

# LIBRARY RESOURCES & TECHNICAL SERVICES

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## Editorial: A Journey of a Thousand Miles Begins with the First Step

In my last editorial, "A Rose is a Rose is a Rose" [*LRTS* 33:101 (April 1989)], I asked, "What's in a name?" After describing the thought and care expended by the division's board in selecting and placing on the spring ballot the alternative to "Resources and Technical Services Division" they believed to be most appropriate, descriptive, and appealing, I urged all members to vote—to exercise their right to choose the name by which their organization would henceforth be known (i.e., until such time as they see fit to make another choice). The results, announced at the Dallas membership meeting in June, were to adopt the new name: Association for Library Collections and Technical Services (ALCTS).

But another question I asked in that April editorial went unanswered: "How might a new name help us to meet the future?" I have been thinking about that since the announcement and I have concluded that the name change is a first step on the path we tread toward the future. And, although the future remains hidden from us at whatever point we are on the path, we are drawn to move on, as if on a thousand-mile journey, to meet it.

More important than the changes in the words "Resources" and "Division" to "Library Collections" and "Association," I think, is the new perspective that emanates from a new name. But let's first consider some of the possibilities relating to the words themselves. The meaning of resources is no longer as clear as it once was, and I see it used now to encompass staff, funds, buildings, and equipment—all sorts of things other than informational and artistic resources. "Library collections" is not limiting as far as physical format or communications media go, but this term clearly represents the material constituting the library's intellectual inventory, its knowledge resources, apart from these other important, but non-collections-oriented elements that make up libraries.

If we look at *AACR2*, we find a distinction made between divisions and associations. "Division" is a term that, by definition, implies subordination (p.460) and organizations bearing this word in their names are entered subordinately. Associations, on the other hand, have a life of their own, and may be entered directly under their own names (p.463). Far from splitting hairs, my desk dictionary defines association as "an organization of persons" (*New Merriam-Webster Pocket Dictionary*, p.28) and a division as "one of the parts, sections, or groupings into which a whole is divided" (p.145). Perhaps poring over lists of words used as subject descriptors has overly sensitized me to such shades of meaning, but I think not. As an editor and writer, I agree with William Safire in believing that the use of words that convey one's intended meaning accurately and precisely is part of communicating effectively.

There is a nice balance, too, in our new name retaining something traditional, i.e., the words "Technical Services." Although I personally prefer the term "Bibliographic Services," I suspect a survey would reveal that more libraries call the set of services that includes acquisitions, cataloging, processing, preservation, reproduction, binding, and inventory control *technical services* than any other alternative to it. Using a common vocabulary is part of the glue that links us with one another, with the past, and with the future.

What about the new perspective? That remains for the membership to define through its leadership and activities. Each year at this time, a new agenda begins to take shape. The vision of our new officers will be reflected in the activities they plan for the year. The pages of this issue of *LRTS* contain an annual report describing the accomplishments of the division for the year just concluded. One might look at it (and, in the next issue, at the sections' annual reports) to find the seeds of the future in descriptions of continuing projects that take more than one year to complete.

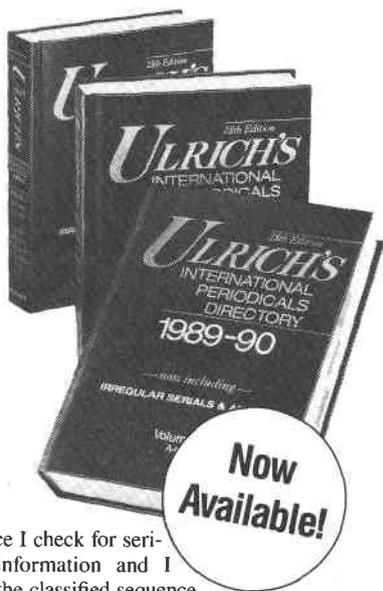
Finally, what about the future toward which we are moving? The articles in this issue reveal some important ideas about it. First, there are two "year's work" articles on areas receiving more attention than ever from collections and technical services librarians—circulation control and non-book processing. There is a distinct management orientation in the articles by Walker, Kranz, and Burdick. Research is emphasized in articles by Frost, and St. Clair and Treadwell, while Bates discusses implications of enhanced technology. Teaching is the focus of Kovacs' article. Vandergrift asks us to examine the effects of various technical service practices on children and young adults—the very people who embody the future. I think you will find this a challenging group of articles.—*Sheila S. Intner, Editor, ALCTS member.*

Ed. note: In an effort to expedite the publication of articles, Cecilia Piccolo's "Resources & Technical Services News" column will appear henceforth in the *RTSD Newsletter*.

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## Interaction: Letters to the Editor

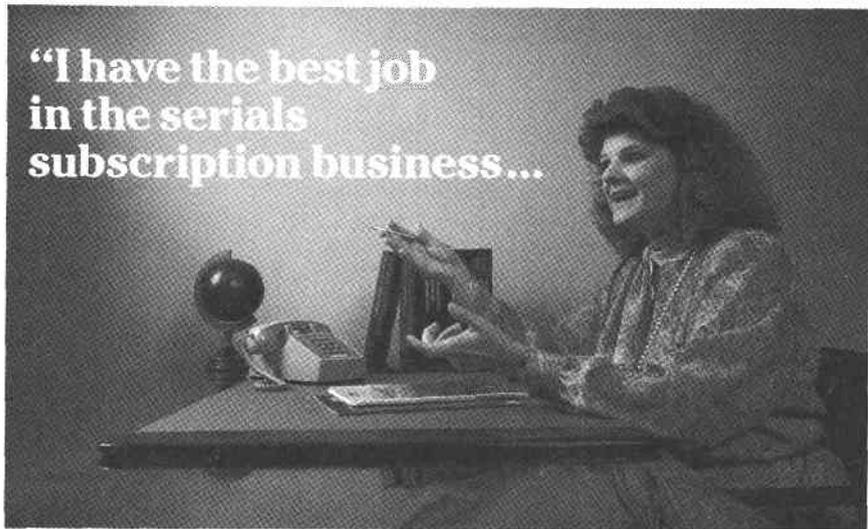
From Crystal Graham, University of California, San Diego:

Just when Michael Gorman thought he had educated North American catalogers about British geographic names and the corresponding cataloging rules, *LRTS* has muddied the waters, thanks to a small but crucial editing error. In "AACR2R: Editor's Perspective" (*LRTS* 33, no.2 (April 1989), p.185) the sentence "As for places in the British Isles, the addition has been changed from the name of the *country* to the name of one of the constituent parts of the two nations that occupy the British Isles" should read "As for places in the British Isles, the addition has been changed from the name of the *county* to the name of one of the constituent parts of the two nations . . . ."

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# The Year's Work in Circulation Control, 1988

Ryoko Toyama

The number of libraries implementing integrated or linked circulation systems has increased dramatically in the recent past. Operational relationships between bibliographic and physical access control in such libraries are much stronger. Sophisticated management reports, generated from the automated circulation system, provide more information on use, some of which is useful to collection development operations. In libraries with integrated or linked circulation systems, the circulation staff are more aware of the operations in other departments.

Working in this type of environment, I became interested in a systematic literature search in circulation control with the *Library Resources & Technical Services* framework in mind. I wanted to determine the quantity and contents of the publications and their relevance to current crucial issues and future studies. With this background, "The Year's Work in Circulation Control, 1987" was published last year.<sup>1</sup> It was derived from a relatively small number of sources when compared to a more defined area such as subject access. Items cited were mostly brief reports on implementation of certain systems or procedures, or case studies, and fell into three broad categories: automated circulation systems, circulation analyses, and current-awareness issues. The references reflected current trends and interests and provided a basis for determining the need for further studies. Without a history of systematic literature searches in circulation control in recent years, however, at the conclusion of the 1987 article I could only suggest that "periodic surveys of literature on circulation control may become more meaningful in the future." This follow-up literature search in circulation control is presented to support this conclusion.

Approximately sixty English-language journal articles published in 1988 were examined. There was no monograph on the subject. The findings were surprisingly similar to those of 1987. There were indications of a transition from initial installations of automated circulation systems to more advanced stages, but, in general, the quantity and content of the work were the same from 1987 to 1988. Since current-awareness issues are more meaningful within a brief period, conducting literature searches or analyses every two years seems to be appropriate. Adding the work of

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1988 to that of 1987, the following conclusions may be drawn with more certainty: Periodic literature searches in circulation control are useful to practitioners and managers because the work reflects major trends and issues of a given period, they identify areas needing more serious study, and they suggest a basis for forecasting the future.

The following areas are suggested for further study:

1. Impact of automated circulation systems on library users, especially with regard to personal satisfaction, access habits, and new expectations of the library
2. Impact on the circulation unit's working relationship with bibliographic control and collection development
3. Impact on human resource training, required talents, and operational standards
4. Impact of an increase of publications in nontraditional formats on access means and speed of delivery (e.g., faxing, scanning, data transmission) and cost to the library and users
5. Development and impact of fee-based services on the library and users
6. Copyright issues in relation to reserves and nontraditional publications

Further analysis of the literature also provides hints for the possible evolution of the relationship between library collections and access. Will we continue to circulate printed publications for years to come? Will the contents of printed publications be delivered to library users in different media? If nontraditional publications increase in the future, how will the library make them accessible to users?

### SUMMARY OF THE LITERATURE IN 1988

The majority of the sources dealt with automated circulation systems (Buschman, Holloway, Jackson, and Metz), and within this category, the application of microcomputers (Corbett, Major, Merilees) or CD-ROM (Hegarty) technology was a popular topic. Genaway, Predmore, and Walton discussed automated circulation at a refined stage, including a review of integrated systems versus linked systems (Potter).

Circulation analysis attracted the next highest number of sources. Circulation records were analyzed in light of their possible functional relationship to collection development (Bertland), management (Baker), and maintenance practice (Roy), and to types of users and their subject interests (McGrath). As a continuation of his 1979 study, McGrath published an in-depth study on multidimensional scaling analysis of users. The methodology he used is applicable to any circulation operation regardless of its state of automation. Burrell suggests a simple, empirical way to predict future transactions. An everlasting headache in dealing with overdues was challenged by Mitchell, who suggested the use of positive reinforcement, providing rewards for the library users with good standing.

A third category can be labeled as current awareness. It includes publications dealing with confidentiality (Lee), censorship (Kimmage), the impact of the 1976 Copyright Law on reserve use (Kearney), and treatment of videos in the library (there is extensive coverage in *Library Journal* and *Wilson Library Bulletin*).

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# The Year's Work in Nonbook Processing, 1988

Nancy B. Olson and Edward Swanson

The publication of the 1988 revision of the second edition of the *Anglo-American Cataloguing Rules (AACR2R)* was the major event of the year for catalogers. While many of the changes in it had been implemented earlier, the 1988 revision was welcomed by nonbook catalogers, as it reconciled minor inconsistencies between chapters. Some rules (for example, 1.4C8, 1.4D9, and 1.4F9 for the treatment of unpublished items) were moved into chapter 1 or expanded there, making them valid for all types of material. The revision was described in an ALA program in New Orleans, as reported by Ferguson.

Format integration was a frequent topic of many MARBI meetings during the year. Tong reported on these to OLAC members. Weitz provided revised guidelines on determining what two- and three-dimensional materials go in each of the MARC format codes for Type and Type Material. DeCoster reported that these changes, and others from Update 15, were implemented in April by OCLC. She also reported the issuing to WLN members of the new data preparation manuals.

Miller studied the problems of subject cataloging of nonbook material and concluded: "The best solution is a (poly)hierarchically classified list of form subject headings; form subject headings are situated at the border between alphabetical subject cataloging and classification systems."

Olson's *Audiovisual Material Glossary* includes definitions of terms for all types of nonbook materials, many with illustrations. Olson and Swanson edited the manuals of the Minnesota AACR2 Trainers into *The Complete Cataloging Reference Set*, a two-volume work with 707 examples, each including a copy of the chief source of information and the resulting bibliographic record. Many also include a worksheet coded and tagged in the MARC format for OCLC input.

Urbanski's "Question and Answer" column in the *OLAC Newsletter* continued to respond to questions about cataloging all types of nonbook materials.

## COMPUTER FILES

Olson documented the process resulting in the new AACR2R computer file rules in *Cataloging Microcomputer Software*. The text discusses and

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illustrates the rules with 100 examples, each with chief source of information and some also coded and tagged according to the MARC format for OCLC input. Olson also prepared a third edition of her *Manual of AACR2 Examples for Microcomputer Software with MARC Tagging and Coding*.

Kranz discussed the need for consistency in microcomputer software cataloging and expressed the hope that his article would "serve to document a phase in the transition period between the availability and use of unconsolidated sources of cataloging rules and prescriptions and their anticipated consolidation."

Paskoff discussed selection, cataloging and classification, storage, circulation, and copyright of computer files. She wrote that she expected a "new generation of computer-literate library users" to create increased demand for computer files in libraries. The University of Florida, where machine-readable data files have been acquired for over fourteen years, prepared extensive guidelines for purchasing, cataloging, circulating, and preserving computer files, as reported by Beaubien et al. Cornell University Libraries developed brief guidelines for selection, evaluation, processing, and access of databases on compact discs. Hess studied academic collections of microcomputer software and hardware and, in an extensive report, covered many aspects of the topic including acquisition strategies, the selection process, bibliographic access, physical preparation of materials, and housing. The report provided estimates on the lifespan of computer disks and problems, as well as tips, in establishing and maintaining collections.

Smyth reported on an RTSD-AV program at ALA (New Orleans) that included speakers on computer file collection development, cataloging, evaluating, circulating, and hardware.

Details of cataloging and interpretations of rules for computer files were reported by a number of authors, including Martyn, and Patton and Weitz (both singly and as joint authors). Voedisch summarized Olson's earlier findings on salvaging wet disks and illustrated an article in *OCLC Micro* with a photo of wet disks hung up to dry.

### MUSIC AND SOUND RECORDINGS

A number of significant publications related to music cataloging and/or reference appeared in 1988. Bratcher and Smith compiled a list of music subject headings from the three massive volumes of the *Library of Congress Subject Headings*, 11th edition. This work, edited by Smiraglia, is introduced by an explanation of the use of music subject headings and is in the same format as *LCSH*, complete with all references. Drone prepared, from the Library of Congress Subject Authority File, classified and alphabetical listings (one volume each) of music subject headings. These listings include the LC control number, LC classification number, and the established headings, but no references. Drone also used the Library of Congress Name Authority File to prepare indexes to the established titles, variant titles, obsolete uniform titles, and work numbers for the works of eight major composers.

The second edition of Smiraglia's *Cataloging Music* was reprinted in 1988 with minor corrections. Holzberlein prepared a manual on cataloging

sound recordings that was issued as a monographic supplement to *Cataloging & Classification Quarterly*.

Carter suggested "changes in outlook" resulting in enhancements to the bibliographic record for greater retrieval of song titles and names of performers and composers in an online catalog. Kranz attempted to "provide direction for the novice cataloger with a limited music background who seeks to systematically assimilate the knowledge necessary to establish uniform titles for musical works."

Elrod suggested using alternate rule 1.4G4 to give original publishing information and reproduction information in the same area of the bibliographic record for talking books and microforms. He pointed out that brief displays of information in COM, book, and some online catalogs do not include information provided only in notes.

Berman prepared and circulated proposals on headings for popular music genres. Pietris established a procedure for persons wishing to submit headings for LCSH.

The Library of Congress announced it had begun "to create cataloging records for printed music according to minimal level cataloging standards" ("Minimal," Jan.). In a later report ("Minimal," Aug.) data elements to be included in minimal-level music cataloging were listed. It was also announced that sound recordings will be included in this activity.

MARC format integration has been followed closely by music catalogers, who are informed about this work through regular reports in *Music Cataloging Bulletin*. It was explained ("MARC format") as "validating all fields across all formats." Meanwhile, an MLA committee continues to investigate the problems of using the 028 field as an access point ("MLA").

A "compressed audio disk" was produced at the Library of Congress with thirty-three hours of sound on one side, containing "nearly every spoken word recording manufactured before 1910 in the Library's collections." The disk is indexed by title, performer, genre, and subject. The project was undertaken "as part of the Library's commitment to develop and investigate new preservation techniques and media and to make its vast collections more accessible through better cataloging and faster retrieval."

## FILM AND VIDEO

Intner wrote on summary notes for films and videos, giving recommendations and examples along with a rationale for writing them. Her article included examples from the OCLC database with suggestions for rewriting each. MacIntyre advocated a book catalog for collections of film and pleaded for a standardized numbering system for films. Tucker described a text retrieval system used in a film library in Wales.

The MacArthur Foundation offered videos from PBS to public libraries for 10 percent of their usual price through the Library Video Classics Project. The project was later extended to include financial assistance for libraries unable to afford the reduced price. Over 2,000 libraries were able to obtain videos in 1988 through these grants.

An archive of more than 24,000 television scripts is now open for schol-

arly research at the University of Pennsylvania. The archive will receive an additional 1,500 scripts per year from the editors of *TV Guide*. The scripts are cataloged by subject, and a specialized thesaurus has been developed.

Skellie reported on a PLA postconference on video in public libraries. The meeting included sessions on collection development, budgets, marketing, circulation and maintenance, and blanket licensing.

### GRAPHIC MATERIAL AND THREE-DIMENSIONAL OBJECTS

Harrison and Clark reported on the development of a computer-based system for managing a collection of 60,000 slides that grows at the rate of 5,000 per year. This collection, located at the University of Lancaster, is arranged using the Bliss classification. Each slide is individually described, classed, and labeled. The system allows for keyword searching.

Brooks discussed several computerized indexing systems for visual materials. She noted that "for the indexing of nonprint collections to be successful, a visual element in an index is as important, if not more so, than the printed system." She listed two problems: no subject authority for visual images, and the shortage of standardization by which subject indexing of images may be guided.

Bierbaum investigated teaching of cataloging of three-dimensional objects and concluded: "It will be difficult for library school graduates who have experienced even unconscious nonprint bias to assume a leadership role in developing access to nonprint materials, in weaning public libraries from local practice cataloging, for example."

### CARTOGRAPHIC MATERIALS

Perkins and Parry discussed the results of their survey showing changing patterns of map availability and noted the resulting implications for library acquisitions.

Cobb described the background of the decision to recatalog the collection of the University of Illinois Map and Geography Library (composed of 525,000 maps and aerial photographs) using OCLC. He focused on the choices to be made between designing a local system and using an existing national system.

### MISCELLANEOUS

Agnew reported on a meeting of the RTSD Public Librarians in Technical Services Discussion Group. The discussion covered security, tampering, returns, shelving, and barcoding of nonprint materials. Casciero and Roney include a useful illustrated chapter on physical processing and storage of audiovisual materials in their *Audiovisual Technology Primer*.

In a practical article, Urbanski noted questions that should be answered before any retrospective conversion project is begun: Why are we converting this material, and why now? Is there administrative support for this project? Is there support from the media center staff? How will the collection be organized? What is in the collection? What bibliographic access now exists? She pointed out the advantages of weeding material before the

conversion process, rather than after.

Many of the articles cited in this summary discussed archival materials or archival concerns. Gilmore advocated bibliographic descriptions of multiformat archival materials available online through the library catalog, as is done in Honnold Library of the Claremont Colleges.

Evans and Will compiled examples from ten archival repositories using the MARC format for visual materials including photographs, prints, moving image materials, architectural drawings, and greeting cards.

Fink reported on school library use of LaserCat, a CD-ROM product of WLN, commenting: "Why should a school librarian reinvent the wheel, when other highly qualified professionals have already done the cataloging for them?"

Kranz identified OCLC records for various types of book and nonbook curriculum materials and determined the percentage of hits for each type, as well as the quality of the bibliographic records retrieved. He concluded that "the catalog records for curriculum materials are sufficiently available and informationally adequate."

Morse discussed criteria for withdrawals from a teaching practice collection. The criteria include user damage, deterioration, obsolete formats, poor presentation/content, out-of-date/irrelevant material, presence of advertising in relation to content, racism/sexism, copyright, and frequency of use.

Olén studied the international trend toward standardization in cataloging and methods of information storage and retrieval, considering all types of material present in school media centers.

### PRESERVATION

Preservation of nonbook materials is receiving increasing attention. The thirtieth Allerton Institute at the Graduate School of Library and Information Science at the University of Illinois, Urbana-Champaign, was held in November 1988 on "Conserving and Preserving Materials in Nonbook Formats" ("Conserving").

Harrison described a meeting of film archive personnel at the Royal Air Force Museum to "investigate the often conflicting demands of preservation and access." The related cataloging seminar considered the problems of film authorship and publication date. Paron described the work of the National Center for Film and Video Preservation and the disappearance and deterioration of film and video materials. Hodges questioned the future of 78 rpm sound recordings. Pitman stated that the average lifespan of a videocassette is about 250 uses and compared this to the number of circulations of many best-sellers in a typical library, as he worked out a plan of replacement of titles.

Mallinson suggested the top priority for archives: "To accession, to preserve valuable records indefinitely, and to make them available to the public." He went on to discuss the problems of changing technology and its associated hardware, listing ten different, incompatible videotape formats, each requiring its own playback equipment. Line, however, stated that "conservation of nonbook materials raises fewer problems, because the format is rarely important or valuable."

While many of us in the United States complain about conditions in our libraries, few of us must contend with the problems encountered in developing countries. Agaja described the effects of the "harsh climate" of Nigeria on audiovisual services, including excessive heat drying up the lubricant in film projectors and dust blocking the air inlets of equipment. Dust enters cassettes and settles on record and playback heads. Power failures cause temperature changes in air-conditioned storage rooms, and tape is damaged from temperature fluctuations.

In discussing preservation of audiovisual materials, Mazikana stated: "Audiovisual materials in libraries and archives have . . . to a large extent suffered from both physical and intellectual neglect." He went on to discuss problems of developing countries: "Unable even to provide adequate storage for the conventional library and archive material, it becomes an even more difficult task to find adequate storage for the audiovisual materials which by their very composition and fragility demand an even more stringently controlled environment." He further stated, "The preservation of audiovisual materials requires a coordinated and sustained approach at institutional, national and international levels" and recommended that "librarians and archivists must learn to market themselves and their services . . . [they] must show clearly the disastrous effects arising from lack of appropriate information in terms of economic and social developmental goals."

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# The Literature of Online Public Access Catalogs, 1980-85: An Analysis of Citation Patterns

Carolyn O. Frost

*This paper reports the findings of a citation analysis of journal articles published between January 1980 through April 1985 dealing with online public access catalogs. The cited works were analyzed to determine patterns in subject content, date, publication format, authorship affiliation, and type of authorship. The text of the citing articles was analyzed to determine how the cited publication was used within the work. Findings revealed that the literature has many characteristics identified with a scholarly or scientific literature, and also indicate evidence of a research thrust.*

In recent years, the topic of online public access catalogs has acquired a growing body of literature that reports on a considerable volume of research. This literature documents fast-breaking current developments and presents a wide range of viewpoints and opinions. It reflects a technological phenomenon that, in a relatively short period of time, has revolutionized modes of access to library bibliographic records. This topic interconnects many areas of the profession, such as management, automation, and bibliographic instruction, and consequently engages the attention of information professionals well beyond the immediate areas of cataloging and classification. The subject offers opportunities for research that can evaluate innovative developments and lay the groundwork for exploring potential changes in services based on a wave of technological change. This concentration of research studies comprises one of the research fronts in the discipline of library and information science.

An examination of the literature of online public access catalogs can provide a view of publication activity at a key point in the development of the technological change it describes. Citation analysis offers a methodology for the examination, in its attention to characteristics of citations in the literature of a discipline. Authors rely to a considerable extent on previously published materials, and it is these previously published works, cited in the professional literature, that help to shape and direct the works that follow

them. A great deal can be learned about the development of dominant themes in the exploitation by libraries of new information technology.

### CITATION ANALYSIS

Citation analysis can reveal patterns in publication that serve as broad indicators of quality of a subject literature, as well as of trends within a discipline. It can address questions such as

- How scholarly and how scientific is the literature, as measured by bibliometric criteria for publication and research?
- How current is the literature?
- How research-oriented is the literature? (To what extent does the literature report on or refer to research?)
- How interdisciplinary is the subject literature; and a companion question: How directly related is the cited literature to the subject at hand?
- Who is taking part in the research and writing activity? Is the literature written by practitioners, educators, or researchers?
- To what extent is the writing and research a collaborative venture?
- Through what publication vehicles (e.g., journals, report literature) is the literature made accessible?
- How has the literature been used by other authors in subsequent publication and research?

Published literature studies in library and information science have identified qualitative and quantitative trends in scholarly research and publications.<sup>1</sup> Observations were drawn from this research about the maturity of the discipline and its relative standing among other areas of study. A few studies focused on the literature of cataloging and classification. This paper will apply the methodology to the literature of online public access catalogs.

### METHODOLOGY

The assumption underlying this study is that journal articles are the primary publication vehicle for disseminating the results of research, and for communicating views and information in the discipline of library and information science and in the specific subject area of online public access catalogs. A sample of journal articles was collected for analysis of citations to the literature.

### GATHERING OF THE SAMPLE

Journal articles from January 1980 through April 1985 were included. 1980 was selected as the beginning of the period in which the subject of online public access catalogs began to make an impact on library practice and research. It was also in 1980 that minicomputer technology began to make it possible for libraries other than large research institutions to afford the hardware necessary for an online public access catalog.<sup>2</sup>

Manual and online searches of the indexes covering the literature of library and information science were performed to identify all English-language journal articles within this time span that had a primary focus on online public access catalogs. Excluded were articles primarily addressing conventional card catalogs, as well as papers on automated cataloging and

other technical services processing concerns. Articles without references were noted but not included in the analysis. Also excluded were book reviews, research notes, letters, opinion columns, news announcements, and editorials. The seventy-four journal articles yielded 828 references, or 11.2 per article. Twenty-three unique journal titles were represented.

Citations appearing within the body of a text but not in footnotes were included for analysis. Where a single footnote contained more than one citation, each citation was regarded as independent for inclusion in the study. Citations were also counted separately if the author referred to a work previously cited in his or her article (e.g., in footnote four, the author refers to a work previously cited in footnote three). Among the 828 citation instances, there were 205 cases in which multiple citations occurred in the same article.

### CITATION ANALYSIS CATEGORIES

*Citation usage.* By looking at the way a cited work was used by the source article, some insight can be gained into what aspect of the cited work was found valuable and what kind of information was being documented. Therefore, each cited work was analyzed to determine its use within the citing article. Five basic categories were identified:

1. description of a library/information system project or operation
2. statement of a viewpoint, idea, model, or opinion
3. statement of factual information
4. reports of research: description or mention of findings, methodology
5. references to or recommendations of further literature

*Characteristics of cited works.* Cited references were also analyzed to determine date of publication, subject, publication format, author affiliation, and type of authorship (i.e., single, joint, or corporate). For each cited work, the year of publication was noted. In retrospect, it became clear that a notation of the span between the citing and cited work would have been valuable. However, since the span of citing articles ranges from 1980 to early 1985, some conclusions could still be drawn as to the relative span of years.

In noting authorship affiliation, the first author of a multi-authored work was coded. Library practitioners were defined as individuals with library titles, e.g., reference librarian, associate director of public services. The category of educator consisted of individuals with the rank of assistant through full professor (or dean) at a school of information and library science. The category of researcher was applied to those whose full-time responsibilities were limited to research or consulting. The category of vendor applied to those affiliated with a commercial vendor, library network or consortium, or a bibliographic service or utility, as well as staff members of a professional association such as the American Library Association or the Association of Research Libraries, if their responsibilities did not primarily involve research. For works with corporate or unknown authorship, no authorship affiliation was coded.

It is generally assumed that cited literature refers to material similar in subject to the citing source article. This assumption forms the underlying rationale for citation indexes. In this study, the subject treated by the cited

literature was assigned to one of five categories: (1) online catalogs, (2) online library systems (library automation excluding online catalogs), (3) cataloging and classification outside of automation, (4) other library and information science areas, and (5) nonlibrary subjects.

It was clear from a reading of related studies that publication formats may be categorized differently among researchers. In this study, monographic literature was subdivided into monographs, collections (i.e., *Festschriften*, proceedings, and other similar collectively authored works), and research reports. Unpublished research reports and ERIC documents were counted separately.

### PATTERNS OF USE OF THE CITED LITERATURE

An examination of the role played by the cited work within the citing source can serve as an indicator of how writers and researchers make use of their colleagues' scholarship, and how the published literature is used to continue the knowledge train, contributing to the development of further publications (see table 1).

The most frequent use of citations was to refer to research methodology or findings. Primarily, this use was to describe the findings of a research study, and less frequently, to describe methodology. An infrequent use was the comparison of the findings with the citing author's own research, or the use of the findings to substantiate the argument of the citing author. Still less frequently, the citing author took issue with the findings of the cited work or built on the findings.

Another common use of the cited document was to present viewpoints, ideas, recommendations or guidelines. Such viewpoints, etc., usually were merely described and less frequently were used to substantiate the citing author's own argument. Rarely were viewpoints disputed or built on.

In one of five of the citations analyzed, the citing author referred the reader to further literature on the topic. The next most frequent citation usage was to present a statement of fact. Such uses were somewhat infrequent, and most were for the purpose of substantiating the citing author's argument.

Rarely did the citing authors refer to a description of a library system or operation. Other infrequent categories of citation use included documentation of a reference source or system manual, third-hand quotes where the cited author quotes from a previous work, references to definitions of terms or concepts, and references made in passing or for stylistic effect.

In large part, the nature of the use to which the citation is put will be determined by the purpose or scope of the citing article. Therefore the study analyzed the citing source articles to determine their principal focus. Presentations of research findings and discussion pieces were equally represented (29.7% each). Descriptions of individual library operations were the principal focus of 21.6% of the articles. Factual information was the primary purpose of 8.1% of the articles. Some articles were a mixture of factual description and discussion (8.1%) or of factual description and research (2.7%).

This study did not examine the use of the professional literature by the

TABLE 1  
PATTERNS OF CITATION USAGE

Content of Cited Work Referred to in Citation	N	%
Research methodology/findings	266	32.13
Viewpoint/idea/guideline/model	169	20.41
Related or recommended literature	166	20.05
Factual information (exclusive of research findings)	115	13.89
Library/information system operation	57	6.89
Reference sources, manuals	27	3.26
Quote from previously cited author	12	1.45
Definition of term	10	1.20
Mention in passing; quote for stylistic effect	6	.72
Total	828	100.00

profession at large, but rather its use by those who themselves are writers and researchers. In a subject literature written by and for both practitioners and educators, and with applications for keeping abreast of current developments as well as forming the foundation for further research, perceived uses and needs for research will appear at times to be in conflict. Decisions as to what types of studies are needed for research, and what types of methodology are most appropriate, will no doubt be related to the use to be made of the research findings.

Speaking from the perspective of a library administrator and consumer of research, Hewitt cites the need in the profession for certain kinds of publications. Among these are literature that "describes, analyzes, and evaluates particular systems, procedures, organizational structures, and policies in use in other libraries." He notes that case study research, or the "how we do it good" paper, is frequently spurned by researchers, (i.e., library school faculty), but can be valuable to the practicing librarian because it allows comparisons with and measurements of the effectiveness of the practitioner's own operations, as well as offering insight and information regarding techniques to be emulated or avoided.<sup>3</sup>

The results of this study support Hewitt's contention that very little of the published literature on online catalogs provides a description of a library system, operation, or procedures. To some extent, information of this kind may be of a proprietary nature, and thus not allowed to be published or circulated. Hewitt speculates that case study research may be held in low esteem because it "does not claim to have external validity in a statistical sense, and its findings cannot be generalized through inferential statistics in the same manner as a survey."<sup>4</sup>

#### AUTHORSHIP AFFILIATION

An examination of the affiliation of authors can suggest trends in relative productivity according to professional occupation. In a professional discipline, the major focus of comparison will be between educator and practitioner. Since practicing librarians far outnumber library educators, it is to be expected that the affiliation of most authors in the field will be that of practitioner. However, since research and publications are expected from faculty members to a greater extent, one anticipates that the representation

of faculty members will be greater in the published literature in proportion to their numbers. These assumptions are supported by the findings of this and other authorship studies.

In this study, professional affiliations were noted for each cited author and were ascertained from information given in the cited article. In the case of multiple authors, data was taken for the one first listed. Affiliation data was noted only for professionals in library and information science-related fields. Thus, faculty and practitioners outside of library-related fields were not counted. The categories noted were librarian, educator, student, researcher, and vendor. As noted earlier, the category of researcher included professional consultants and officers in professional organizations, and applied to different environments—libraries, schools, utilities—if the primary responsibility involved research.

Of the total number of library-related professionals tabulated, nearly half were librarians, slightly more than one in four were researchers, and about one in five were educators (see table 2). Those remaining were vendors and students. Practitioners are predominant as authors of publications, but at the same time library educators made a strong showing in light of their much smaller proportional representation (there are approximately twenty-one academic librarians for every one library science faculty member).<sup>5</sup> Of interest, too, is the notable presence of full-time researchers and consultants and the indication of their role in publication in an area that can be said to represent a "research front."

A cross-tabulation of the data by authorship affiliation and content category reveals that the nature of the authorship varies with the nature of the content cited. Overall, practicing librarians were predominant among authors of cited publications, ranging from 40 to 49.4% of the total of library-related authors. But in those cases where the cited works documented library operations, the percentage increased to 92.9%. Predictably, then, librarians are more likely to be the authors of works describing library operations. Another predictable finding in this regard is that researchers constituted a proportionately higher percentage of authors in cited works describing research.

In the source articles as well, practicing librarian authors predominated: affiliation of cited authors showed the expected majority of librarians (68.9%), with 13.5% educators and an equal percentage of researchers; students constituted 4.1%.

TABLE 2  
CHARACTERISTICS OF CITED WORKS BY PROFESSIONAL AFFILIATION\*

	N	% of Library-Related Professionals
Librarian	251	46.14
Educator	118	21.69
Student	7	1.29
Researcher	155	28.49
Vendor	13	2.39
Total	544	100.00

\*For authors in library-related professions.

Related research reveals similar findings. Olsgaard and Olsgaard's study analyzed authorship data for five major library science journals for a ten-year period. While four of the five journals examined had "a substantial number of articles by practicing librarians," the researchers found that in all cases, "library science faculty carried a much higher percentage of publication than their population would indicate." Interesting, too, was the finding that there was a "significantly large number of authors who do not work in academia or any type of library setting."<sup>6</sup> Similarly, Watson's study found that "the most productive class of authors is that of academic librarians followed by library science faculty," and remarked on the number of nonacademic or nonlibrary-affiliated authors, "personnel from 'other library-affiliated organizations,' the staff of library networks, consortia, and bibliographic utilities."<sup>7</sup> These studies analyzed characteristics of contributing authors rather than citations generated from the published literature. While this approach differs, the results are worth relating, since characteristics of both citing and cited literature can give insights into patterns of scholarly writing and research in the subject discipline.

Schrader was less impressed by the representation of faculty members in his study of the *Journal of Education for Librarianship*, and it is not surprising that seven out of ten first authors in his study were educators. However, Schrader concluded that "the presence of such a considerable proportion of practitioners raises the question of whether or not the educators are intellectual masters in their own domain."<sup>8</sup>

### AGE OF CITED LITERATURE

Analyzing cited literature by date of publication provides an indication as to whether a field is static or dynamic in its use of previous research. Several citation studies of librarianship have examined the published literature with a view toward the importance of recent versus older research, and most of the findings relate the field's predominant use of current materials; this study proved to be no exception.

It would be expected that citations in a quickly changing field such as online catalogs would be very current in nature, and this was in fact the case (see table 3). Two-thirds of materials cited were published between 1980 and 1985 (the study was conducted in early 1985), while 86.7 percent were published between 1977 and 1985. The oldest citation dated from 1876.

The date distribution of the source articles was as follows: 6 articles were published in 1985, 18 articles in 1984, 30 in 1983, 13 in 1982, 4 in 1981, and 3 in 1980.

Broken down by citation usage patterns, the results showed that the categories of publications with the most recent literature were those describing library operations, documenting research, and referring the reader to further literature. About 60% of the above-mentioned categories had publication dates between 1981 and 1984, as compared with about 47% of the other two categories.

Other studies of the literature of library and information science also point to currency in cited materials. Frohmann's data for the literature of cataloging and classification indicated a high use of recent materials, with a median age of four years. To him, this suggested "a dynamic rather than

TABLE 3  
AGE OF CITED WORKS

	N	% of Dated Works
1983-(early) 1985	171	21.54
1981-1982	291	36.65
1979-1980	148	18.64
1977-1978	78	9.82
1975-1976	13	1.64
1973-1974	7	.88
1971-1972	30	3.78
1969-1970	24	3.02
1958-1968	13	1.64
1937-1957	14	1.76
1876-1936	5	.63
Total	794	100.00
Undated	21	
Forthcoming work	13	

static discipline . . . [which] keeps abreast of problems and issues arising from recent material.<sup>9</sup>

Sellen's study of research in academic librarianship also showed that the time lag between cited publications and the research reported was only three or four years. In addition, these findings suggested that this currency extended not only to journal literature but to monographs as well, with a relatively small time lag between periodical literature and monographic literature; this is of particular interest, since journal literature is usually associated with more current materials than are monographic items.<sup>10</sup> Peritz, who dichotomized citations in her study into "those that are at least seven years old and those that are more recent," found that only 25% of the citations were seven or more years old.<sup>11</sup>

Like Frohmann, Schrader concluded that the importance of recent materials is a "positive sign of good scholarship." Half of all citations in his study were to works less than five years old, and over 70% were to works less than ten years old. In contrast to Sellen, he noted that 50% of journal citations were four years or less in age, while the corresponding proportion of cited monographs was 34%.<sup>12</sup>

LaBorie and Halperin's study analyzed citations in library science doctoral dissertations between 1969 and 1972. Not surprisingly, they found sharp differences between dissertations on historical subjects and those dealing with automation, with the former exhibiting citation patterns similar to the humanities, in contrast to the latter, which more closely resembled citation patterns in the pure sciences. The remaining dissertations were found to have "patterns of citation usage characteristic of the social sciences." Thus, "researchers preparing historical dissertations cite a very high percentage (79.6%) of materials over 20 years old. . . [whereas] dissertations on automation cite primary materials published within the past five years (68.2%)."<sup>13</sup>

#### PUBLICATION FORMAT

In analyses of publication formats of a subject literature, it is frequently

TABLE 4  
CHARACTERISTICS OF CITED WORKS BY PUBLICATION FORMAT

	N	%
Journal article	340	41.06
Collection	116	14.01
Monograph	90	10.87
Research report	161	19.44
In-house document	29	3.50
ERIC document	14	1.69
Dissertation, paper prepared by student	3	.36
Government document	4	.48
Private communication	14	1.69
Unpublished paper	35	4.23
Catalog, code/standard, manual	20	2.42
Miscellaneous: review, forthcoming work	2	.24
Total	828	99.99

alleged that a predominance of journal literature suggests that the discipline is more scholarly, since journal articles are more likely to be refereed (see table 4). (Humanists might take issue with this assumption!)

In this analysis of citations, journal articles constituted the major publication format (41.1%). Research reports were nearly one in five (19.4%). Since, as noted earlier, this category was defined as any document labeled "report," it included both published and unpublished materials. Peritz, whose study revealed a 13% rate for reports, conjectured that a relatively high proportion of references to reports was "due to the fact that a large number of worthwhile studies never reach final publication. Alternatively, it could be the result of an 'immediacy' effect; perhaps many studies are cited before they progress from the report stage to final publication."<sup>14</sup>

Monographs were divided into treatises (10.9%) and collections brought together under editorial supervision (14.0%) including conference proceedings. Other categories constituted smaller percentages, i.e., below 5% for each (see table 4).

A cross-analysis of the data indicated that some patterns of publication format may be determined in part by the content or purpose of the cited work. The largest percentage of research reports occurred in citations referring to research. In contrast, less than 2% of citations referring to library operations were in this format. In between were citations documenting factual information, citations referring to further literature, and citations referring to a viewpoint.

The data also suggest that libraries are more likely to disseminate information about their own operations through less formal vehicles of publication. It was in this citation category that unpublished papers, private communications, and ERIC documents occurred most frequently.

Monographs were more frequent in works giving factual information and references to further literature. Collections appeared more frequently in descriptions of viewpoints and references to further literature.

The overall distribution of journal and monographic literature is consistent with the findings of other studies. Frohmann's interpretation of his

findings reflects the criteria by which "scientific" and "scholarly" traits of a literature are sometimes measured. In his view, "the proportion of referenced journal articles in a literature is a measure of its discipline's scholarliness."<sup>15</sup> This assumption is based on the fact that journals are more likely to be refereed than are monographs, at least in the sciences and social sciences. Thus, a higher representation of journals suggests that the literature is more scientific and scholarly, since science is often held as the norm by which library and information science are measured. Frohmann found that journals did not predominate in his study of the literature of cataloging and classification; thus he concluded that "the field of cataloguing and classification is primarily non-scholarly" and "has a structure more like a humanities than a scientific literature."<sup>16</sup>

Still, in evaluating the literature of an emerging technology and "research front," it becomes evident that we do a disservice by measuring the literature solely by the proportion of journals versus monographs. This approach would discount the importance of research reports, which, it can be argued, reflect a positive trend in the literature. They are indicators of research emphases; they often present recent findings that later appear in more formal publication formats; and while not "refereed" in the same sense as a journal article, many research reports undergo a review process in the proposal stage as rigorous as manuscript reviews.

Two other studies reveal similar findings. Peritz' analysis of citations in library science literature found a 47% rate for journals, with 33% for books and collective works, and 14% for reports.<sup>17</sup> In Schrader's citation study, journals accounted for 40% of the sample as compared with 25% for monographs. Like Frohmann, he suggests that a high percentage of journal literature indicates scholarliness.<sup>18</sup>

In three other studies, the balance of journal and monographic literature differs from that of the findings just discussed. Sellen's analysis of articles appearing in two academic library journals showed a much higher representation of periodical articles (56%) and also of monographs (38%).<sup>19</sup> Mittermeyer and Houser's study of the literature of library administration revealed "a predominance of monographs over any other form of publication."<sup>20</sup> They concluded that "this argues for an older kind of knowledge base than a normal social science which depends on journals and report literature."<sup>21</sup> LaBorie and Halperin's study of citations in library science dissertations also found a predominance of monographs.<sup>22</sup> These findings, published in 1976, also show the difference that a decade or so has made in the literature of library and information science. Contrary to expectation, dissertations on the subject of automation cited twice as many monographs as journals. In commenting on the relatively high number of citations to reports, conference proceedings, and "fugitive" literature, LaBorie and Halperin suggest that information science, "as an emerging field, [may have] too few journals to absorb the number of publishable papers presented at conferences."<sup>23</sup>

## SUBJECT

An examination of the subject of cited works is useful in addressing two questions: (1) how closely related in subject content are the cited works and the articles that document them? and (2) How much of an interdisciplinary

nary approach is present in the subject literature?

When the citations were analyzed by subject categories, online catalogs were the majority, constituting almost half of the subject content of the cited references, while the next largest category was that of nonautomated aspects of cataloging and classification. Other automation topics were 10.6% of the sample, while other library and information science topics were 4.7%; nonlibrary subjects, such as computer science and higher education, accounted for 14.4%. From this it can be seen that the literature on online public access catalogs will provide a likely source to citations immediately related to this subject area at least half the time (see table 5).

Analyzed by patterns of citation usage, the findings show that in two-thirds of the works documenting research, the subject was online catalogs. In works referring to further literature, slightly less than half deal with online catalogs, while a third of the works describing viewpoints are on this subject, and about a fourth of the works providing factual information.

The subject of "other online systems" was more frequently the focus in cited works describing library systems (31.6%), as compared with half or less of this percentage for works referring to further literature, describing a viewpoint, or giving factual information. Works describing research had the lowest percentage in this subject category.

About one in three cited works giving factual information or documenting viewpoints dealt with other aspects of cataloging and classification, while about one in five cited works describing research were on this subject, and only one in twenty works describing library systems fell in this category.

A look at other analyses of cited references by subject indicates the growing representation of automation-related literature. LaBorie and Halperin's study revealed relatively little interest in both technical processes and automation, leading the authors to conclude that "automation and its impact on libraries have as yet received little attention from doctoral candidates."<sup>24</sup> However, Nour analyzed research articles published in core library journals of 1980 and observed "an almost three-fold increase in articles on automation and a decline in emphasis on history."<sup>25</sup>

Another point of interest in analyzing the subject content of cited articles is the extent to which a subject literature is self-contained or draws upon other disciplines, or is "interdisciplinary." In this study, 85.6% of the citations were to works in library and information science, matching Frohmann's findings of 87.2% for the literature of cataloging and classification.<sup>26</sup> In Peritz' study, the percentage was 78%.<sup>27</sup> LaBorie and Halperin's study revealed that citations were also primarily to materials within the discipline, with over half of the references to library and information science.<sup>28</sup> Frohmann sees the small proportion of citations to fields other than library information science as "evidence of some consensus in the field."<sup>29</sup> Some, however, might view the results more negatively as evidence of a lack of interdisciplinary focus.

#### AUTHORSHIP RESPONSIBILITY PATTERNS

Collaborative research ventures are often viewed as a sign of maturity in a discipline aspiring to be scientific. The nature of authorship, whether single, collaborative, or corporate, is another indicator of the scholarliness of

TABLE 5  
CHARACTERISTICS OF CITED WORKS BY SUBJECT

	N	%
Online catalogs	381	46.01
Online library systems	88	10.63
Other library and information science	39	4.71
Catalogs, cataloging, classification (manual)	201	24.28
Nonlibrary	119	14.37
Total	828	100.00

a discipline. This criterion for scholarliness, too, seems to be derived from the model of the scientific disciplines.

From the results of this and other studies, it is clear that, for authors of library publications, writing is primarily a solitary effort. In this study, works of single authorship more than doubled publications that were of joint authorship (62.4% to 23.9%), while works of corporate authorship and works of multiple authorship produced under editorial direction constituted 13.7% of the sample. The authorship of source articles was also analyzed; publications with single authors were 70.3% of the sample, while jointly published articles were 29.8%.

Frohmann found single authors outnumbered multiple authors by more than three to one (72.5% vs. 22.1%).<sup>30</sup> Bottle and Efthimiadis mention that "the low incidence of multiple authorship (20.1%) is characteristic of the social sciences rather than the physical and life sciences where the percentages of multiauthored papers reported range from 67 to 83."<sup>31</sup> In Mittermeyer and Houser's analysis, 58.1% were single authors, 25.9% joint authors, and 16.0% corporate authors.<sup>32</sup>

Single authors predominated as well in Schrader's study of the citations in the *Journal of Education for Librarianship*. He points out that "during JEL's first 10 years, the notion of joint authorship of an article was virtually unheard of, [but] by the early 1980s, one out of three articles was authored by two or more individuals."<sup>33</sup> Schrader sees the increase in collaborative authorship as an indication of "increasingly rigorous scholarship" among library science educators and authors.<sup>34</sup>

### NUMBER OF REFERENCES

Another suggested indicator of the scientific nature of a discipline is the number of references contained in its publications. Windsor and Windsor proposed that "the ratio of papers without references to those with references is a measure of the scholarly status of a field." On this basis, they concluded in their 1973 article that "much of the information science literature is not very scholarly." Their study revealed that almost a third of the papers in information science had no references, and that half of them had only four references at the most, whereas two-thirds had eight or fewer references.<sup>35</sup>

Peritz discovered that the proportion of research papers with no references declined over her study period from 42% in 1950 to 16% in 1975.<sup>36</sup> Nour's data support Peritz' conclusion that the mean and median numbers

of references of research articles in librarianship literature are increasing.<sup>37</sup>

While no analysis was made of the number of references of the cited articles in this study, the source articles were analyzed. Of the total 105 articles found on the subject of online catalogs, 70.5% contained references, while 29.5% had none. Of the articles with references, 56.8% contained between one to ten references, 25.7% contained eleven to twenty, and 17.6% contained twenty-one or more.

### SUMMARY AND CONCLUSIONS

A discipline is considered scholarly if there are high percentages of citations to journal literature, to recent publications, and to works on the subject of the citing article. Measured by such criteria, the literature of online public access catalogs shows evidence of a scholarly or scientific thrust. Journals were the primary publication vehicle. There was a high percentage of recent materials: of these articles, published between 1980 and early 1985, 76.3% had citations to works published between 1979 to 1985. To a high degree, the literature of this topic is self-contained. About half of the citations refer to works directly related to the topic at hand, i.e., online public access catalogs, and about 70% are on some aspect of catalogs. Only 14% refer to nonlibrary topics.

Additional findings of this study suggest criteria that might be useful as indicators of a research emphasis in a subject literature. One indicator of a research thrust was seen in the active role of researchers and educators as authors of professional literature. These two groups were represented in percentages disproportionate to their numbers: 28% of the cited works were authored by researchers and consultants, while 21.7% were authored by faculty members. Notable also was the strong representation of research reports (19%), which may be considered a sign of interest in research developments. Also indicative of the research thrust of the literature was the finding that about one in three citations referred to some aspect of research, such as documenting methodology or findings.

Many of the findings of this study were consistent with those of previous analyses of the literature of library and information science. Since the study covered the four years in which the subject of online public access catalogs made its initial impact on the professional literature, further research on this topic would be useful to identify continuing and diverging trends.

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# Writing Technical Specifications for Database Authorization

Jack Kranz

*Librarians with minimal knowledge of library systems applications are finding themselves faced with the task of writing technical specifications for various phases of OPAC or COM catalog procurement and implementation. Guidance in the preparation of these technical specifications and assistance in formulating requirements to be included in a library's invitation for bid for authority control services are offered.*

**I**ncreasingly, librarians with little or no background or experience in library systems applications are finding themselves involved in the planning and implementation of an online public access catalog (OPAC). Among the many activities associated with the transition from the card to online catalog, and one that justifiably raises concern, is the need to conceptualize and write technical specifications for the authorization of the bibliographic database preparatory to catalog implementation.

This paper focuses on considerations, decision-making, and the resultant technical specifications contained in an invitation for bid for database authorization and production of name and subject authority records from the OCLC MARC bibliographic files held by the University Libraries at California State University, Northridge (CSUN). A review of the library literature reveals that while a number of articles and a few books have been written on general authority control concepts and practices, and on automated authority control in relation to online public access catalogs, none explore considerations associated with writing technical specifications required for vendor-facilitated OPAC authority control.<sup>1</sup>

The following commentary addresses my experiences writing technical specifications for the retrospective authorization of OCLC-MARC bibliographic files. This activity is a mandatory precursor to OPAC loading and indexing. The importance of database authorization cannot be overstated as it results in the replacement of variant forms of headings (perhaps more easily retrievable in a browsable card catalog) with heading forms that must be correct to be retrieved in a less forgiving online catalog where what you search is what you get.

Preparatory to the procurement of a turnkey online public access catalog

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and circulation system, the University Libraries issued a contract to an authority control vendor for the retrospective authorization of names (personal, corporate, conference, and geographic), uniform titles, series (both in title and name/title form), and subjects in the libraries' OCLC MARC bibliographic file containing approximately 580,000 unique records. Additionally, LC-based and local authority records for these headings were to be provided for loading into the OPAC authority control subsystem. Provision of authorized headings and authority records would meet the basic functional requirements of the libraries' authority control project. To attain this goal it was necessary to prepare precise specifications for the authority control vendor to follow.

Identification of the basic authority control specifications to be included in an invitation for bid was facilitated by reviewing information contained in vendors' "packaged" authority control services documentation. Using this information, and following discussion with the libraries' systems analyst, a first draft of the libraries' *Specification for Production of Name and Subject Authority Records from OCLC MARC Bibliographic Files* was prepared. The document was organized as outlined below:

- Project scope
- File processing prior to validation
  - Normalization of bibliographic headings
- Validation/Replacement
  - Validation matrix (first pass)
  - Validation matrix (second pass)
- Unvalidated headings
- Local authority file
- Duplicate records report
- File formats
  - Input files
  - Output files
- Product delivery schedule
- Statistics and reports
- Test file

Each of the document sections contained detailed specifications representing mandatory requirements of the authority control vendor. The following discussion focuses on considerations associated with each section that may serve as a basis for reflection, and ultimately the design and execution of similar authorization projects.

### PROJECT SCOPE

The primary purpose of the authorization project was to provide on magnetic tape, in OCLC-MARC communications format, CSUN's bibliographic records containing authorized headings for personal, corporate, conference, geographic names, uniform titles, series, and subjects in the field sequence found on the original tapes sent to the vendor. Authorized headings are understood to mean headings in current AACR2 or AACR2-compatible form. The headings were to be validated against current LC-based name and subject authority files.

## FILE PROCESSING PRIOR TO VALIDATION

Prior to the validation process (machine-matching of headings in the library's bibliographic records to those in the vendor's online authority files), the vendor "normalizes" all bibliographic headings to be authorized. This process involves stripping all marks of punctuation, spaces, and MARC subfield codes from the headings contained in the bibliographic file.

As part of the normalization process, the vendor expands specified pre-*AACR2* abbreviations in primary headings and heading subdivisions to their spelled-out form according to current cataloging practice. The obvious purpose of this expansion is to increase the number of matches during the validation process.

Authority control vendors generally apply a "packaged" and brief list of abbreviation expansions to a library's bibliographic file. In the CSUN libraries' specifications, it was required that the vendor provide a list of abbreviations and terms subject to normalization in the bid response. The associated OCLC-MARC field tags and subfield codes were to be specified. The list was to be subject to review, modification, and approval.

Following receipt of the vendor's abbreviations list, a considerably expanded list was substituted. It included previously used abbreviations of subject subdivision words and terms that could be found in our subject catalog and gathered from the memories of a group of catalogers and reference librarians who were queried. The list was comprised primarily of standard subdivisions (e.g., *Bibl.*, *Desc. and trav.*, *For. rel.*) and geographic names (e.g., *Gt. Brit.*, *U.S.*).

As an afterthought to the written specifications (actually, following award of the bid), the vendor was queried regarding the possibility of deleting subject subdivisions no longer in use. The thought leading to this request was that if an abbreviated subdivision could be machine-replaced by an expanded word or term, couldn't the vendor similarly delete a no-longer-used subdivision, in effect, replacing it with nothing? The vendor responded affirmatively to this request and as a result, the many occurrences of "Addresses, essays, lectures" and "Yearbooks" as subject subdivisions were deleted from our bibliographic file.

Additionally, the vendor was requested to convert 69x MARC tags with second indicator 0-8 occurring in serial format (type code "s") bibliographic records to 65x tags. This request functioned to expand OCLC's Online Union Catalog conversion of 690 and 691 tags to 650 and 651 tags respectively. For bibliographic records in the sound recordings format, it was requested that all currently invalid 705 and 715 tags be changed to 700 and 710 tags respectively. A final pre-validation file processing request was that occurrences of currently invalid subfield tags "d" and "e" associated with tags 245, 246, and 247 in the appropriate formats be changed to subfields "u" and "p" respectively.

The CSUN university libraries' OCLC-MARC tapes were first deduplicated (using an in-house program) so that occurrences other than the latest use of an OCLC record were deleted from our OCLC-MARC tapes prior to shipment of the files to the vendor. The vendor was instructed not to

process any duplicate records, should any be found, and to provide a report listing them.

### VALIDATION/REPLACEMENT

The validation or authorization process compares bibliographic headings, including names, uniform titles, series, and subjects to headings in the vendor's LC-MARC authority files. The comparison yields one of three results: (1) the bibliographic heading matches the authority record heading and is replaced by the authority record heading; (2) the bibliographic heading matches a "see from" authority heading and is replaced by the associated authorized form of the heading; or (3) the bibliographic heading does not find any authority record match and remains unchanged.

The degree of authority control resulting from the vendor's machine validation processing is attributable to the design of the validation matrices. Matrix specificity in terms of variable fields and subfields occurring in a library's bibliographic files that are to be matched against designated fields and subfields in the vendor's name and subject authority files determines the degree of authority control achieved. As in the case of expansion of subject subdivision abbreviations, authority control vendors' proposals contained documentation ranging from essentially prose descriptions of the validation matrices used to the inclusion of actual matrices of varied complexity. One vendor included a relatively detailed first-pass validation matrix in its "over the counter" authority control documentation as well as an abbreviated second-pass matrix. These served as the basis for the matrices contained in the libraries' technical specifications.

The more detailed first-pass validation matrix that was developed contained the maximum number of bibliographic variable fields and subfields that the vendor was required to validate against specified authority record tags. Theoretically, by maximizing the number of bibliographic fields and subfields in this matrix, the greater the degree of authority control that can be achieved in the validation process. In reality, however, given that many headings in a vendor's authority files are less subfield specific than those in a library's bibliographic files, decisions regarding the extent of subfield matching desired may impact significantly on the number of matches achieved during the validation process. Each match, if LC-based, yields the corresponding LC authority record containing "see from" and "see also" headings from which cross-references may be generated by an OPAC's authority control subsystem or included in a COM catalog. Conversely, unmatched headings yield "skeletal" authority records containing only the unaltered form of the entry from the input bibliographic record.

Because the initial validation pass may yield a substantial number of "fuller" bibliographic headings which do not match less subfield-specific headings in the vendor's authority files, the vendor should revalidate these headings against a second-pass matrix. The subfields defined in the second-pass validation matrix are considerably fewer; in essence they allow for a minimally defined partial match on the primary portion of the bibliographic heading. If such a match occurs on the second pass, valida-

tion will occur. Although the partially authorized form of the heading that results is less than that desired, its authorized status enhances authority control in the library's OPAC or COM catalog. Also, from a listing of these partially matched headings provided by the vendor, an opportunity exists for subsequent review by the library's staff for the purpose of either authenticating or correcting the unmatched fuller heading.

Local authority records will result from partial matches since an LC-based authority record is captured only when a full heading match (based on the first-pass validation matrix) is achieved. Our authority control vendor generously offered to provide LC-based authority records for topical subject headings (650s) that resulted from partial matching on the primary (\$a) portion of these headings as specified in the second-pass matrix.

The first- and second-pass validation matrices developed for inclusion in the libraries' authority control specifications are included in the accompanying appendix.

### UNVALIDATED HEADINGS

Following validation against the first- and second-pass matrices, the vendor was required to manually review the remaining unmatched headings. The manual review process was for the purpose of correcting misspellings, typographical errors, tagging and subfield errors, and converting direct geographic subdivisions to indirect form. Following manual review, the corrected bibliographic headings were revalidated against the first-pass validation matrix, and if still unmatched, against the second-pass matrix.

### LOCAL AUTHORITY FILE

The vendor was requested to provide an authority record for each bibliographic heading (name, uniform title, series, and subject) which matched an authority record heading. "Skeletal" authority records for all unmatched bibliographic headings remaining after the validation process were also to be provided.

All LC-based authority records were to contain the Library of Congress control number assigned by LC as well as a vendor-supplied unique control number. "Skeletal" authority records were to contain a vendor-supplied unique control number.

### MISCELLANEOUS CONSIDERATIONS

An approximate unique (deduplicated) logical record count and characteristics of the OCLC-MARC input files were provided to the vendor. The CSUN libraries' tapes are not obtained directly from OCLC's tape subscription service; they are received and reprocessed by the California State University chancellor's office. Therefore it was necessary to notify the vendor of any characteristics that differed from tape specifications contained in the *OCLC/MARC Tape Format*<sup>2</sup> including the machine on which tapes were produced, code, record type, maximum record size, blocking, and logical records structure.

File shipment dates to the vendor and vendor final delivery dates of the

authorized tapes were specified in the invitation for bid.

The vendor was requested to provide listings of unprocessed duplicate bibliographic records and "skeletal" authority records created from unmatched bibliographic headings.

As the final specification, it was required that prior to the authorization of our bibliographic files and authority record production, the libraries would provide the vendor with a test file of 200 bibliographic records to be processed as specified above.

The vendor was required to return the original input test tape, a listing of all tape records, and listings of updated bibliographic records, LC-based authority records, and "skeletal" authority records produced.

With regard to record selection for the test file, it was evident that if the vendor was provided with a tape comprised essentially of Library of Congress AACR2 records, the result would be few headings flipped following validation and few "skeletal" (i.e., non-LC established) authority records returned. A test file comprised of such records would obviously not provide the libraries with an opportunity to fully assess vendor performance against the specifications contained in the invitation for bid.

To avoid this possibility, bibliographic records for the test tape were systematically drawn from throughout the libraries' shelflist. Records representing Library of Congress and cooperatively input OCLC cataloging as well as old local cataloging for monographs and serials were included. Records were drawn to include personal, corporate, and conference names, series entries, subjects, and uniform titles that were likely to have changed as the result of changes in cataloging codes (most especially AACR2) and practices. Records representing musical scores, sound recordings, and literary works were included in the sample in order to evaluate the authorization of uniform titles.

### TEST FILE RESULTS

Specifications relative to validation, the replacement of bibliographic headings, and the production of authority records were accurately met. The results of the manual editing process (the full extent of the editing performed during this process was previously unknown) were evident. Results of this activity included corrections to variable field tags (e.g., the tag for a single-surname personal name used as a subject was changed from 650 to 600). Corrections were made to subfield codes, and missing subfield codes were added. An example of the latter correction was the addition of a missing \$p that correctly precedes the title of groups of books as well as particular books of the Bible. Formerly direct geographical subdivisions were changed to indirect form. Additionally, typographical and spelling errors were corrected and a lower case letter beginning a corporate name was capitalized.

The OCLC-MARC test file generated 522 LC-based authority records and 323 "skeletal" or "local" authority records. Of the LC-based authority records, 315 were for names (including name/title entries) and series, and 207 represented subjects. Local authority records included 226 records for names and series, and 97 records for subjects.<sup>3</sup>

## IN RETROSPECT

Analysis of the products resulting from the vendor's processing of the bibliographic test file indicated a precise response to the libraries authorization specifications. Preparation of these specifications was facilitated by the libraries' professional staffing formalized as a Library Systems Group.

The CSUN Libraries' Systems Group is comprised of a systems analyst, a programmer, and three librarians (two with part-time assignments in the catalog department, this writer included, and one in the reference department) who assisted in reviewing the technical specifications drafts. Members of the group were available for consultation whenever questions arose. Communication with potential vendors at the time of writing also helped to clarify questions of technical feasibility that led to the specifications that were incorporated in the final document. Vendor flexibility in accommodating the various requests also enhanced the specifications writing process considerably.

Conceptualizing and writing precise and succinct technical specifications that will enable a vendor to authorize a library's online bibliographic files and produce all associated authority records need not be a task to be avoided. No doubt, this writer's experience resulting from responsibility for authority control in the libraries' manual catalogs provided substantial and useful background for the task. In this writer's opinion, however, a cataloger's active interest in the authority control process, coupled with input from other library professionals, and careful scrutiny of vendor-supplied service and product descriptions should enable one to successfully write effective technical specifications for authority control of a library's online bibliographic files.

### REFERENCES AND NOTES

1. Dan Miller, "Authority Control in the Retrospective Conversion Process," *Information Technology and Libraries* 3:286-92 (Sept. 1984). Miller writes on normalization and error correction practices used by the Blackwell North America authority control system. He focuses on these processes with reference to errors commonly found in subject heading fields. His article is the only one found that indirectly relates to writing technical specifications for the purpose of achieving vendor-facilitated database authority control.
2. *OCLC-MARC Tape Format* (Dublin, Ohio: OCLC, 1984).
3. At the time of writing, statistics relevant to the vendor's authorization of the libraries' entire OCLC-MARC bibliographic file and production of LC-based and local authority records were unavailable. Review of the results of the vendor's processing of the test tape (including additional samples of printouts resulting from ongoing file processing) and regular contact with the vendor indicated that all authorization activities were proceeding according to the specifications described herein.

### APPENDIX A. FIRST-PASS MATRIX

<i>Bib tag and subfields</i>	<i>Authority tag</i>
100 a,q,b,c,d,k,t,n,p,L	100, 400
110 a,b,c,d,k,t,n,p,L	110, 410, 151, 451
111 a,q,b,c,d,e,k,t,n,p,L,s	111, 411
130 a,t,n,p,L,k,s,d,m,o,r	130, 430

240	If tag 1xx occurs in same record, associate with tag 240 and validate a,n,p,L,k,s,d,m,o,r against	100, 400, 110, 410, 111, 411 with subfield \$t
400	a,q,b,c,d,k,t,n,p,L	100, 400
410	a,b,n,d,c,k,t,p,L	110, 410, 130 430, 151
411	a,q,n,d,c,e,k,t,L	111, 411
440	a,n,p,	130, 430
600	a,q,b,c,d,k,t,n,p,L,m,o,r,s	100, 400
610	a,b,n,d,c,k,t,p,L,m,o,r,s	110, 410
611	a,q,b,n,d,c,e,k,t,p,L,s,x,y	111, 411
630	a,t,n,p,L,k,m,o,r,s,d,x,y	130, 430
650	a,b,x,y,z	150, 450
651	a,b,x,y,z	151, 451, 110, 410
700	a,q,b,c,d,k,t,n,p,L,m,o,r,s	100, 400
710	a,b,n,d,c,k,t,p,L,m,o,r,s	110, 410, 151, 451
711	a,q,b,n,d,c,k,t,p,L,s	111, 411
730	a,t,n,p,L,k,m,o,r,s	130, 430
800	a,q,b,c,d,k,t,n,p,L,m,o,r,s,d	100, 400
810	a,b,n,d,c,k,t,p,L,M,o,r,s	110, 410, 130, 430, 151
811	a,q,b,n,d,c,e,k,t,p,L,s	111, 411
830	a,t,n,p,L,k,m,o,r,s,d	130, 430
840	a	130, 430

With regard to the first-pass matrix, the note associated with the 240 bibliographic tag requires some explanation. A uniform title in the 240 field must always occur in association with a 1xx bibliographic tag. For validation purposes, the vendor matches a 1xx/240 bibliographic tag combination against a name/title (i.e., a \$a + \$t) heading in the appropriate authority record. Combining bibliographic tags prior to matching against name/title authority records insures against an erroneous validation resulting from cross-matching between a uniform title associated with a particular author or composer and the occurrence of the same uniform title in another authority record associated with a different 1xx heading.

#### SECOND-PASS MATRIX

##### *Bib tag*

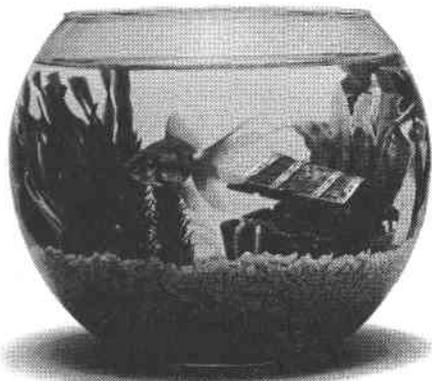
100, 400, 700, 800  
110, 410, 710, 810  
111, 411, 711, 811  
130, 430, 730, 830  
650  
651

##### *Subfields to be validated*

a,q,b,c,d  
a and all occurrences of b  
a,q,e  
a,d,p,n,m,r  
a  
a



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# Science Citation Index Data as a Safety Net for Basic Science Books Considered for Weeding

Amrita J. Burdick

*Older basic science books that failed to meet other criteria for collection retention were checked in Science Citation Index. Citations per book varied from 200 references to none, with the more heavily cited works eventually retained. While a manual search of three years of the printed Science Citation Index proved highly feasible and reliable, use of the online version for this purpose is awkward. Book titles are not given on the online version, reducing its reliability for weeding decisions.*

**S**cience Citation Index can be useful in collection decisions for basic science books. This paper describes a study conducted using a population of basic science books from an academic health sciences library collection. All the books in the study were more than ten years old and failed to meet other criteria for retention in the collection.

## THEORETICAL BACKGROUND

Citation indexes are based on the theory that authors citing the same paper have a subject relationship. The citation index thus includes references to journal articles and books, arranged alphabetically by author.<sup>1</sup> Indexes such as *Science Citation Index* consist of three main sections: a section listing current references to journal articles, a keyword index based on title words, and a citation index. The citation index is compiled from the bibliographies of the papers indexed for the current year.<sup>2</sup>

*Science Citation Index* has been used for decisions regarding journal collections.<sup>3,4</sup> Studies on book collections have generally relied on other criteria. These criteria have included past usage and age of the materials.<sup>5</sup> Consideration has also been given to qualitative worth, but physical condition was considered an ineffective criterion, as poor condition might only indicate heavy use of the material.<sup>6</sup>

The only two reports located in the literature that considered use of a citation index in book collection development differed in their views of the feasibility of the process. Also, both of these studies considered arts and

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humanities literature rather than that of science, the area evaluated in this study.

In 1978 Koenig did not test the theory he proposed but only noted, "Citation analysis might in fact ultimately prove to be a feasible technique for collection management of nonjournal literature in the arts and humanities." He noted that "what follows is purely speculative" and must await the availability of citation data on a large scale before it can be analyzed.<sup>7</sup> In 1986 Budd tested the theory using books in the field of American literature and concluded that "results . . . do not provide a great deal of support for Koenig's optimism."<sup>8</sup> Scientific literature has been represented in citation indexes for a longer period of time than has that of arts and humanities, and the present study found potential use for citation analysis in evaluating monographic literature in the sciences.

### CASE STUDY BACKGROUND

The collection under study was overcrowded and weeding was imperative. A combination of factors made it desirable for the librarians themselves to identify potentially useful books in the basic sciences even if the books had not already circulated frequently. First, the university was increasing its emphasis on basic science research. Second, existing faculty offices were widely scattered, making it difficult to consult faculty members repeatedly. Finally, a highly cited work might prove valuable to incoming faculty, several of whom were to be recruited as part of the university's program.

Librarians were asked to evaluate the items considered for weeding, but none of them had expertise in all basic science areas. In addition, relying solely on such input is simply another form of "subjective" weeding. It is based on the assumption that librarians know their collection, an assumption criticized by Slotte, who preferred more objective measures such as use studies.<sup>9</sup> Use studies give historical information, not predictive information, and were not deemed reliable as a single measure in the present study. An objective method that considered research potential of the materials was deemed most desirable. It was decided that *Science Citation Index* might enable the librarians to independently evaluate a selection of older basic science books for their potential value to newer clients.

### THE POPULATION

These books were classified in the QH to QR section of the Library of Congress system and the QS and QT section of the National Library of Medicine system, covering the subject areas of biology, botany, zoology, anatomy, physiology, and bacteriology.

The books considered for weeding were all published more than ten years earlier. In addition they had not circulated heavily (a measure determined by the number of checkouts listed on the current card and date due slip and the condition of the book). The books did not appear on the Brandon list of books and journals for the small medical library, a standard medical bibliography.<sup>10</sup> The library retained all previous editions of Brandon list books. This left a population of seventy-nine items to consider for weeding. This formed the basis of the current study.

### SEARCHING THE PRINTED INDEX

The seventy-nine books to be considered for weeding after all previous criteria were met were checked in *Science Citation Index* for 1985, 1984, and 1980. The last year was chosen to allow a short time gap between the earliest year and the latest year checked. This provided some feedback regarding citation patterns over time. For older materials it would have been possible to choose an even earlier volume of the index, but to standardize the test procedures for a group of monographs that included material from the mid-1970s as well as older materials, a later date was chosen.

Of the seventy-nine books checked in the three volumes of cited references, ten had more than 20 references for the three years. The number of citations per book ranged from none to 200. The item with 200 references was obviously a candidate for retention, while items with no references were obviously candidates for weeding. The ten books with more than 20 references were retained. Twenty references was an arbitrary cutoff number reflecting the conservative posture adopted for this particular weeding. It is slightly more conservative than the figures cited by Garfield in which a work cited more than ten times a year is considered "heavily cited" for the field of chemistry.<sup>11</sup> Garfield also indicates that the average number of references varies from field to field and that monographs ordinarily are less heavily cited, with the exception of very recent books.<sup>12</sup>

Two works had numerous references to later editions of the work but the more recent editions were not owned by the library. One book had 180 references to a later edition and the other had 33 references. Due to the limited acquisitions budget and emphasis on clinical literature, it was unlikely that they would be replaced by newer editions. Both of these items were retained.

Another book was a reprint of an earlier edition. In such cases the references in the index were carefully checked under both the original copyright date and the reprint date to be sure that all the cited references were considered. In this case there were 55 references to the book under the original copyright date. This item too was retained. Thirteen of the original seventy-nine books were retained on the basis of their cited references in *Science Citation Index*. A few additional items were retained even though they had fewer references, at the librarians' discretion. Although some titles were retained solely on the basis of the number of citations in *Science Citation Index*, some room was also allowed for subjective judgment. The pockets of the retained books were marked and a record was made of all titles, their postings, and their status. A check to determine actual circulation of the retained items will be done in approximately one year. Due to the small size of the remaining population, this will be done informally.

### SEARCHING THE ONLINE INDEX

Although the printed *Science Citation Index* was useful in decisions regarding retention of basic science books, the online version was found to be less useful for this purpose. Cited references to books cannot be searched directly online; thus the online search provided less complete information than the manual search. Journal references have a comma fol-

lowing the year, while those for monographs do not. Thus a two-part statement such as the following is needed to find only book references via the Dialog system: [s CR=Stein WE, 1967? not CR=Stein WE, 1967,?]. This should retrieve all books written by WE Stein that were copyrighted 1967. A complete search would require also using the surname with only the first initial in a similar search command. Together these commands retrieve all books published by the author with that specific publication date. Some false drops also may be retrieved by using only the first initial unless the surname is unusual.

The "expand" command looked useful as a means of identifying variations in citation format but turned out to have limited usefulness. The command did retrieve counts of cited references and was useful in identify-

TABLE 1  
CITED REFERENCES ON DIALOG VIA AN EXPAND COMMAND

Ref.	Items	?e cr=vernon lp, 1966 Index-term
E1	1	CR=VERNON LP, 1965, V109, P92
E2	1	CR=VERNON LP, 1965, V40, P1269
E3	7	CR=VERNON LP, 1966*
E4	1	CR=VERNON LP, 1966, P569†
E5	1	CR=VERNON LP, 1966, V19, P102
		(Some references eliminated here to simplify display)
E12	26	CR=VERNON LP, 1969, V44, P1645

\*The reference entered always appears in the third position.

†Note that another reference to a book gives a page number. Because it has a comma this book reference would not be retrieved by a direct search using the commands with and without the ending comma.

TABLE 2  
DIIRECT SEARCH COMMANDS FOR ONLINE SCIENCE CITATION INDEX

Set	Items	File 34:SCISEARCH—84—87/ (COPR. ISI INC. 1987) SEE FILES 87, 94 & 186 Description
?s cr=vernon lp, 1966? not cr=vernon lp, 1966?		
	11	CR=VERNON LP, 1966?
	4	CR=VERNON LP, 1966,?
S1	7	CR=VERNON LP, 1966? NOT CR=VERNON LP, 1966,?
?s cr=vernon 1, 1966? not cr=vernon 1, 1966,?		
	0	CR=VERNON L, 1966?
	0	CR=VERNON L, 1966,?
S2	0	CR=VERNON L, 1966? NOT CR=VERNON L, 1966,?
?logoff		
26Aug87 09:02:31	User _____	
\$2.60	0.017 Hrs	File 34
\$0.18	Telenet	
\$2.78	Estimated cost	this file

TABLE 3  
CITED REFERENCES IN THE PRINTED VERSION OF *SCIENCE CITATION INDEX*

VERNON L			
80 GUIDELINES OCCUPATIO			
MC LAURIN SE	PHYS THER		64 674 84
VERNON LP			
52 ARCH BIOCHEM BIOPHYS	36 383		
BARAKAT MF	MICROCHEM J		29 81 84
(Some entries deleted here to condense example)			
66 CHLOROPHYLLS*			
BARBER J	SYM SOC EXP R		19 83
JOHANSSO SA	FET SEI ANS		86 304 84
SMITH KM	J CHROMAT		281 209 83
66 CHLOROPHYLLS	569		
IKEGAMI I	BIOC BIOP A		764 70 84

\*The book references begin here. Note the brief identification given of which book was cited.

(References from *Science Citation Index*, 1984)

ing variations in cited references. Unfortunately, the cited references for authors with two initials and with one initial often were far enough apart to require two expand commands. Although the expand command gave authors and years for cited references, it did not give abbreviated book titles, as did the printed index.

Book title abbreviations were not included in the online database. This made it impossible to identify a specific publication definitely. Although many authors publish only one book in a given year, more prolific authors' publications are combined online into one entry in which it is impossible to distinguish which work is being cited. This may occasionally falsely inflate figures for a specific item.

Dialog is planning to add brief titles of monographs to cited works in *SCI* online. This will be implemented in the next reload of the database. Information necessary to identify a specific title should soon be available online.<sup>13</sup>

### FINAL CONSIDERATIONS

This study must be considered a pre-experimental design. The population was very small and further experimentation in a controlled setting is desirable. This study seems to indicate that cited references to monographs vary widely in number in *Science Citation Index*. Since previous studies indicated that citation indexes show correlation with research use, it is likely that they could be useful tools in evaluating library research collections.<sup>14</sup>

Some warnings are in order. *Science Citation Index* should not be used as the sole criterion. Limitations indicated by Hall for use of citation indexes for evaluating journals also pertain to decisions about books. "The studies are based on research use . . . the needs of graduate and undergraduate students and nonpublishing users of the collection may be overlooked."<sup>15</sup> The material cited may reflect "materials readily available . . . and many useful items may be ignored . . . items less likely to be avail-

able, such as foreign journals, will be underrepresented."<sup>16</sup> This caveat would also be applicable to book citations. Classic books, like classic articles, "may often be cited for 'cosmetic' reasons rather than for their intrinsic worth."<sup>17</sup> Garfield also notes that classic books may reach a point where they are so basic to the field that they are no longer cited.<sup>18</sup> These limitations indicate the need for several other complementary measures such as faculty and librarian input and use studies in addition to the citation count. Within these constraints *Science Citation Index* can provide useful information.

Further study is needed. A correlation of citation frequency with circulation statistics would provide evidence of the value of citations in predicting use. Citation indexes may be less useful in predicting actual circulation in specific libraries than in predicting the research value of specific items. Such a technique could be used to provide scholarly input such as that used by Bagnall and Harris in preservation decisions without the logistical problems of locating scholars. It would also be a means of obtaining input from a wider group of scholars.<sup>19</sup>

In the interim, *Science Citation Index* citation frequency can be used to supplement other measures such as faculty input and frequency of use. Although it cannot be used to predict actual level of use of material in a specific library, it does indicate the number of times other researchers in the sciences cite materials. This gives a less parochial perspective to long-range decisions for collection development in research libraries.

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## Non-Tax Sources of Revenue for Public Libraries

By Mary Jo Lynch, Director, ALA Office for Research

User charges; fines, contracts, and sales; and fundraising and financial development are potential sources of non-tax revenue for public libraries. In fall 1987 ALA surveyed a nationwide sample of public libraries of all sizes to find out if they received any revenue from these sources and how much money was involved.

Tables and figures show the percentage of respondents receiving revenue from specific sources, the dollar amount of revenue received, and the percentage of operating expenditures represented by non-tax revenue. The text comments on the findings and includes an annotated bibliography.

The survey was conducted by the Mary Jo Lynch, Director, ALA Office for Research, with help from an Advisory Committee from the Public Library Association and the Library Administration and Management Association. Financial support was provided by The H.W. Wilson Foundation.

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# An Educational Challenge: Teaching Cataloging and Classification

Beatrice Kovacs

*In recent years articles have appeared in the literature on the changing role of the cataloger, and complaints have arisen about the comprehensiveness of cataloging and classification courses offered in graduate library schools. This paper discusses the challenges of offering such courses and in presenting all the necessary information in introductory cataloging and classification courses for M.L.S. students.*

**R**ecent studies have attempted to identify the educational opportunities for cataloging instruction available to students in master's degree library and information science programs.<sup>1,3</sup> One study conducted during early 1986 identified ALA-accredited programs that did or did not require cataloging courses. The preliminary report indicated that of the sixty-three accredited programs, thirteen schools offered no cataloging or required less than one full course on cataloging.<sup>4</sup>

Another study specifically investigated course offerings on serials librarianship and the cataloging components offered for serials. Of the fifty-three respondents to this survey, four of the thirty-seven schools without separate serials courses did not offer serials cataloging as a component of another course.<sup>5</sup>

Unfortunately, graduates of some library and information science programs have not been taught the philosophy and techniques of traditional library duties. There have been several articles in the literature in the past few years discussing library school curricula for catalogers and technical services librarians.<sup>6-10</sup> Recently it was recommended that educational programs for graduates of accredited library and information science schools emphasize preparation in the use of technology<sup>11</sup> and the need to develop management skills.<sup>12</sup> While these are extremely useful to the profession, there are still occasions when personnel are needed who are trained in "old-fashioned" methods of provision of service. An example of this kind of training, still needed in libraries and information centers, is the organization of information and materials, or cataloging. In providing educa-

tional opportunities for students in M.L.S. programs, there are a number of challenges the teacher must face.

### THE CHALLENGE OF PREJUDICE AGAINST CATALOGING

There is a prejudice held by the profession toward the functions of the cataloger. "Nobody loves a cataloger" was how Pierce Butler began his article on the bibliographic organization of libraries in the 1950s.<sup>13</sup> Gorman's 1980s parable of Kutta, the Book God, told some librarians that "they shall dwell in the darkness and secret shall be their ways —go forth and catalog."<sup>14</sup> Recently there has been a reaction to these myths about catalogers and cataloging.<sup>15-16</sup> As Hill says, "Catalogers are often stereotypically viewed as the group of librarians least amenable to change, but it is a view that would not stand up to scrutiny. The current cataloging world is epitomized by changes that catalogers have engineered, responded to, and embraced."<sup>17</sup>

Many find that cataloging can be interesting and rewarding. They are not "dwelling in darkness and secret" but are essential parts of the whole of the library. Their concern is with the needs of patrons. Their function is to provide what is needed, when it is needed, in the most efficient way. Many librarians do not have the opportunity to rely on commercial or online cataloging and classification. They must do it themselves, or identify the most appropriate sources for the cataloging information they seek. Without training, this is a difficult task.

Each semester many students enter the introductory class harboring the suspicion that it will be dull, trivial, and packed with detail that they will never use. It is evident on their faces. When I state that some of them will become interested in this aspect of librarianship, I see their eyes register disbelief. However, as the semester progresses, the students come to me in private to confess that they find themselves cataloging the most unusual things. For example, during the spring of 1987, I received a note from one student who was distressed because she found herself explaining to her roommate (a non-library student) how to descriptively catalog a box of Fig Newtons in their grocery bag!

### THE CHALLENGE OF APPROPRIATE, UP-TO-DATE TRAINING

It is true that without an appropriate and current collection, a library cannot provide the service required by its community. It is also true that the most wonderful collection is useless without a method of identifying the materials contained within it.

In providing service to patrons, all types of information, including information about the collections, must be available. The catalog and the shelf arrangement are the best tools available for identifying what is in a collection. These tools are, in fact, the maps that guide the patrons to the data they need. Catalogers draw the maps and provide clues to the treasure of information; catalogers are the detectives who identify the pertinent facts from the mass of information and present them in a concise and timely fashion.

Recently complaints have appeared in the literature that cataloging courses taken by graduates offer little practical, useful information and

that training is inadequate to produce competent professional catalogers.<sup>18-21</sup> There has been discussion about the changing roles of traditional library positions in light of the new automation technologies, including that of cataloger.<sup>22-28</sup> There has been the suggestion that cataloging be considered a "career specialty" with second-year master's or sixth-year specializations.<sup>29</sup> Also, there have been comments concerning revising theories about description and classification and providing more "user-friendly browsing" collections.<sup>30-32</sup> There has been criticism that descriptive cataloging is for librarians, not for patrons—that classification schemes are too artificial and complicated for the public.<sup>33-35</sup> Without agreement in the profession on appropriate methods of providing information about the collections, how can the cataloging teacher determine what is to be taught? How can all the theories, points of view, and differences in philosophies be covered, especially in one three-credit, fifteen-week course? This is a difficult task.

### THE CHALLENGE FOR A SMALL FACULTY

For the past four years I have been the faculty member of the Department of Library and Information Studies of the University of North Carolina at Greensboro responsible for teaching a course entitled "Organizing Library Collections." All M.L.S. students take this course as one of the five required for their degree. Unfortunately, because ours is a small faculty, we cannot offer any advanced cataloging or classification courses, although students have requested them.

The introductory survey course must provide as much information as possible. This means cursory examination of all the aspects of cataloging and classification, without in-depth study. What are some of the aspects that need to be covered?

### THE CHALLENGE OF DESCRIPTIVE CATALOGING

Of the fifteen weeks allotted to the cataloging course, four are spent developing and exploring student understanding of description of all types of materials, including books, serials, and a variety of media and realia. In student evaluations of the course, there have been comments that there was not enough time to practice with more description of varieties of materials according to the rules in *AACR2*.<sup>36</sup>

There have been many discussions about the effectiveness of *AACR2* since the first revised chapter of *AACR* appeared in 1974. Some librarians question the necessity of describing items in the collections in such detail and with such "odd" punctuation.<sup>37</sup> I submit that *AACR2* actually makes the process of describing materials easier (with some exceptions, of course). Students in cataloging class seem to be able to understand that the title and all its parts are to the left of the slash (/) and that persons responsible for the work are listed to the right. The students understand that this is true for all types of materials, no matter what format. With recognition of the elements of a descriptive cataloging record, students find that they can identify important elements of description in any kind of record. Suddenly they can understand a bibliographic record displayed on a computer screen. They can read a printout. They can differentiate between an accu-

rate and an inaccurate description of an item and can identify whether the item they seek is the one described. To many students who have worked in libraries as paraprofessional or nonprofessional staff, this appears to be an important new skill. For some, it seems reassuring to know that in the future they will even be able to understand the elements in a record in another language, although they might not understand the language itself.

### THE CHALLENGE OF SUBJECT CATALOGING AND CLASSIFICATION

The essentials of subject cataloging and classification must also be covered during these fifteen weeks, since this is the only course on these topics in the course calendar.

Students say they feel more comfortable determining subjects once they complete the bibliographic description of the item. It seems to give them confidence to have a definitive sequence of steps to follow during the process of cataloging. However, they are continually looking for "the one way" or "the perfect answer" for subject cataloging. To be told that there is no one way to catalog and that no two catalogers are likely to catalog an item in the same way is distressing. They ask, why? The answer involves the concept of "choice."

The concept of choice is important. There are many options available for providing data about collections. What prevails is the all-important concept that librarians provide information to meet the needs of their clientele. There are no existing tools that will enable librarians to meet *all* the needs of *all* the people who use *all* the collections available anywhere. Subject cataloging, for example, uses vocabulary to identify the content of an item in the collection. How can the needs of the postdoctoral researcher and the preschooler be met with the same vocabulary? How can the casual library user be expected to understand vocabulary oriented to the astrophysicist? Can we provide appropriate information about the collections in public, special, school, and academic libraries by using the same tools?

We have not been able to accomplish this in the past. Therefore, many thesauri have been created to meet special needs. Vocabularies in these thesauri have been compiled for a predetermined group of users. General libraries, such as public, school, and academic libraries, usually use either the *Sears List of Subject Headings*<sup>38</sup> or the more technical *Library of Congress Subject Headings*<sup>39</sup> as the authority for verbal access to their collections. Special libraries use thesauri covering the subject areas of specific interest to their clientele.<sup>40</sup>

Students should be aware of how these thesauri are created, how they are structured, and how they can be used most effectively. They should be aware of their options, should they become catalogers, of appropriate ways to meet the needs of their clientele. They should not, however, be told that there is only one way to describe an item's subject. In my experience, I have never seen a library that does not make exceptions to the subject heading authority list it uses.

Subject classification must also be covered in the introductory course. Students should understand the structure and uses of classification in the library setting. They should understand the value of the various schemes

and their applicability to specific types of libraries, since some are designed for small, general collections while others are for large or subject-specific collections. Often students comment that they did not understand that there really is logic behind the way classification numbers are determined and shelf arrangement is designed.

### THE CHALLENGE OF AUTOMATION

As Jensen notes, "Every student leaving library school should be required to have a *knowledgeable* understanding of the power of the computer as well as its limitations."<sup>41</sup> She complains that the deterioration of quality cataloging stems, in part, from the lack of understanding of computer-based systems. While Jensen focused on the OCLC database, her comments can be applied to the myriad other cataloging programs available in the marketplace. There are scores of microcomputer programs for catalog development available, with more in testing stages. The case can be made that students should be familiar with the positive and negative aspects of all currently available programs in order that they can be more effective decision makers when they graduate. However, even if the library schools could afford to buy all the programs and the equipment necessary to support them, there would not be enough time within the course for in-depth examination of the programs.

At UNCG we received a grant to purchase a limited number of microcomputer-based catalog production programs and developed self-study modules for students enrolled in the cataloging and classification course. Each student must examine at least one program for Apple computers and one for IBM-compatible computers, with a lab assistant available to answer any questions. While this experience is very limited, students can begin to see the differences in programs.

### THE VALUE OF CATALOGING AND CLASSIFICATION INFORMATION TO NONCATALOGERS

The usefulness of cataloging and classification information is certainly not limited to future catalogers. All personnel employed in a library can benefit from educational experiences in cataloging and classification. As mentioned earlier, students employed as nonprofessionals in libraries said that their duties made more sense once they learned about these subjects. Many of these students were working in public service positions, often in circulation or reference. They felt more confident in interpreting the library and its facilities to patrons.

Administrators must understand the intricacies and value of appropriate cataloging and classification; otherwise they have incomplete information upon which to base decisions about automation and other library services. Reference and public service librarians are more likely to perform their duties effectively if they have some background in cataloging and classification and know how the collections are mapped for use. Bibliographers and development and management personnel can be handicapped in the performance of their jobs if they do not understand how the collections are arranged and described. In fact, all personnel should have some introduction to the arrangement of the collections and how the information about

those collections is designed for their patrons.

### CONCLUSION

Through education, students discover options. Providing appropriate information about collections can be a challenge. To wade through all the alternatives to find that combination of information and access points that leads a patron to a specific item can be a treasure hunt. The treasure is the gratified library patron. The treasure is also the efficient use of the materials in the library.

Teaching cataloging and classification is a challenge. The problems the teacher faces include the presentation of rules and exceptions, the explanation of the necessity of detail and the demonstration of its value, and the creation of an atmosphere of reason and logic in the midst of apparent confusion. All of this must be done, and the interest of the student must be awakened.

Students respond to the enthusiasm of the teacher. If the cataloging teacher is really interested in the discipline, the students will accept that there is value in understanding cataloging and classification. The prejudice of the teacher, no matter how it is disguised, is transmitted to the student. At times new faculty in library schools are asked to teach the cataloging course because no one else wants, or feels qualified, to teach it. These new faculty will teach the course until someone else comes along. The students feel that the faculty member is not really enthusiastic about the assignment. How many catalogers are there who became catalogers in spite of their education? How many library schools have been searching for cataloging teachers?

We need interested and motivated personnel in our cataloging departments. We need employees in libraries who understand that the information provided about the collections will enable them to address patrons' needs. We need dynamic, imaginative, and caring professionals who desire to fulfill one of the primary goals in librarianship: the uniting of any person and the information that person needs in an accurate and timely fashion.

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# Science and Technology Approval Plans Compared

Gloriana St. Clair and Jane Treadwell

*This study compared the performance of two general approval plan vendors with that of two sci/tech specialty vendors in identifying sci/tech titles that matched a library profile. No significant difference existed in the number of titles supplied. Coverage within given disciplines reflected overall coverage. Commercial publishers were better represented than university presses and societies. Difficulties in using an approval plan to cover sci/tech subject areas persist.*

Studies have shown that the primary method of scholarly discourse in science and technology (sci/tech) is through journals rather than books.<sup>1</sup> Nevertheless, academic libraries must buy some books to support the curriculum, particularly in programs with many undergraduates. Some libraries may not have a large number of sci/tech bibliographers and rely on approval plans for book selection to some extent. The question of adequate quantity and quality of coverage then arises. This study compares the performance of two major approval plan vendors, designated Major Vendor 1(MV1) and Major Vendor 2(MV2), with the performance of two sci/tech specialty vendors, called Specialty Vendor 1(SV1) and Specialty Vendor 2(SV2), in supplying sci/tech books as specified by a broad-based subject profile.

## LITERATURE REVIEW

In an article addressing the ideal characteristics of a bibliographer, Ryland makes the offhand remark that the sciences should be excluded from approval plans for obvious reasons.<sup>2</sup> Ryland fails to state reasons, however.

The literature on approval plans is extensive, but relatively few articles address the performance of approval plans for sci/tech collections. The focus has been on the overall advantages and disadvantages of approval plans as a selection method. Based on an analysis of circulation records, Evans

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and Argyres conclude that approval plans are *least satisfactory* for the sciences. Their analysis reveals a significantly greater use of science books selected by librarians than of those received on approval.<sup>3</sup>

In a paper written in the mid-1970s, DeVilbiss compared approval plan receipts with firm order receipts for the biological sciences and concludes that "the biological sciences approval program failed to bring in titles which could reasonably have been expected as approval receipts, but caused the acquisition of titles which were never requested by faculty or librarians."<sup>4</sup> This conclusion supports the work of Evans and Argyres.

One exception to the generally negative opinion of approval plans for sci/tech is supplied in an earlier study undertaken at Texas A&M University. Hodge says that "the approval plans appear to be supplying automatically a large portion of the more academically-oriented, higher quality books of the major sci-tech publishers in a timely manner."<sup>5</sup> However, even this study cautions that certain subject areas (manufacturing, agriculture, and geosciences) should be carefully monitored.

Many studies compare the performance of firm-order vendors in supplying the same or similar titles,<sup>6</sup> but very few reports attempt to compare the performance of approval vendors. Librarians are cautioned not to choose an approval vendor on an impressionistic basis and are provided with extensive documentation on what to look for in an approval vendor. Nevertheless, it seemed almost impossible to compare approval vendors on a real-time basis. Two studies that attempt real-time comparisons are Gregor and Fraser,<sup>7</sup> and Grant and Perelmuter.<sup>8</sup> Gregor and Fraser compare three vendors supplying three different subjects, but during the same time-frame. Grant and Perelmuter compared vendor performance in supplying the same books (university press) over a four-month period. Where Grant and Perelmuter look at speed, bibliographic accuracy, and discounts, we emphasize depth of subject coverage among vendors.

Schmidt argues that publisher-based approval plans are more suitable than subject-based plans for domestic publications. She notes that "subject-based plans have inherently a measure of subjectivity in matching subject concepts to individual titles."<sup>9</sup> One of our objectives was to see if, when we asked for the same subject coverage from four different vendors, we got more or less the same titles.

### THE PROFILES

The objectives of the study were: (1) to determine the overall quantity of titles supplied in sci/tech by two major vendors and by two sci/tech specialty vendors; (2) to determine the number of common titles received from the two major vendors and the two specialty vendors; (3) to determine coverage for university press and other non-trade publishers; and (4) to determine if some subject disciplines received better coverage than other subject disciplines.

To answer these questions, the investigators arranged with two major vendors and two specialty sci/tech vendors to receive lists of titles that they would supply under the Sterling C. Evans Library's approval profile covering the period from January through May of 1986. (Exclusions to the profile are described below.)

Profiles were established with both major vendors during the previous three years. One of the major vendors was employed as a supplier during the time of the study. The profile with one of the major vendors was last revised in January 1985; the other, in November 1985. Collecting goals of the library did not change during this period and the profiles were as analogous as possible given the different subject and non-subject descriptors of the two vendors.

Profiles were developed for the purposes of this study with two science and technology specialty vendors. They were based on the two established profiles for the major vendors and featured the same exclusions, e.g., no lower-level textbooks were to be supplied. Unlike the two major vendors, the specialty vendors did not have their own subject thesauri. One specialty vendor (SV2) used the LC Classification Outline as the basis for its subject profile; SV1 relied on the LC Classification but in a rather free-form way. With SV1, the customer simply listed in one column all the LC classification numbers for which books should be sent; in the other column LC number for which forms only should be sent were listed.

Because the Evans Library supports a curriculum offering the doctorate in virtually all the sciences, agriculture, and engineering, relatively few exclusions to the subject profile were listed. The major exclusion was the entire R schedule (medicine) since there is a separate medical library. Although we receive some books on approval that fall into the R classification, it was thought that this area would require too much fine tuning to achieve comparability. Also excluded from the profile were some seventeen publishers, most of them societal. This made conclusions about societal coverage less clear. The library has separate approval plans with Elsevier and Springer Verlag, so those two major scientific publishers were excluded, too. Since these are two of the most important suppliers of sci/tech titles, the assumption was that all vendors would be able to supply their titles without difficulty.

Subject profiling and publisher exclusions were easy. The difficult part of profiling was setting non-subject parameters such as academic level, popular versus scholarly treatment, and physical format. Non-subject parameters are terms that describe a book in ways other than its subject content. A non-subject parameter may address the intended audience for a book: undergraduate, graduate, or general reader. Or a non-subject parameter may relate to scholarly content: popular versus specialist treatment of a subject. Non-subject parameters may also describe a book both in terms of textual format (encyclopedic work, directory, readings/anthology) and physical format (looseleaf, spiralbound, hardbound, and paperbound). For all vendors, non-subject parameters could be set at books, forms, or neither. In the area of non-subject parameters, vendors tend to show the most divergence. The non-subject area is usually the part of the profile needing the most refinement until it meets the goals of the library.

One of the specialty vendors had a rather extensive list of non-subject parameters while the other's list was more concise. However, even in its abbreviated list, SV1 addressed head-on that most troublesome of categories for the mid-1980s approval plan: the computer book. It listed them, quite simply, as "computer book (model specific)" and "computer book

(general)'' as categories under popular treatment. SV2 was just as straightforward in its treatment of oversized, heavily illustrated material, calling them "coffee-table books." One of the major vendors did the best job, in the investigators' opinion, in its breakdown of academic levels, while the other was exhaustive in its subject treatment descriptors (adding subdivisions for medical aspects, legal aspects, etc.).

### DATABASE CREATION

With some help from the library's Microcomputer Coordinator, the investigators configured a data input matrix for dBASE III. The matrix (see figure 1) contained date, title, author, edition, four source fields, call number, publisher, and publisher type. All fields could be searched, counted, and indexed. Further description of database construction appears in appendix A.

In SV1's list, no distinction could be seen between titles which would be shipped and those which would only be "Recommended for Purchase" notifications. This gave a disproportionate number of titles identified by SV1. To resolve this quirk, SV1 sent us a list of all titles actually shipped during a four-month period, which overlapped but was not identical with the time period under study. The list reflected titles sent to a library whose profile was judged by the vendor to be analogous to Evans Library. Differences in time period and ratio of automatic to form shipment made it impossible to adjust the database on a title-by-title basis, but the investigators did adjust the percentage figures accordingly. While this gave SV1 a distinct advantage throughout the study because they are credited with meeting criteria for a larger number of titles, the authors believe that the results remain reliable.

### RESULTS

The number of titles for each of the vendors was counted. SV1's total of 1,141 (60.3% of all titles supplied) was lowered to 889 (see figure 2) to reflect an adjustment for form versus automatic shipment figures. SV2 supplied 717 titles (37.9%). While MV2 supplied 848 (44.8%), MV1, the current contractor, supplied 611 (32.3%). MV1's total was adjusted upward to account for 121 returns, since the study did not include returns for other vendors. The difference in absolute numbers between the highest and lowest number of titles supplied was 157 titles.

Only 77 titles (4%) would have been supplied by all four vendors within the set time period. Interestingly, Grant and Perelmuter obtained a higher percentage of overlapping titles (10%) when they asked three vendors to send slips for all university press titles available during a four-month period, indicating that a broad-based subject profile, even when modified by non-subject parameters, may suggest to vendors that they can send more of whatever is available.

In figure 3, the concentric circles around the central 77 titles consist of 318 titles (17%) supplied by three vendors; 562 titles (30%) supplied by two; and 935 titles (49%) supplied by only one vendor.<sup>10</sup> Each of these single vendor titles was especially scrutinized for possible deletion, but all appeared to be within the guidelines of the study.

Bytes remaining: 3787

```

Char: Home End Char: Ins Field: ^N Char: Del Words: ^Y Down a field: Exit/Save: ^End
Pan: ^C Help: F1 Field: ^U Abort: Esc
    
```

Field Name	Type	Width	Dec	Field Name	Type	Width	Dec
1 DATE	Character	4		9 CALLNUMBER	Character	8	
2 TITLE	Character	65		10 PUBLISHER	Character	50	
3 AUTHOR	Character	50		11 PUBTYPE	Character	10	
4 EDITION	Character	10					
5 SOURCE	Character	4					
6 SOURCE2	Character	4					
7 SOURCE3	Character	4					
8 SOURCE4	Character	4					

MODIFY STRUCTURE (C) APPROVAL Field: 1/11 Caps  
 Enter the field name.  
 Field names begin with a letter and may contain letters, digits and underscores

Figure 1. Data Input Matrix for dBASE III

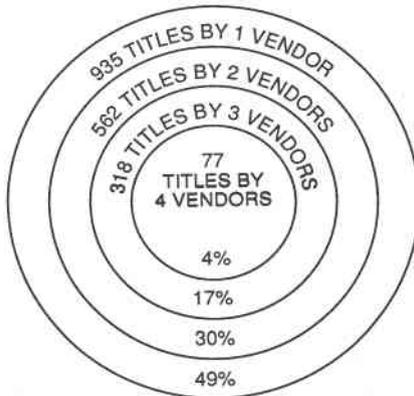


Figure 2. Common Titles by Number of Vendors Supplying

A count by call number was performed to determine if there were differences in the ways the four vendors covered the subject disciplines addressed by the profile. We found that subject coverage generally followed the same pattern as overall coverage. SV1, whose titles accounted for 60.3% of the total database, supplied 59% of the titles in the pure sciences (Q-QR) and 66% of the titles in technology (T-TX) (see figure 4). We had conjectured that SV1's overall total might include an inordinate number of computer books, but this did not prove to be the case. Of a total of 341 titles supplied with call number QA76, SV1 supplied 56%, slightly less than their overall total. However, only SV2 supplied significantly fewer computer books (28%) than they did other types.

A surprise in the call number count was the small number of agriculture titles in the database. Of a total of 1,892 titles only 112 (6%) fell into the call number range S-SK. Probably owing to the low overall total for agriculture, vendor totals were quite different. Instead of supplying 60% of the

Science (Q-QR)  
1125 TITLES

MV1 373 (33%)  
MV2 492 (44%)  
SV1 665 (59%)  
SV2 423 (38%)

Agriculture (S-SK)  
112 TITLES

MV1 36 (32%)  
MV2 59 (53%)  
SV1 48 (43%)  
SV2 48 (43%)

Technology (T-TX)  
648 TITLES

MV1 198 (30%)  
MV2 290 (45%)  
SV1 430 (66%)  
SV2 246 (38%)

Computer Books (QA-76)  
341 TITLES

MV1 101 (30%)  
MV2 133 (39%)  
SV1 193 (56%)  
SV2 96 (28%)

Figure 3. Subject Coverage by Vendor

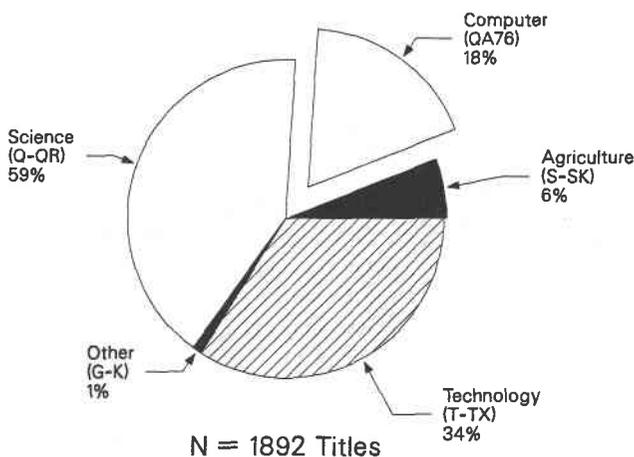
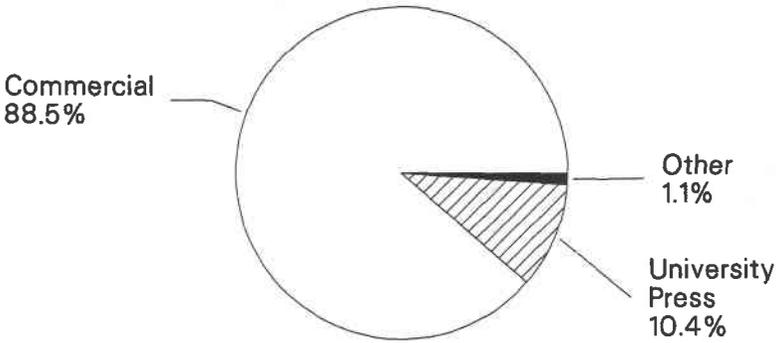


Figure 4. Percentage of Record by Subject

total, SV1 supplied only 43% of the agriculture titles. MV2, with 53%, supplied the largest number of agriculture titles. SV2 tied with SV1 in supplying 43%, while MV1's portion of the whole was only 32%. With the total publishing output so low in agriculture, it becomes even more important that any one vendor should supply most of those titles published. That the highest number supplied was only 59 out of 112 is disheartening (see figure 5).

The diversity of titles that would have been supplied by different vendors using the same profile makes the selection of a vendor (and careful construction of a profile) even more serious. The idea that a library might receive essentially the same materials from either of two major vendors or



N = 1892 Titles

Figure 5. Records by Publisher Type

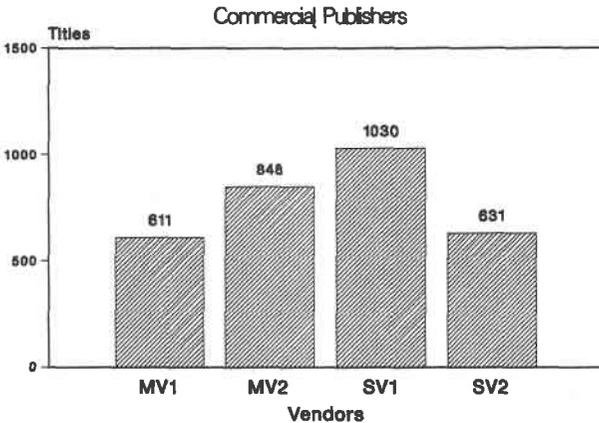
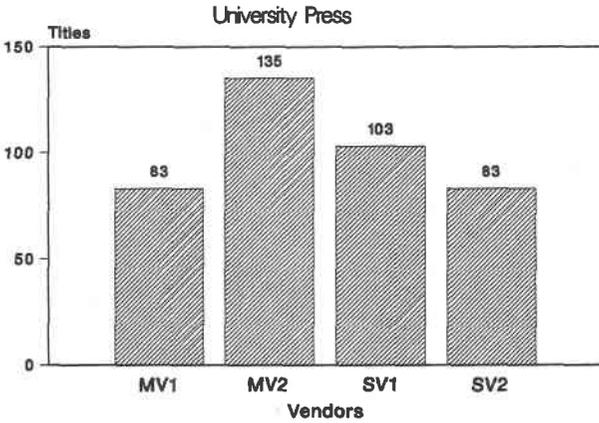


Figure 6. Analyzed Records by Vendor within Publisher Type

from either of two specialty vendors is questionable. Coverage seems to differ with vendor.

Types of publications supplied by different vendors were also assessed. Of all the titles supplied, 88.5% or 1,677 titles came from commercial presses while only 10.4% or 196 titles came from university presses (see figure 6). Society publications accounted for 15 titles, university associates for two titles, and other categories for three more titles. MV2 offered the best university press coverage (135), followed by SV1 (103), with the other two vendors tied at 83 each (see figure 7).

The university press total of 196 titles represents about one-third of all sci/tech books published by university presses during the year. This total reflects the generally smaller output of books in sci/tech subjects by university presses, which are a stronghold of scholarly publishing in the humanities and, to a lesser extent, the social sciences. Only MV2, with 135 titles, supplied significantly more than half of the total. Remarkably few societal and association publications appeared in our database, probably because of our exclusion of so many of these publishers.

The most frequently supplied presses were Prentice-Hall (186 titles), Wiley (180), and McGraw-Hill (122). Other publishers accounting for large numbers of titles were D. Reidel (69), Addison Wesley (57), Academic Press (56), and Cambridge University Press (53) (see figure 7). Several more publishers were grouped together in the 40s. Breakdowns among the top eight publishers whose titles accounted for over one-third of the items in the database appear in figure 8.

The wide variations between overall percentages and percentages for individual publishers suggest that vendors do not have steady, ongoing relationships with the publishers. The pattern depicted might reflect a practice of vendors contacting publishers on an irregular basis to pick up all titles issued since the last contact. This is not desirable for librarians since it delays the receipt of titles.

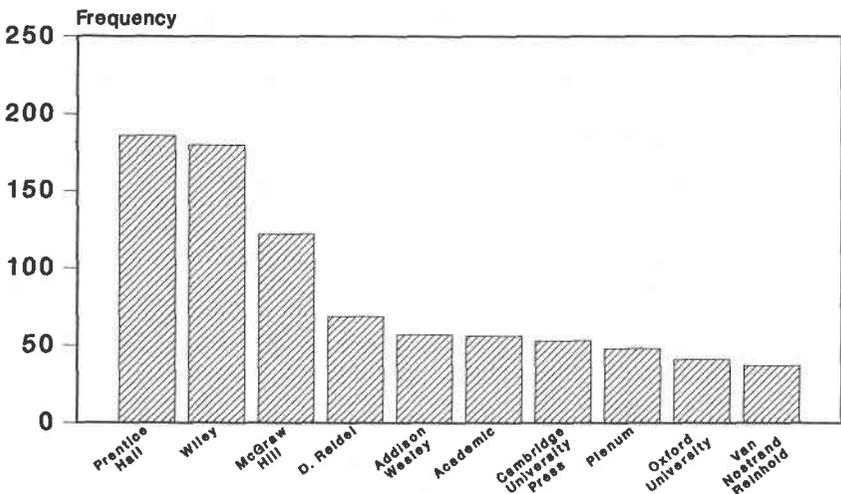


Figure 7. Ten Most Frequently Supplied Publishers

OVERALL 1892 TITLES			PRENTICE HALL 186 TITLES		
MV1	811	(32.3%)	MV1	48	(25.8%)
MV2	848	(44.8%)	MV2	37	(19.9%)
SV1	1141	(60.3%)	SV1	138	(74.7%)
SV2	717	(37.9%)	SV2	80	(43.0%)
WILEY 180 TITLES			MCGRAW-HILL 122 TITLES		
MV1	35	(19.4%)	MV1	42	(34.4%)
MV2	95	(52.8%)	MV2	40	(32.8%)
SV1	125	(69.4%)	SV1	95	(77.9%)
SV2	112	(62.2%)	SV2	51	(41.8%)
D. REIDEL 69 TITLES			ADDISON-WESLEY 57 TITLES		
MV1	21	(30.4%)	MV1	10	(17.5%)
MV2	35	(50.7%)	MV2	22	(38.6%)
SV1	57	(82.6%)	SV1	38	(66.8%)
SV2	41	(59.4%)	SV2	34	(59.6%)
ACADEMIC 56 TITLES			CAMBRIDGE UP 53 TITLES		
MV1	24	(42.8%)	MV1	19	(35.8%)
MV2	27	(48.2%)	MV2	34	(64.2%)
SV1	24	(42.8%)	SV1	31	(58.5%)
SV2	32	(57.1%)	SV2	9	(11.3%)

Figure 8. Percentage Supplied by Vendor within Publisher

## CONCLUSIONS

The most obvious conclusion is that the vendor a library uses makes an enormous difference in the market mix of materials received. In general, specialty vendors supplied more titles than general vendors. SV1's adjusted total of 889 and SV2's total of 717 were compared with MV1's adjusted total of 732 and MV2's 848. A comparison between the greatest number supplied by a specialty vendor (889) and the smallest number supplied by a major vendor (732) produced a Z statistic of 4.00, which exceeded the critical value of Z at the .01 level.<sup>11</sup> However, the total for specialty vendors (1,606) and the total for major vendors (1,580) produced a Z statistic of .8603, which was not statistically significant.

Performance in supplying non-commercial titles was disappointing all the way around. MV2 supplied 146 non-commercial titles followed by MV1 with 111, but neither figure is praiseworthy. The two major vendors claim to be able to supply society and association publications and did supply 20 titles; the two specialty vendors say they supply only commercial and university press titles, and yet they supplied three society and association titles.

No patterns seemed to emerge in the types of titles provided by the different suppliers. In an exercise akin to the return privileges of an approval plan, the clearly popular or trivial titles were weeded out during database construction. Popular computer books abounded in the study. All vendors were guilty to some degree. Vendor selection is crucial because each vendor will interpret the subject and non-subject guidelines of a given library in a different manner.

It would be interesting to see this study replicated in the social sciences and the humanities. The variety of suitable titles, three times the number purchased, may not be similar in the social sciences or humanities. Our total database of 1,892 titles approximated the number published.

For the library without sci/tech bibliographers and a continuing need to collect in science and technology to support research and instruction, the problems of choosing a vendor remain. The study suggests that roughly the same numbers and types of titles are available from two major vendors and two specialty vendors. The surprise is that the titles themselves are generally not the same. This conclusion underlines the necessity for rigorous standards for vendor selection, for very exacting profile construction, and for careful monitoring of a sci/tech approval plan once it is established. It also affirms the idea that publisher-based approval plans might work better for the sciences. Ryland's caution about buying science and technology books through an approval plan, while not obvious, seems well founded.

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8. Joan Grant and Susan Perelmuter, "Vendor Performance Evaluation," *Journal of Academic Librarianship* 4:366-67.
9. Karen A. Schmidt, "Capturing the Mainstream: Publisher-Based and Subject-Based Approval Plans in Academic Libraries," *College & Research Libraries* 47:366 (July 1986).
10. Because the Boolean operations available on dBASE III Assist contain only "and" and "or," the number of titles in each set had to be established by figuring the whole and then subtracting the next smaller set. Thus, the core 77 had to be subtracted from each of the sets. Similarly, the relevant set totals had to be subtracted from the dyads but the core 77 had to be added back in because otherwise it would have been subtracted twice, once within each set.
11. The Z Statistic is used here to compare two proportions for large samples. The null

hypothesis is that the two proportions are identical, i.e., that  $P_1 = P_2$ .

#### APPENDIX A. CONSTRUCTION OF THE DBASE FILE

Database construction began with a list from Specialty Vendor 1, the largest supplier of titles. The investigators assumed that this would become a master list, containing perhaps 75 percent of the total titles, to which other vendor codes could be added by appending codes of two or three other vendors. After a second list was added, only 208 of these titles matched the 1,100 already in the database. Our preconceptions had been wrong.

A comparable list arrived from Major Vendor 2 and was entered as Source 3 into the database. The list from Specialty Vendor 2 finally arrived to become Source 4. The database was loaded onto a Bernoulli cartridge, which gave us space for multiple indexes. The plague of small problems with diskettes, dBASE III discontinuities, and personal computers vanished.

Next, we began to address problems of validity and reliability of data: duplicates, out of range dates, out of range publishers, and types of materials. Although we had initially requested coverage for the profile from January 1986 through May 1986, one vendor had also supplied materials beyond those date ranges. Those titles and a few 1985 titles were removed. We indexed the file by title and examined it title by title for duplicates. The source codes were consolidated on the best record and alternative records were eliminated. The database shrank from 2,486 records to 2,147 records. Throughout these processes, we were grateful that we had decided to work with an entire database rather than a statistical sample because adjustments did not skew the sample.

The investigators then indexed the database by call number to check the subject parameters of the profile. We checked title by title not only for the suitable call number but also for the suitable level. Since the Evans Library had never had an approval plan profile with either of the specialty vendors, we were essentially engaging in the close monitoring of an approval plan that occurs during the first few months with a new vendor. Although our instructions excluded lower-level textbooks, specialty Vendor One seemingly had ignored this instruction. Therefore, titles containing phrases like "Introduction to," "Elementary," "Beginning," "Principles of," "How to," and others were examined for possible deletion. We performed this entire shakedown twice to assure that the database had a high level of integrity. Two hundred and forty-seven records were judged to be beyond the scope of the profile. Since that total represented only about 10 percent of the entire database, the action seemed within the return parameters of a normal profile.

The investigators then created a publisher index to check for further adjustments. Although all participants had been instructed to omit Elsevier and Springer Verlag, some titles had persisted but were now deleted. Extensive authority work in the publisher index was necessary. The investigators selected the prevalent form of name for each publisher and brought all alternatives into agreement (John Wiley, Wiley and Sons, J. Wiley, Wiley Interscience—all became Wiley).

# Are Children and Teenagers Second-Class Users?

Kay E. Vandergrift

*One very important group of library users is routinely subjected to restrictions regarding access to resources. A number of technical services policies, primarily relating to circulation but also including cataloging and collection development, prevent full access for children and youth. Technical service librarians can work closely with those in youth services so as not to waste the opportunity to make young people full members of the library community.*

**O**ur profession abounds with a wealth of abstractions about the right of all individuals to information and ideas. There is, however, one very important group of library users to whom this right is routinely denied in practice. Restrictions often dominate our thinking about access to resources for minors.

Technical service librarians may believe that the planning and development of policies and practices that restrict young people's access to library resources are in the hands of public service librarians, who have more direct contact with these users. There is evidence, however, that a number of technical services policies, primarily relating to circulation, but also including cataloging and collection development, prevent full access for children and youth.

Should a child expect service that recognizes language, decoding, and comprehension skills? In 1977, Broderick expressed deep concern over the rights of children and youth in terms of their access to materials and contended that these problems were (and still are) unresolved dilemmas in children's librarianship. She asked: "Are children's librarians to protect the young, to shield them from ideas and attitudes deemed inappropriate, or are they to provide free access to all materials and trust the children to decide for themselves what is appropriate to their needs and what is not?"<sup>1</sup>

Kingsbury's study found the second most important priority to children's coordinators was "to recognize the rights of all children to library services and materials that will provide for individual differences in cultural backgrounds, abilities, and interests and that will help them to develop to their fullest potential."<sup>2</sup> Miller's 1981 article supports youth rights and makes suggestions for children's librarians to ensure that their clients receive adequate services.<sup>3</sup>

Young, in another 1981 article, suggests that the children's librarian

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needs "to be versed in the need for planning as an ongoing process; to be involved in the library's community-needs analysis; and to be included in determining goals, objectives, and policy strategies that will reflect the library's attitude toward children."<sup>4</sup> Young discusses goals of children's services and emphasizes the responsibility of children's librarians to the child. She states that, because of this responsibility, the children's librarian "must be informed about the redefining of library policy at the national level, such as the current wording of the National and Model Interlibrary Loan Codes [that eliminate age discrimination], must recognize it for what it is, and must use it to further the development of all children."<sup>5</sup>

Earlier that year Gerhardt, in a generally favorable report on children's access to public library services in the Prince George's County Memorial Library in Maryland, also called on children's librarians to get involved in policy making both within and beyond the library. After listing four "wicked generalizations" about how public libraries make access difficult for children, she challenged readers to do more than just support the "thou shall nots" of the *Library Bill of Rights* and present "a positive statement on how full library access of minors can be achieved."<sup>6</sup>

Library professionals, especially those in the technical services, who control so many of the basic systems undergirding information access, need to be more aware of these concerns and recognize how their work either enhances or prohibits access for young people.

Three studies were used to supplement this data: a national survey by Intner on circulation policies; an analysis of circulation policies in selected Bergen County, New Jersey, libraries by King; and a survey of children's services in New Jersey by Razzano.<sup>7</sup>

Research is necessary to provide support for the continuance of services and to justify to the taxpayer the importance of such services and collections. More cooperative efforts between school and public libraries may be initiated, such as those in New Jersey.<sup>8</sup> Large networks (such as those developing in the BOCES in New York and in ACCESS Pennsylvania or the Access Center of the New Jersey Library Network) that bring all types of library service into supportive systems and units may increase. Technical service librarians can work with youth services librarians and other professionals to design studies that explore reading, access, and the use of libraries by all age levels.

## FACTORS LIMITING ACCESS TO MINORS

Let us examine those factors that interfere with or prohibit access for all library users.

### CATALOGING FACTORS

Young people must contend with library catalogs that, in many instances, use vocabulary and subject headings alien to their experience. In "The Terrible Truth about Teenlit Cataloging," Berman gives many examples of what he calls a "crazy-quilt of 'adolescent,' 'juvenile,' and 'youth' forms." He demonstrates that "In short, LCSH's teen-related language doesn't reflect 'real,' everyday usage and is massively confused and inconsistent in both scope and form, needlessly dispersing 'teen' material

throughout the catalog and grossly inhibiting first-hit searches.”<sup>9</sup> Teenage library users may well need some assistance in understanding and using confusing subject headings.

In this highly technological age, it is disturbing that information professionals do not always communicate successfully with users. Publicity for library resources and services is not always very good, and it sometimes is totally lacking in regard to young people's access to some services, such as online searches or interlibrary loans. It may be that librarians' most serious communication shortcoming centers on the most basic service: the catalog. Advanced technological systems often have only limited instructions for their use. Libraries that have changed from Dewey to Library of Congress classification and from traditional card catalogs to online catalogs do not always furnish clear linkages between multiple points of access to basic holdings. Users may not be informed that searching a card catalog, or even one catalog and one terminal, may not be adequate, since some libraries have three or four terminals connecting different systems or including only those materials acquired and cataloged within a certain time period. It is frustrating and defeating to have to search multiple systems, and disillusionment is a natural response upon hearing the equivalent of “But that system only includes English titles for the last six years.” Have we so complicated our technological systems that we have created a library version of the marvelous maze of the French kings, who were said to have let individuals wander around hopelessly lost, even unto death?

#### COLLECTION DEVELOPMENT FACTORS

Public libraries have become involved in the use of output measures and have encountered the problem of how to deal adequately with children's services statistics. Those that subsume statistics for children under other categories are concerned that, in the long run, the lack of visibility may cost children's services severe cuts. If, on the other hand, the statistical collection of children's services data is segregated, is the separation of collections and services for youth reinforced and are additional barriers in the professional community created? Additionally, do we jeopardize the positions of children's and young adult librarians who encourage their clients to use adult collections as well as their own? Allied to these concerns is the question of separate facilities. If children have a separate room, is a metaphorical, as well as an actual, wall keeping children from total access? If children must have an escort to use the “adult reference collection,” is information to the child restricted? On the other hand, if one removes children's rooms, would it not dilute the positive attributes of such services and thus weaken community support? Would children's programming be eliminated for lack of an appropriate setting? In some institutions a compromise has been reached regarding nonfiction, which is intershelved, regardless of the level of the material, while children's fiction still is shelved in a separate area. Obviously this is a technical services decision as well as a public services one.

As a profession, we stand strong in our advocacy of free and open access to all information for all people, but some may be hesitant to give “potentially harmful” information to those who, from all indications, are unable

or unfit to handle it. Often this means those below a certain age. This has been, and continues to be, a collection development problem, where some professionals are unwilling or unable to be objective in evaluating or selecting titles they find personally offensive. It is easy for librarians to censor controversial materials and cloak this censorship in other guises. Many public libraries require parental permission to circulate certain books, a fairly typical way to handle controversial items or those that are potentially problematic. Another common approach to controlling access by children is to allow parents to decide whether to permit access for their children to the library's adult materials. Under this policy, the attainment of a certain age or grade level in order to be able to select freely from among the library's resources is no longer a milestone to be awaited. Conscientious professionals may still be concerned about the intellectual opportunities for those young people whose parents deny them access to materials, but at least the library itself is not denying access.

### CIRCULATION FACTORS

Another limiting factor is the number of circulation policies, rules, and procedures controlling access. The more rules, the greater the chance of access being limited; or, more simply stated, fewer rules yield greater access. Intner's 1985 national survey on circulation policies in public libraries reports that policies and regulations are excessively complex and list all of the traditional rules and regulations for registration and borrowing. Even those systems, such as are found in California, Kansas and Connecticut, that have forms of universal borrowing have a staggering number of regulations. The trend that emerges is that children are considered second-class users who are only given access to library resources, and often limited access, when vouched for by parents or guardians. Some libraries even require an "in-person" visit by adults to complete the registration. One library had the following typed message at the desk as a reminder to staff:

Be sure [if a parent is not present] that the application looks like it has been signed by an adult. Sometimes the kids sign them and you can tell.<sup>10</sup>

In another, a child applying for a card requires a reference signature from a parent or legal guardian. The parent who represents the child's identification must have identification that meets the adult specification and must sign as a reference for the child in the presence of library personnel. Why is there this amazing lack of trust? In the Intner survey, library after library prohibited children from obtaining a library card until first grade. (In a popular children's book of the 1940s, *Rufus M*, the protagonist struggled against unreasonable obstacles for the privilege of borrowing his favorite picture books from the local library, a practice still seen in libraries' that require children to be able to write their names, usually in a very small space on a form. What research correlates the writing of one's name to reading or enjoying books?)

The New Jersey Area Children's Librarian's network survey indicated that libraries used a variety of criteria to decide when a child may receive a library card. Several used more than one criterion: 36 percent used the ability to print his/her own name, 15 percent used attendance in kindergar-

ten, 9 percent used attendance in first grade, 20 percent used a specific age, and 27 percent used the parent's request. These findings indicate that more consistent guidelines for services to children need to be developed in New Jersey and, perhaps, in other states, too. The national campaign of ALA and NCLIS launched in response to former U.S. Secretary of Education William J. Bennett's statement that "Every school should have a library and every child should have and use a library card" might eventually alter such restrictive registration practices. Although a public library card may indeed be the best gift a parent ever gives a child, we cannot relax our concern for those children for whom this "gift" is not forthcoming.

Some libraries with automated circulation systems and policy statements that offer no restrictions on access still insist on a rule requiring use of one card for adults and a separate and distinct card for children. At the same time, there are libraries that have so many conditions built into a circulation policy that only a computer matrix could control the restrictions. What is missing is the recognition that many of these "conditions" exist only because the program allows for them and that inadequate time was devoted to reconsidering all elements before implementing the system. The missed opportunities to collect and analyze significant research data are too numerous to count. Some planning time might determine what data would be useful in constructing an effective system.

King's research demonstrates the range of exceptions to circulation policies addressed here.<sup>12</sup> Restriction codes for patron categories include "children's room only," "no BCCLS interlibrary loans," "no computers," "can use adult room with librarian's permission or if accompanied by adult," "no best-sellers," "no popular records," and "no reference materials."<sup>13</sup> Such exceptions affect not only the category of patron but also the category of material, especially videotapes and computer software. Throughout the literature, a great deal of attention still is paid to providing different rules for different materials, perhaps reflecting the notion that one medium is better, or at least more essential, than another. Factors of cost, availability, and delivery systems may currently force us to treat some materials differently, but this should not persist indefinitely into the future.

The presence of technology in libraries is clearly evident, and most librarians have, if not embraced it, at least learned to accept and use it. It is not uncommon, however, for libraries to restrict access to computers by one of the groups of users most comfortable with them, that is, young people. Some of the children and adolescents barred from using software and "adult" computer books and from certain services such as computer searches have access to The Source, CompuServe, and perhaps even Dialog in their schools or homes. None of these utilities questions the age or capability of the client, only their financial resources. Of even greater concern are those children and young people who are doubly disenfranchised because they cannot afford home access to such utilities.

Assuming that young people have successfully negotiated the circulation requirements and gained access to needed materials, another factor to be considered is the increased use of legalistic language and attitudes employed to "encourage" citizens to return items and pay fines. More and more libraries are adopting a "get tough" policy, probably reflecting a

number of factors—increased costs of materials, shrinking budgets, greater accountability, and response to societal attitudes. Manuals that indicate use of collection agents or the local sheriff or police to collect overdue materials or unpaid fines certainly destroy romantic images of libraries. The concept that “for every right there is a consequent responsibility” must be communicated. Technical service librarians who are responsible for computerized, integrated systems should be participants in the development of such policies and, along with colleagues in the public services, be aware of their impact on various groups of library users.

There is often unequal treatment of children in the application of fines. Youth services librarians may defeat their own purposes if they ask for special privileges for their clients. Why should children be charged a few pennies for overdue materials when adults are required to pay considerably more? Increasingly, libraries apply a universal fee for all patrons, which may be determined by the age or the cost of materials rather than the age of the borrower. If the objective is to charge for materials that are kept from circulation, how can we justify charging some users less? That children are perceived to have less money is not a good argument, nor is it necessarily true. Respect for the rights of all includes assuming the penalties for disregarding those rights.

### CONCLUSION

Intellectual freedom is one of the most fundamental assumptions of librarianship. This presupposes the right of unrestricted access to all information and ideas. It also assumes the right of any person, including children and adolescents, to form their own beliefs on any subject. Librarians can help all users access, sort out, select, process and use the data bombarding them and continue to aid them in using that information to increase their competence as scholars and as lifelong learners. In essence, then, what should be valued more than the simple acquisition of knowledge is the development of the kind of critical ability that enables users to consider, question, and analyze existing information and ideas in the process of developing their own cognitive skills and knowledge.<sup>14</sup> Teaching young people to negotiate their way through the myriad paths of information may be the role of the public services professional, but it is those in the technical services who create and control the basic information systems that either encourage or discourage young library users. The implementation of newer technologies offers both new hope and more efficient means for change. Technical service librarians can work closely with those in youth services so as not to waste the opportunity to make young people full members of the library community.

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# Rethinking Subject Cataloging in the Online Environment

Marcia J. Bates

*New search capabilities in online catalogs have numerous implications for (1) the use of subject cataloging in existing records, (2) the design of thesauri, and (3) the design of the online catalog user-system interface. Online search capabilities are themselves seen as a form of indexing, and it is argued that access is determined by the total mix of preexisting and added "search capability" indexing. The design of a "superthesaurus" as part of a friendly front-end user interface is described. Said thesaurus is geared to the needs of users rather than indexers and incorporates the findings of recent research on the patterns of subject description by searchers. Its design also reflects the different demands of online searching as opposed to manual searching.*

**T**he introduction of online catalogs into libraries opens up impressive new possibilities of retrieval power and ease of use for ourselves and our clients.<sup>1,2</sup> Our task now is to design the intellectual content and arrangement of catalogs so as to take maximum advantage of these new technical capabilities.

In order to do that, we need to understand the interaction between the database—the bibliographic records—and the search capabilities of the online system. There are many ramifications, some obvious and others quite subtle, of this interaction. This article develops these ramifications in three areas relating to subject cataloging:

- role of present subject cataloging in existing records
- subject headings/thesaurus design
- system-user interface design

Throughout the discussion, emphasis will be on improving user access and retrieval effectiveness.

## PRESENT ROLE OF SUBJECT CATALOGING

A note on terminology: Throughout this article, the terms *indexing* and *subject cataloging* are used interchangeably. Similarly, *thesaurus* is used to refer both to *Library of Congress Subject Headings* (more precisely called a subject heading list), as well as to other term lists more conven-

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tionally referred to as thesauri. The distinctions between subject cataloging and indexing as processes and between subject heading lists and thesauri are important more for historical reasons than for present practice. Though differences may still be discerned, so many changes in thinking about them are necessitated by the new circumstances associated with the online environment that traditional distinctions are largely meaningless.

Based on our experience with card catalogs, we have been conditioned to think of the subject indexing in a catalog as consisting of subject headings and classification numbers. When a card catalog is put online it is natural, then, to continue this assumption—to think of the indexing in an online catalog as consisting of the subject elements already present in the database before it was automated. We think of an online catalog as simply the same catalog we had before, but now online-accessible.

But, in fact, *online search capabilities themselves constitute a form of indexing*. Subject access to online catalogs is thus a combination of original indexing and what we might call “search capabilities indexing” (more on this presently). The interactions between these two kinds of indexing can be subtle. A range of search capabilities is superimposed on textual materials of various kinds in the bibliographic record, including natural and controlled languages. The resulting interaction has a variety of effects on the quality of searches done by users of online catalogs. The effects are not only additive. Sometimes they cancel each other out or are so synergistic as to be multiplicative.

Typical online search capabilities are keyword searching, Boolean searching, truncation, and multi-index searching (that is, combining query terms from more than one index, e.g., “FIND TITLE Grapes AND FIND AUTHOR Steinbeck”).

To illustrate the point that search capabilities actually produce a kind of indexing, take keyword searching as an example. Imagine two online catalogs, one with the ability to search for exact matches on entire subject headings and titles and the other with that same capability plus keyword searching of titles.

In the case of the subject heading plus keyword title catalog, every word (except stop words) in the title of each record in the catalog is an instant index term. The equivalent in a manual catalog would be to provide an index that listed every non-stop word in the title of each book as an entry. (This approach is quite close to a “key word in context” index.) But manual catalogs conventionally do not provide such title keyword indexes. The online capability adds a major new form of indexing to the subject access.

Such title keyword terms have the important limitation of being uncontrolled vocabulary, but they have the advantage of providing subject access of a type not previously available. When an online catalog simply possesses the capability of being searched by title keyword, in effect a whole new index is added to the catalog, with every title word an index term, even though the whole index is not seen printed out.

If the addition of uncontrolled title keyword terms seems like a trivial or dubious improvement in subject access, consider the results of a study by Ann Schabas. She did an extensive experimental study on retrieval of UK MARC records in a selective dissemination of information system in Can-

ada.<sup>3</sup> Users of the system were asked to give relevance judgments on over 5,000 retrieved book records. The records contained both LCSH and PRECIS indexing, and searching could be done on title words as well. Consequently, she was able to compare LCSH to PRECIS; LCSH to LCSH plus title words; PRECIS to PRECIS plus title words; and LCSH plus title words to PRECIS plus title words.

Searching was done postcoordinately, that is, with Boolean logic on individual words and phrases, not just on whole subject headings or titles. Schabas found only modest differences in performance between LCSH and PRECIS, but substantial improvement in both systems when title terms were included. Using recall (percentage of relevant documents retrieved) and precision (percentage of retrieved documents that are relevant) measures, she found in the LCSH/PRECIS comparison that PRECIS had 5.7 percent better recall than LCSH, and LCSH had 1.7 percent better precision than PRECIS—very similar performances. On the other hand, in the LCSH to LCSH plus title comparison, addition of title words to LCSH improved recall by 14.7 percent, and with PRECIS versus PRECIS plus title, by 11.1 percent.<sup>4</sup> It is often the case that techniques used to improve recall are found to harm precision, and vice versa; that is, there seems to be stubborn trade-off between the two measures, so that it is hard to improve overall system performance. In this case, there were no such problems. These substantial improvements in recall with the addition of title terms brought only slight declines in precision—2.9 and 2.2 percent, respectively.<sup>5</sup>

Schabas' results are not completely comparable to title keyword searching, because the system she used permitted "string searching," that is, searching on strings of characters, including blanks—permitting searches on phrases as well as single words. In most online catalogs with keyword searching, a searcher can ordinarily express a phrase only by use of a Boolean AND between the words of the phrase, either implicitly or explicitly. Thus false coordinations can occur when the ANDed terms appear in a different order than intended, or separated by other words. However, given that titles are short pieces of text, serious problems with false drops are unlikely to occur often. Schabas' results suggest that real improvement in retrieval performance may be expected through use of title terms.

The presence of a title keyword search capability seems to produce a retrieval system that is significantly different in character from one without such a capability. We can search in different ways—specifically, on all title words, not just on the first word—and we can use that title search feature in conjunction with other capabilities and get very different performance results. Thus, the availability of additional search capabilities does not just provide more bells and whistles; rather, each search capability creates a different retrieval system with its own performance characteristics.

The similarity in performance of LCSH and PRECIS demonstrated by Schabas sheds light on another point made earlier—that the combination of preexisting indexing and search capability indexing is not always simply additive. One of the major characteristics of PRECIS that recommends it as a possible improvement over LCSH is its well-developed set of techniques to arrange the subject elements of the PRECIS heading in different

orders. These techniques bring each element to the head of successive entries while preserving the semantic context of the whole heading. We might, therefore, expect PRECIS to perform significantly better than LCSH. When each significant word in the title is accessed through keyword matching anyway, however, this great strength of PRECIS is in effect ignored, or not needed, by the system, and the corresponding weakness of LCSH in manual systems (entry only through first word in title) is overcome.

There is another very important implication of these results. PRECIS, with its rigorous analytical techniques, has been widely discussed as a prime candidate for replacing LCSH and therefore improving subject access in academic libraries.<sup>6,7</sup> Yet with the advent of these online search capabilities and the particular mix of effects these features have on the use of PRECIS and LCSH, it now appears that LCSH performs essentially as well as PRECIS.

This example shows that preexisting indexing and search capability indexing can interact in ways that produce surprising results. To understand actual performance characteristics of online catalogs, one must analyze each search feature that is projected or in use and determine its interaction with existing indexing.

The evaluation of search capability indexing can become quite complex. Not only are there major classes of search features other than title keyword searching described above (plus others not mentioned), but there are numerous small variations on each type. These variations may alter the character of a given type of search capability considerably. For example, in systems that require exact matches on subject headings, the punctuation may or may not be regarded, main headings plus subdivisions may be treated as one heading or as separate headings, and truncation on the right end of the heading may or may not be allowed, among others. Finally, the total combined set of search features, each with small variations, makes a unique mix for each different online catalog system. With online catalogs, the fact that several different systems may be using the same bibliographic data with associated subject headings says little about the actual subject access available to searchers in those systems.

Title keyword access illustrates another point about how thinking must shift in the new online environment. It is natural to think of titles as part of descriptive rather than subject cataloging, so when we consider use of title terms in online catalogs, it is easy to think of title keyword searches as "known-item" searches, as opposed to subject searches. In a card catalog, if searchers wanted something on a subject and looked in the author/title catalog, they usually were making a basic mistake. But in online catalogs, title keyword searching can constitute a powerful kind of subject searching. Keyword matching with one or two title words—either words from a known title, or "just fishing"—can often produce a number of highly relevant titles. Many users are content with just a few items, so the comprehensiveness of a search on the controlled vocabulary of a subject heading is of little interest to them. Thus, such title keyword searching is not only an effective form of subject searching but, with some kinds of user needs, might even be preferable. It no longer seems appropriate to think of title

searches as always being for known items.

This difference in thinking about title searching necessitated by the shift from card to online catalogs may play a role in the ongoing debate about the relative importance of subject and known-item searching in online catalogs. Early results of online catalog studies showed a substantial rise in use of the subject approach over that found in previous card catalog studies. Reviewing 41 card catalog-use studies, Markey found that an average of 40 percent of the usage was for subject searches.<sup>8</sup> The Council on Library Resources study, published in 1983, found that subject uses constituted 59 percent of all online catalog uses across many types of libraries and online systems, hence a substantial increase in subject searching for online catalogs.<sup>9</sup> More recent data gathered by Larson in a large study of the University of California MELVYL system, however, shows a considerable reduction from the initial high level—down to the 20 to 30 percent range—in the amount of subject index use. The difference is made up by extra title searching.<sup>10</sup>

These results have received some discussion in the field to the effect that the high use of subjects was just a temporary phenomenon reflecting interest in a new toy and that known-item searches are now returning to their original preeminence.

Larson and I would suggest that the experience of problems with subject searching on the one hand and easy retrieval of at least some items with title terms on the other hand are leading many end users to shift at least part of their subject searching from subject headings to titles—hence the falloff in subject index use.

There have always been difficulties matching search terms with subject headings.<sup>11,12</sup> In the online environment some serious problems with subject searching remain. The same low number of headings exist in online document records as in manual records, and cross-references—available in card catalogs—are often not included in online catalogs. If this explanation is correct, then the falloff in subject index use is due to problems with subject indexes, not to lack of interest in subject searching.

### SUBJECT ACCESS IN THE ONLINE MODE

Evaluating the subject access available in an online catalog requires analysis of subject cataloging in combination with online search capabilities. There are ramifications of such an analysis for authority control and for making specific decisions about particular subject headings and cross-references. But the broader issues have to do with the overall design and character of subject headings and thesauri in the online environment. The specific decisions of authority control need to be made within the context of a different conception of subject heading access now that we have online capabilities. The opportunity is available to improve the power and ease of catalog use for searchers, but to do that, more effective use of the capabilities provided by the online technology must be made.

Catalog users could always have benefited from more assistance than was provided to them in determining which subject heading to use, but subject indexing has been constrained in the card catalog by space and staff limitations. Now there are not only more possibilities for providing access

in the online environment, but there are reasons why certain kinds of assistance are more essential with online catalogs.

The first reason is that the online catalog is a kind of "black box" for the searcher. That is, one cannot look inside it and see what is there, the way one can look into a card catalog drawer. One has to tell the system something in order to get anything out. In many online catalogs, the requirements for subject searching are that the searcher must state an exactly correct Library of Congress subject heading in order to retrieve anything. One cannot get part of the heading right and then fish around in the same area, as with card catalogs. Yet it is in online catalogs that *see* and *see also* references have typically been added later or not at all. So in the online environment the user particularly needs help in identifying good headings.

Second, the presence of implicit Boolean logic in online catalogs allows the searcher to combine subject elements more than was the case formerly (see also Bates<sup>13</sup>). Traditionally, catalogers assembled main headings and subdivisions to create the final subject description. Now, online catalogs that allow searchers to treat main headings and subdivisions separately and allow searching on keywords enable searchers to assemble elements of subject search formulations themselves to meet search needs. In this environment, searchers need help both with strategy and with identifying elements to combine.

Third, in addition to having more combinatorial choices of subject elements, the searcher also has more options with search formulation and modification: choice of different indexes and combinations of indexes to search, truncation, limitation by file (e.g., limiting to serials), etc. Frequently, the searcher needs to use these techniques to increase or decrease the size of output sets. With more powerful searching possibilities, the searcher needs more powerful assistance.

#### USER ASSISTANCE—ONLINE THESAURI

The searcher should be provided with a user thesaurus (distinct from an indexer thesaurus) incorporating vocabulary for online search features such as keyword searching and Boolean logic. Throughout, the assumption is that online access to the thesaurus will be provided, though many of these features could be incorporated into a manual thesaurus as well.

Most current thesauri, including LCSH, are designed primarily for the indexer/cataloger. These may be called indexer thesauri. Debate as to whether the LCSH list should be made available to users have been ongoing. There are good reasons for the debate, because on the one hand the searcher should have access to a compact (relatively!) list of headings instead of having to look many places in the catalog, while on the other hand the LCSH list could easily confuse the naive user.

Many headings in a library's catalog are nowhere to be seen in the LCSH list, because they are pattern headings or use free-floating subdivisions. On the other hand, many headings appear in the list that are not used in a particular library. Until recently, confusing codes, such as "x" and "xx," appeared, and scope notes were generally written to clarify the sorts of confusions that catalogers would have, not the ones felt by end users. Even *see* references, though intended for users also, are written in

the grammar of subject headings; in other words, they have similar form and parts of speech to those of headings, so the user must have at least a minimum level of familiarity with the patterns of subject headings in order even to come up with the "wrong" (see from) terms.

Research confirms the situation: Students, without access to the *LCSH* list—a condition common in many libraries—were asked to write down the headings they would use to find books on the same topic as books each described by a title and abstract. Library students who had studied cataloging and nonlibrary university students both performed the task. Both groups were nonspecialists in the fields they were asked to describe. The library students did almost twice as well as the nonlibrary students in coming up with the correct headings for the books.<sup>14</sup> In other words, being familiar with the form and syntax of Library of Congress subject headings in general enabled the library students to succeed more frequently in producing part or all of the correct heading or a *see* reference for the books.

A thesaurus designed primarily for the user would address the questions and confusions encountered in searching. Headings actually used in that library would be indicated and/or explained, many scope notes and definitions would be included, and cross-reference terminology would be self-explanatory. Finally, there would be far more entry (*see from*) terms. Much greater variety in *see from* terms would be present to accommodate colloquial and other popular labels for topics (see also Bates<sup>15</sup>).

As noted earlier, in an online catalog the searcher generally has additional search capability indexing available and will choose among the various options—preexisting indexing and online indexing—to fulfill a particular search need. Therefore, it seems appropriate that the user thesaurus should reflect this fact, and provide assistance with the other (online) indexing terms as well.

It may appear contradictory to have a thesaurus that includes terms that are not controlled and are not *see from* terms either. It is similar to the experiences of online database searchers, who have been dealing for much longer with the same problem we are discussing, namely, the availability of both controlled vocabularies and many powerful "free text" capabilities (ability to search on words or phrases anywhere in certain fields, regardless of whether the terms are controlled or not—similar to keyword searching in online catalogs).

Because of the availability of these search features, online database searchers routinely consider terms in both controlled and uncontrolled vocabularies for their search formulations. Controlled vocabulary from one database can also be used in a free text mode in another one. The indexer or cataloger naturally is concerned with identifying the "correct," controlled, vocabulary; the online searcher, on the other hand, finds that the line between legitimate and nonlegitimate indexing terms becomes blurred.

Usually, free text searching includes the possibility of doing what is, in effect, keyword searching on the controlled vocabulary as well as the natural language text in abstracts and other fields. Consider a single-word keyword match on a multiword subject heading. What kind of indexing is that—controlled or uncontrolled?! The distinctions between controlled and uncontrolled or between preexisting indexing and search capability index-

ing blur, the more power one gains in online searching capabilities.

Many thesauri do not recognize these realities of online searching and stick mainly to formal, legitimate terminology, but some are beginning to be designed specifically for online searching (cf. Piternick<sup>16</sup>). A true user thesaurus for online catalogs should be designed for these actual online searching conditions.

The thesaurus that, to my knowledge, most fully reflects these new realities exists as an online database (a database totally devoted to the thesaurus with no indexed documents present), and is called TERM in the BRS search system. TERM contains merged thesauri from several fields (education, psychology, and medicine, among others), as well as natural-language terms suggested by practicing searchers and found in database records and in reference books. Even suggested Boolean combinations are included. When a searcher inputs a term or phrase into the BRS TERM database, an entry is printed out listing possible alternative terms that may be up to several dozen lines long. Since searchers do so much free text searching, the presence of vocabulary, controlled or uncontrolled, from other disciplines enriches the possible choices of terms for any one search. Furthermore, Boolean combinations are suggested by prompting the searcher to AND terms from each of two columns containing variant terms for component concepts in the topic phrase of the entry. For example, in the entry for ethnopsychology, the searcher is prompted to AND terms from one column dealing with ethnicity and another column dealing with racial indentification and self-concept. The database sources of controlled vocabulary terms are indicated so that when the searcher does wish to use controlled terms in just the one source database, he or she may do so.

An online catalog thesaurus that contained these features would greatly improve the resources available to the catalog user. Searchers could use such a source to identify search terms for both subject searches on controlled vocabulary and keyword searches on titles.

There are implications here for an issue that has recently arisen in our field, namely, how to handle multiple thesauri in online catalogs.<sup>17</sup> Whatever is done for the indexer/cataloger in the way of displaying various thesauri, the public user thesaurus display might be different and better adapted to actual end user needs. Including free text terms and possible Boolean combinations are examples of assistance that would be of little use to catalogers assigning controlled vocabulary but of great use to end users.

### USER-SYSTEM INTERFACE DESIGN FOR ONLINE CATALOGS

Evidence is accumulating that indicates some fundamental assumptions about the nature of subject access and about the way people mentally process "subject" as they search for a topic must be changed. Some of this evidence has been around for many years; some has appeared as recently as 1988. Now, when online catalogs are coming into use, we have the power to address the implications of this information and alter the design of subject access accordingly. It is particularly important to address this matter in the current, relatively early, fluid stage of online catalog design. Later, as design becomes standardized and commitments are made to certain approaches, it will be much harder to change them to design systems that truly accommodate users.

A fundamental assumption of subject cataloging—so basic that it is seldom discussed—is that, as a rule, subject concepts can each be well described with one heading and, as needed, one to a handful of *see* references for synonyms of the heading. That is, by providing this range of access terms for subject concepts (which terms are, in turn, applied to documents written on the concepts), the great majority of users will be able to match up their search term with a heading or a *see* reference describing items of interest to them in the catalog.

Now, however, it appears that this model of a catalog user's thinking and search process may be highly inaccurate. Studies in office automation, in psychology, and in several subfields of library/information science all suggest that the human mind produces much greater variety of description of concepts than previously assumed. Of greater significance, even the most frequently used of the terms are used by only a small minority of people.

Furnas et al. were interested in identifying the best names to use for text-editing operations so that these names could be used in the design of automated text-editing systems. They did several studies, which produced similar results. In one, 48 secretarial and high school students were given a sample manuscript with the author's corrections and asked "to prepare a typed list of instructions for someone else who was actually going to make the changes but did not have the author's marks."<sup>18</sup> One might expect the range of terms to be smaller than is the case in our field, because very specific concrete operations were being described, rather than the topic of an information need. Yet the authors note: "The most striking result from the verbal production data was the great diversity in people's descriptions. . . . The average likelihood of any two people using the same main content word in their descriptions of the same object ranged from about .07 to .18."<sup>19</sup>

Lilley and I, in separate card catalog studies, found low frequencies for search terms. Lilley asked 340 students to give subject headings that they might search on to find six books. An average of 62 different headings were suggested for each book.<sup>20</sup> The most frequent term suggested for each book by Lilley's students averaged 29 percent of total mentions across the six books (my calculation). (Most of Lilley's examples were simple, the easiest being *The Complete Dog Book*, for which the correct heading was "Dogs.")

In my study, students were asked to state the search term they would use to find a book just like the one described in an abstract.<sup>21,22</sup> The study was not designed to examine intersearcher consistency, but the responses given by the undergraduate and graduate students in the study exhibited the same enormous variety found by Lilley. For example 71 students responded to the first book in the study; they produced 46 different headings (some varying by singular/plural only), no one of which was suggested by more than six people.

Tefko Saracevic, in a large, federally funded study, examined various features of online searching performance.<sup>23-25</sup> In one of the substudies, he computed the degree of agreement among professional searchers in search terms used for the same test questions. He compared five searches on each

of 40 test questions, a pair at a time. The 40 questions were all real information needs, not manufactured queries.<sup>26</sup> So, in total, there were 800 pairwise comparisons.<sup>27</sup> Looking at the degree of agreement between searchers in terminology used, he found the following results: In 56 percent of the comparisons the overlap in terms used was 25 percent or less, and in fully 94 percent of the comparisons the overlap in terms was 60 percent or less. In only 1.5 percent of the cases were the search formulations identical.<sup>28</sup>

Summarizing the results from all the above studies, as well as the others discussed in Bates,<sup>30</sup> the average likelihood that any two people will use the same term for a concept or a book, or that a searcher and an information system will use the same term for a concept, is in the range of 10 to 20 percent. The total number of terms generated by a group of people for a given topic is almost always very large.

So instead of people's descriptions clustering around one or two terms, there may be dozens used, and even the most popular terms are generally used by a minority. Thus, one used heading and a few *see* references for synonymous terms will probably capture, that is, match with, only a small minority of the entry terms used by catalog searchers for a given topic.

This great variety of search terms, matched against the one or two headings that are assigned per book, produces other results that are not surprising. Karen Markey reviewed several studies of search success on a variety of online catalogs. She found that 35 to 50 percent of keyword searches of subject heading fields resulted in *no retrievals at all*.<sup>31</sup> In her own research she found that in many of the cases where there was a match with a term, no relevant materials were found, i.e., some other access term was needed to locate the desired material.<sup>32</sup>

This situation is not acceptable. No matches or matches with irrelevant headings are searches that defeat the purpose of public access catalogs. The fault cannot be attributed to inadequacies of online system features, because my aforementioned research with card catalogs showed the same low-match and irrelevant-match pattern. It is much more likely that the problem lies with a mismatch between the way our minds work and the conceptual design of our catalogs.

How should this situation be handled? Supplementing the indexing by adding two or three more headings would help but would not do the job. Something in the neighborhood of ten to thirty or more additional headings would be needed to cover the range of search terms likely to be used by catalog users—a totally impractical solution.

Do these results make authority control pointless? Not at all. The benefits of consistency, accuracy, and control in subject description are not lost because we find people use a wide variety of terminology in searching. But document description must be distinguished from access. Documents can be described compactly, with just a few headings, but some way should be provided to channel searchers from the initial wide variety of expressions to the much more limited number of terms actually used to index relevant documents.

To return to the idea of a user thesaurus: If said thesaurus were expanded and enriched as a front-end database, a *Superthesaurus*, it could contain an

enormous variety of entry terms, with all sorts of guidance for the searcher to enable him or her to decide on the best terms for a given search. Hierarchical relationships could be displayed, including multiple hierarchies when terms reside in several hierarchies. Where colloquial entry terms are ambiguous, the several relevant controlled terms could be displayed, enabling the searcher to realize that more than one interpretation can be assigned to a term.

Some of the variety of entry terms is due to word form variations on the same root, word order variations, and use of combinations of subsets of component terms in the topic description. The word form variation can be reduced through a stemming algorithm, and word order problems can be handled by implicit Boolean AND on component words of the search term. Searchers also frequently use too many terms in their search formulations, or enter only one or two broad terms, and consequently get null sets or huge sets. For searchers with these problems, either automatic modification of search formulation or facilitative suggestions on-screen could be provided.

Most importantly, the searcher would never have that dreadful experience of entering a perfectly reasonable word or phrase for a topic and finding that the library apparently has nothing on it. Many searchers give up at this point, not appreciating the complexity of subject description. Here we would be implementing what I have called elsewhere the "Side of the Barn Principle," namely, the searcher need only "hit the side of the barn" with an initial entry term. Any reasonable English-language word or phrase should get some response, some recommended alternative term(s) or a display of related terms to guide the searcher to the best headings actually used to index the desired topic.<sup>33</sup>

For those users who are not interested in sorting through vocabulary to find the best, and just want the system to do it all, the presence internally of the vast superthesaurus network would make it possible for system algorithms to be developed that would automatically link search terms with likely correct headings.<sup>34</sup> This question of degree of system transparency may ultimately be resolved by providing two or more options to accommodate both the active explorers and the passive, "do-it-for-me" searchers.

## CONCLUSIONS

There is an analogy here to automobile design: The automatic shift and the stick shift are both available in the automobile market because they satisfy different kinds of needs and personalities. The same can be said for automatic and manually set cameras. Some people are confused by manual controls and only want "point and shoot" cameras, while others insist on maintaining control over setting themselves and would not dream of allowing the camera to do it for them. No matter how sophisticated "automatic" information searching interfaces become, there will probably also remain a desire for control over the search by some (or many) searchers some (or all) of the time.

The exact system design of the thesaurus and associated interface would depend on many practical factors, above all cost. However, some desirable features would be the following:

- The *Superthesaurus* should be independent of, yet linked to, the document indexing. A separate up-front database would contain the thesaurus with an associated user-friendly interface. A searcher could move around indefinitely in the thesaurus, following up linkages, i.e., the searcher could “helicopter” over the domain of terminology. When the user identified a promising heading (one that actually indexes documents), he/she could ask to see documents indexed under that heading without having to enter specific commands to exit one database and enter another one.

- The *Superthesaurus* should contain a very large entry vocabulary and numerous different linkages and user aids: display of multiple hierarchies when a term falls within different contexts, display of related terms, definitions and scope notes, etc.

- The system could be transparent or not, with the user either actively exploring the terminology or simply letting the system use the linkages to come up with likely document matches.

- Document indexing and reindexing would not have to occur for every addition to the *Superthesaurus*; the links would always lead to existing indexing. The situation would make for much more flexibility and rapidity in adding new terminology and changing links. Briefly popular colloquial terms could be added and later removed from the *Superthesaurus* if they faded from usage, without requiring reindexing of the documents themselves.

- Once a basic skeleton thesaurus is in place, the *Superthesaurus* could be developed incrementally, with additional types of linkages added through time by various interested groups and organizations.

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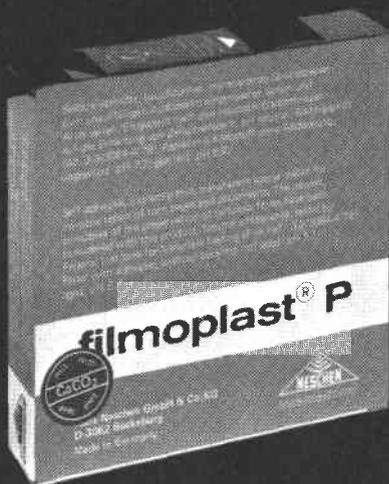
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# Notes on Research and Operations

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## Assessing Preservation Needs

Gay Walker

*Needs assessment techniques are explored for library collections to provide documentation for preservation program requests. Surveys of the physical facilities, the storage environment, the condition of the collection, and its history are described along with references to written aids.*

The basic foundation for any preservation planning is a needs assessment survey. Particularly important are those needs directly associated with the collections: the condition of the books, physical housing needs, environmental conditions, and the history of the collection and its problems. Documenting these areas provides much of the rationale needed to move forward with a strong, effective preservation program. It can provide support for what is truly needed, justify what is done, place each activity in a realistic context, and assign legitimate priorities to each request—for more money, more staff, more equipment, or more attention. Of course, the particular focus of the library's clientele must also be considered in assigning priorities for the collection, but the basic physical information about that collection's needs must also be identified.

The broader the approach to the needs assessment step, the easier will be the subsequent planning and the greater its likely impact and success. Surveys should be carried out in three major areas: the physical facilities, the environment, and the collections themselves. The level of specificity for each survey will need to be determined from the priorities set by external factors, such as the general state of the facilities, known environmental control problems, and particular difficulties in individual collections. Another survey, of historical collection data, is also recommended and is described later.

### PHYSICAL FACILITIES

A facilities survey can be carried out whenever the key personnel, those knowledgeable about the physical plant, can be interviewed. Following a set list of questions is usually the most efficient approach, so that various

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library units can easily be compared. Cunha has published a good building survey questionnaire which is reproduced in the ARL Office of Management Studies *Preservation Resources Notebook*,<sup>1</sup> and one was developed for use in conjunction with the major condition survey undertaken at the Yale University Library.<sup>2</sup> Once completed, such a survey will provide most of the basic information about your facilities, including construction materials, square footage, stack configuration, shelving types, cleaning procedures and timetable, environmental control systems, and the location of outlets, electrical panels, drains, and water cutoff valves.

Each of these categories presents preservation concerns, and filling out the questionnaire is only half the job. Answers must be analyzed and preventive steps recommended to forestall identified or predictable problems. Is a stack area below ground? Are there water pipes running overhead? Is cleaning done often enough? Are filters in air-control machinery changed regularly? Is the electrical panel locked? Who has the key? Where are the electrical outlets if a disaster recovery operation were set up in the stacks? Are there sinks or drains nearby for easy disposal of water? Who can turn off the main water supply to the building?

An annotated floorplan, color-coded with the locations of critical outlets, drains, and valves, should be developed during this survey and distributed to local staff. A workshop and tour should be conducted for all staff, not only to prepare for possible disasters but to broaden the perceived responsibility for the preservation of the collections.

Linked with the building survey interview is the walking tour—again, to be taken with knowledgeable personnel. Having seen a library or archives unit and the location of critical elements, even if only once, is invaluable; it enables one to assess needs, to plan, and to implement programs in any part of the system.

The third portion of the building survey is an annual physical review and maintenance check. Leaves need to be cleared from the roof drains at least once a year, and it surely helps if such a review catches or prevents just one leak. The physical plant staff should undertake this review, but whether it takes place or not may be up to you.

A more detailed review of storage accessories also is recommended. Is the shelving strong enough? Is it stable and nondamaging to the shelved materials? Is there appropriate shelving for folios and other oversize formats? Is the lighting level sufficient and low in ultraviolet radiation? Are there automatic turn-off switches? Is the shelf height sufficient to avoid foredge or spine-down shelving? Often a minor, low-cost adjustment will greatly improve the well-being of your collection.

### ENVIRONMENT

Controlling the storage environment of a library's collections is essential. Maintaining an even temperature—the lower the better—and a stable level of relative humidity can extend the life of library materials by several years. Eliminating sources of ultraviolet light also can save your collection from fading away. Before severely damaging conditions can be changed, they must be documented. Environmental monitoring should be one of the first steps undertaken in any collection, either to ensure the continuation of

acceptable conditions or to document unacceptable ones.

Monitoring programs can be simple, using sling psychrometers or installing wet and dry bulb thermometers, or sophisticated, using recording hygro-thermographs. The latter instruments are highly recommended if weekly staff time can be assigned and the money found to purchase each machine. The weekly paper records can be translated into graphs showing both the high and low readings for each week. Nothing makes as great an impact on university officials as crumbling a page of brittle paper from a book and the visual display of hard statistics. Presenting a few graphs documenting wild fluctuations in temperature and relative humidity levels will help them draw their own conclusions. During one phase of monitoring efforts at Yale in a stack area without environmental controls, one collection showed a startling 24 percent relative humidity and 13°F temperature fluctuation within a week's time. Although presenting this information may not translate immediately into an environmental control system, it is indisputable evidence that will help bring about change over time. Monitoring devices for ultraviolet light are relatively inexpensive and should be available to preservation programs for checking fluorescent lights, stack areas near windows, and exhibition spaces. Heat and moisture levels should also be monitored inside exhibition cases. Since it is the rarest items which are often displayed, protecting and preserving the library's capital investment makes a persuasive argument.

### COLLECTIONS

A condition survey of the collections will provide the most significant information relative to the development of a preservation program. Information from such a survey both identifies the need and provides the justification for staff to carry out conservation treatments and to implement a brittle books program. The latter is devoted primarily to the replacement or reformatting of deteriorated materials. In general, there are three kinds of condition surveys: a large random sampling giving a high degree of accuracy; a small random sampling giving a lesser but acceptable degree of accuracy; and a thorough survey of a library unit to generate specific recommendations for item-level treatment. Only the latter two are recommended.

A large random sample type of survey was carried out at the Yale University Library in the early 1980s<sup>3</sup>; the results from it should be of use in a wide range of local situations to outline the broad picture. That survey, in which 36,000 volumes were sampled, was extremely time-consuming, using approximately 3,800 hours of grant-supported intern time. It was also highly detailed. Descriptive questions were asked about the physical makeup of the materials that went beyond a simple condition survey. Given the large variety of collection types and situations within the fifteen library units surveyed, which differed in age, environmental conditions, makeup, use, and subject, parts of those findings can be extrapolated, with caveats, for other collections. The findings as a whole depict a most startling statistical picture of the extent of deterioration in our libraries, and these general deterioration statistics can be quoted as background evidence. There is no real need to repeat a condition survey on such a large scale.

The more efficient condition survey to conduct is the smaller random-sampling one, usually involving around 1,000 volumes. Although the expected accuracy rate is lower, it may be reassuring to know that the unpublished findings of a survey on this much smaller scale carried out at the New York Public Library in 1984 came to within one percentage point of the most critical findings concerning brittle and acidic paper in the large Yale survey. The key to such surveys is the randomness of the sample, and a statistician is the best consultant to help start a survey. For instance, the number generation that leads to the identification of individual volumes must be random, preferably using computer-generated numbers, and a pilot survey may be needed to define the parameters of the target population.

An excellent guideline for this size of survey, consisting of minimal but sufficient questions that concentrate on condition only, was developed by Merrill-Oldham at the University of Connecticut Library.<sup>4</sup> It is a workable project that avoids major staff reassignment for long months of surveying. Results can show the size of the problem: how many volumes need repair, rebinding, or rehousing, and how many contain brittle paper and most likely need replacement or reformatting.

These findings are obtained by a brief examination of each volume identified by the random numbers. Are the covers still intact? Are pages loose, torn, missing? Is the textblock broken? Does the paper crack or flake off after one or two double folds? Is the book mutilated or damaged by mold or insects? Has it been repaired by well-meant but damaging methods and materials? The major questions to be answered are: "Does it need rebinding? Minor repair? Major repair?" or, "Is it brittle and does it need to be reformatted or replaced?"

The third type of condition review is the complete survey, usually of a special collection or smaller unit, in which every volume is reviewed and specific treatments are recommended. This is appropriate for a rare book collection, a small self-contained collection, or any manageable portion of a larger collection. Such a collection would consist primarily of valuable materials that are to be retained permanently in their original formats. This type of survey can be very specific as to physical treatment but would be wasted effort for brittle materials that will not be maintained as objects. The results of such a survey would be the specific recommendations for the treatment of each volume in need of attention, perhaps with cost or time estimates to aid bibliographers in setting priorities.

A treatment recommendation form might be helpful here so that staff can process items over time, and laptop computers are easy to use in stack areas when carrying out surveys.

Several groups, such as the Northeast Document Conservation Center and the Center for the Conservation of Historic Artifacts, will conduct field surveys according to the library's needs, usually in the form of a review at the collection level, a thorough item-level survey, or an investigation of the physical facility and environmental conditions.

## HISTORY

Another early step in developing the information needed for planning purposes is the "historical preservation survey." It consists of a series of interviews that new preservation officers should undertake with every de-

partment head and library official, including the business manager, the custodial supervisor, and the security officer, to elicit preservation-related incidents and efforts. The large amount of information gained in this way concerning major leaks or disasters of the past, moves, building projects, and the provenance of collections will help make sense of odd situations. It will provide some historical perspective on the growth of that particular collection and its preservation needs, and it will equip the officer with invaluable knowledge about the holdings along with a reasonable context for the collection's preservation problems. Also of benefit is the resulting broad staff participation and the greater likelihood of avoiding previous mistakes, while the personal interaction itself helps to establish administrative and communication ties.

### OTHER AREAS

The collection is directly affected by its surroundings, and the planning for new or the renovation of old stack areas is extremely important. The state of the collection will be greatly improved if the recommended temperature and relative humidity levels can be maintained, if the air is filtered, and if ultraviolet light is eliminated. Assessing needs may mean vigorous participation in setting the standards, so that problems will not expand drastically in the future.

New materials added to the collection should be reviewed as they arrive. Large gifts from damp basements or shipments from tropical countries may need to be fumigated, or frozen, or rebound before use. If there is no mechanism in place to deal with these dubious acquisitions, the entire collection becomes vulnerable to destructive insect infestations. A plan for handling these possibilities may be one of the more critical needs identified.

General cleaning of the stacks and ongoing maintenance routines for the physical facility also affect the state of the collections. A review of those procedures can provide some surprising insights. Is floor cleaning detergent splashing up on the books? Does dusting of the books cause more damage than benefit from the extra handling? Do the shelves need cleaning? Usually a preservation officer's influence with the janitorial staff is one of gentle persuasion, but that can accomplish a great deal.

### CONCLUSION

The needs identified in a state-of-the-collection assessment will fall into several major categories that may need to be addressed in varying manners. Facilities assessment can include a formal survey with a questionnaire, participation in planning for new or renovated space, interaction with physical plant personnel to establish regular preventive maintenance and to review housekeeping routines, setting up a monitoring program, and ongoing vigilance. Perhaps the most important activity is the presentation of a well-documented request for a full environmental control system if one is not yet in place, with an engineering survey identified as the essential first step. The security review may involve an evaluation of all stack access points, various book-security systems, the nature of the collection in terms of age and value, and the possible review and removal of volumes

or categories of titles to a protected area. Loan-by-mail procedures may also need review. The collection itself may require formal surveys and new programs set up to provide physical treatment for volumes with artifactual value and to capture the contents of brittle books. All of these areas should be addressed, but the priority and order given each will depend upon the local situation. It is particularly important to select projects that can be completed and to provide realistic time estimates and costs. A good needs assessment will identify priorities and suggest solutions.

There are many aids available to help assess collections. The "ARL-OMS Preservation Self-Study Project"<sup>5</sup> is recommended if a major staff effort can be mounted. An excellent selection of relevant articles is available in the associated *Preservation Resources Notebook*.<sup>6</sup> There are articles on general random-sampling survey techniques and on the Yale survey.<sup>7</sup> References are also given in the updated ALA *A Core Collection in Preservation*<sup>8</sup> and the workbook section of the Research Libraries Group's *Preservation Manual*.<sup>9</sup> And finally, there are experts with considerable experience.

The deterioration problem is so critical that preservation officers must document collection needs to support resource requests. By following a rational plan to identify and assess all the physical needs of the collection, documentation can be gathered that will provide a solid basis for developing and justifying a comprehensive preservation program.

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## 1989 Division/Section Awards

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### The Esther J. Piercy Award, 1989 Lisa B. Weber

Lisa B. Weber is the recipient of the 1989 Esther J. Piercy Award in recognition of her leadership in the development of descriptive standards for archives and manuscripts; her expertise shared in conferences, workshops, and contributions to the professional literature; and her commitment to uniting the archival and library communities in the common goals of information exchange and resource sharing.

The past five years have been particularly crucial to the archival profession in terms of both its relationships with other information handling groups and the development of standards and techniques for control and access in archival collections. Although they often work within the same institution, librarians and archivists frequently have been stymied in their



*From left: Carolyn Harris, RTSD president; Lisa B. Weber, Esther J. Piercy Award recipient; and Doris A. Bradley, 1989 committee chair.*

ability to communicate because of differing viewpoints and backgrounds. Even when it became increasingly clear that developments for archival control and access would take place within the arena of library technical standards and techniques, a bridge was needed to accomplish the necessary communication and cooperation. Lisa Weber has helped immensely in building that bridge.

Bringing to bear her library training and archives experience, she was able to participate actively and substantively in developing the MARC Format for Archives and Manuscripts Control. (She continues to be a strong and trustworthy representative of the archival view—and of the library view to the archives community—as format integration takes place.) The long and difficult process of developing the standards and technical conventions surrounding the use of the MARC Format has been smoothed by her dedicated and knowledgeable participation and efforts to promulgate them.

Lisa Weber has been instrumental in bringing the best of library technical services to the attention of archivists and in finding librarians to offer advice and counsel, which has resulted in fruitful discussion and an increasingly solid relationship between the communities. She has provided a synthesis of that thinking and dialogue that now allows archivists to make effective use of bibliographic networks. Through her activities as Automation Program Officer in the Society of American Archivists and now as Assistant Director for Technological Evaluation at the National Historical Publications and Records Commission, she disseminates news of developments to archivists everywhere and is able to promote the growth and use of national standards. Recognizing the importance of theory, education, and training as foundations to the effective use of standards, she has contributed much to efforts to provide continuing education to archivists and to teach them about library cataloging standards. Her reports, articles, and presentations serve to remind and inform both librarians and archivists of the important issues in archives technical services and automation.

The visual materials community also recognizes Lisa Weber as an effective contributor to advances in technical services and a spokesperson for its needs. In fact, she has served to strengthen the ties among special collections in general, focusing attention on common technical concerns and solutions. Her leadership comes at a crucial time. As large, integrated databases become the primary vehicle for communicating information about all types of research materials, standards and sophisticated technical services become ever more important. —*Elisabeth B. Parker, for the committee.*

## **The Margaret Mann Citation, 1989**

### **Lois Mai Chan**

When her colleagues learned that Lois Chan had been selected to receive the Margaret Mann Citation for 1989, there was complete agreement that it

was recognition richly deserved. The citation is awarded to a faculty member or practitioner for outstanding professional achievement in cataloging or classification either through publication of significant professional literature, participation in professional cataloging associations, or valuable contributions to practice in individual libraries; and Lois Chan's achievements in cataloging and classification through her publications and professional activities speak for themselves.

In the course of her career, which includes positions in four academic libraries and, since 1970, as a popular and highly regarded member of the faculty of the College of Library and Information Science, University of Kentucky, Lois Chan has written some thirty articles and has made a dozen presentations. Moreover, she is the author of a research report; the author, coauthor, or editor of seven books; and the recipient of a half-dozen research grants. She has been project consultant to OCLC in conjunction with the DDC Online project, and to the University of Michigan.

Chan's numerous professional activities include membership on the Decimal Classification Editorial Policy Committee, of which she has been chair since 1986; the Melvil Dewey Award Jury; the Policy and Research Committee, RTSD/CCS, which she also served as chair; and the Executive and Planning Committees, RTSD/CCS. In 1978 she was the recipient of a Council on Library Resources Fellowship and in 1980 was selected to receive a University of Kentucky Alumni Association Great Teacher Award.

Peter J. Paulson, Executive Director of the Forest Press, has written that



*From left: Sheila S. Intner, Catalog and Classification chair; Lois Mai Chan, Margaret Mann Citation recipient; and Janet Swan Hill, 1989 committee chair.*

Chan's "contributions have enriched the study and teaching of cataloging and classification in general, and of the Dewey Decimal Classification in particular." Moreover, concerning her work as a member of the Editorial Policy Committee, Paulson has noted that "Lois has consistently served above and beyond the call of duty." Sheila S. Intner, Simmons College library school faculty member and chair of the RTSD/CCS, commented that Chan's "several textbooks on cataloging and classification are models of clarity and precision, furnishing important analyses and explanations of basic concepts for students."

When Tom Waldhart, Acting Dean of the College of Library and Information Science, University of Kentucky, and a colleague of Chan's for nearly twenty years, learned of her selection to receive the Margaret Mann Citation for 1989, he responded:

Lois Chan is the very model of what a faculty member at a research institution should be. I am aware of no one whose work achieves a better balance of teaching, scholarship, and service; and by her receipt of the Margaret Mann Citation Lois brings additional recognition to herself and this College.—*Dennis P. Carrigan, for the committee.*

## **Bowker/Ulrich's Award**

### **John B. Merriman**

John B. Merriman is the distinguished recipient of the 1989 RTSD Serials Section Bowker/Ulrich's Serials Librarianship Award. It is given in recognition of his outstanding leadership in the field of serials and the tireless pursuit of his ideal to improve the understanding of serials and cooperation between the many persons in the serials information chain.

John Merriman gained his extensive experience and knowledge of serials in the Periodical Division of Blackwell's, where he has been employed since 1955 and where he has served as director since 1967. In this capacity his high standards reflect his professional philosophy of expertise, service, caring, and likability.

Service to professional organizations is exemplified by the fact that Merriman was fundamental in the founding of three library organizations. In 1975 he was largely responsible for the first Blackwell Conference, which led to the founding of the United Kingdom Serials Interest Group (UKSG) in 1978. The goal of the UKSG was to improve contact and communication across the serials spectrum. Its success is attested to by the fact that the North American Serials Interest Group (NASIG) emulated it as a model. Merriman was of enormous assistance and inspiration in establishing NASIG. A third endeavor, the Association of Subscription Agents, for which he is secretary, was the realization of another of his goals, to encourage vendors to converse with one another.

Advocating education and furthering research have also been priorities for Merriman. He has fostered serials education through the UKSG annual conferences and short courses. He initiated internships for American li-



*From left: Leigh Yuster, R. R. Bowker Company; John Merriman, Bowker/Ulrich Serials Librarianship Award recipient; Irene M. Percelli, 1989 committee chair; Alex Bloss, Serials Section chair.*

brarians to gain knowledge of the Blackwell organization, and has encouraged students of library and information science to attend the annual UKSG meetings by providing them with stipends. Merriman has also provided impetus to publish the proceedings of the UKSG annual conference, plus a newsletter, now a journal. His real strength in this area has been in the delivery of eloquent speeches, given before several professional organizations. They have reflected his straight thinking, professional ethics, sense of cooperation, and keen observation of interpersonal dynamics.

John Merriman has done much to enhance the management of serials in the very delicate area of price differentials for serials. His vast knowledge of the economical and technological trends affecting the serials industry has enabled him to deal with this problem in an objective way. He has encouraged communication between librarians and publishers on this critical issue, and has labored diligently to articulate and alleviate some of the concerns relating to this troublesome situation.

John Merriman's career of more than thirty years in the field of serials is impressive. His intense professionalism, integrity, immense kindness, and good will attest to his devotion to his position. His good humor and subtle English wit have smoothed many a ruffled feather. At the tenth annual conference of the UKSG, Merriman was given a citation attesting to the many contributions he made to the organization. It was this author's pleasure to be in attendance at this meeting and to experience firsthand the gracious hospitality and welcoming attitude with which he greeted his American colleagues. To me, this confirmed his place in the serials world as an international leader.

The RTSD Serials Section Bowker/Ulrich's Serials Librarianship Award is supported by R. R. Bowker Company with funding of \$1,500 annually. It is awarded for "distinguished contributions to serials librarianship within the previous three years demonstrated through participation in professional associations and/or library education programs, contributions to the body of serials literature, conduct of research in the area of serials, development of tools or methods to enhance access to or management of serials, [and] other advances leading to a better understanding of the field of serials." John B. Merriman is a dedicated, visionary leader in the advancement of serials librarianship, and is truly worthy of the fifth annual award.—*Elaine K. Rast, for the committee.*

## Blackwell/North America Scholarship Award Frederick C. Lynden

Frederick C. Lynden has been selected as the 1989 recipient of the Resources Section Blackwell/North America Scholarship Award for his article "Prices of Foreign Library Materials: A Report" published in *College & Research Libraries* 49:217-31 (May 1988). Presentation of the award



From left: John Walsdorf, Blackwell/North America; Herbert Caron, University of Rhode Island; Frederick C. Lynden, Blackwell/North America Scholarship Award recipient; John Reidelbach, 1989 committee chair; and Nora Rawlinson, Resources Section chair.

was made at the RTSD membership meeting held June 24 in Dallas. The scholarship award of \$1,000 from Blackwell/North America was presented to the Graduate School of Library and Information Studies at the University of Rhode Island.

An authoritative speaker and writer on the pricing of library materials, Lynden has produced a major contribution to the professional literature with his comprehensive report on the availability of reliable information concerning the prices of European library materials. His article is the result of solid scholarship based on a 1986 research trip to Europe to talk firsthand with European vendors, book trade association officials, and librarians. Anyone interested in or involved with the pricing of foreign library materials will benefit from reading this report concerning problems, solutions, and areas in need of further study.

Lynden has been Assistant University Librarian for Technical Services at Brown University since late 1977. Prior to his employment at Brown, Lynden was Assistant Chief Librarian, Acquisition Department, and Head, Order Division, at Stanford University Libraries. He received his master's degree in library science from the University of Minnesota. Lynden has long been active in RTSD and the Resources Section and is currently a member of ALA Council. He has been associate editor of *Book Research Quarterly* since 1985. His list of publications is extensive and includes articles in *College & Research Libraries*, *Journal of Library Administration*, *Advances in Librarianship*, *Library Resources & Technical Services*, and *Library Acquisitions: Practice and Theory*.—John Reidelbach, chair, Blackwell/North America Scholarship Award Committee.

## Best of *LRTS* Award, 1989 Roxanne Sellberg

The Best of *LRTS* Award for 1989 was presented to Roxanne Sellberg at the RTSD Awards Ceremony on Saturday, June 24, in Dallas. Sellberg received the award for her article "The Teaching of Cataloging in U.S. Library Schools," published in *Library Resources & Technical Services* 32:30-42 (Jan. 1988). It was judged to be the best article published in *LRTS* in 1988 based on criteria of significance of content, supporting research and documentation, and writing style.

As noted in the award citation, "Ms. Sellberg's timely article provides a valuable historical context for current issues regarding the teaching of cataloging in U.S. library schools. Her recommendations for obtaining well-qualified catalogers are thought-provoking and worthy of further discussion in the library community. She has balanced theoretical and practical concerns in an article that has applicability to both the practitioners and professors of library science."

Since 1986 Sellberg has served as Head of the IO Catalog Management Department and as Bibliographic Database Coordinator at Indiana University, Bloomington. From 1983 to 1986 she was Automation Project Manager and then Head of the Automated Processing Department at Indiana University. Prior to that, she held two positions at the University of Nebraska Lincoln Libraries as Intercampus Bibliographic Database Quality Control Coordinator and Monographic Cataloging Librarian.

Sellberg received her B.A. in history, summa cum laude, from Wichita State University in 1977 and her M.L.S., with specialization in cataloging, from UCLA in 1979. She also holds a Specialist Degree in Academic Library Administration from Indiana University (1988).

Sellberg's professional activities have been focused on ALA's Junior Members Round Table and RTSD. She has been a member of JMRT's President's Program Committee, the Olofson Award Committee and from 1987 to 1989 was JMRT's liaison to the Library Education Assembly. She also served from 1987 to 1989 as an intern on the RTSD Membership Committee. In addition to the *LRTS* article for which she was given the award, she has published articles in *Technical Services Quarterly* and *Journal of Academic Librarianship*.—Betty G. Bengtson, Chair, Best of LRTS Award Committee.



From left: Roxanne Sellberg, Best of LRTS Award recipient, and Betty Bengtson, 1989 committee chair.

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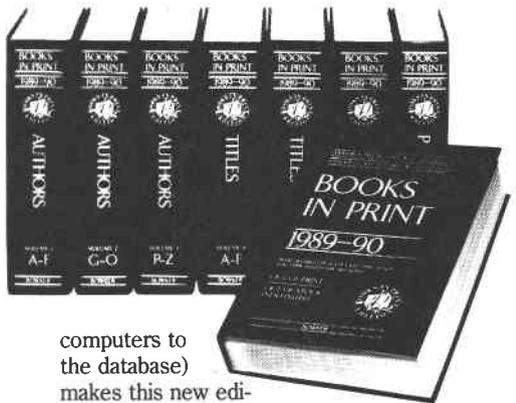
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# RTSD Annual Report

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This is the last RTSD annual report. At the end of the Dallas Annual Conference, the new name of the association became the Association for Library Collections and Technical Services. This new name reflects the membership's concerns with all aspects of collections, including the development, organization, preservation, and reproduction of library materials. Sixty-eight percent of the membership voted to change the name. ALCTS (pronounced ALECTS, to rhyme with collects) is the largest association in the United States devoted to the technical services aspects of library work.

In addition the membership narrowly voted on a \$10 increase in dues. This will allow ALCTS to support the programs of the association with additional staff and services.

At the Dallas Conference, the board of directors voted unanimously to approve an experimental shared staffing plan with LAMA. Karen Muller, who has so ably served RTSD, will become the executive director of ALCTS and of LAMA, serving both half-time. Support staff will be increased and there should be no lessening of the services of the office. The experiment will continue for eighteen months, unless any party to the agreement seriously questions its efficacy during that time.

At the close of the 1988-89 year, the RTSD numbered 6,013 members, with more than 500 members participating actively in close to 200 working groups. The office was fully staffed with Karen Muller, executive director, JoAnn King, program officer, Darryl Howell, and Yvonne McLean. Financially the division ended the year in stable, comfortable shape with a fund balance of \$99,061.

The division supported considerable continuing education activities this year, such as institutes, programs, and publications. Future planning efforts are ongoing through the work of the Strategic Long Range Planning Task Force and the Planning and Research Committee. Other internal functional task forces worked in the areas of awards and editorial policy for *LRTS* and the *RTSD Newsletter*. The membership committee was exceptionally busy; the office sent over 4,000 letters to nonmembers who indicated an interest in our areas of responsibility, or had let their membership drop.

Major focus was given to the problem of the costs and availability of library materials. The EALS task force held hearings and is working on a report in this area as well as sponsoring an electronic journal on the subject of serials pricing. The Grant Feasibility task force reviewed the feasibility of gathering book industry statistics by RTSD. Another focus was guidelines for the cataloging of microforms with a task force starting work on

minimal guidelines at the Midwinter meeting.

This was a year of the publication of AACR2 1988 Revision and a review of the AACR protocols, as well as the negotiation of a new operating agreement with ALA through COPEs. A sigh of relief was given by all divisions when the agreement passed ALA Council on June 28, 1989.

This has been a pivotal year for RTSD. The energy, dedication, and creativity of its members insures that the new Association for Library Collections and Technical Services will continue to support vital ongoing activities and create new avenues of interest through and for its members. I thank the membership for the opportunity to be the president of such an active group during 1988-89.—*Carolyn Harris, President, 1988-89.*

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## Book Reviews

Richard D. Johnson, Editor

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*Collection Development Policy Statement, 1989.* Columbia University Libraries, New York: Resources Group, Columbia University Libraries, 1988. 1v., plus 3 microfiches. paper, \$25 (prepaid). Available from Gifts and Exchange Dept., 104 Butler Library, 535 W. 114th St., New York, NY 10027.

Since many libraries are either writing or revising collection development policy statements, there is considerable demand for models. Presumably Columbia had this audience in mind in deciding to make its own policy statement available to the wider library community.

The introductory material is much fuller than that found in most collection development policy statements. A brief history of Columbia's library is provided. An overview of the principles governing its collection development policy follows. This includes a description of the clientele, the forms of materials collected, a full explanation of the RLG collection levels, and a detailed account of the priorities and criteria for developing the collections. In addition to selection criteria, attention is given to bibliographic control, retention policies, preservation, and cooperative ar-

rangements. As a whole, the introduction provides both a strong theoretical framework and much practical guidance for the decisions of individual selectors.

The bulk of the work is comprised of the policy statements prepared by the individual selectors for each area. These are arranged in three categories: subjects, area studies, and special formats and collections. Each of the statements includes background information (programs supported, trends in the field), a description of the particular collection, discussion of cooperative arrangements and related collections, criteria and guidelines for collection development (bibliographic sources employed, use of approval plans, etc.), and, where appropriate, special considerations (e.g., preservation concerns, special projects). The complete RLG conspectus for Columbia is included on microfiche. Detailed statements of gift and preservation policies are appended as well.

There is a strong emphasis on both resource sharing and preservation concerns throughout the document. Some attention is also given to the physical disposition of the collections. This policy statement well illustrates a shift

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from the strict concentration on acquisitions policy found in early collection development policy statements to a well-rounded collection management document.

This is a very full policy statement in all aspects. The writing is clear and concise, and surprisingly readable for a document of this type. It will be useful both as a guide to the collections and policies of Columbia and as a model for other compilers of collection development policies.—Fred W. Jenkins, University of Dayton, Ohio.

***Influencing the System Designer. Online Public Access to Library Files: Third National Conference.*** The proceedings of a conference held at the University of Bath, September 12-15, 1987. Ed. by Lorcan Dempsey. Oxford: Elsevier Advanced Technology Publications, 1988. 163p. paper, £25, \$45 (ISBN 0-946395-31-4).

Awhile back I reviewed *Public Access Online Catalogs* for the *RTSD Newsletter* and at first thought I had been asked to review yet another compilation of articles on the same topic. All right, so I was wrong. *Influencing the System Designer* has a very interesting and different slant from the many other monographs on OPAC design. It focuses on what and how we as librarians and users of OPACs are, or are not, influencing the design and development of OPACs, what we need to do to be more effective, how vendors view our roles, and where research belongs in this scheme of things.

As in any monograph of this type, there are always a few, if not too many, "How I Done It Good"-type papers; however, this one provides its readers, as it did its audiences in Bath, with similar learning experiences, but goes farther to include ideas and recommendations to ponder.

After sharing with us his experiences over the years, K. Dowlin concludes that there are "only four ways to influence the system designer to any significant degree": having them on your

payroll; sending out an RFP (Request for Proposal) to acquire a new system and making demands at that point; requesting enhancements to the existing system either individually or via a user group; or a combination of all three. Dowlin's ideas seem to permeate the other papers, but with varying perspectives. P. Brophy, for example, expounds upon the idea and suggests ways to improve the current, less-than-acceptable situation, while M. Hitchcock feels there is some limit to the potential influence due to limitations in technology, capital, and desirability of certain enhancements. From the vendor side, R. Heseltine from CLSI comments on the undeniable "entanglement" between vendor and customer. He notes how the customer drives the development efforts and accentuates the need for the vendor and user to work together in a competitive and ever-changing environment. J. Fletcher, a purchaser of that same system, remarks how important that same entanglement can be to the vendor in that a satisfied customer can mean many subsequent sales of that product since there is no better salesman than a happy customer. J. Bushaway describes the role of the user group based on his experiences in the U.K. URICA User Group and explores how user groups can become a more effective and influential body. D. Aarons, representing the designers of the URICA system, agrees with the importance of such a group, and considers the users' suggestions as opportunities to better develop the product rather than just as inconvenient problems to be solved.

M. Givens provides examples of the many visible effects of the research performed under funding provided by the BLRDD (British Library and Research and Development Department). M. Dillon, on the other hand, presents some of the difficulties in using such research to influence the system designer, specifically in the area of functionality and interface.

Also presented at the conference were some interesting papers on the

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European and Australian state-of-the-OPAC and how they regard the relationship between user and designer. Actually, all of the papers were interesting and the work does include two indexes, one topical, the other by system.

Recommendation: If the other two conference proceedings are already in your collection, I would definitely add this one. If your library does not have the others, this is still a good one to have since it is the only treatise this reviewer could find on this aspect of system design. It is also recommended to those who use or design systems for it provides some insight and recommendations for influencing the system designer and from both sides of the battle zone, a zone which need not exist if co-operation is accepted as the key factor in achieving growth and development of any system.—*Rosanna M. O'Neil, OCLC, Inc., Dublin, Ohio.*

**CDMARC Subjects.** Washington, D.C.: Cataloging Distribution Service, Library of Congress, 1988. CD-ROM with reference manual (1 v., looseleaf) and 2 diskettes. \$300 (includes 3 cumulated discs in 1988).

Library of Congress's latest subject cataloging aid, *CDMARC Subjects*, is a useful tool in an attractive package. Physically, the package includes a CD-ROM disk, two installation diskettes, a quick reference card for special key functions, and a manual in a three-ring binder. When mounted on a CD-ROM drive and an IBM PC, XT, AT, or PC compatible with 640K of RAM and DOS 3.1 or higher, the visual dimension of *CDMARC Subjects* is revealed: colorful screens, windows within windows, and (with the addition of a Hercules graphics card and a Hewlett-Packard Laser Jet printer) the ability to display and print the full ALA extended character set. Records can also be copied to diskettes or "exported" to a local system in full USMARC communication format.

Functionally, the new product has

both advantages and disadvantages when compared with the standard printed edition of *LC Subject Headings*. The advantages are considerable. The *CDMARC Subjects* database is updated quarterly with new cumulated disks, included in the cost of one's subscription. The records are in MARC format, and are indexed and searchable in a variety of ways: as exact terms or in browsable lists; with subdivisions or without; by keywords; and through the use of Boolean operators. A keyword search while in "browse" mode yields an alphabetical list of headings containing one's search term. A heading identified by an exact search may be viewed in its place in the standard headings list through use of the "view context" function key. This ability to locate hard-to-identify headings and then display them in the context of related headings is a particularly attractive feature for catalogers hunting for an appropriate subject heading, or for reference librarians attempting to identify subject headings matching a user's interests.

At the same time, the variety of options offered by *CDMARC Subjects* and the useful but minimal presentation of on-screen prompts make the system less than user friendly for the public, who typically are not familiar with the structure and purpose of LC's subject headings list. A simplified interface for the general public is reportedly high on the list of CDMARC development projects at LC.

The disadvantages of *CDMARC Subjects* tend to be minor. The installation instructions are sketchy and inadequate. Small arrows indicating the presence of additional information off-screen are sometimes deceptive. The stopword list referred to in the manual was nowhere to be found. Reference records (i.e., records for nonestablished headings created for complex reference purposes only, such as "Design and construction") appear in search mode as index entries, but cannot then be displayed as full records (whereas in browse mode, they can).

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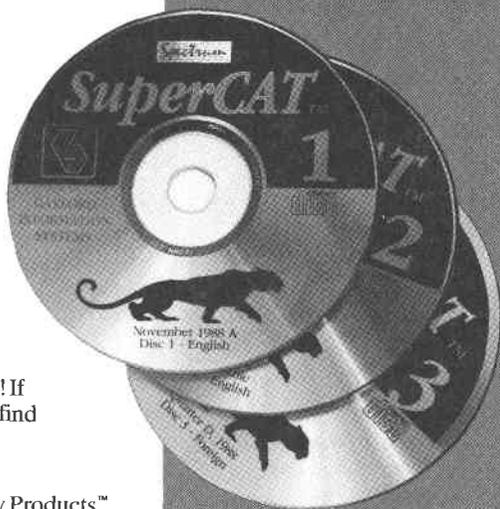
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Perhaps the most awkward feature of the new system is the display of narrower term "see also" references. These are displayed only in the thesaurus-image screen format, and are compiled when requested from occurrences of the heading as a broader term see also reference in other records. Consequently, response time drops.

This last point has broader ramifications, given that the guide to LC subject headings appended to the *CDMARC Subjects* manual appears to assure the reader that broader and narrower term data are stored reciprocally on records so related (p.70). In LC's MARC authorities, this simply is not true. Not that such reciprocal data storage is necessary; indeed, the alternative offered here, aside from the time delay, is fairly elegant. However, a more accurate account of how LC MARC data are actually structured and manipulated would better serve users unfamiliar with the changes MARC has wrought on traditional authority records.

In conclusion, *CDMARC Subjects* is a valuable tool for librarians, using the sophisticated indexing capabilities of CD-ROM to access LC subject headings in powerful new ways. At a price comparable to that for LC's printed products, it should be an attractive alternative for libraries with the technological means to support it.—*Stephen Hearn, University of Minnesota, Minneapolis.*

***Public Access to Government Information: Issues, Trends, Strategies.*** 2d ed. By Peter Heron and Charles R. McClure. Information Management, Policy, and Services [series]. Norwood, N.J.: Ablex, 1988. 524p. \$60 (ISBN 0-89391-522-x); \$29.95 paper (ISBN 0-89391-523-8). LC 88-19249.

The first edition of this book, published in 1984, was well received by the library community. The second edition, which follows the same outline with revisions and updating, is also a "must" acquisition for government publications professionals.

This new edition includes the same basic analysis of topics relating to accessing government publications—physical facilities, processing, bibliographic control, collection development, and resource sharing, but avoids the agency by agency description of publications common to most introductions to government publications. The unique character of Heron and McClure's approach is their emphasis on policy issues affecting access to government information.

For example, the authors have added a new chapter to this edition entitled "Federal Information Policies," which explains the interrelationships and impact of federal information policies (especially those of the Reagan administration) on the availability of government publications. The chapter is organized around seven broad access policy issues identified by the authors as significant: federal organization for information policies; relationships between the federal government and other stakeholders in the information sector; information technology; the economics of government information; public access and availability to government information; freedom of information and privacy; and secrecy and protection. Within each broad issue questions (any of which could be an individual research topic) are raised and various positions analyzed.

A key component in access to government publications is the depository library program. The authors contend that the program "as presently structured, poorly supports the dissemination needs of government agencies nor does it adequately encourage increased access to government information sources." They recommend restructuring the program but, in a departure from the 1984 edition of the book, now endorse a less radical reorganization by keeping the depository program in the Government Printing Office instead of replacing it with another agency. More importantly, their recommended restructuring would establish a network of federal libraries, high appellate

court libraries, and regional libraries in addition to selective depositories and collections in research libraries and information resource centers.

The structure would require that network members be fiscally accountable and meet pre-established performance measure targets in return for government subsidies and support. The authors would like to see additional research studies addressing all phases of depository library program operations and offer theoretical frameworks for additional research.

The first three chapters of this book form a comprehensive analysis of federal information policy issues. Herson and McClure not only highlight the problems involved in accessing government information but also make recommendations for action, encouraging information professionals to become directly involved in the policy-making process. This text, together with a subject guide to government publications such as *Guide to Popular U.S. Government Publications* (Libraries Unlimited, 1986) or the more recent *Tapping the Government Grapevine: the User-Friendly Guide to U.S. Government Information Sources* (Oryx Press, 1988), would be all that a library or librarian would need to gain a good basic understanding of the issues, policies, and practicalities of government document collecting.—Margie Epple, Rutgers University, New Brunswick, New Jersey.

**Changing Technology: Opportunity and Challenge.** Ed. by Alphonse Trezza. A conference sponsored by the Florida State University School of Library and Information Studies and the Center for Professional Development and Public Service. Boston: G.K. Hall, 1989. 111p. paper, \$22.50 (ISBN 0-8161-1900-7). LC 88-24491.

This collection of papers presented at FSU's March 1987 conference is aptly titled: the authors see myriad opportunities and challenges in today's rapidly changing library automation environ-

ment. Introduced by William J. Welsh's paper on the potential of optical disk technology to address libraries' enormous preservation problems, the other ten papers in the collection are arranged in three somewhat related groupings:

Part 1, "Centralized and Distributed Databases: Is the Balance Tilting?" is the most connected of the three. The papers by M.E.L. Jacob, Emily Gallup Fayen, and JoAn S. Segal, for all their very different orientations, come to remarkably similar conclusions: that a single, national network is not likely to occur, that the immediate cost benefits of local systems will encourage their continued development, that system linkages will become ever more important, and that the real trick will be to maximize the advantages of both centralized databases and local systems in truly integrated library systems.

The connections in Part 2, addressing "Tradition, Technology, and the Reference Function," are more tenuous. Tina Roose's description of the pitfalls associated with melding online database searching into a traditional reference service is excellent but seems oddly juxtaposed next to Karen Markey's discussion of the need to include machine-readable Library of Congress Subject Headings, reference databases, and enhanced records in online catalogs. More consistent are Dale K. Carrison's paper on the possibilities of OPACs, both for reference staff and researchers, and Kathleen Prendergast's examination of the challenges OPACs pose for reference staffing.

In Part 3, "The Library Catalog, Automated Systems, and Human Interaction," the papers are united by their dealing provocatively with technology. Michael K. Buckland argues that with the achievement of local online systems the library catalog as a separate entity need no longer exist, becoming instead "a subset of much broader set of data elements." Richard Boss echoes this realization in his call for fully developing integrated library systems as patron rather than staff tools. Wayne A.

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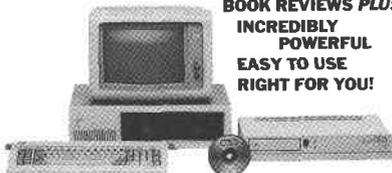
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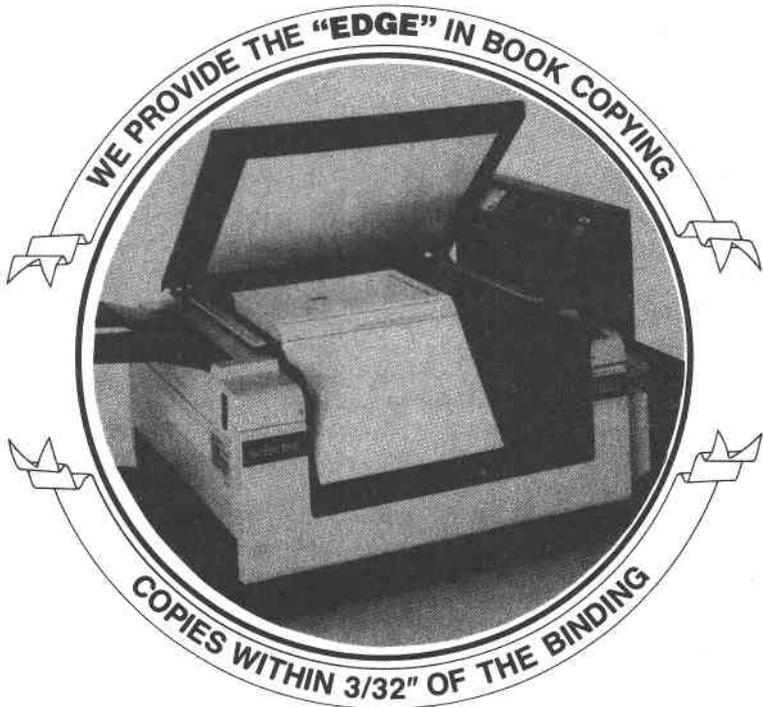
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Compiled by Edward Swanson

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- b. titles—of articles and of articles about which letters were published
- c. subjects—of articles and of books reviewed

Subject entries for individuals are identified by “(about)”; letters are identified by “(c).”

Reviews are indexed by name of reviewer and by subject of the work reviewed, identified by “(r).” They are also listed by title under the heading “Books reviewed.”

Entries are arranged word by word following the “file-as-spelled” principle. Numbers are arranged before alphabetical characters; acronyms without internal punctuation are arranged as words.

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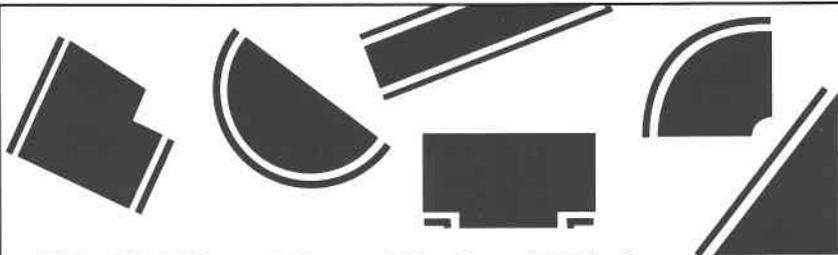
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**Contact ALCTS Headquarters today.**

In the United States, call toll-free 1-800-545-2433 (in Illinois, 1-800-545-2444; in Canada, 1-800-545-2455).

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