trends; and an evaluation sheet for this ARL Systems and Procedures Exchange Center (SPEC) kit.

The Archival Appraisal of Moving Images: A RAMP Study with Guidelines. by Sam Kula. United Nations Educational, Scientific and Cultural Organization, Paris (France), General Information Programme. PGI-83/WS/18. 134p. ED 239 625. MF—$0.83; PC—not available from EDRS.

Produced as part of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) Records and Archives Management Programme (RAMP), this publication provides government and nongovernment archivists and records managers with a comparative study of past and present policies and practices for selecting moving images for preservation, and with a series of guidelines based upon the most widely accepted of these policies and practices. Sections cover: (1) the history and organization of moving image archives; (2) appraisal or selection standards for motion pictures and their acceptance in archival theory; (3) categorization of archival moving images by provenance, function, and form; (4) moving image appraisal policies and practices recommended by UNESCO and those utilized in the United States, Czechoslovakia, the USSR, Argentina, Malaysia, Canada, and West Germany; (5) the relationship of records management and the appraisal of moving images; and (6) the appraisal of documentation related to the moving images; e.g., production files and critical reviews. Also provided are a series of 14 conclusions related to the appraisal and archival retention of moving images and a bibliography listing publications by more than 250 authors.

International Federation of Library Associations. Opening Statements and Speeches. Plenary Session. Papers presented at the Annual Conference of the International Federation of Library Associations (49th, Munich, West Germany, August 21–27, 1983). The Hague (Netherlands). Aug. 1983. 137p. ED 239 626. MF—$0.83; PC—$9.32.

Official opening statements, organizational reports, and papers on libraries in a technological world, which were presented at the 1983 International Federation of Library Associations (IFLA) conference include: (1) welcoming addresses by Franz Georg Kaltwasser and Mathilde Berghofer-Weichner; (2) opening speeches by Else Granheim (IFLA president) and Jacques Tocatlian (UNESCO representative); (3) a financial report by M.-L. Bossuat (IFLA treasurer); (4) a report by the Secretary General on 1981–82 trends in IFLA programs, activities, support, and finances; (5) a progress report from the IFLA International Office for UAP (Universal Availability of Publications) by M. B. Line and S. Vickers; (6) a report by Edward Huck Tee Lim on the UNESCO/IFLA pre-session seminar on "University Libraries in Developing Countries—Structure and Function in Regard to Information Transfer for Science and Technology"; (7) "The Significance of Information Science for the Theory and Practice of Librarianship" by Thomas J. Galvin (United States); (8) Problemes et Questions de l'Usager face aux Bibliotheques dans un Monde 'Technicise' " (Problems and Questions in the Usage of Libraries in a Technological World) by W. Knopp (West Germany—paper in French); (9) "From the Well to the Tap," in which Denis Varloot (France) discusses future impacts of technology on libraries, librarians, and the production, storage, and consumption of information; (10) "Activities of Libraries in the Developed Socialist Society in the Meeting of Reader's Needs in Conditions of Scientific and Technical Progress" by N. S. Kartashov (USSR); and (11) reports from sections and round tables belonging to the IFLA Division on Libraries Serving the General Public.

International Federation of Library Associations. Acquisition and Exchange Section. Collection and Services Division. Papers presented at the Annual Conference of the International Federation of Library Associations (49th, Munich, West Germany, August 21–27, 1983). The Hague (Netherlands). Aug. 1983. 99p. ED 239 629. MF—$0.83; PC—$6.32.

Papers on library acquisitions, cooperative collection development, and the international exchange of publications that were presented at the 1983 International Federation of Library Associations (IFLA) conference, include: (1) "Acquisition of South Asian Materials for the Libraries of North America and Europe: Problems, Prospects, and Perspectives," an outline by Sharad Karkhanis (United States) of difficulties in and recommendations for the acquisition of South Asian materials, which includes lists of relevant bibliographies, book review journals, and book suppliers; (2) "Cooperative Collection Development in the U.S.A.: The Example of Colorado" by Geri Schmidt (United States); (3) "The Collection Bibliographic Control and Accessibility of Grey Literature," in which D. N. Wood (United Kingdom) describes national, international, and commercial systems developed to improve access to literature not available through normal bookselling channels; (4) "International Exchange of Publications in the Library and Information System of the Chinese Academy of Sciences" by Zhai Zongshu (China); (5) "Present Problems in Foreign Literature Acquisition for Research Libraries in the Federal Republic of Germany," a discussion by Dieter Oertel (West Germany) of budget limitations and cancellations of orders in German university libraries; and (6) "Study on the Problem of the In-Service Training of Acquisitions and Exchange Staff in Libraries: Professional Requirements, Training Problems" by Boris P. Kanevsky (USSR).

International Federation of Library Associations. Official Publications Section. Collections and Services Division. Papers presented at the Annual Conference of the International Federation of Library Associations (49th, Munich, West Germany, August 21–27, 1983). The Hague (Netherlands). 68p. ED 239 630. MF—$0.83; PC—$4.82.

Papers on official publications (government documents), automation, and electronic publishing, which were presented at the 1983 International Federation of Library Associations (IFLA) conference, include: (1) "The Automation of Documentation as It Relates to Official Publications and Its Importance in a Developing Country" by Ahmed Fassi-Fihri (Morocco), which describes the planned development of a decentralized computer system at Morocco's National Centre for Documentation; (2) "Electronic Publishing: Impact on Libraries," in which David Russon (United Kingdom) outlines types of electronic publishing and its impact on library equipment purchases, library staff, access to information, archival practices, copyright, and related issues; (3) "The Computerization of Administrative Documents in France and Citizen Information," in which Pierre Pelou (France) outlines the conceptual framework of the computerization of French government activities, the categories of telematically available data, and foreseeable data processing developments in the field of information; (4) "Use of International Documents in Developing Countries," a report by Luciana Marulli-Koenig on a survey of libraries and users in Colombia, Malaysia, and Morocco in order to determine the impact of literature produced by United Nations organizations and the effectiveness of their dissemination and bibliographic control practices; and (5) "Amtliche Veroffentlichugen in der Bundesrepublik

Deutschland'' (Official Publications in the Federal Republic of Germany) by Siegfried Detemple (West Germany—paper in German).

International Federation of Library Associations. Rare and Precious Books and Documents Section. Collections and Services Division. Papers presented at the Annual Conference of the International Federation of Library Associations (49th, Munich, West Germany, August 21–27, 1983). The Hague (Netherlands). Aug. 1983. 142p. ED 239 631. MF—$0.83; PC—$9.32.

Papers on rare and precious books and documents, which were presented at the 1983 International Federation of Library Associations (IFLA) conference, include: (1) ''Report on the State of Work on the Union Catalogue of Incunabula (GW) and Progress in the International Cataloging of Incunabula by Ursula Altmann (East Germany); (2) ''Survey of Incunabula in France—Progress So Far'' by Ursula Baurmeister (France); (3) ''Census of Italian XVIth Century Editions: A Progress Report'' by Maria Sicco (Italy); (4) ''The Central Catalogue of Historical Libraries in the Castles of Bohemia and Moravia'' by Jaroslav Vrchotka (Czechoslovakia); (5) Buchmuseen: Ihre Probleme und Ihre Beziehungen zu Bibliotheken'' (Book Museums: Their Problems and Their Relationships to Libraries) by Jaroslav Vrchotka (Czechoslovakia—paper in German); (6) ''Retrospektive, Maschinenlesbare Katalogisierung in Munchen and Gottingen'' (Retrospective, Machine-Readable Cataloging in Munich and Gottingen) by Klaus Haller (West Germany—paper in German); (7) ''Technological Advances in Librarianship and Printing and the Teaching of the History of the Book'' by Richard G. Landon (Canada); (8) ''Computer Technology as Applied to Rare Book Cataloging'' by Stephen Paul Davis (United States); (9) ''The Curator's Point of View,'' an outline by Karl Dachs (West Germany) of librarians' and curators' concerns related to rare book preservation and conservation; (10) ''The Incunabula Catalog of the Bavarian State Library'' by Elmar Hertrich (West Germany); (11) ''Progress Report on the ISTC (Incunabula Short Title Catalog)'' by L. Hellinga (United Kingdom); and (12) ''Der Gegenwartige Stand der Handschriftenbeschreibung in Osterreich'' (The Present Status of Manuscript Description in Australia) by Otto Mazal (Austria—paper in German).

International Federation of Library Associations. Library Schools and Other Training Aspects Section. Education and Research Division. Papers presented at the Annual Conference of the International Federation of Library Associations (49th, Munich, West Germany, August 21–27, 1983). The Hague (Netherlands). Aug. 1983. 68p. ED 239 633. MF—$0.83; PC—$4.82.

Papers on the education and training of librarians, which were presented at the 1983 International Federation of Library Associations (IFLA) conference, include: (1) "The Role of New Technology in the Librarianship Syllabus," in which J. A. Large and R. F. Guy (United Kingdom) describe possible problems related to the integration of new technology in library school curricula and the experience of introducing such instruction at the College of Librarianship Wales; (2) "Teaching New Technologies: Whose Role Is It?" in which G. Edward Evans (United States) outlines his view that library schools must teach students about operations, applications, and use of information/telecommunications technology; (3) "The Codified System of Post-School Training of Librarians in the Slovak Socialist Republic," a report by Horst Hogh (Czechoslovakia) on that country's permanent cyclical continuing education system for librarians; (4) "Comparative Trends in Library and Information Science Curricula in the USA, Canada, and the Federal Republic of Germany—A Study Originating from the IFLA Project 'Equivalency and Reciprocity,' " in which Diann D. Rusch focuses on educational requirements and specializations and on the response of library schools to changes in the job market; and (5) "The Training of Librarians for Technological Society. Polish Experience and Problems" by Stefan Kubow (Poland).

International Federation of Library Associations. Conservation Section. Management and Technology Division. Papers presented at the Annual Conference of the International Federation of Library Associations (49th, Munich, West Germany, August 21–27, 1983). The Hague (Netherlands). Aug. 1983. 39p. ED 239 643. MF—$0.83; PC—$3.32.

Papers on book and document conservation and restoration, which were presented at the 1983 International Federation of Library Associations (IFLA) conference, include: (1) "The Problems of Conservation of Valuable Library Possessions," in which Karl Jackel (West Germany) discusses problems in obtaining restoration materials, storage facilities, craft techniques, and guidelines for preservation and restoration of various types of library materials; (2) "Mass Deacidification of Paper," in which Peter G. Sparks (United States) describes the causes of and known solutions for brittle paper, including the manufacture of alkaline paper and the mass deacidification process as used in the Library of Congress and other United States archives/libraries; (3) "On the Possibilities for Mechanisation in the Restoring Profession," a description by Wolfgang Wachter (East Germany) of the development of mechanized work processes in the restoration workshop of the German Library in Leipzig, including wet treatment of paper and stabilization of wood-pulp paper by the splitting method; (4) "The Treatment of Paper for the Conservation of Rare and Precious Books," in which Anthony G. Cains (Ireland) describes the cleaning, buffering, and strengthening of paper by immersing it in or floating it on a processing solution as well as brush application of methyl magnesium carbonate, use of a spray gun, fixing, and book repair.

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