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Editorial Policy

Editor's note: This statement of editorial policy for LRTS was adopted by the ALCTS Board of Directors, July 1, 1991.

Library Resources & Technical Services (LRTS) is the official journal of the Association for Library Collections & Technical Services (ALCTS), a division of the American Library Association.

PURPOSE
The purpose of LRTS is to support the theoretical, intellectual, practical, and scholarly aspects of the profession of collection management and development, acquisitions, and technical services by publishing articles (subject to double-blind peer review) and book reviews, and editorials and correspondence in response to the same.

AUDIENCE
The audience for LRTS is practitioners, students, researchers, and other scholars with an interest in collection development and technical services and related activities in all types of libraries.

FREQUENCY
LRTS is published quarterly, with the volume calendar corresponding to the calendar year. Numbers appear in January, April, July, and October.

SCOPE
The editor of LRTS, with the assistance of an editorial board, strives to achieve a balance among the articles published in the journal so that over the volume each of the sections of ALCTS (Acquisition of Library Materials, Cataloging and Classification, Collection Management and Development, Preservation of Library Materials, Reproduction of Library Materials, and Serials) is represented in the journal. Articles on technology, management, and education are appropriate to the journal when the application of these is to issues of interest to practitioners and researchers working in collection development and technical services. The scope of the articles published in LRTS is also guided by the "Mission and Priorities Statement" adopted by the ALCTS Board of Directors in 1990.

CONTENT
The content of LRTS is to include:
1. Articles that further the advancement of knowledge in the profession of collection management and development, acquisitions, and technical services by reporting the results of research or other scholarly activity.
2. Periodic literature-review essays that discuss issues and trends of interest to the membership of ALCTS.
3. Notes that report unique or evolving technical processes.
4. Notes that report unique or evolving research methods.
5. Substantive book reviews of new publications of interest to the membership of ALCTS.
6. A brief, factual, annual statement of the association’s accomplishments.

LRTS is not an appropriate forum for brief reports on new products, new services, or other current news items.
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DORS: DDC Online Retrieval System

Songqiao Liu and Elaine Svenonius

A model system, the Dewey Online Retrieval System (DORS), was implemented as an interface to an online catalog for the purpose of experimenting with classification-based search strategies and generally seeking further understanding of the role of traditional classifications in automated information retrieval. Specifications for a classification retrieval interface were enumerated and rationalized and the system was developed in accordance with them. The feature that particularly distinguishes the system and enables it to meet its stated specifications is an automatically generated chain index.

The use of traditional classifications as interfaces to online catalogs is still a matter for discussion and experimentation. While interest in the matter dates from the 1960s, with the ground-breaking work of Freeman and Atherton, and has continued sporadically, most of the work in this area has been of a speculative and illustrative nature. Not until recently has it been possible to experiment with large prototype systems. What has made this possible has been the rendering into machine-readable form in 1984 of the Dewey Decimal Classification (DDC). The most well-known of the DDC prototype systems was that developed by Markey et al. at the OCLC Online Computer Library Center in 1986. Another system based on the machine-readable DDC is currently being developed at OCLC under the direction of Diane Vizine-Goetz. This system, whose purpose is to support online classifying, offers a variety of functions, including keyword searching, hierarchical browsing, and multiple display options. A third prototype system using the machine-readable DDC has been developed at the University of California, Los Angeles (UCLA), and is reported upon in this paper. It differs from the OCLC system in that it is designed primarily for catalog users other than classifiers. The distinguishing feature of the system is an automatically generated chain index. Following a discussion of the specifications deemed desirable in a DDC catalog interface, the system that was developed at UCLA to conform to them is described.

SPECIFICATIONS

A classification system like the DDC can be regarded as though it were a language, consisting of a vocabulary and a semantic structure for organizing and displaying vocabulary elements in juxtaposition to
one another. The fact that such systems have vocabularies recommends them for the purpose of enhancing the entry vocabulary of an online catalog. The Markey et al. project has demonstrated how the DDC "Relative Index" and schedule captions can be used to augment searching vocabularies.²

The first requirement, then, for a classification interface is that it enhance searching vocabulary. However, were such an interface to be developed solely for this purpose, questions of effectiveness and cost could be raised. Terms from the index of a classification might be good search terms; however, terms from schedule captions are often too general or ambiguous to be useful for this purpose. More to the point, however, is that introducing the complicated mechanism of a classification simply for vocabulary enhancement would not be cost-effective. Other means to this end could well be cheaper and more effective, for instance, making terms from a book's table of contents searchable.

The attribute that most distinguishes a classified or systematic subject approach to information from an alphabetic subject approach is the particular kind of structure it imposes upon vocabulary terms. Classifications cluster the vocabulary associated with a concept at different levels of specificity. Thesauri exert a similar type of vocabulary control, and some thesauri, like classifications, even display terms in hierarchical displays. Classifications, however, go beyond thesauri by semantically structuring not only the vocabulary associated with concepts but also the concepts themselves. Classifications have sometimes been likened to semantic nets, in which concepts are linked by meaning relationships. They have also been likened to knowledge trees, in which each concept is comparable to every other concept, in the sense that its position in the scheme is defined with respect to every other position. While thesauri consist of hundreds, perhaps thousands, of term clusters, classifications attempt to integrate these clusters into meaningful, monolithic wholes. For this reason, classifications can be said to partake more of the nature of a knowledge base than do thesauri.

Classification structures can be exploited in online search strategies in a number of ways.³ Foremost among these is browsing. Browsing terms in a classification schedule can help users refine the vocabulary of search queries and, in so doing, contribute to improved precision or recall. In a narrow sense, browsing in a classification schedule can be understood as perusing the vocabulary associated with a given concept at various levels of specificity. In a broader sense, it can be understood as browsing across concept hierarchies, for instance as is done when one consults the DDC "Relative Index." The purpose of a relative index is to bring together distributed relatives; it shows the various hierarchies in which terms that are vague, homonymous, or ambiguous participate. An example is "Freedom," which can be viewed from the standpoint of "Freedom of the Will" or "Freedom of Speech." (Another structural feature that distinguishes classifications from most thesauri is the degree to which terms participate in more than one hierarchy.) Browsing across concept hierarchies can be effective in suggesting ways for pinpointing or broadening meaning, and thus for improving precision and recall.

For effective browsing, however, certain conditions must be met. First, the user should be able to view complete hierarchies. Browsing is severely limited if the territory to be browsed consists of only one or two steps in a hierarchy. As noted, many alphabetic thesauri facilitate a limited stepwise browsing of this sort. We should expect classifications to do more. Because classifications contextualize vocabulary terms in the form of a knowledge base, we should expect classifications to facilitate browsing by providing broad vistas of organized knowledge. Potentially, the more territory in the knowledge base that is browsable at one time, the better understanding the user has of the semantic environment of search terms.

Second, for browsing to be effective a user must be able to navigate easily and effectively through the classification. Probably the best way to protect against disorientation when searching is for the user to be in control of the navigating.
means the interface should be designed so that the user always knows what steps are required to move from one position in the classificatory knowledge base to another. In addition, the user should also know, at every stage of the search, which among many moves is optimal for a given purpose. The ideal classification interface should, then, make apparent to the user both the mechanisms for navigation and the information needed for navigation decision making.

Two further specifications that would be desirable for a classification interface to an online catalog are rather self-evident and need little comment. These are (1) that it support call-number searching and (2) that it be compatible with other structures for subject access, for instance the Library of Congress Subject Headings (LCSH).

**THE DORS SYSTEM**

An experimental classification interface called the Dewey Online Retrieval System (DORS) was created to conform to the specifications enumerated above. DORS was developed using Clipper, an application development system for database applications. The feature that distinguishes the system and enables it to meet the specifications enumerated above is an automatically constructed chain index (CI). We will first discuss the structure of DORS, focusing on the chain index. We will then describe its searching, browsing, and display capabilities. Finally, we will show how DORS conforms to the stipulated specifications.

**STRUCTURE**

DORS consists of four components: (1) a database comprising the DDC 700 (Arts) schedules, edition 20; (2) a database of bibliographic records; (3) a database of Library of Congress Subject Headings (LCSH); and (4) a Chain Index to the DDC schedules. These four databases reside on the hard disk of an IBM-compatible PC. The first of these, the DDC database, was created from the machine-readable data supplied by OCLC that were used originally to produce the printed schedules. The hierarchies in this database contain approximately 2,600 classes. The second database was also supplied by OCLC. It consists of 2,992 reduced bibliographic records containing title and statement of responsibility information, DDC numbers, and subject headings. All of the records bear DDC 7xx numbers. (The purpose of this database was to provide information for navigating and to develop combined DDC-LCSH retrieval techniques.) The third database, that of headings from LCSH, was created by collecting subject headings assigned to the bibliographic records in the bibliographic database. The LCSH database consists of 4,319 headings.

A chain index to the DDC schedules was created automatically by extracting significant terms from the schedule captions and the DDC "Relative Index" and then constructing them into chains based on their hierarchical relationships. At present, the CI contains 6,208 entries. A CI heading has a form of X: Y: Z, where X is the focus term, and Y and Z are contextual terms that supply the subject context for the focus term. In general, Y is the subordinate class of X, and Z is the subordinate class of Y.

The creation of the CI was done entirely automatically. Two steps were involved. The first step was the extraction of significant terms from the DDC schedule captions and the "Relative Index." Sometimes terms in schedule captions were either unsuitable as CI headings or unlikely to be sought by the user, e.g., Miscellany, Other, etc. Thus, rules had to be created to modify unsuitable terms and a stop list developed to exclude unsought headings. The second step was the chaining of each focus term with its subordinate classes. Normally, the chaining process for each focus term proceeded until a first-level class (indicated by a three-digit number) was reached. However, when entries in the "Relative Index" were already qualified by contextual terms (e.g., Painting: Decorative arts; Color: Interior decoration), no further chaining was performed. Also no chaining was done when the "Relative Index" entry was a synthesized class number, e.g., Chess Player
A fuller discussion of the rules developed for automatic chain index construction and the problems encountered is given in another paper.  

**Schedule Display**

The DORS system initially presents the user with a summary of the DDC 700 schedule (see figure 1). Located at the top of the screen presenting the schedule display is a pull-down menu. The options on the pull-down menu are Scope, Browse, Search, Report, Utility, and Quit. As will be seen, each of these options provides further options. Initially, the cursor (or highlight bar) is positioned on the first item of the schedule display. To reach an option on the pull-down menu, the user can either key in the first letter of the desired option (e.g., S for Scope, B for Browse, etc.) or press an appropriate function key. (There is a function key for every option on the pull-down menu to enable experienced users to bypass the menu.) The [Esc] key is used to return to the schedule display from the pull-down menu. Another option available from the schedule display is the title option. As can be seen in figure 1, to the right of each class in the schedule display are two numbers: the first is the number of titles associated with the class; the second is the number of titles associated with that class and any extension of it. The title option is invoked by moving the highlight bar to a particular class and pressing the function key [F6]. The Scope, Browse, and Title options control subsequent moves from a schedule display.

**Scope Option**

The Scope option is used to retrieve definitional information associated with a class or to view a class in its various hierarchical contexts. There are three options: "Manual," Notes, and CI. Each of these pertains to the class that is highlighted in the schedule display. To see the explanatory text in the DDC "Manual" for a particular class, say The Arts—Fine and Decorative Arts, the highlight bar is positioned over it and S (or [F2]) is pressed; then, when the Scope options are displayed, the highlight bar is positioned over "Manual" and the [enter] key is pressed. DORS then displays in a pop-up window the entry in the "Manual" for that class, if one exists (see figure 2). The procedures for displaying Notes or CI headings pertaining to a given class are the same as above, except different function keys ([F3] or [F4]) are used. (How CI headings are used will be explained in more detail below.) Each of the three options permitted by the Scope command.
Figure 2. Text from the DDC Manual Pertaining to Class 700.

Note: This screen is reached by highlighting class 700 and either pressing [F2] or typing S.

provides the user with information restricting or explicating the meaning of the selected or highlighted class.

**Browse Option**
The Browse option, reachable from a schedule display, allows users to browse upward and downward in the DDC schedules and also to view specific titles associated with a given class number. Under the Browse option there are two options: Sub-Classes and Titles. Again the two options pertain to whatever class is highlighted in the schedule display. To see the subordinate classes of a particular class, say Architecture, the highlight bar is moved to that class and B (or [F5]) is pressed; then the option Sub-Classes is selected by highlighting it and pressing [enter]. DORS then displays the subordinate classes of Architecture indented between Architecture and Plastic arts; it also displays the number of titles associated with each class (see figure 3). The depth of the hierarchical display can be regulated by using the function keys [Ctrl-PgUp] and [Ctrl-PgDn] (or the option Utility on the pull-down menu). [Ctrl-PgUp] is used to increase the depth level by one and [Ctrl-PgDn] to decrease it by one. The upper-right corner of the screen shows the value of the current depth level as “Depth: X,” where X is 1, 2, 3 ... . Continuing with the example above: pressing [Ctrl-PgUp] inserts two levels of classes subordinate to Architecture between Architecture and Plastic arts (see figure 4). Moving the highlight bar to one of the subordinate classes just inserted produces a display of its subordinate classes. If a class has subordinate classes that are not shown on the screen, it is followed by three dots, for example, “Asia ... .” This informs the user as to whether or not a given class has subordinate classes.

**Title Option**
The Title option, reachable from any schedule display, allows the user to see a listing of titles associated with a given class. This option is chosen by moving the highlight bar to the class and pressing [F6]. The user can choose to browse titles either under an exact class number or under a truncated class number. The first choice favors precision; the latter, recall. For example, if a user is looking for materials in only a particular class, then titles assigned the exact number for that class can be browsed (see figure 5). However, if the user is interested in materials falling not only in that class but also in all the subclasses of that class, then titles associated with the truncated class number can be browsed (see figure 6).
If few titles (say, not more than 200) are associated with a class heading, DORS will display all titles alphabetically. However, where a class is very broad and retrieves many titles—for example, Architecture—DORS first indicates that there are too many titles to browse and asks whether the user wants to continue. If the answer is yes, DORS displays all titles alphabetically; otherwise it displays the immediately subordinate classes under Architecture along with the number of items associated with each of these classes (see the Browse Subclasses option above). The user can then move the highlight bar to a desired class and press [F6] to browse the titles linked to it. If the class selected is still very broad and linked to a great number of titles, DORS repeats the procedure. After viewing a particular title, the user can then ask to see the subject headings assigned to it and continue navigating by choosing a spe-

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<td>Fine and decorative arts</td>
<td>8</td>
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</tr>
<tr>
<td>740</td>
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<td>0</td>
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<td></td>
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<tr>
<td>750</td>
<td>Painting and paintings</td>
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<td>344</td>
<td></td>
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<td>760</td>
<td>Graphic arts</td>
<td>Printmaking and prints</td>
<td>2</td>
<td>145</td>
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<td>770</td>
<td>Photography and photographs</td>
<td></td>
<td>5</td>
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<tr>
<td>780</td>
<td>Music</td>
<td></td>
<td>5</td>
<td>354</td>
<td></td>
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<tr>
<td>790</td>
<td>Recreational and performing arts</td>
<td></td>
<td>0</td>
<td>707</td>
<td></td>
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</table>

Figure 3. Display of the Array of Subclasses under Architecture.
Note: This display is reached from the display in figure 1 by highlighting Architecture and pressing [F5].

<table>
<thead>
<tr>
<th>Scope</th>
<th>Browse</th>
<th>Search</th>
<th>Report</th>
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<td></td>
</tr>
</tbody>
</table>

Figure 4. Depth 2 Display of Subclasses under Architecture.
Note: This screen is reached from the depth 1 display (figure 3) by pressing [Ctrl-PgUp].
### Search Option

The Search Option provides the user with a variety of retrieval and navigational capabilities. It provides three options: CI, Notation, and LCSH. For the first of these, a window pops up with entry fields into which the user can enter search terms (see figure 7). For each term the user can specify the manner in which the term is to be searched: as a Focus term or as a Perspective term or as both (“All”). A Focus term search produces a display of a subject specific subject heading and requesting a display of all titles bearing that heading. The capability of pivoting on a title display to switch from a DDC search to an LCSH search, or vice-versa, is an essential feature of DORS and will be discussed more fully in the next section.

### Figure 5
Display of Title Associated with the Class Number 720.22.
Note: This display is reached from a schedule display by highlighting 720.22 and pressing [F6].

### Figure 6
Display of Titles Associated with 720.22 and any Extension of It.
Note: This display is reached from a schedule display by highlighting 720.22 and pressing [F6].
treated from different perspectives (see figure 8); a Perspective Term search, on the other hand, generates a display of different subjects treated under one particular perspective (see figure 9). The former serves a disambiguating function and thus favors precision; the latter serves a collocating function and thus favors recall. Three Boolean operators, AND, OR, and NOT, are supported by the search software and search terms can be truncated. For each term entered, DORS displays the number of occurrences of that term in the CI database. After all terms of the search query are entered, DORS displays, alphabetically, the CI headings matching the query along with the number of retrieved headings. At this point the user can scroll through the list of CI headings and then either perform another search or select a
particular CI heading to view. From there, the user can browse titles linked to it or its superordinate and subordinate classes, as described above.

The notation option is straightforward. The user initiates a search with a class number and DORS attempts to match it against the class numbers in the schedules. If there is no match, DORS successively drops digits from the rightmost end of the class number until it succeeds in making a match. DORS then displays the section of the schedule where the notation is located. The user can then browse the schedule, select a desired heading for title display, or perform another search.

An LCSH search is formulated similarly to a CI search, except there is no need to specify a Focus or Perspective dimension. The user constructs a query using keywords conjoined with Boolean operators (see figure 10). DORS then searches the LCSH database and presents all matching LCSH headings together with the number

<table>
<thead>
<tr>
<th>Scope</th>
<th>Browse</th>
<th>Search</th>
<th>Report</th>
<th>Utility</th>
<th>Quit</th>
</tr>
</thead>
<tbody>
<tr>
<td>7++</td>
<td>Arts</td>
<td></td>
<td></td>
<td></td>
<td>DEPTH: 1</td>
</tr>
<tr>
<td>CI QUERY: carving/CXT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Amber: Carving
- Butter prints and molds: Wood carving
- Cameos: Precious and semiprecious stones (Glyptics): Carving and carvings:
- Cutting gems: Precious and semiprecious stones (Glyptics): Carving and carvings:
- Diamonds: Precious and semiprecious stones (Glyptics): Carving and carvings:
- Effigial slabs: Carving and carvings: Sculpture: Plastic arts
- Engraving gems: Precious and semiprecious stones (Glyptics): Carving and carvings:
- Figurines: Precious and semiprecious stones (Glyptics): Carving and carvings:
- Gems: Carving
- Glyptics: Carving and carvings: Sculpture: Plastic arts
- Intaglios: Precious and semiprecious stones (Glyptics): Carving and carvings:
- Ivory, bone, horn, shell, amber: Carving and carvings: Sculpture: Plastic arts

Figure 9. Partial Display Produced by Searching “Carving” as a Perspective Term.

<table>
<thead>
<tr>
<th>Scope</th>
<th>Browse</th>
<th>Search</th>
<th>Report</th>
<th>Utility</th>
<th>Quit</th>
</tr>
</thead>
<tbody>
<tr>
<td>7++</td>
<td>Arts</td>
<td></td>
<td></td>
<td></td>
<td>DEPTH: 1</td>
</tr>
<tr>
<td>700</td>
<td>The arts Fine and decorative arts</td>
<td>8 392</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>710</td>
<td>Civic and landscape art</td>
<td>0 45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>720</td>
<td>Architecture</td>
<td>10 264</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- LCSH Search Window

| 120 Term: arts | 175 Term: france |
| Boolean: AND | Boolean: |

Press Down Arrow Key to Change Boolean Operator

Figure 10. Constructing a Boolean Query within an LCSH Search Window.
of titles associated with them (see figure 11). The user can then simply browse the list or select a heading and request to see the titles linked with it (see figure 12).

A number of retrieval experiments, including Markey’s, have shown that different subject-access methods retrieve different subsets of materials. The conclusion to be drawn is that effective subject access involves the complementary use of more than one method. DORS actualizes this complementarity by making it possible to switch back and forth from a DDC search to an LCSH search. There are no physical links established between LCSH headings and DDC numbers; however, in any bibliographic database where records contain both DDC numbers and LCSH headings, the two are logically linked by virtue of appearing in the same records. Thus a user may begin by performing an LCSH search, which retrieves bibliographic records, and then continue by performing a search on one of the DDC call numbers found on
those records and thus be positioned at a DDC schedule display. Alternatively, the user may begin by performing a DDC call number search, and then at the schedule display ask to see titles associated with a particular call number (see figure 13). If a class number for a specific title does not exist in the schedule (it might be a synthesized number), DORS drops the rightmost digit from the number until a match is achieved. When this happens a message informs the user that the particular number selected is not in the schedule and what the number used for matching actually was. At the title display, the user can continue to search by requesting LCSH headings associated with a given title and then asking for all titles assigned one of the headings.

FUNCTIONS OF THE SCHEDULE AND CI DISPLAYS

THE SCHEDULE DISPLAY

A tried-and-true method of information retrieval is finding a relevant book on a topic and then going to the stacks of a library where that book is housed to find other books similar in subject matter. A variation on this method, adapted to the online searching environment, is finding a relevant book and then moving to the schedules where the class number for that book is located. The rationale behind such a move is to reformulate a more sophisticated search query based on neighboring information contained in the hierarchical structuring of a subject.

The schedule display in DORS serves another function as well. It provides a springboard for collocating information on a given class. From a schedule display, simply by highlighting a given class and pressing a function key the user can examine the notes, “Manual” entries, and CI for that class. Scope information of this sort can be useful to catalogers and users alike in understanding the meaning and semantic structuring of a class.

A third function served by the DORS schedule display is to inform the user about the number of postings in the bibliographic database associated with each class number. As mentioned above, DORS shows postings not only of items associated with an exact class number but also of items associated with a truncated class number. With this feature, the user can choose to browse titles either under the exact class number for high precision or under the truncated class number for high recall. The display of title postings associated with class numbers indicates the popularity of the classes and is useful to both library users and administrators. It is useful to users when deciding whether or not

![Figure 13. The DDC Schedule Position for the Title Represented in Figure 12.](image-url)
to browse the titles in a class or to broaden or narrow a search; it is useful to administrators when monitoring collection development.

**THE CI DISPLAY**

The CI display offers an alternative to the schedule display. An essential difference between the schedule display and the CI display is that the former structures only those terms that appear in schedule captions. The CI display, on the other hand, organizes not only these terms but also terms from the "Relative Index." Like the schedule display, the CI display presents the DDC hierarchies. However, instead of being displayed vertically in tree structures, the hierarchies are displayed horizontally in strings. The string arrangement makes it possible to display several hierarchies simultaneously. Compared to a tree structure, a string arrangement can present more hierarchical information within a given space.

An important feature of the CI display is its ability to collocate distributed relatives. A problem with any discipline-based classification like DDC is that, while all information in a given subject area is brought together, objects and concepts treated from different points of view are scattered. An example is color, which can be looked at from a number of different perspectives, that is, in a number of different hierarchical contexts, e.g., drawing, painting, photography, or interior decoration (see figure 8).

A second important feature of the CI display is its ability to disambiguate terms by embedding them in different strings or hierarchies. Note in figure 8 that Color is the first term in each of the strings; thus, it is contextualized or modified by its superordinate contexts. Contextualization can also take the form of showing subordinate contexts, as can be seen in figure 9, where Carving is the final or top term in each of the strings. By contextualizing ambiguous terms, such as Color and Carving, the CI display can guide the user from indefinitely articulated queries to queries that are specific. Contextualizing is especially effective for search terms that are homonymous, in the sense that they have different uses or meanings. It can be argued that most words gain at least a portion of their meaning from context, and thus most words are potentially homonymous and potentially instrumental in causing precision failures in retrieval.

Because it is effective in collecting distributed relatives and in contextualizing the meaning of ambiguous search terms in subordinate or superordinate chains, the CI display is most appropriately used early on in formulating a search. How CI displays can be used in searching is recapitulated in the next section.

**SOME SEARCH MANEUVERS**

The combination of DDC and LCSH vocabularies, together with the CI and schedule displays, can offer a variety of effective search strategies. Five are illustrated below. The first three treat the case of the nonspecific query. The appropriate search strategy varies for such a query, depending upon whether the initial search term names a topic or a discipline and whether the user is interested in recall (perspectives) or precision (subclasses). The last two treat cases where too few or too many documents are retrieved. Parenthetically, it might be noted that choice of appropriate online search strategies might at times be beyond the grasp of naive users. The elaboration of sophisticated strategies is an important task nevertheless, insofar as it contributes to an understanding of optimum retrieval, which could be achieved either through intermediaries or the interposition of expert systems.

1. **INARTICULATED QUERY**

**Scenario**
The user is interested in color and realizes the term is too broad for effective retrieval but is not able to think of additional search terms.

**Maneuver**
User: Keys in Color as a focus term.
System: Displays perspectives from which Color is treated (see figure 8).
User: Chooses Color: Inherent features:
Philosophy and Theory of Fine and Decorative Arts.

**Purpose**
By contextualizing terms, like Color, that can occur in a variety of contexts, DORS guides the user from an indefinitely articulated query to one that is quite specific.

2. **GENERAL QUERY ABOUT A DISCIPLINE**

**Scenario**
Again the user is unable to articulate a specific query but is interested in architecture. Architecture is a very general term designating a discipline.

**Maneuver**
User: Highlights Architecture in the initial screen display and keys in “B” for Browse.
System: Displays the subordinate classes to Architecture at successive depth levels (see figures 3 and 4).

**Purpose**
By showing the user how a discipline is structured, DORS leads the user to an appropriate area of the classificatory knowledge base.

3. **GENERAL QUERY ABOUT A TOPIC**

**Scenario**
The user is interested in specific kinds of carving but does not know how to name them.

**Maneuver**
User: Keys in Carving as a Perspective term.
System: Displays all terms subordinate to Carving in every hierarchy in which it appears. Thus, it shows the user all things that are used as carving material (see figure 9).

**Purpose**
By displaying all terms subordinate to the search term, in all the hierarchies in which it appears, DORS helps the user specify the query.

4. **NARROWING A SEARCH BY MOVING FROM DDC TO LCSH**

**Scenario**
A user is interested in glassware, but retrieving on the DDC number 748.2 produces too many titles.

**Maneuver**
User: Selects one of the titles in the 748.2 display, e.g., A Guide to Sandwich Glass: Witch Balls, Containers, and Toys, and asks to see associated LCSH headings.
System: Displays four subject headings specific to Sandwich glass for further searching.

**Purpose**
DORS helps the user to improve precision by showing specific subject headings associated with a title falling into a broad class (see figure 14).

5. **BROADENING A SEARCH BY MOVING FROM LCSH TO DDC**

**Scenario**
The user is interested in a topic that proves to be too specifically structured by LCSH and thus retrieves too little.

**Maneuver**
User: Keys in Textile in an LCSH search.
System: Displays specific subject headings employing the word Textile; each has associated with it only one title.
User: Chooses to see the title associated with the heading TEXTILE PRINTING — HISTORY — EXHIBITIONS; then asks to be positioned in the DDC schedule at the address represented by 746.62, the truncated call number of that title (see figure 15); then asks for a display of titles under the number truncated still further, viz. 746.
System: Displays for browsing eighty-four titles classed by 746 or an extension of it.

**Purpose**
DORS aids the user in improving recall by showing the broad class in which a search topic is located.
Figure 14. Narrowing a Search Moving from DDC to LCSH.
### LCSH QUERY: textile

<table>
<thead>
<tr>
<th>Title</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Navajo Indians-Textile industry and fabrics-Catalogs.</td>
<td>1</td>
</tr>
<tr>
<td>Textile fabrics-Europe-History-18th century-Exhibitions.</td>
<td>1</td>
</tr>
<tr>
<td>Textile fabrics-Europe-History-19th century-Exhibitions.</td>
<td>1</td>
</tr>
<tr>
<td>Textile fabrics-Handbooks, manuals, etc.</td>
<td>1</td>
</tr>
<tr>
<td>Textile fabrics-Hungary-History-20th century-Exhibitions.</td>
<td>1</td>
</tr>
<tr>
<td>Textile fabrics-Indonesia-Lamalera.</td>
<td>1</td>
</tr>
<tr>
<td>Textile fabrics-Minnesota-Saint Paul-Catalogs.</td>
<td>1</td>
</tr>
<tr>
<td>Textile fabrics-Technique.</td>
<td>1</td>
</tr>
<tr>
<td>Textile fabrics.</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure 15. Broadening a Search by Moving from an LCSH Query to a Display of Titles Associated with a Class Number.
CONCLUSION

DORS, a model DDC interface to an online catalog, was developed to conform to the following specifications:

1. The interface should provide vocabulary enhancement. DORS does this by making keyword searchable significant terms from the DDC schedule captions and relative index. A search on these terms leads a user to CI displays that are designed to favor precision or recall, depending upon the user's preference.

2. The interface should support call-number searching. DORS does this. Where there is no immediate match to a user's input call number, DORS drops the rightmost digits from this number until a match is achieved.

3. The interface should facilitate global browsing. DORS provides two views of the knowledge base represented by DDC: a CI display and a schedule display. The former is a string display that contextualizes search terms in all the hierarchies in which they appear, showing thus all perspectives or points of view from which the topic designated by the terms is treated. The latter is a tree display that provides a top-down approach to browsing, at each step showing the user the full array of classes under the class designated by the search terms. A CI display facilitates broad browsing across hierarchies; a schedule display facilitates depth browsing within hierarchies.

4. The interface should enable the user to navigate easily and effectively through the classifications. DORS has not yet been field tested. However, it has features that we believe will facilitate navigation. First, the browsing displays are designed so that any position in a display can be understood relative to the classification as a whole. Second, DORS utilizes a direct manipulation interface style with pull-down menus so that the user at all times knows what options are available. Third, information useful for navigational decision making is provided to the user when browsing schedules, for instance, level of hierarchy, number of titles in the bibliographic database associated with a class number, and the scope of a class number, as represented by schedule notes and "Manual" text.

5. The interface should be compatible with other methods of subject access. Given a database of bibliographic records (titles) that contain both LCSH headings and DDC numbers, DORS facilitates switching from an LCSH search to a DDC search and vice-versa. For instance, the user can search a class number in a DDC schedule display by first performing a Boolean keyword search on LCSH headings and retrieving titles matching the search specification, then conducting a search on class numbers associated with the titles. Conversely, LCSH headings associated with titles retrieved can be searched via class number.

As noted at the start of this paper, the usefulness of traditional classifications as interfaces to online catalogs is still being debated. One reason it is difficult to generalize about their usefulness is that it depends very largely on how the interface is implemented. The variables involved in any implementation are many and complex, making the design problem a complicated one. This problem can be simplified to some extent, that is, design possibilities can be limited, if agreement is reached on the specifications any implementation should meet. It has been our thesis that the main reason the DDC can be useful in information retrieval is because of its unique structure, which enables effective browsing and display. The DORS interface was designed to exploit that structure. Further testing of the interface, and our thesis, in the form of an experiment with end users is anticipated.

REFERENCES AND NOTES


5. Markey and Demeyer, Dewey Decimal Classification Online Project.


9. In our experimental system we use only a subset of DDC, viz. the 700 schedules and indexes. In an actual working system the full DDC summaries (1xx to 9xx) would be displayed.
Library Services for Off-Campus and Distance Education: An Annotated Bibliography
Sheila Latham, Alexander Slade, and Carol Budnick

Timely and unique, this bibliography tracks trends in research and publication while documenting the profession's commitment to the new challenges of off-campus and distance education. Copublished by the Canadian Library Association and the Library Association, London.

ALA Order Code 2157-4-0011

The Bibliographic Record & Information Technology, 2nd edition
Ronald Hagler

This second edition recognizes that information can be stored, transmitted and accessed without regard to location, both inside and outside libraries. With this new interactive relation of producer and user to data, new means of access are examined and traditional ones reappraised. Copublished by the Canadian Library Association and Adamantine Press.

ALA Order Code 0544-4-0011

Olderr's Fiction Subject Headings: A Supplement and Guide to the LC Thesaurus
Steven Olderr

Based on his extensive experience in cataloging fiction, Olderr presents an up-to-date, practical guide for the working cataloger. The core of the work is a thesaurus of Library of Congress subject headings useful in fiction cataloging accompanied by extensive scope notes.

ALA Order Code 0562-5-0011

DO YOU REALLY KNOW YOUR ABC'S?
Access Bibliographic data Cataloging
Identifying Barriers to Effective Subject Access in Library Catalogs

F. W. Lancaster, Tschera Harkness Connell, Nancy Bishop, and Sherry McCowan

Fifty-one subject searches were performed in an online catalog containing about 4.5 million records. Their success was judged in terms of lists of items, known to be relevant to the various topics, compiled by subject specialists (faculty members or authors of articles in specialized encyclopedias). Many of the items known to be relevant were not retrieved, even in very broad searches that sometimes retrieved several hundred records, and very little could be done to make them retrievable within the constraints of present cataloging practice. Librarians should recognize that library catalogs, as now implemented, offer only the most primitive of subject access and should seek to develop different types of subject access tools.

The replacement of the card catalog by the online catalog brought with it a great resurgence of interest in the problems of subject access in general. This is hardly surprising in view of the fact that the online catalog promised to offer subject search capabilities that were substantially better than those offered by its predecessor.

Many studies on how to improve subject searching in online catalogs have already been performed. The approaches most frequently investigated can be grouped into five broad categories:

1. Those that rely on improved or more flexible approaches to the searching of elements (e.g., subject headings) already commonly searched.

2. Those that extend search capabilities to more elements in existing bibliographic records.

3. Those that would enhance existing bibliographic records by adding further searchable elements.

4. Those that would make further searching aids available to the library user.

5. Those concerned with usefully limiting the number of records retrieved in simple search approaches (e.g., single keyword in title) that would otherwise cause an unacceptably large retrieval from a database of any significant size.

Examples of the first group include studies involving improved word-stem-

F. W. LANCASTER is Professor, and NANCY BISHOP and SHERRY MCCOWAN were master's students, Graduate School of Library and Information Science, University of Illinois at Urbana-Champaign. TSCHERA HARKNESS CONNELL is Assistant Professor, School of Library Science, Kent State University. This study was supported by the OCLC Online Computer Library Center, Inc., under the Library and Information Science Research Grant Program. Manuscript submitted January 16, 1991; revised June 3, 1991; accepted for publication June 5, 1991.
ming, techniques for the approximate matching of words (e.g., phonetic spelling), and the ability to perform keyword searches on subject headings (e.g., Walker, Walker and Jones, and Lester).

The second group, also exemplified by Lester, looks at complete bibliographic records and determines how much retrieval would be improved were all fields equally searchable.

The third group recognizes that subject access might be improved considerably were existing bibliographic records enhanced by the addition of further access points taken, for example, from tables of contents or back-of-the-book indexes. This approach can be traced back some years (e.g., Atherton, Wormell). Recently, Byrne and Micco discovered, not surprisingly, that greatly improved recall could be obtained when MARC records in a database were enhanced by adding to each an average of twenty-one multiword terms drawn from indexes and tables of contents. Using a somewhat different approach, Diodato confirmed that terms used by readers to describe books do tend to match terms occurring in indexes and tables of contents.

The fourth group of studies looks at the effect of making additional searching aids available to catalog users. Bates proposes two such tools that could be used in existing catalogs based on Library of Congress Subject Headings (LCSH) (an end-user thesaurus—basically a vast entry vocabulary—and a semantic network, incorporating the entry terms, that allows a searcher to select from a variety of methods for generating semantic associations), but she does not actually test them. The most obvious searching aid would be a subject authority file, incorporating cross-references. Lester found that such an authority file had relatively little effect on the ability of catalog users to match their subject terms with LCSH headings, while Van Pulis and Ludy found that subject authority files are little used even when made available online.

Many keyword searches in large online catalogs would be successful in the sense that they would retrieve relevant items. But they would also retrieve substantial numbers of irrelevant items, and would bring out so many records that the user would be discouraged from proceeding further. The fifth group of studies, exemplified by work now proceeding at the OCLC Online Computer Library Center, looks at ways in which such large retrievals can be successfully limited—by date, language, or other characteristics.

In addition to these studies, many others have looked at the possibility of building some form of user-friendly interface to allow a library user to perform a subject search without understanding search strategy or search logic, perhaps by entering a narrative statement of an information need. This approach is exemplified by the work of Salton and McGill, Biswas et al., Clemencin, and Pollitt, among others.

Finally, one can identify studies that seek to apply artificial intelligence or expert system approaches to the library subject-access problem. For example, Micco et al. describe work designed to produce an expert system capable of searching for and providing access to knowledge at the same level as a skilled reference librarian.

LIMITATIONS OF EARLIER STUDIES

It is encouraging to see so much activity in this important area, and the studies performed in the last several years have added significantly to our store of knowledge on the behavior of catalog users and the performance of the subject catalog in libraries.

In general, however, almost all of the studies suffer from the fact that they rely on rather crude or simplistic measures of searching success. This is a problem that has always bedeviled catalog-use studies (e.g., Lancaster). It is comparatively easy to evaluate a "known item" search in a library catalog: either a user finds the item or does not. A subject search cannot be evaluated on such a simple binary scale. Instead, one needs a measure of the degree of success of a search.
While excellent catalog-use studies have been performed in the past (e.g., Lipetz, and Tagliacozzo and Kochen), such studies have been weak in methodologies used for the evaluation of subject searches. The simplest approach (and the one still most commonly used—see Lester) is to judge a search successful if the user is able to match subject terminology with the terminology of the catalog (examples of this approach can be found in the work of Bates). Clearly, this is a crude measure of success, since it gives no indication of whether or not a user would find anything useful in this way, much less whether the most relevant items would be located.

In a somewhat more sophisticated approach, a subject search is judged successful if the catalog user selects one or more items (and presumably borrows them) as the result of a search. This is an improvement, certainly, but the evaluation criterion is still very unsatisfactory.

The quality of subject access in library catalogs cannot be improved from the results of studies based on such imperfect criteria. A subject search in the catalog of a library cannot be considered fully successful unless the user is able to locate the material that is, in some sense, the “best,” i.e., the most complete, the most up-to-date, or the most authoritative. No previous studies of subject searching in library catalogs have used such a stringent criterion.

The study reported here used a series of simulations to determine the probability that a skilled catalog user would retrieve “the best” materials available in a library on some subject and, if they are unable to retrieve the best materials, to determine what changes would be needed to ensure that future catalogs would allow more successful subject searching (i.e., searching that produces more of the better materials).

**METHODS**

Fifty-one bibliographies representing recommended readings on a wide range of topics were assembled. The original intention was that most of these would be obtained from faculty members of the University of Illinois and neighboring institutions. Surprisingly, this proved to be much more difficult than expected: even professors who are acknowledged experts in a field show great reluctance when asked to produce a list of “best” readings in their areas of specialization. While a few such lists were obtained, a much more productive source was the recommended readings appearing in recently published articles in encyclopedias or encyclopedic dictionaries. The use of these can be justified on the grounds that the authors of such articles are subject experts and the bibliographic items they refer to were presumably chosen because they are considered to make an important contribution to some aspect of the subject discussed. The encyclopedias from which bibliographies were drawn are all specialized in scope and recently published (none before 1983 and many published in 1987–89). In a few cases only, alternative sources were used, the bibliographies being taken from handbooks, textbooks, or journal articles. The topics used in this study, and the sources from which the bibliographies were drawn, are given in Table 1.

The sample of topics used in the study, then, was more “opportunistic” than anything else. That is, topics were determined by the availability of fairly recent, expert-prepared, specialized bibliographies containing significant numbers of items likely to appear in the catalog of a research library. As it happens, more topics fall in the social sciences than fall in the sciences or humanities.

For each bibliography thus obtained, the following steps were taken:

1. Journal articles were eliminated, since traditionally these have not appeared in library catalogs (a situation that is now beginning to change).
2. A search on the topic was performed in the “full” online catalog of the University of Illinois, the Full Bibliographic Record (FBR). The FBR contains about 4.5 million bibliographic records. These can be searched by author, title, keywords in title, subject headings and subheadings, and other access points. A limited Boolean searching capability exists in the catalog. The searches were performed by
TABLE 1

TOPICS USED AS BASIS FOR THE 51 SEARCHES

<table>
<thead>
<tr>
<th>Search Number</th>
<th>Topic</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Censorship in the Soviet Union</td>
<td>Faculty member</td>
</tr>
<tr>
<td>2</td>
<td>Pre-Columbian religions and iconography</td>
<td>Encyclopedia of Religion (1987)</td>
</tr>
<tr>
<td>4</td>
<td>Growth of the literature of science</td>
<td>Faculty member</td>
</tr>
<tr>
<td>6</td>
<td>Transport properties of electrolyte solutions</td>
<td>Encyclopedia of Physical Science and Technology (1987)</td>
</tr>
<tr>
<td>7</td>
<td>International banking</td>
<td>Encyclopedia Americana (1988)</td>
</tr>
<tr>
<td>9</td>
<td>The image of women in the Bible</td>
<td>Faculty member</td>
</tr>
<tr>
<td>14</td>
<td>Learning and instruction for teachers</td>
<td>Faculty member</td>
</tr>
<tr>
<td>17</td>
<td>Agriculture and agribusiness in the southern United States</td>
<td>Encyclopedia of Southern Culture (1989)</td>
</tr>
<tr>
<td>18</td>
<td>Feminist methodology in scholarly inquiry</td>
<td>Hypatia, 2, 3, 1987</td>
</tr>
<tr>
<td>21</td>
<td>Queuing theory</td>
<td>Encyclopedia of Physical Science and Technology (1987)</td>
</tr>
<tr>
<td>23</td>
<td>Sociology of science</td>
<td>Faculty member</td>
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<tr>
<td>24</td>
<td>Economic progress of blacks in the USA</td>
<td>Journal of Economic Literature (1989)</td>
</tr>
<tr>
<td>Search Number</td>
<td>Topic</td>
<td>Source</td>
</tr>
<tr>
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<td>30</td>
<td>Male midlife transition</td>
<td>Men's Studies, by E. R. August (1985)</td>
</tr>
<tr>
<td>31</td>
<td>Gumbel distribution</td>
<td>Encyclopedia of Statistical Sciences (1983)</td>
</tr>
<tr>
<td>32</td>
<td>Photosynthesis in biotechnology</td>
<td>Biotechnology (ed. by Rehm and Reed) (1988)</td>
</tr>
<tr>
<td>33</td>
<td>Crazing of polymers</td>
<td>Encyclopedia of Polymer Science and Engineering (1996)</td>
</tr>
<tr>
<td>34</td>
<td>Oracles</td>
<td>Encyclopedia of Religion (Macmillan, 1987)</td>
</tr>
<tr>
<td>35</td>
<td>Celtic religion</td>
<td>Encyclopedia of Religion (Macmillan, 1987)</td>
</tr>
<tr>
<td>37</td>
<td>Paperbacks</td>
<td>Faculty member</td>
</tr>
<tr>
<td>38</td>
<td>Publishing as a business</td>
<td>Faculty member</td>
</tr>
<tr>
<td>39</td>
<td>Jainism</td>
<td>Religions of India (Clarion Books, 1983)</td>
</tr>
<tr>
<td>40</td>
<td>Stability theory</td>
<td>Systems and Control Encyclopedia (1987)</td>
</tr>
<tr>
<td>41</td>
<td>Hazards from lead</td>
<td>Systems and Control Encyclopedia (1987)</td>
</tr>
<tr>
<td>44</td>
<td>Olfactory psychophysics</td>
<td>Encyclopedia of Neuroscience (1987)</td>
</tr>
<tr>
<td>45</td>
<td>Urbanization of birds</td>
<td>A Dictionary of Birds (1985)</td>
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<tr>
<td>46</td>
<td>Classification of birds</td>
<td>A Dictionary of Birds (1985)</td>
</tr>
<tr>
<td>50</td>
<td>Pacifism in Japan</td>
<td>Kodansha Encyclopedia of Japan (1983)</td>
</tr>
<tr>
<td>51</td>
<td>Printing in Japan</td>
<td>Kodansha Encyclopedia of Japan (1983)</td>
</tr>
</tbody>
</table>
two members of the research team who had studied the capabilities of the FBR and had become highly proficient in searching this tool. They performed each search on the basis of the title of the encyclopedia article (or other source) only and did not see the bibliography until after the search was completed.

3. For items in the bibliography not retrieved by this subject search, author/title searches were performed in the FBR and the full bibliographic records for these items were printed out. At this point, items not appearing in the FBR, and presumably not owned by the University of Illinois, were eliminated from further consideration.

4. An analysis was performed to determine why items presumed to be relevant to a particular topic, and judged sufficiently important to be cited by the author of an article on this topic or listed by a faculty member, were not retrieved in the original subject search, and how the search strategy or characteristics of the catalog would have to be changed to allow these to be retrieved. Some items could have been retrieved by the use of alternative subject headings that were in some way related to the headings used by the searcher. Others could have been retrieved by expanding the search to other elements in the existing bibliographic record, such as title words. However, many could only be retrieved by the expansion of the existing records to include the contents pages of books and/or their indexes, and some could only be retrieved if the full text of the book were available to be searched. In many cases, the item thus rejected covered only one facet of a multifaceted topic. For example, the author of an article on education of the handicapped might cite a book that deals with education but not the handicapped or one that deals with the handicapped but not with education; in situations of this kind, the item was omitted from the study. In some other cases, the item in the bibliography had been cited by the author (e.g., for methodological reasons) but fell clearly outside the subject domain of the article.

It is important to emphasize two facts about the investigation: it was not our intention to evaluate the FBR per se or to evaluate the performance of particular searchers. The objective was to determine what characteristics an online catalog would need to have in order to permit the retrieval of the “most important” literature on some topic as defined earlier. The entire study could have been performed without the conduct of any subject searches. That is, author/title searches could have been performed for all items in the bibliography, and the analysis could have been achieved by looking at the full bibliographic records and the books themselves. The disadvantage of this, of course, is that a decision would have to be made on each subject heading involved as to whether an experienced searcher would be likely to use it. The use of an actual searcher in the first step of the process avoided this dilemma and provided a more realistic approach.

**RESULTS**

The results of the fifty-one searches are summarized in table 2. In the first search, for example, sixty-six of the items in the bibliography were confirmed to appear in FBR, but only fifteen of those were retrieved in the subject search, giving a recall ratio of 22.7%. As the table shows, the results varied from eight cases having 100% recall to two searches with zero recall. The mean recall ratio for the fifty-one searches—the average of all the individual ratios—is 59.4%.

On the surface, 59% recall could be
### TABLE 2
Recall Achieved in 51 Searches

<table>
<thead>
<tr>
<th>Search</th>
<th>No.</th>
<th>Recall</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15/66</td>
<td>22.7</td>
</tr>
<tr>
<td>2</td>
<td>6/12</td>
<td>50.0</td>
</tr>
<tr>
<td>3</td>
<td>12/23</td>
<td>52.2</td>
</tr>
<tr>
<td>4</td>
<td>0/6</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>2/13</td>
<td>15.4</td>
</tr>
<tr>
<td>6</td>
<td>4/7</td>
<td>57.1</td>
</tr>
<tr>
<td>7</td>
<td>3/5</td>
<td>60.0</td>
</tr>
<tr>
<td>8</td>
<td>4/17</td>
<td>23.5</td>
</tr>
<tr>
<td>9</td>
<td>6/8</td>
<td>75.0</td>
</tr>
<tr>
<td>10</td>
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<tr>
<td>12</td>
<td>4/8</td>
<td>50.0</td>
</tr>
<tr>
<td>13</td>
<td>11/19</td>
<td>57.9</td>
</tr>
<tr>
<td>14</td>
<td>2/5</td>
<td>40.0</td>
</tr>
<tr>
<td>15</td>
<td>3/4</td>
<td>75.0</td>
</tr>
<tr>
<td>16</td>
<td>3/9</td>
<td>33.3</td>
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<tr>
<td>17</td>
<td>3/6</td>
<td>50.0</td>
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<tr>
<td>18</td>
<td>11/12</td>
<td>91.7</td>
</tr>
<tr>
<td>19</td>
<td>2/9</td>
<td>22.2</td>
</tr>
<tr>
<td>20</td>
<td>22/47</td>
<td>46.8</td>
</tr>
<tr>
<td>21</td>
<td>10/10</td>
<td>100.0</td>
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<tr>
<td>22</td>
<td>6/21</td>
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<td>13/22</td>
<td>59.1</td>
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<td>25</td>
<td>8/13</td>
<td>61.5</td>
</tr>
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<td>5/5</td>
<td>100.0</td>
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<tr>
<td>27</td>
<td>10/10</td>
<td>100.0</td>
</tr>
<tr>
<td>28</td>
<td>4/13</td>
<td>30.8</td>
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<tr>
<td>29</td>
<td>21/36</td>
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<tr>
<td>30</td>
<td>14/15</td>
<td>93.3</td>
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<td>12/15</td>
<td>80.0</td>
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<tr>
<td>32</td>
<td>6/11</td>
<td>54.5</td>
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<tr>
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<td>2/4</td>
<td>50.0</td>
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<td>11/23</td>
<td>47.8</td>
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<tr>
<td>35</td>
<td>5/10</td>
<td>50.0</td>
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<tr>
<td>36</td>
<td>8/9</td>
<td>88.9</td>
</tr>
<tr>
<td>37</td>
<td>4/4</td>
<td>100.0</td>
</tr>
</tbody>
</table>

### TABLE 2 CONTINUED

<table>
<thead>
<tr>
<th>Search</th>
<th>No.</th>
<th>Recall</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
<td>13/13</td>
<td>100.0</td>
</tr>
<tr>
<td>39</td>
<td>3/7</td>
<td>42.9</td>
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<td>5/7</td>
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<td>42</td>
<td>6/6</td>
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<tr>
<td>43</td>
<td>4/6</td>
<td>66.7</td>
</tr>
<tr>
<td>44</td>
<td>2/3</td>
<td>66.7</td>
</tr>
<tr>
<td>45</td>
<td>1/1</td>
<td>100.0</td>
</tr>
<tr>
<td>46</td>
<td>4/5</td>
<td>80.0</td>
</tr>
<tr>
<td>47</td>
<td>2/5</td>
<td>40.0</td>
</tr>
<tr>
<td>48</td>
<td>7/7</td>
<td>100.0</td>
</tr>
<tr>
<td>49</td>
<td>2/5</td>
<td>40.0</td>
</tr>
<tr>
<td>50</td>
<td>1/2</td>
<td>50.0</td>
</tr>
<tr>
<td>51</td>
<td>2/3</td>
<td>66.7</td>
</tr>
</tbody>
</table>

considered a respectable, if not exactly inspiring, result. However, this is very misleading, for several obvious reasons:

1. The searchers were students of library science who had acquired considerable experience in searching the catalog. The results they achieved would not be duplicated by a typical library user.

2. They studied LCSH with some degree of intensity before beginning a search, a situation not likely to be true for the typical catalog user.

3. They were instructed to perform broad searches, to achieve maximum recall, with no concern given to the precision of the search. For example, search 18, on feminist methodology in scholarly inquiry, achieved a recall of more than 90%, but only through the use of the term Feminism, which retrieves bibliographic records for close to 1,200 items, almost all of which are completely irrelevant to the precise topic of the search. If the search had been restricted to more specific terms, such as Women in science or Women scientists, recall would have been much lower—only about 42%. To get a high recall on the Gumbel distribution (search number
31), which relates to the statistics of extremes, requires use of such broad terms as Mathematical statistics and Stochastic processes, which retrieve records for more than 1,200 items. The same situation applies to other searches. While recall was high in a few of the fifty-one searches, these results would not be achieved under real-life conditions because a library user would just not be willing to look through hundreds of records to find a handful of relevant items.

The results are misleading in one other respect: a significant number of the items in the bibliographies are journal articles, which have not traditionally been included in library catalogs; thus, the results really represent only 59% recall of part of the literature.

There are relatively few searches in which a high recall could be achieved at an acceptable level of precision. This tends to occur only in situations where the subject of the search coincides closely with a subject heading or headings. For example, search number 9, on the image of women in the Bible, achieved 75% recall on the single term Women in the Bible and could have achieved 100% recall by use of the additional term Women (theology), and search number 21, on queuing theory, achieved 90% recall on Queuing theory alone. Such a close match between a subject heading and the topic of a search was rare and may well be rare in real life.

The main purpose of the present study was to determine what might be done to library catalogs to make them more effective tools for subject access. Table 3 sheds light on this by showing how the items in the present study could have been retrieved. The fifty-one bibliographies collectively contained 607 items included within FBR, and of these, 327 were retrieved in the subject searches. If we simply average these numbers (327/607) we get an average recall of 53.9%—a slightly different figure from the 59% achieved by averaging the individual ratios.

**TABLE 3**

<table>
<thead>
<tr>
<th>HOW RESULTS COULD BE IMPROVED FOR THE 51 SEARCHES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total number of relevant items in FBR for 51 searches</strong></td>
</tr>
<tr>
<td><strong>Number of relevant items retrieved in 51 searches</strong></td>
</tr>
<tr>
<td><strong>Recall ratio (327/607)</strong></td>
</tr>
<tr>
<td><strong>Possible Improvement</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Elements in existing bibliographic record</td>
</tr>
<tr>
<td>Other closely related subject headings</td>
</tr>
<tr>
<td>Closely related and somewhat related headings</td>
</tr>
<tr>
<td>Other parts of record</td>
</tr>
<tr>
<td>Subtotal</td>
</tr>
<tr>
<td>Enhancements to record</td>
</tr>
<tr>
<td>Indexes of books</td>
</tr>
<tr>
<td>Contents pages</td>
</tr>
<tr>
<td>Full text</td>
</tr>
<tr>
<td>Subtotal</td>
</tr>
<tr>
<td>Not retrievable even on full text</td>
</tr>
</tbody>
</table>

*The categories “indexes of books” and “contents pages” are not mutually exclusive.*
Table 3 shows clearly that the best “hindsight” approach to searching the existing bibliographic records could only improve the average recall from 53.9% to 63.9%. If the searchers had used all subject headings that could be considered closely related to the subjects they were dealing with, recall would only have improved about six percentage points, from 53.9% to 60.1%. The addition of subject headings considered “somewhat related” would push recall only to 62.3%. Of course, the decision that a heading is “closely related” or “somewhat related” to a topic is a subjective one, but the decisions reflected some degree of agreement among members of the project team. In general, these decisions were generous to the existing bibliographic records in that we considered as “related” headings that were only loosely connected to the search topic. For example, Glossolalia was accepted as closely related to “spirit possession” (LCSH does link them) and Poverty—Government policy—United States as closely related to “hunger and malnutrition in the U.S.”, while Revelation and Prophets were considered somewhat related to “oracles” (LCSH does not link them) and Numerical taxonomy (a very broad term) as somewhat related to “the classification of birds.”

If the searches had been broadened to include other parts of the existing bibliographic records, beyond the subject headings, little improvement in recall would have occurred. Only 10 of the 229 items not retrievable on subject headings could have been retrieved on other parts of the bibliographic record, in this case titles or subtitles. That extending a search from subject headings to titles or subtitles has minimal effect on recall suggests that the subject headings assigned are very “close” to the terminology of titles and that there is little complementarity between titles and subject headings.28

As table 3 shows, the average recall for the fifty-one searches could not have exceeded 63.9% even if the searchers had used all subject headings of any degree of relevance to the sought topics and had extended the search to keywords in titles. Had they done this, of course, precision would have been even worse than it was with the approaches actually used.

Unfortunately, there is very little that can be done to improve the situation on the basis of existing bibliographic records and cataloging practice. Searches performed in databases that are the electronic equivalents of printed indexes can achieve better results (i.e., a reasonable level of recall at a tolerable level of precision) through flexible capabilities for Boolean search, but even the most sophisticated of capabilities would have had little effect on the results of the present study. The reason, of course, is that a typical catalog record has too few access points to make it likely that a search combining terms will get an acceptable level of recall: a record having two or three subject headings is quite different from one including ten or twelve descriptors and a 200-word abstract. This is illustrated clearly in search number 32, dealing with photosynthesis in biotechnology. Photosynthesis and Biotechnology are both LCSH headings, but not one of the records for the eleven relevant items contains both headings. In fact, in four of the six records for relevant items having the heading Photosynthesis, this is the only term assigned. It seems likely that most real information needs are multifaceted: censorship in the Soviet Union (not all of censorship or everything on the Soviet Union), crazing of polymers (not everything on polymers), humor in child development (not all of humor), and so on. Such multifaceted topics can be handled in library catalogs as long as they coincide with existing subject headings or subject heading-subheading combinations (e.g., Censorship—Soviet Union and Humor in children) but there is little hope that in other cases two or more facets of a search topic will be represented in existing catalog records (by combinations of subject headings, keywords, or both).

This study was not intended as an evaluation of a particular online catalog, and FBR has many limitations that make it far from an ideal tool for subject searching. Nevertheless, with existing bibliographic records, even the most powerful of search-
ing capabilities would offer only marginal improvement. Some improvement could be achieved in a catalog that imposed much greater structure on the subject headings used, allowing a searcher to bring in a whole category of related headings and subheadings in much the same way that a user of MEDLINE can "explode" on a term hierarchy. For example, search number 2 deals with pre-Columbian religions. To get a high recall here would require that the searcher be able to recognize and enter an extensive list of names of Indian groups or civilizations (with the subheading religion and mythology) as well as the names of the countries of Central America with appropriate subheadings (religion and mythology, rites and ceremonies, and perhaps even antiquities). Searches of this kind could be aided by the compilation and storage of "trees" or "hedges" (e.g., on Central America, on Indians) that can be called up and used intact by the searcher.

A similar example occurred in the search (number 23) on the sociology of science. The heading Science—social aspects will retrieve some of this literature, but a more comprehensive search would require the use of the subheadings social aspects or sociological aspects with a very wide range of science-related terms (e.g., Physics, Laboratories, or Biological laboratories). Searches of this kind would be much easier if the system stored a science "hedge" (i.e., a table of science-related terms) to which a searcher could append selected subheadings, but such a feature would be an aid for the sophisticated searcher rather than the typical library user.

There are other ways in which subject searching in conventional library catalogs could be improved (including more cross-referencing among subject headings and between subject headings and related names—e.g., between Critical theory and Freire and Habermas) but they could have only a very marginal effect. The results of this study strongly suggest that a sophisticated and experienced searcher in an online catalog is unlikely to retrieve, on the average, more than 50-60% of the items appearing in subject bibliographies prepared by experts, and that this level of recall could only be achieved at quite intolerable levels of precision. The results achieved by a less experienced searcher would be much worse. Moreover, there is no way that the situation can be improved significantly (e.g., by mapping of user vocabulary to subject headings or parts of subject headings in various ways) within the constraints of existing catalog records.

There are still those who cling to the belief that the use of classification schemes can lead to significant improvements in subject access in online catalogs (e.g., Drabenstott et al.39). This was not investigated systematically in the present research because it was recognized that the scatter of related material would be too great to make this approach worth study. That this assumption was correct is borne out by the fact that the sixty-six items considered relevant to censorship in the Soviet Union were scattered over forty-one numbers in the Dewey Decimal Classification.

In summary, some records known to be present in the catalog were not retrieved by subject because the searcher did not exhaust all subject heading possibilities and because the particular catalog used offers little in the way of searching aids. However, these factors had a very minor effect on the results. Overwhelmingly, the subject search failures in this study were caused by the fact that the subject matter of items included in library catalogs is represented in a completely inadequate way in the traditional bibliographic record.

The lower part of table 3 illustrates what is possible through various forms of enhancement of the catalog records. In the analysis, preference was always given to retrieval through the existing bibliographic records. That is, if the record for an item could be retrieved on a further subject heading or title keyword, no attempt was made to determine whether it was also retrievable through the terms found in its index, contents pages, or full text. Thus, as an example, records for the 125 items retrievable through the terms in back-of-the-book indexes could not have been retrieved using any part of the existing bibliographic records.

The data that relate to the enhanced records are not cumulative with the data from existing records. For example,
searches on terms from the book indexes would retrieve records for 125 items more than the 327 actually retrieved (i.e., would raise recall from 53.9% to 74.5%) and 125 more than the 388 (327 + 61) potentially retrievable through the existing records. In other words, existing records plus book indexes could raise recall to 51% / 607, or 84.5%.

Note that the results for indexes and contents pages are not mutually exclusive: records for some items could be retrieved using terms from either component. Recall is potentially greater for the indexes than for the contents pages, even though more books have contents pages than have indexes, because indexes tend to offer many more access points than contents pages do.

Table 3 shows that records for some 58 of the 607 items could only be retrieved on words occurring in the full text of the book and eight are not even retrievable on full text. These items are relevant "by analogy," but the words needed to retrieve them do not appear in the text.

The results shown in table 3 might suggest that the problems of subject access in library catalogs could largely be solved were the text of contents pages and/or indexes stored in a form suitable for searching. Nothing could be further from the truth. Even if this were economically feasible, it would make little practical difference to the retrieval capabilities of a large catalog because the resulting precision would be completely intolerable. It is almost impossible to calculate how frequently a particular term or term combination might occur in indexes or contents pages for a collection of several million items, but it is safe to say that many searches on such extended records would retrieve thousands of items rather than the hundreds that were retrieved in many of the searches on existing records alone. Only in the case of an atypically specific search, involving a rather rare word or name (such as Gumbel), might the enhanced record improve search results.

Moreover, records for some items could be retrieved using terms from index or contents pages only through some ingenuity on the part of the searcher. For example, Rescher's book Scientific Progress, highly relevant to growth of the literature of science, refers (contents page) to growth of the "scientific enterprise" and to growth in "scientific progress," but makes no explicit reference to the literature of science.

Of course, one could reach a different conclusion from the results of this study: that the solution to the problem lies in the adoption of a detailed level of analytical subject cataloging, with twenty or thirty subject headings per item rather than the two or three more typical of present practice. This would be enormously expensive. Moreover, it would have less effect than table 3 might suggest, since these results are arrived at by hindsight. For example, the memoirs of Shostakovich have some relevance to censorship in the Soviet Union, as well as to many other specific topics. But there is no guarantee that a cataloger or indexer would recognize the relevance of this work to all of these topics even if he or she were allowed to assign an unlimited number of subject headings. Twenty different scholars might all find in this work certain portions that have some relevance to their areas of specialization, but it is by no means certain that relationships of this kind would be recognized by any but the subject specialist. Of course, this is not to imply that indexers or catalogers should be able to recognize every possible context to which a publication may apply but, rather, that subject experts can see relationships that others would fail to see.

**Implications**

Certain assumptions underlie this study. The major one is that the readings on some topic suggested by a subject expert are in fact important items that one would want to retrieve in a search on this topic in a library catalog. In the case of faculty reading lists, this seems self-evident. The situation is less clear for the bibliographies associated with encyclopedia articles. Nevertheless, it seems reasonable to assume that the items listed by the authors of such
articles, if they are directly relevant to the topic discussed, are considered to be important contributions to the literature on this topic.

The second assumption is that a library user would want to retrieve these important items in preference to others that might exist in the catalog. In this study, comprehensive searches were performed, not because the typical library user will want such a comprehensive search (most will not), but to determine to what extent the items considered important by the expert could be retrieved by the persistent and diligent searcher.

The fact is that library catalogs permit only the most superficial of subject searches. In the first place, they rarely include periodical articles, which are the most important sources of information for many topics. Further, they tend to provide access only at the level of the complete bibliographic item rather than at the level of the subitem (a particular chapter, article, conference paper, or paragraph). A book that deals substantially with topic X is not necessarily a more important contribution to that topic than an article in a journal, encyclopedia, or handbook; a conference paper; or a chapter in another book. The catalog fails the searcher by providing access to only a small part of the literature that exists in the library on a particular topic. Moreover, the literature for which it does provide some level of subject access is not necessarily the best available in the library on any particular topic. The library catalog, as it now exists, may provide adequate subject access for a small collection—for example, in a school or small public library—or to lead to a few items, not necessarily the best, on some topic, but it is quite inadequate for a large, multidisciplinary library, especially one that attempts to support educational or scholarly needs.

Despite popular belief, the transformation of the card catalog into an online database has not significantly improved subject access. Indeed, it may have made the situation worse because it has led to the creation of much larger catalogs that represent the holdings of many libraries. Merging several catalogs into one, when each component catalog provides inadequate subject access, exacerbates the problem, since the larger the catalog the more discriminating must be the subject access points provided. But catalogs have grown much larger without any significant compensatory increase in their discriminating power. The application of the most sophisticated of searching software to any large catalog of the type traditionally used in libraries would make little difference to its performance: the records stored are completely inadequate representations of the subject matter with which they deal. In a database providing subject access to periodical articles, such as MEDLINE, a five-page item might be represented by ten or twelve subject headings, as well as keywords in titles and abstracts. In contrast, a 400-page book on the same subject might only be accessible in the catalog of an academic library by two subject headings, the title words, and perhaps a classification number.

This investigation was begun in the hope of identifying practical ways in which online catalogs could be made more effective tools for subject searching. However, the results suggest that significant improvements are not possible within the constraints of existing subject cataloging practice. The conclusion that emerges most clearly is that, if one wants to know the best things to read on some topic, there is no substitute for consulting an expert, either directly or indirectly (e.g., through an expert-compiled bibliography).

This conclusion should not come as much of a surprise. Investigations over many years have consistently shown that seekers of information find much of what they use from specialized bibliographies or bibliographic references in items already known, rather than from databases, library catalogs, or consulting librarians. Moreover, more recent studies (e.g., Knightly,30 and Bayer and Jahoda31) have shown that use of online services seems not to have much influence in changing these traditional searching methods. The formal subject access tools are not effective in locating all of the literature on some subject and might not locate much of the literature that subject specialists consider
most valuable. One example of this can be found in a study by Davison, which reports on the results of searching techniques used to compile a comprehensive database on costs and modeling in information retrieval. The 6,098 items judged relevant were drawn from forty different sources. Printed bibliographies were found to be the most productive sources, and the online search of databases gave the worst results (only 5% of the relevant references retrieved).

At the beginning of this article it was pointed out that much research has been performed, and continues to be performed, on ways to improve subject access in online catalogs. The results of the present study suggest that the methods investigated, or advocated, that are intended to improve access to existing records (including truncation and word-fragment searching, whether applied to titles or subject headings, and other methods of matching user terms to terms in records, as well as all types of searching aids—expanded thesauri, semantic networks, entry vocabularies, or whatever) could have only a marginal effect on subject access, while methods that call for greatly enhanced records (indexes, contents pages, or both) are completely impractical, at least for catalogs of any significant size.

It is ironic that the computer and telecommunications technologies that have greatly improved the document-delivery capabilities of libraries might actually have caused a deterioration in subject access. The library profession should accept the fact that catalogs providing access to multimillion-volume resources can never be more than very crude tools when applied to subject searching. For a finer level of access, or more comprehensive capabilities, it would do well to look for alternative solutions.

One possibility would be the development of an alternative online subject access tool, encyclopedic in scope, that contains recommended readings on a wide variety of topics. The recommended readings could be given at, say, three levels: an elementary level, listing a few periodical articles, chapters, complete books, or whatever, recommended for the beginner; an intermediate level; and a more comprehensive level—in essence a detailed specialized bibliography. The items in such a database could be likened to the "pathfinders" that were so popular in libraries some years ago.

The database, then, could be considered a database of subject "modules." It would be much more comprehensive than the sum of the specialized bibliographies now in existence in printed form and would compensate for the fact that these bibliographies are widely scattered and thus difficult to locate. It could be linked to the holdings of individual libraries, or groups of libraries, preferably by such unique identifiers as the International Standard Book Number (ISBN) or an international standard number for journal articles. That is, the seeker of information would first consult this tool and then switch to another database to identify those items that are available locally.

The database proposed could be conceptualized as an encyclopedia having topical headings and reading lists, but no text beyond that required to explicate the scope of the entry, but a better analogy might be to consider it an amalgamation of subject bibliographies, general and special.

From what sources could such a database be compiled? Using the reading lists associated with recent encyclopedia articles, as was done in the present study, might be a good starting point, perhaps supplemented by the bibliographies in recent review articles. In the longer term, however, the compiling and updating of such a tool could be a cooperative venture within the library profession, with special libraries and information centers accepting the responsibility for building and maintaining modules corresponding to their areas of expertise.

Access to the database could be through the topical headings, supplemented perhaps by additional access points (assigned subject terms or keywords in scope notes) and less-conventional approaches—e.g., entry of a bibliographic reference by a user (representing an item already known to be highly relevant) could lead to the module or modules in which
this reference appears. Modules could be linked through cross-references, and each module could be made a gateway to further sources of information—for example, by pointing to other databases.

The development of a multidisciplinary, encyclopedic bibliographic tool of this type would require the commitment of considerable resources, but these resources would be much better spent on this endeavor than on attempts to improve existing tools.34

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10. Lester, Coincidence of User Vocabulary.


20. F. W. Lancaster, If You Want to Evaluate Your Library— (Champaign, Ill.: University of Illinois, Graduate School of Library and Information Science, 1988).


23. Lester, Coincidence of User Vocabulary.


26. It is possible that not everyone will be willing to accept that catalog users seek the "best" materials. Nevertheless, it is the contention of the authors that even the reader seeking a single book by way of introduction to some topic would prefer one recommended by an expert in the field rather than one not so recommended.

27. It is important to note that "broad search" here means use of all seemingly relevant terms, at any level of specificity, and not just use of the broadest applicable subject headings. Thus, a search on Pre-Columbian religions would include terms related to specific religions as well as the more general terms.

28. However, this does not tell the full story. In the present investigation a significant number of the items sought were relevant in part (e.g., a single chapter in a book) and neither subject headings nor title words offer useful access points to the part. This is why the results differ from those of earlier investigators (see, for example, Ann H. Schabas, "Postcoordinate Retrieval: A Comparison of Two Indexing Languages," *Journal of the American Society for Information Science* 33:32-37 (1982)) who found that title words do make a significant difference in the subject searching of library catalogs.


33. The idea that some form of subject bibliography should substitute for subject access through the catalog of an academic library is far from new (see, for example, Elmer Michael Schloeder, "Selective Subject Cataloging: A Preliminary Analysis of a Possible Means of Reducing the Bulk of the Catalog in the University Library" [M.A. diss., University of Chicago, Graduate Library School, 1945], and Wesley Simonton, "Duplication of Subject Entries in the Catalog of a University Library and Bibliographies in English Literature," *College & Research Libraries* 11:215-21 [1950]). However, online technology now gives us the ability to make a comprehensive database of specialized subject bibliographies available to all libraries.

34. It is interesting to note some similarities between what is proposed here and a recent suggestion made by Michael E. D. Koenig ("Linking Library Users: A Culture Change in Librarianship," *American Libraries* 21:844-49 [1990]). Koenig points out that "Library patrons want authoritative information" and advocates a procedure whereby library users can add their evaluations of what they have read to online library catalogs.
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A Summary of the Treatment of Bibliographic Relationships in Cataloging Rules

Barbara B. Tillett

History has shown no rationale and little consistency in how we relate bibliographic entities. An analytical study was conducted to examine the cataloging rules through the Anglo-American Cataloguing Rules, 2d ed., to reveal practices for indicating bibliographic relationships in catalog records, and to identify types of relationships. Each type of bibliographic relationship has had several linking devices used to connect bibliographic entities. The technology available to create and maintain a catalog has greatly influenced the types of linking devices included in the catalog and prescribed in cataloging rules.

In designing future computerized library systems, it would be very helpful to have a conceptual model to guide our efforts. One part of that model would be the various relationships we want to express, including bibliographic relationships, access point relationships, etc.

With regard to bibliographic relationships, history has shown no rationale and little consistency in how we relate bibliographic entities. A review of cataloging rules since 1841 reveals differing methods and devices used over the years to show bibliographic relationships, but also reveals a lack of any theoretical rationale for the devices prescribed. Cataloging rules change with changing technologies and pressures of traditions in large libraries, such as the introduction of filing titles when card catalogs came into vogue and the disappearance of dashed-on notes with the introduction of machine-readable bibliographic records. Perhaps we should now work toward a more theoretical approach.

Methodology

In the mid-1980s an analytical study was conducted to examine the cataloging rules through the Anglo-American Cataloguing Rules, 2d ed. (AACR2) to reveal practices for indicating bibliographic relationships in cataloging records and to identify types of relationships. Consideration was given to both the historic rationale and the future importance of expressing bibliographic relationships in catalogs.

An effort was made to identify all major

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Editor's Note: Library Resources & Technical Services is pleased to present the second in a series of research reports on the topic of bibliographic relationships. These reports are derived from the author's 1987 Ph.D. dissertation, "Bibliographic Relationships: Toward a Conceptual Structure of Bibliographic Relationships Used in Cataloging."
cataloging codes and sets of rules used in the United States. Panizzi's rules were also included, since they have been acknowledged as the basis for cataloging codes used in the United States. From the codes and rules identified, twenty-four principal cataloging codes were selected for review. Codes with well-recognized influence on cataloging at both the Library of Congress (LC) and major libraries in the United States were preferred. For codes covering only serials, Pierson's Guide to the Cataloguing of the Serial Publications of Societies and Institutions, second edition, was selected to represent serials cataloging at LC. The codes that were analyzed are listed in appendix A.

The glossaries of the various cataloging codes were inspected, along with the ALA Glossaries,2 to further identify types of bibliographic items and types of linking devices. The ALA Glossaries provided additional terms for bibliographic items not explicitly mentioned in the codes, terms that proved useful in developing the taxonomy of relationships.3 Once these terms for bibliographic items were listed, they were examined to determine whether any natural categories for a taxonomy might result. Indeed, the categories of bibliographic items provided a very useful perspective on possible structures for the taxonomy of bibliographic relationships.4

After identifying categories of bibliographic items that could be related, cataloging codes were analyzed to select rules pertaining to bibliographic relationships and linking devices. This was accomplished through a chronological reading and annotation of copies of each of the twenty-four cataloging codes, noting all rules that mentioned making a link between bibliographic records or mentioned relating an item being cataloged to some other item or larger work.

Cataloging rules cover a wide range of topics pertaining to the description of bibliographic items and catalog entry. Some rules are specifically about relating items, such as rules calling for series notes. Some rules combine relationship information with nonrelationship information, such as rules calling for entry under a specific name and title with an added entry for a related item's name and title. Some rules combine several types of relationships, such as rules for serials that call for notes on all types of relationships with other serials. Some rules are not associated with any bibliographic relationships, such as simple rules on the measurement of the size of an item and complex rules on some of the decisions for authorship. The rule review was complicated by the different styles and changing viewpoints of individual cataloging codes, a circumstance that has been well observed by others.5 The copies of the rules were highlighted in color coding to flag any mention of specific devices used to link bibliographic records. Then followed an analysis of the selected and highlighted rules to document both the evolution of the use of linking devices and any underlying rationale for their use. Associated findings from an accompanying empirical study will be presented in the fourth article of this series.

As a result of identifying types of bibliographic items and reviewing cataloging rules dealing with relationships, the taxonomy of bibliographic relationships was created.6 The taxonomy categorizes bibliographic relationships as follows:

1. equivalence relationships
2. derivative relationships
3. descriptive relationships
4. whole-part (or part-whole) relationships
5. accompanying relationships
6. sequential relationships
7. shared characteristic relationships

Using these categories of bibliographic relationships, we see what linking devices historically have been prescribed by cataloging rules.

**Equivalence Relationships**

Equivalence relationships are those that hold between exact copies of the same manifestation of a work, or between an original work and reproductions of it, as long as intellectual content and authorship are preserved. The idea of equivalence is essentially a mathematical concept. However, in the mathematical sense, an equivalence relationship is strictly an identity relationship and could be used for only exact copies. If we require only intellectual
content and authorship to be identical, then the idea of equivalence can be expanded for our purposes to include reproductions. However, in the case of reproductions, we must be certain that neither the intellectual content nor authorship is altered by the reproduction, for when that occurs, the reproduced item is no longer equivalent, but derivative. Even alterations of color for motion pictures or irretrievable changes of scale for microfilmed maps transform the relationship from equivalence to derivative, because such changes can be said to modify the intellectual or artistic content. Consequently, equivalence relationships exist only between exact reproductions or copies of the same work from the same printing, either in the same format or in other formats, subject to the provisos above.

The cataloging rules have suggested six methods using linking devices to indicate equivalent items in bibliographic records:

1. A dash entry for the equivalent item on the record for the original item;
2. A note on the bibliographic record for the original item acknowledging the equivalent item;
3. A note on the bibliographic record for the equivalent item acknowledging the original item;
4. Notes to link separate bibliographic records for the original and related items;
5. The same uniform title heading used in the records for both the equivalent item and the original; or
6. A holdings annotation about the equivalent item in the bibliographic record for the original or on the shelflist for the original.

The linking devices of notes and uniform titles are used to relate publications in the bibliographic universe in general, whereas the linking devices of dash entries and holdings annotations are used to relate the particular holdings of a given library. The third article in this series will describe the evolution of each device.

Equivalence relationships are not specifically handled in cataloging codes until 1905, although in practice linking devices for equivalence relationships were used much earlier. For instance, the 1841 Brit-

ACONTIUS KOVER (STEPHANUS). Archbishop of Sinnia.
Vita S. A. K. postulante equite A. Raphael, scripta Armenice atque Latine. 2 pt. Venetius, 1825. 8°

ACONZIO. See Acontius.
ACORES. See Azores.
ACOROMBONI or ACOROMBONUS (Hieronymus). See Accorombonius.

A COSTA. See Costa.
ACOSTA (CHRISTOVAL).
Tractado de las drogas, y medicinas de las Indias Orientales, con sus plantas. Burgos, 1578. 4°
Another copy.
The same. Ital. Venetia, 1585. 4°
Another copy.
Another copy.
Tratado en loor de las mugeres. Venetia, 1592. 4°
ACOSTA (DUARTE NUÑEZ DE). See Nuñez.

Figure 1. Example of Indented Form, "Another copy" (from the 1841 British Museum catalog, p.94).
lish Museum catalog based on Panizzi’s rules shows the inclusion of “Another copy” as an indented entry (see figure 1), essentially a dash entry without the dash.

To best perceive the inconsistencies that have characterized linking devices for equivalence relationships, we can systematically examine bibliographic items in these relationships. The items are copies and impressions, issues and reissues, facsimiles and reprints, photocopies, microforms, and other reproductions.

For copies and impressions, early rules specified the addition of a note “dashed on” the main card, e.g., “— Copy 2” (see figure 2). The 1949 LC rules were unique in considering both published and unpublished issues of a dissertation to be copies, unlike earlier and later rules, which considered them to be different editions of the same work, to be cataloged separately. By the time of the 1978 AACR2, second or other subsequent copies were usually not mentioned at all in the bibliographic record, although the rules allowed for the seldom-used addition of a note (holdings annotation) describing a specific library's holdings. For manuscripts that are copies or consist of copies, the later rules insisted that the note indicate exactly what type of copy (e.g., carbon copy, photocopy, transcript with handwritten or typewritten specified) as well as the location of the original, if it could be readily ascertained.

Thus we see a change from once including copies on the bibliographic record with a dash entry to now either citing a general note of a given library's holdings or omitting copies from the bibliographic record altogether. Dash entries were associated with card and book formats, and once the MARC format was introduced, the dash entry disappeared.

Issues and reissues have been treated by the rules as different editions, different issues, or as copies. For treatment as different issues or copies, the dash entry was employed. For motion picture films, the dash entry, “Another issue,” was used only when variations occurred in size, color, or other physical characteristics. The implication was that such variations did not affect content. This treatment separates equivalent items from those exhibiting a derivative relationship, although it might be said the introduction of sound and color change the intellectual content of a film. They certainly change the artistic content.

Facsimiles and reprints are either issued as exact duplicates or have material in addition to the exact copy of an earlier item. By 1908 such materials appeared in the rules and were consistently treated in subsequent cataloging codes. The bibliographic description of a facsimile reproduction is based on the original with a note about the reproduction, unless new material is introduced, where the bibliographic

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Figure 2. Example of a Dash Entry, “Copy 2” (from the National Union Catalog, base set).
record is made for the reproduction with a note about the original. When not linked through notes, facsimiles and reprints are linked to their originals through the use of the same uniform title, such as for facsimiles of the Bible.

When photocopies were first introduced, the cataloging rules (1941) treated them as copies by describing them on the bibliographic record for the original. By 1949, if the photocopy had its own title page or other additional matter, it was given its own entry with a note about the original, thereby treating them as facsimiles, which is how the 1978 AACR2 treats them. The 1967 AACR rules permitted photoreproductions other than facsimiles to be viewed as copies and treated with a dash entry. However, there is also the practice in AACR2 rule 4.7B1 of making a note about photocopies of manuscripts or manuscript collections on the bibliographic records for such items, with a note indicating the location of the original, if such information can be readily ascertained.

Microforms were first mentioned in the 1949 LC rules, which called for describing the original and making a note for the microfilm. The 1967 AACR allowed for either a note about the microform or a dash entry, but the 1978 AACR2 describes the reproduction with a note for the original (the same procedure as used for photocopies). Of special mention is that LC issued a policy statement in its fall 1981 Cataloging Service Bulletin reversing the rule for microreproductions instead to describe the original with a note for the reproduction.

For other kinds of reproductions, such as pictures, generally the main entry heading is the same as that for the original work; or a note for the reproduction is made, including indications of physical changes (microform, sound, etc.) that do not affect the intellectual content. When a different medium is employed for a reproduction of art, cataloging rules consider the work no longer a copy, but rather an adaptation (therefore having a derivative relationship, not an equivalent relationship) with an added entry link to the original artist and work.

SUMMARY OF DEVICES USED FOR EQUIVALENCE RELATIONSHIPS

As we can see from the review above, equivalent bibliographic items historically have been linked through the following devices: a dash entry, a note, or a uniform title entry. Otherwise, equivalent items have been ignored in the bibliographic record altogether and merely included in a statement of the library’s holdings, often only on a shelflist.

It is worth noting the disappearance of the once prominent dash entry device. We also observed that although reproductions have been treated somewhat inconsistently, the general practice, as reflected in the aforementioned 1981 LC policy statement, has been to include photo- and micro-reproductions on the bibliographic record for the original item, with other reproductions receiving their own bibliographic records using the main entry heading of the original item and a note about the original item to link them.

DERIVATIVE RELATIONSHIPS

Derivative relationships are those that hold between a bibliographic item and a modification based on that item. They are called horizontal relationships in the UNIMARC definitions. One item is derived from another when it enlarges, abridges, or otherwise modifies the entire item or portions of it. As was noted under equivalence relationships, the derivative relationship excludes relationships for exact reproductions or copies, but includes relationships between an original work and a variation (versions, translations, editions, variations of slight modification), a change of genre, an adaptation or arrangement, and a new work based on the style or thematic content of the original.

SUMMARY OF DEVICES USED FOR DERIVATIVE RELATIONSHIPS

Derivative relationships encompass the range of relationships from nearly identical to distinctly separate. The pervasive connection among such diverse relationships is the fact that there is some original work.
from which another work is derived, whether in intellectual content, style, or thematic content. Considering the diversity of relationships in this category, it is not surprising that an equal diversity of devices has been used to express these relationships in a catalog. These include references, dash entries for added editions, edition statements, notes, uniform titles, subject headings, main entries held in common (here called common main entries), filing titles, and added entries. There is no rationale in the rules for preferring one particular device over another for linking bibliographic items and their derivations, and indeed, the rules are often inconsistent.

**Descriptive Relationships**

A descriptive relationship holds between a bibliographic item or work and a description, criticism, evaluation, or review of that item or work, such as that between an item and a book review describing it; we also include here criticisms, casebooks, annotated editions, and commentaries on other works. For our purposes, a description is a bibliographic item that gives a mental image of a work through a textual medium. Criticisms and reviews, then, are special kinds of evaluative descriptions that reflect upon the original work. A review is defined in the *A.L.A. Glossary of Library and Information Science* as "an evaluation of a literary work, concert, play, etc., published in a periodical or newspaper."10

It is rare that catalogers who make bibliographic entries for books will make an entry for a review that is an article, but occasionally a review is an important component within a larger work; for instance, in an anthology of book reviews, an individual review may be described through an analytical entry. But regardless of whether the review is given a bibliographic entry or not, the review still will have a descriptive relationship to the bibliographic item it reviews.

Whenever a description is published with the text it describes, and the text is emphasized, the catalog rules have consistently recommended bibliographic entry of such descriptions under the heading for the work being described.11 However, when the description itself is emphasized, the rules have called for an added entry or subject entry for the original work or works. For the reverse relationship, from the work described to the description, the only applicable rules12 are those for incunabula, manuscripts, or maps that have a well-known bibliographic description published in some reference source, with the reference source cited in a note on the record for the item described.

**Summary of Devices Used for Descriptive Relationships**

Linking devices for descriptive relationships include notes about the described item on the analytical entries for the "description," common main-entry headings, notes about the description, and added entries or subject entries for the original work. When a description is published together with the item it describes, cataloging rules emphasize cataloging the item being described with a note about the description. When the description is predominant or issued separately, cataloging rules use notes and added entries or subject entries to link the description with the item being described. On rare occasions, particularly for incunabula, manuscripts, and maps, the descriptive item, such as a reference source, is noted on the bibliographic record for the item being described.

**Whole-part Relationships**

The whole-part (or part-whole) relationship holds between a component part of a bibliographic item or work and its whole, such as between a short story and the anthology in which it is contained.13 The components might be parts of some particular physical manifestation of a work, that is, parts of a bibliographic item, or they might be parts of some abstract work. For instance, *The Wife of Bath's Tale* is a component part of *The Canterbury Tales*. When a library has a separately published edition of *The Wife of Bath's Tale* and wants to show its relation to *The Canterbury Tales*, the relationship may be under-
stood to hold between a physical item (the edition the library has) and the work as an abstract whole.¹⁴

For the purpose of this discussion, three subrelationships of the whole-part relationship are recognized. They are categorized into those dealing with relationships between two physical items or between a physical item and an abstract work, as follows:

Whole-Part Relationships
  Physical Whole
    Containing Relationships (1)
    Extractive Relationships (2)
  Abstract Whole
    Abstract Relationships (3).

The category “containing relationship” specifically refers to those relationships involving the component parts of a physical unit other than extracted parts. A containing relationship characterizes monographs and their individual chapters, and published sets and their individual volumes, as well as series and their subseries. The series-subseries relationship typically is more complex than the other two examples of containing relationships, because a series may include collections or sets of monographs, or may be part of a larger series in a series hierarchy. In any case, the use of the term containing relationship to identify this category connotes actual parts of some physical unit.

When the parts of an item have been extracted and issued separately as individual selections, the relationship between the extracted items and the whole is categorized as an “extractive relationship.” This category obviously excludes exact reprintings of a whole edition. Such reprints are considered equivalent works, whereas extracts must be considered precisely equivalent only to passages, lines, or other small portions of a work. As for detached copies that are parts of a larger work, their relationship to the part they copy is also an equivalence relationship, while their relationship to the whole work from which they are detached is whole-part. Early rules called for identifying detached copies as a dashed-on note as shown in figure 3.

“Extractive relationships” also include offprints and reprints of articles. The A.L.A. Glossary of Library and Information Science definition for offprint is:

A separately issued article, chapter, or other portion of a larger work, printed from the type or plates of the original, usually at the same time as the original. Synonymous with separate.¹⁵

The same glossary defines reprint as:

A separately issued article, chapter, or other portion of a previously published larger work, usually a reproduction of the original, but sometimes made from a new setting of type.¹⁶

Both offprints and reprints are portions taken from previously published larger works. When an item is not taken from a particular edition or physical item, it is considered part of an abstract whole, and therefore included in the third category of whole-part relationships, “abstract.”

The “abstract relationship” holds between parts of a work and the work. Work here is to be understood as an abstraction. The term abstract relationship is used...
therefore to connote a relationship to some abstract whole rather than some physical item. This relationship is further described in the discussion of the uniform title linking device in the next article in this series.

SUMMARY OF DEVICES USED FOR WHOLE-PART RELATIONSHIPS

A wide variety of linking devices have been used to portray whole-part relationships within bibliographic records, depending on the type of whole-part relationship expressed: containing relationships, extractive relationships, or abstract relationships. The devices include:
1. Contents notes listing specific parts;
2. Dash entries for detached copies of parts;
3. Analytical entries for the parts;
4. Added entries for either the encompassing work or the part;
5. Multilevel descriptions and dash entries to incorporate all components within one bibliographic description;
6. Uniform title headings for the larger work acting as the main entry headings for the parts; and,
7. Explanatory references identifying the parts of a work.

This variety illustrates the diversity in cataloging treatment for parts of a whole. The simplest method to show the whole-part relationship is to describe the larger work and indicate its contents in some way; here, one record is made for both the whole and its parts. However, when the parts require additional description beyond that provided in the record for the whole, the method used is to make multiple records, so that each part is given a separate bibliographic record citing the whole.

ACCOMPANYING RELATIONSHIPS

The accompanying relationship holds between a bibliographic item and the bibliographic item it accompanies, such that the two items augment each other equally or one item augments the other principal or predominant item. Indeed, such a relationship usually exists between a predominant item and a subordinate one; however, when neither predominates, as in the case of some kits, the items are said to be accompanying only when they are intended to be used as a unit. In the typical situation of accompanying items, where there is a predominant and subordinate item, the subordinate item may
1. Extend the content of the principal item (as in updating supplements, continuations, or additions to a text);
2. Supplement the principal item (as with appendixes, addenda, supplements, teacher’s guides);
3. Illustrate the principal item (as with an added atlas, plates, or portfolio of illustrations); or
4. Add in some other way to the usefulness of the principal item, as do indexes and concordances, for example.

In other words, accompanying relationships hold between an item and a supplementary or an associated item.

In AACR2 there are separate rules for accompanying and supplementary items—rule 1.5E for accompanying material and 1.9 for supplementary items—but the treatment for both is the same. Both are included in accompanying relationships as long as the supplement really augments the other work rather than continues it; there must be no continuing or preceding relationship involved. Once an element of continuation is introduced, the relationship becomes sequential, so some items called supplements might in fact be sequentially related to another item rather than actually accompanying another item.

The dictionary definition of supplement, "that which supplies the want or makes an addition to something already organized or set apart," provides the necessary connotation to exhibit what we call an accompanying relationship to the previous bibliographic item. Only in the sense of being an augmentation is a supplement an accompanying item. The criterion of being physically separate is not required for an accompanying item, but it is usually a factor considered by catalogers when determining the bibliographic unit to be cataloged.

To reiterate, a "supplement" does not include a continuation of some original item; a continuation would indicate a
sequential rather than an accompanying relationship. But, as long as there is a predominant component for a supplement and the supplement is merely augmenting rather than continuing the predominant item, a supplement is said to accompany the predominant item.

**SUMMARY OF DEVICES USED FOR ACCOMPANYING RELATIONSHIPS**

Cataloging codes have always incorporated rules for accompanying materials. The devices used to express accompanying relationships are:

1. Addition to physical description,
2. Notes,
3. Dash entry,
4. Multilevel description, and
5. Separate records with linking notes.

All but the dash entry have survived in present cataloging rules. The reader will recall that dash entries disappeared with AACR2, which used instead a separate record or multilevel description.

**SEQUENTIAL RELATIONSHIPS**

Sequential relationships hold between bibliographic items that continue or precede one another but are not considered derivative. Examples of bibliographic items exhibiting sequential relationships are series, serials, and sequels. The A.L.A. Glossary defines a series in four ways as:

1. A group of separate bibliographic items related to one another by the fact that each item bears, in addition to its own title proper, a collective title applying to the group as a whole. The individual items may or may not be numbered. (AACR2) 2.
   Each of two or more volumes of essays, lectures, articles, or other writings similar in character and issued in sequence, e.g., Lowell's Among my books, second series. (AACR2) 3. A separately numbered sequence of volumes within a series or serial, e.g., Notes and queries, 1st series, 2nd series, etc. (AACR2) 4. In archives, a record series. A serial is defined in the A.L.A. Glossary as:
   1. A publication in any medium issued in successive parts bearing numerical or chronological designations and intended to be continued indefinitely. Serials include periodicals; newspapers; annuals (reports, yearbooks, etc.); the journals, memoirs, proceedings, transactions, etc., of societies; and numbered monographic series. (AACR2)

The A.L.A. Glossary defines sequel as: "literary or other imaginative work that is complete in itself but continues an earlier work." The sequential relationship is called the chronological relationship in UNIMARC. This is somewhat of a misnomer, because we recognize that all works are fixed in time by virtue of their date of publication and can therefore be placed in a chronological order. However, the important factor for a sequential relationship is that a set of items is sequential in nature, i.e., follows a sequence, not that it can be arranged in chronological order. Thus, the term sequential seems preferable to chronological. Such works include monographs that are true sequels (by virtue of continuing the theme of some first work in the series), as well as serials that have earlier and later components or title changes.

**SUMMARY OF DEVICES USED FOR SEQUENTIAL RELATIONSHIPS**

Briefly, the devices used for sequential relationships are:

1. Notes of all earlier titles,
2. Notes of all later titles,
3. Notes of immediately preceding or succeeding titles,
4. Assembling added entries, and
5. Uniform titles.

Successive title entry with linking added entries to the next preceding and succeeding title is currently the preferred method to link sequentially related items.

**SHARED CHARACTERISTIC RELATIONSHIP**

The shared characteristic relationship holds between a bibliographic item and another bibliographic item that is not otherwise related but coincidentally has a common author, title, subject, or other characteristic used as an access point in a
Such items file or collocate around a shared heading. Other than the access points prescribed by present cataloging rules, there may be additional characteristics, such as language, publication date, or country of publication that would be useful to cluster bibliographic records in future catalogs. Indeed, some online catalogs now provide retrieval of records by language or date. This type of relationship is the most pervasive of all relationships, because it occurs whenever an access point is duplicated in a given file. Duplicated headings have been studied by others, such as the 1981 study by McCallum and Godwin on the LC MARC files that counted the number of multiple headings for personal, corporate, conference names, and subject headings files. This is clearly a topic deserving further study.

**Remarks**

As we have seen, cataloging rules have provided a wide variety of linking devices to relate bibliographic entities. Even each type of bibliographic relationship has had several linking devices used over the past century and a half to connect bibliographic entities. The identified linking devices have been notes (including contents and holdings annotations), references, added entries, uniform titles and other filing devices, analytical entries, common main entry headings, dash entries, edition statements, series statements, additions to the physical description area, subject headings, and multilevel description.

The technology available to create and maintain a catalog has greatly influenced the types of linking devices included in the catalog and prescribed in cataloging rules, as we will see in more detail in the next article in this series. The computerized environment should offer us still more possibilities, and we must carefully select those that provide the most effective links, the best pathways to desired information in future information systems. It is hoped that identification of the types of relationships we wish to convey will prove useful to future systems designers and makers of cataloging rules.

**References and Notes**

1. This study was documented in the author's Ph.D. dissertation: "Bibliographic Relationships: Toward a Conceptual Structure of Bibliographic Information Used in Cataloging." (Ph.D. diss., Univ. of California, Los Angeles, 1987).


3. All of the cataloging rules focused on a basic core of materials: primarily monographs, but also serials, music, maps, atlases, incunabula, and eventually all types of materials found in a library. The degree of attention given these materials reflects the predominance of the bibliographic items in the library collections when the rules were written. For example, Panizzi's rules gave emphasis to literary works, laws, and the Bible. Cutter's rules had the same basic focus but mentioned a much wider variety of materials, including epitomes, scholia, and chrestomathies, which, in turn, disappeared in modern rules. In 1941, photostats and photomechanical copies appeared in the A.L.A. Rules, with microforms added in 1949. These materials were followed in the 1978 AACR2 rules with machine-readable data files, now called computer files in AACR2R. The broad conclusion one draws is that each set of rules added new materials and sometimes omitted old materials to reflect the types of bibliographic items being cataloged at the time. However, despite the changing types of materials, the types of relationships among materials remained constant.

4. The ALA Glossaries usually reflected definitions found in cataloging codes but on some occasions provided better definitions. Thus, the comprehensive ALA Glossaries were most often cited as the source for definitions in this study.

5. The reader is referred especially to the comparative studies of cataloging rules (such as those by Hanson, Gorman, and Frost listed below) and the reviews of descriptive cataloging rules and principles conducted at the Library of Congress during the 1940s and 1950s, as well as Osborn's famous "Crisis in Cataloging."


An example of a reproduction that is not equivalent is a map in microformat, provided it cannot be magnified to the original scale, because it has lost its scale characteristic, which is deemed essential to its intellectual content. In some libraries adjustments may be made to handle even slight modifications as equivalent copies of the original.

UNIMARC: Universal MARC Format, 2d ed., rev. (London: IFLA, International Office for UBC, 1980), p.58. Note that the UNIMARC horizontal relationships might also include what I consider "shared characteristic relationships" of siblings along the same horizontal plane of a hierarchy of works and manifestations that are all related because they are derived from the same work.

For detailed explanation of each of these subcategories, see Tillett, Bibliographic Relationships, p.43-56.


Tillett, Bibliographic Relationships, p.57-8.

In addition to the rules, the MARC format includes a note field, "510," for a citation. This is particularly common in serial records to cite abstracting and indexing services that cover the title in question. However, AACR2 does not specify such a note within chapter 12 for serials.

Whole-part relationships are called vertical relationships in UNIMARC, p.58-59, and hierarchical relationships in Paula Goossens and E. Mazur-Rzesos, "Hierarchical Relationships in Bibliographic Descriptions: Problem Analysis," in Hierarchical Relationships in Bibliographic Descriptions: INTERMARC Software Subgroup Seminar 4 (Essen: Gesamthochschulbibliothek Essen, 1982), p.14. The Goossens' definition follows the UNIMARC definition: "1. Vertical—the hierarchical relationship of the whole to its parts, and the parts to a whole, e.g., downward link: a serial to its subseries or to individual volumes of the series; upward link: the individual volume to its subseries and/or series" (p.58). The UNIMARC hierarchical relationship covers series, subsseries, supplements, parent of supplement, issued with, set, subset, piece, and piece-analytic.

A work is an abstract entity, which a physical item embodies.


This usage differs from that in the A.L.A. Glossary. For supplement, the A.L.A. Glossary provides the following definition:

"A complementary part of a written work which brings up to date or otherwise continues the original text and is sometimes issued with it, in which case it is more extensive than an addendum, though usually issued separately. The supplement has a formal relationship to the original as expressed by common authorship, a common title or subtitle, and/or a stated intention to continue or supplement the original. Synonymous with continuation" (p.222).

A continuation is defined in the same glossary as: "A part issued in continuance of a monograph, a serial, or a series" (p.57).

There also may be a whole-part relationship to a collective whole work when there is a collective title, or there may be no collective title and only a sequential relationship among the parts.
21. Ibid., p.203.
22. Ibid.
23. All items in the UNIMARC chronological relationship are included in the sequential relationship.
   “3. Chronological—the relationship in time between issues of an item, e.g., the relation of a serial to its predecessors and successors. UNIMARC,” p.58.

APPENDIX A. CHRONOLOGICAL LIST OF CATALOGING RULES EXAMINED

1899–1940 (approx.) [Library of Congress Rules on Cards] including Supplementary rules, preliminary rules, etc. (The incomplete set of printed cards examined was dated from 1902 to 1940 and included a reference to earlier rules from 1899.)


NOTE: Since the study, the 1988 revision of AACR2 has appeared.

American Monographs Program, 1876-1949

A long-term, scholarly preservation and collection development program from Chadwyck-Healey.

The American Monographs Program, 1876-1949 is designed to identify, film, and republish on microfiche all monographs published in the United States between 1876 and 1949.

The bibliographic base of the program is The American Book Publishing Record Cumulative, 1876-1949.

American Monographs Program, 1876-1949 is supported by full MARC cataloging.

For more information, contact Melissa Henderson at 800-752-0515.

Chadwyck-Healey Inc., 1101 King Street, Alexandria, Virginia 22314
Cooperative Cataloging of Latin-American Books: The Unfulfilled Promise

Mark L. Grover

The success of cooperative activities among libraries in the United States has been mixed. Cooperative agreements for the acquisition of foreign-language materials have been more successful than cooperative cataloging programs. A 1983-85 study of the cataloging of Spanish-language materials showed that the Library of Congress provided the majority of the cataloging records for these materials. The rest were being provided primarily by eleven research libraries. This study also suggested that a cooperative cataloging program that involved assigned country and subject cataloging responsibilities was not successful.

One of the most frequently discussed activities of libraries during the past thirty years has been that of cooperation in the acquisition and processing of library materials. A healthy, democratic spirit combined with the complicated structure of librarianship has resulted in a mixed bag of success and failure as librarians have attempted to work together for common goals. Interest in cooperation has been higher during periods of financial difficulties, and commitment to national programs has waned during periods of budgetary growth and stability. Less-ambitious, regional programs have generally been more successful than larger, national-level attempts. A few goals of cooperation have been reached, while others of equal value have yet to be achieved in even a limited way.

Success or failure of cooperation is dependent upon several factors. Cooperative activities in collection development have been encouraged by the fact that no library or region can collect library materials from all countries and in all subjects. The motivation for cooperation comes from researchers as well as university and library administrators whose goals include the development of comprehensive library collections readily accessible to U.S. scholars. This type of cooperation suggests that libraries across the country build basic collections in order to fulfill the curriculum needs of faculty and students while at the same time developing unique research collections based on assigned national collection responsibilities. The Farmington Plan, which divided the collecting responsibilities among large research libraries in the United States, was the most successful attempt at cooperative acquisition for as long as it lasted. Even though the program is no longer officially operational, commitments made by libraries are still being ful-

filled and library materials from all over the world are being added to research collections in the United States.

Cooperation in the cataloging of library materials comes from similar goals, but with a significantly different focus. The reason for cooperative acquisition is to ensure that at least one copy of any item significant for research is found somewhere in the United States. Consequently individual libraries focus on the acquisition of books in assigned subject or country areas, and success is measured, in part, by the uniqueness of library collections. The purpose of cooperative cataloging agreements is to take advantage not of the differences but of the similarities among collections, which in turn allows individual libraries to eliminate costly duplication of cataloging. The more similarities there are between collections the better the system functions. The primary reason for belonging to a cooperative system is to decrease the duplication of original cataloging done by member libraries. Although the concept of assigning cataloging responsibilities to different libraries could be part of the reason for cooperation, this aspect is of less importance than the desire to use other members' cataloging copy.

Because the reasons for cooperation in acquisitions and cataloging are different, interinstitutional conflicts often occur between the two. Collection development departments in research libraries have increasingly become involved in building large foreign-language collections that include not only books but pamphlets and other ephemeral materials, which frequently do not have cataloging copy online. Cataloging departments, on the other hand, have tried to take advantage of the cooperative system by allowing the backlog to grow, waiting for those items to be cataloged by another institution. Some libraries have eliminated selected language- and area-catalogers, expecting the cataloging to be done by other libraries within the cooperative system. As a result, cataloging departments often set their priorities according to the directions established by the computer consortiums rather than the needs of their individual university community.

Library administrators have sometimes taken advantage of cooperative cataloging to justify decreasing the number of professional catalogers in favor of less expensive paraprofessionals, while at the same time hiring additional professional librarians for collection development. These personnel changes frequently lead to an increased number of items not found online that are waiting to be cataloged, which adds to the level of conflict between departments.

One area significantly affected by cooperation has been the purchase and processing of books from Latin America. The 1959 rise to power of a communist state in Cuba, only ninety miles from Florida, caused a revolution within universities and colleges in the United States. While Latin America had previously been mostly ignored by the educational establishment, significant programs were established during the 1960s at many major universities. The growth of educational programs required an increase in the purchase of Latin-American library materials. Large collections of books and manuscripts were acquired by libraries, and special acquisition programs were established to obtain the latest publications from Latin America.

The reaction of cataloging departments to the increased numbers of books was mixed. Most libraries increased their Spanish and Portuguese language cataloging staffs, and the larger collections relied on outside funding to process collections and eliminate backlogs that developed due to the increased emphasis on Latin America. With the later development of online systems, however, the number of Spanish-language catalogers in the country decreased, and libraries began to backlog Latin-American materials while waiting for others in the country to catalog the books. This caused consternation in collection development librarians and administrators, who were concerned that so much effort was being expended to acquire the books only to have them placed on processing shelves, essentially unavailable to patrons.

**SALALM**

The cataloging of Latin-American materials was an important issue in the 1980s
among librarians concerned with Latin America. Members of the Seminar on the Acquisition of Latin-American Library Materials (SALALM) have periodically expressed interest in the topic, and in the past few years those discussions have become yearly events at the conferences. Much of the discussion has centered on the critical need for cooperative cataloging and the assignment of library area responsibilities as a way to expedite cataloging and eliminate the backlog problem. At the 1983 meeting in San José, Costa Rica, the SALALM subcommittee of the Research Libraries Group (RLG) determined that there was a need to know empirically and understand exactly what was happening in the cataloging of library materials published in Latin America in order to determine the possibilities for cooperation. The resulting study, reported here, provided information and insights into the problems and conflicts of cooperative acquisitions and cataloging.

COOPERATIVE CATALOGING STUDY

The purpose of the study was to answer the following questions:
1. Which libraries were providing the first online cataloging copy for recently published books from Latin America?
2. How quickly were books being cataloged?
3. Were there differences in cataloging between the OCLC Online Computer Library Center and the Research Libraries Information Network (RLIN), the two largest cooperative cataloging systems in the country?
4. Which Latin-American country's books were being cataloged first?
5. Were tentative cooperative cataloging agreements made by SALALM members being honored?

The underlying goal of the study was to determine the level of need for cooperation and discover how cooperation could be obtained within the current library climate. The study not only led to the determination of cooperative possibilities but also provided information on the inherent problems of the cataloging of foreign-language materials in general.

Between June and August 1983 slightly more than 300 books were selected to be part of the study (298 were ultimately used). Although books from twenty-four countries were part of the study, more were selected from the larger countries. Most of the titles came from shipments sent by approval-plan book dealers in the country of origin and received during the three-month period. A few were direct orders, if no approval plan existed in the country. Approval-plan books were used because of the increased likelihood they would be found in more than one U.S. library. There is also generally less time between date of publication and shipment to the United States than for ordered books. The selections were made at three different libraries, though the majority came from a medium-sized library with a small graduate school but a large undergraduate program on Latin America. It was expected that this selection process would result in books of a general nature related to the humanities and social sciences, and not items found only in highly specialized research collections.

Each item was checked at six-month intervals in the OCLC and RLIN databases to determine: (1) when the item was first cataloged, (2) which library provided the cataloging record, and (3) which libraries added the item to their collections. Prior to the first check all books had been in a U.S. library for six months. The first check was made in November of 1983 and the last in May of 1985. No one, other than the principal researcher, knew which books were part of the study, and no cataloger realized the study was being conducted until a report was made to the special committee of SALALM in the summer of 1984, a year after most of the books had been selected.

SPEED OF CATALOGING

The speed with which items were cataloged followed a digression in which the largest number, a little over one-third, was cataloged during the first six months and one-twelfth during the last period. As shown in table 1, 261 total books (88%)
TABLE 1

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were cataloged by the end of the study. There were no important differences between OCLC and RLIN, and in the end, both systems had cataloged almost the same number, although not the same books. The study showed that slightly less than 50% of the books in the study had not been cataloged anywhere in the United States a year after most had been received.

COUNTRIES

There were important differences in the cataloging priorities for books from individual countries, as indicated in table 2. The cataloging for most of the larger countries followed a similar pattern. A high percentage of books from Argentina, Brazil, Chile, Colombia, and Peru were cataloged sooner than items from smaller countries. The two exceptions were Mexico and Venezuela. This was surprising, especially in the case of Mexico, because a significant amount of research being conducted in the United States is on Mexican topics. RLIN member libraries did not catalog any Mexican books during the first year, while for the same time period, OCLC member libraries cataloged 13. This compares to first-year totals for OCLC of 24 for Brazil and 20 for Argentina, and for RLIN 20 each. Even more surprising was the fact that of the four books cataloged by OCLC libraries during the first six months, only two were cataloged by university libraries while two were first cataloged by public libraries in the Southwest. Not until the end of the study were most of the Mexican and Venezuelan books finally cataloged. There was obviously a false expectation that someone in the system was cataloging these books.

One further difference between the two systems was that books from Central America were cataloged more quickly on RLIN than on OCLC. In fact, most books from Central America and Cuba were cataloged on RLIN within the first six months.

LIBRARIES CATALOGING

Another purpose of the study was to determine the amount of original cataloging done by libraries other than the Library of Congress (LC). As shown in tables 3 and 4, in both systems LC provided the highest number of items cataloged: 136 in RLIN and 123 in OCLC. A total of thirteen libraries in RLIN provided original cataloging to the system; but only six cataloged more than ten items, the highest being thirty-three. In OCLC the total number of libraries cataloging was much higher (thirty-four), but only five libraries cataloged more than ten items. Several of the records on OCLC were from public libraries in the Southwest.

The total number originally cataloged is less significant than the percentage an individual library cataloged in comparison to the total owned. To determine this figure, the number of the 298 total titles that each library owned was compared to the amount of original cataloging it provided to the cataloging networks (see tables 5 and 6). In RLIN, the library that cataloged the most (thirty-three) also owned a large number of the books (208). The library that cataloged the second-highest amount (twenty-one) owned only 123 and consequently contributed original cataloging for a higher percentage of the total owned (17% vs. 15%). There were several libraries in the country with significant Latin-American collection development library programs that provided their network with a limited amount of original Spanish- and Portuguese-language cataloging copy. Of the seven libraries in RLIN with the largest number of Latin-American acquisitions, three cataloged less than 5% of the total owned. Of the eight OCLC libraries with
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more than 100 volumes, two libraries were below the 5% figure. One OCLC library that owned 136 volumes did not provide any original cataloging to the system.

The primary finding in this section confirms the recognized role of the Library of Congress in providing original cataloging. Close to 50% of the books in both systems were first cataloged by LC. It tended to catalog more items from the larger countries. LC's importance increases when it is realized that it cataloged an even higher percentage of the books it owned. Four libraries, two in each system, owned more books than the LC, yet the LC provided cataloging copy for 76% of the total it owned for OCLC and 66% for RLIN. It was obvious that cooperative cataloging in the United States of Spanish- and Portuguese-language books meant relying on the Library of Congress.

COOPERATIVE AGREEMENTS

The final purpose of the study was to determine whether agreements for cooperative cataloging made within the previous five years were being followed. Neither OCLC nor RLIN had any agreement on cataloging priority for foreign-language materials during the time of the study; however, there had been attempts to establish cooperative cataloging agreements among librarians attending the annual SALALM meetings. Those agreements were made in the early 1980s at two different annual meetings. Unfortunately they were made primarily by bibliogra-

TABLE 3

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<th>Library</th>
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TABLE 4

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TABLE 5
RLIN LIBRARIES PERCENTAGE

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<th>% Cataloged</th>
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TABLE 6
OCLC LIBRARIES PERCENTAGE

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Though logical, this intralibrary cooperation does not always exist.

Between 1980 and 1983, nine institutions in RLIN and thirteen in OCLC made at least partial commitments to catalog Spanish- and Portuguese-language materials on a priority basis. The expectation was that materials from the selected country or subject would be processed and cataloged and that copy would be made available for others in the system within at least three months from the time of receipt. Since in all cases the library was building a research-level collection in the assigned area, it should have received most of the assigned items in the study.

In testing the validity of the assumptions, two figures were examined: the total cataloged by the library in the assigned area and the percentage cataloged during the first year of the study. The RLG libraries cataloged on a priority basis a higher percentage of books from assigned coun-
tries than did the OCLC libraries. In all, there were twenty-four different commitments to countries or subjects by nine RLG institutions. Of the total 298 books, the committed libraries cataloged thirty-two, or 11%. Sixteen books were cataloged within the first checking period (six months) and seven more by the second check. Consequently 72% of the items actually cataloged by committed libraries were completed within a year (but only 8% of the total cataloged). In actuality, however, only one of the nine libraries could realistically be considered as doing any priority cataloging in the area for which it was assigned. This library was committed to cataloging books from Cuba and Central America and cataloged 38% of the total number cataloged. One other library that had committed to catalog Panamanian books did, in fact, catalog two of five books.

The libraries within OCLC had a considerably lower percentage. Those libraries with commitments cataloged a total of nineteen, or 6%, of the total for which they were committed. Eleven of those nineteen were cataloged after one year and could not be considered priority cataloging. In actuality, none of the libraries processed enough books to be considered to have cataloged on a priority basis.

**CONCLUSIONS**

The history of cooperation during the past fifteen years has shown that libraries in the United States can work together in selected areas. Cooperative acquisition agreements have resulted in the development of large libraries in most regions of the United States that contain excellent research collections representing all areas of the world. Computerized cataloging systems that provide online cataloging records for members have also become a successful and essential part of the modern library. Although these successes are significant, when examined closely serious problems are revealed that hamper the effective use of the cooperative systems and cast doubts on the future of cooperation among U.S. research libraries.

This study highlighted a serious problem in cooperative cataloging, especially with regard to foreign-language materials. It showed that during the period under study, one library, the Library of Congress, was doing more than 50% of the cataloging in the country for new Spanish- and Portuguese-language materials. The other 50% was being provided by a few major research libraries (eleven out of the 119 members in the Association of Research Libraries). Other libraries with Spanish-language catalogers appear to be using them on local projects that do not involve cataloging recent books from Latin America.

In addition, this study suggests that with the adoption of online computer access to cataloging copy, the number of Spanish-language catalogers in the country has dropped. In fact, some major research libraries have determined that they will use online copy exclusively and have no full-time Spanish-language catalogers. These decisions appear to be based on the assumption that other libraries in the country will collect the same materials and provide the cataloging necessary to maintain their collection.

These libraries often have strengths in other languages and contribute to the cataloging system in other areas. This study indicates that only a few research libraries (eleven) are seriously cataloging recently published materials from Latin America. This is not, however, an indication of a limited number of libraries collecting books from Latin America. By 1989 a total of 315 libraries in the country had added to their collection at least one of the books included in this study.6

Even though the library representatives attending SALALM felt that their institutions could take responsibility for priority cataloging, in actuality those commitments were not being met at the time of the study. This is probably related to the often strained relationship among catalogers, bibliographers, and administrators. Although there may be a commitment to acquire certain materials, there may not be a similar commitment to process those books. Decisions concerning cooperation need to be made by at least the library administrator supervising cataloging in conjunction with the librarian actually doing the cataloging. The key to successful
cooperative cataloging appears to be the level of administrative commitment to the project.

Although the number of research libraries in the country that are cataloging new foreign-language materials is small, cataloging administrators still believe that the items are being cataloged elsewhere. Consequently major research libraries have developed backlogs that include thousands of Spanish- and Portuguese-language books awaiting cataloging. Meanwhile the information in the books is losing its value with each month they remain inaccessible. The irony of this problem is that, for foreign-language materials, library acquisition lists are the primary source scholars use to become aware of these materials. Researchers generally have informal communication lines that provide them with information on what is being done in the United States, often before publication. Those informal structures only occasionally extend beyond the borders of this country, and research outside the United States is often not known. Library cataloging and acquisition lists often are the first indication scholars have of publications from other countries. Cataloging slow-downs cause the informational time lag for foreign-language materials to be double that of United States publications.

Why is it so difficult for research libraries to reach a decision on cataloging priorities? Part of the answer lies in the fact that foreign-language materials are generally of low priority in most libraries. More important, however, is that administrators have decided that collection development takes priority over the processing of materials. The number of items acquired for the collection is considered a far better indicator of success than the number made available to the patrons. Finally, the building of kingdoms in collection development and technical services makes working together difficult. These areas of the library are often in conflict when they should be working together. In the end it is the patron that loses.

As long as administrators in our research libraries are unable and unwilling to cooperate in cataloging, the problem of backlogs will continue to be serious, especially for foreign-language materials. We can only hope that the cataloging budget of the Library of Congress will not continue to be cut. If the number of catalogers in LC decreases, the size of the cataloging backlogs throughout the country will grow even larger.

References and Notes


4. The selection of items to be used in the study was affected by the following factors:
   1. The sample had to be of a manageable size while at the same time covering all of Latin America.
   2. The items had to be selected within a short period of time. A timespan of more than three months would not have allowed for an adequate comparison.
3. It was important that similar numbers be examined for countries with similar sizes of publishing industries.

4. Blanket order dealers do not send books at the same rate. Some batch and send a couple of shipments a year while others send items biweekly. Consequently a purely random selection of all books coming into the library from Latin America within a short three-month period would not adequately reflect the level of publishing in the country.

5. A collection development and cataloging commitment from a library meant that regardless of the numbers published or the cost, a high level of acquisition and processing would be expected.

   The following method was used for the selection of items to be part of the study. The number 300 was selected because it represented 10% of the total number of books received during the previous year from Latin America by the library where the primary selection occurred. Four levels of publishing industries were established according to the acquisition figures for individual countries as reported in Peter de la Garza, "Report of SALALM Subcommittee on Cost Statistics for Latin American Publications," SALALM Newsletter 10:5 (Mar. 1983). Arbitrary numbers of books to be used in the study from each group were established according to size of the publishing industry. Those numbers were 30, 10, 5, and 1, with the highest being for large publishing industries and the lowest for the smallest industries. As shipments of books arrived in the library, each third item was selected for use in the study until the ceiling number was reached. In this study the comparative aspect between countries was more important than a purely random selection of books coming into the library.

6. The purpose of this study is to indicate general cataloging patterns among research libraries and not to determine which libraries were in fact cataloging. Since the identification of the libraries cataloging is not important to the study they are not listed.

7. A recent study in Brazil suggested that the timespan for ideas published in Brazil to get into American scholars' research is ten years. The recent problems of cataloging backlogs compounds an already serious problem. Cited in Richard M. Morse, Brazilianists, God Bless 'Em! What in the World Is To Be Done? (Stanford, Calif.: Stanford-Berkeley Joint Center for Latin American Studies, 1983), p.11.
An examination of advertisements for serials positions in U.S. academic libraries from 1980 through 1988 reveals that serials departments are far from extinct and that the demand for serials specialists, especially for heads of serials departments and serials catalogers, remains high. Over half of all positions advertised were in libraries that are members of the Association of Research Libraries, and most position announcements included a requirement or preference for one or more years of serials experience.

The future of the serials department and of the serials specialist has been the topic of much discussion and the subject of numerous articles. Underlying this interchange one invariably encounters the form-versus-function debate: are serials-related functions performed more effectively and efficiently when dispersed by function (i.e., into cataloging and acquisitions departments) or when centralized by form in a single, integrated serials department? If the former, what, if any, is the role of the serials specialist?

The arguments advanced by those advocating organization by function and the elimination of separate serials departments stress perceived problems of communication and coordination across departments and emphasized the role of automation as a decentralizing force. According to Potter:

Specialized serials departments evolved in order to consolidate the various functions associated with serials control and to avoid duplication of effort involved in maintaining several separate check-in and holdings files.\(^1\) With the introduction of integrated systems, it is possible for staff in any part of the library to review the same files, "obviating any lingering need for segregated processing."\(^2\) Stating that the integration of serials into function-based departments results in standardization of procedures, D’Andraia implied that serials specialists, as well as serials departments, have little, if any, future: "automation ends the era in which serials must receive special handling by a specialist."\(^3\)

Leonhardt, questioning the proliferation of technical services department heads when a serials department is created

**Carolyn J. Mueller and Margaret V. Mering**
in addition to cataloging and acquisitions, conceded that "someone does need to coordinate all serials activities and all monographic activities as well. That person ought to be the technical services administrator . . . ." He concluded:

As we continue to plan for and implement integrated bibliographic library systems, the logic of organizing along functional lines rather than by form will become more obvious . . . . The luxury of duplicate processing will be . . . much harder to justify.\(^3\)

Jean G. Cook, in "Serials' Place on the Organizational Chart: A Historical Perspective," traced the importance of serials and the organization of serial functions in libraries.\(^6\) She found that as early as 1935, J. Harris Gable, superintendent of the Serial and Exchange Department of the State University of Iowa Libraries, had concluded that the centralization of serial activities resulted in a number of benefits to the library, including the fact that "the work may be more easily and efficiently done where the records are kept [and] the work may be done by trained serials workers."\(^7\) These conclusions are reflected in the recent literature, as those favoring organization by form assert that all aspects of serials work present special problems and require expert attention.

Collver defined the primary function of the integrated serials department as coordination of "the reciprocal interdependence involved in management of the unique local serial collection . . . ."\(^8\) Likewise, Harrington and Karpuk noted that

The integrated serials department allows for bringing of specialized knowledge to bear in all aspects of serials processing . . . . It allows also for consistency of information and for collective problem solving, and contributes to developing high-level expertise in a serials department staff.\(^9\)

Ezzell concurred:

It is possible for communication to take place when the several serials functions are separated into various departments within the library, but it is not as natural and easy as when they are joined into an integrated serials department. Although the same mission is shared by these staff members and their long range goals may be identical or similar, it is likely that short range goals and objectives, as well as priorities, differ, and differ to such an extent that patron service is affected adversely.\(^10\)

In addition to articles focusing primarily on opinions on form-based versus functional organization and the role of the serials specialist, or on descriptions of a specific library's organization, a few articles have been published in which the authors have attempted to collect data to document the continued viability of the serials department and the serials specialist. Ezzell's "The Integrated Serials Department" presented the results of her fall 1984 survey of the heads of technical services of 117 Association of Research Libraries (ARL) members. Included were questions regarding the presence of a serials department, plans to create such a department, and functions included. Of 107 usable responses (91.45% of those responding), 64 (60%) respondents had such a department and an additional 5.6% had plans to create one.\(^11\) In distinction to those asserting that automation would contribute to decentralization, several of the respondents cited automation as a factor in their plans to centralize a number of serial-related functions.\(^12\) Thus, although "automation . . . will have an effect on the handling of serial material . . . the nature of that effect is uncertain."\(^13\) Even those libraries lacking integrated serials departments often retained serials specialists:

Many of the questionnaire responses indicated that where no serials department exists, there is still a serials unit within the acquisitions department . . . . There is a recognition in these libraries that the handling of serial material requires special training and is best done by staff dedicated to that activity.\(^14\)

On the basis of her survey, Ezzell concluded that "the separate serials department is an excellent organizational arrangement both in terms of efficiency of work processes and task coordination."\(^15\)

Selecting announcements for positions in academic libraries that included the words "serials" or "periodicals" in their titles, she categorized these as department head, assistant department head, cataloging, or other. Although her focus in so doing was to determine the specific experience and attributes required for these positions, she identified a substantial increase in the number of serials positions advertised in these journals over the fifteen-year period, from eight in 1971 to thirty-three in 1986, and a similar increase between 1981 (eight positions) and 1986.16

Using these results as a point of departure, serials-specific position advertisements appearing each year from 1980 through 1988 were examined with a view toward expanding knowledge of the availability of positions for serials specialists and of the continued existence or disappearance of the serials department. In reviewing the literature, no discussion of the number of years of experience required for serials positions was found. Given the frequent references to serialists as specialists, we hypothesized that, with the exception of entry-level serials cataloging positions, a majority of serials positions would require some experience.

**METHODOLOGY**

Four publications, *American Libraries*, *College & Research Libraries News*, *Library Journal*, and the “Library” category in the *Chronicle of Higher Education*, were selected as sources for advertisements for serials positions in U.S. academic libraries from 1980 through 1988. All advertisements placed by academic libraries of any size were scrutinized, and those for serials positions in the categories below were photocopied and affixed to 3-by-5-inch cards. Each advertisement tentatively was assigned to a position category (serials librarian/head, serials department; assistant serials librarian; serials acquisitions/records librarian; supervisor (coordinator, head) serials cataloging; or serials cataloger) by comparison with a preliminary definition for each position and with other ads in each category. After all ads were read and assigned to a position category, each author reviewed them, disagreements about categories were discussed and resolved, and position definitions refined.

The final definitions were as follows:

1. Serials librarian/head, serials department: responsible for a variety of serials-related functions, not limited to acquisitions/records or cataloging, i.e., most or all of the following: acquisitions, binding, cataloging, check-in, invoice approval, collection development, and periodicals reading room. The ad may include wording to the effect that the position is responsible for all aspects of serials/periodicals management and/or specify an integrated serials department.

2. Assistant serials librarian: may be so designated in the ad, must have responsibilities broader than supervision of a single unit (as distinct from serials acquisitions/records librarian or supervisor of serials cataloging, below).

3. Serials acquisitions/records librarian: the wording of the ad clearly limits responsibility to either or both of these functions. This is a combined category to reflect the fact that many, if not most, of the serials acquisitions positions posted included serials records management. This category includes librarians designated as unit supervisors as well as those not so designated.

4. Supervisor (coordinator, head), serials cataloging: the ad specifies supervisory responsibility for serials cataloging functions, whether in a serials or cataloging department.

5. Serials cataloger: no stated responsibilities for a unit; may include assisting the unit head with supervision; may include cataloging analytics and/or be subject/material specific, e.g., documents serials cataloger.

Because of the focus on permanent serials-specific (but not discipline-specific) positions in academic libraries, we excluded temporary and part-time positions, joint positions (e.g., acquisitions of monographs and serials, split positions between two departments, cataloging of all
TABLE 1

NUMBER OF POSITIONS ADVERTISED

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<td>48</td>
<td>38</td>
<td>41</td>
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Note: Total number of positions exceeds 329 because some positions were advertised in two or more journals.

materials), positions in “special libraries” or branches affiliated with a university (e.g., business, law, health sciences), and positions described in the advertisement as solely or primarily concerned with traditional public services functions (e.g., serials reference, online database searching). Multiple occurrences of the same ad in a single journal (e.g., in consecutive issues) were eliminated unless later occurrences specified that the search had been reopened or extended. Multiple occurrences of ads for the same position in different journals are reflected in table 2 (below) but not in the position count.

Within each category, we further classified position announcements by the journal in which the advertisement appeared and years of experience required. The number of positions in ARL-member libraries also was tabulated. The text of the ad was the sole basis for determining the category into which the position was placed, regardless of the title of the position or knowledge of the authors about position responsibilities.

RESULTS

A total of 329 academic serials positions were advertised between 1980 and 1988 (see table 1) for an average of thirty-seven positions each year throughout the nine-year period. No attempt was made to identify positions that were advertised in more than one year of this period. Unless the position was reopened or extended in the same year as the original ad, each occurrence was counted separately. The majority (124) were for serials catalogers, followed by heads of serials departments/serials librarians (103). Dividing the nine-year span into two groupings, 1980-84 and 1985-88, we found an overall increase of 8% in the number of positions advertised in the latter period. Specifically, advertisements for heads of serials departments increased 45%; during the same

TABLE 2

POSITIONS ADVERTISED BY JOURNAL

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<td>American Libraries</td>
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<td>11</td>
<td>28</td>
<td>26</td>
<td>19</td>
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<tr>
<td>Chronical of Higher Education</td>
<td>35</td>
<td>22</td>
<td>13</td>
<td>25</td>
<td>29</td>
<td>14</td>
<td>37</td>
<td>21</td>
<td>30</td>
<td>226</td>
</tr>
<tr>
<td>College &amp; Research News</td>
<td>9</td>
<td>7</td>
<td>6</td>
<td>9</td>
<td>16</td>
<td>5</td>
<td>20</td>
<td>20</td>
<td>17</td>
<td>109</td>
</tr>
<tr>
<td>Library Journal</td>
<td>6</td>
<td>8</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>9</td>
<td>3</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>Total Advertisements</td>
<td>61</td>
<td>50</td>
<td>29</td>
<td>48</td>
<td>59</td>
<td>33</td>
<td>94</td>
<td>70</td>
<td>68</td>
<td>512</td>
</tr>
</tbody>
</table>

Note: Total number of positions exceeds 329 because some positions were advertised in two or more journals.
period, 46% fewer ads appeared for assistant serials librarians. Seventeen percent more ads appeared for supervisors of serials cataloging units, with the greatest number appearing in 1988. Ads for serials acquisitions/records librarians and for serials catalogers remained fairly constant in number over the decade.

The 329 positions were advertised a total of 512 times in the four journals examined. Well over half of all positions (69% of the positions, 44% of the ads) were advertised in the “Library” section of the Chronicle of Higher Education, followed by American Libraries (42% of the positions) and College & Research Libraries News (33% of the positions). Only forty positions (12%) were advertised in Library Journal (see table 2).

Ads for 219 positions (67%) specified that experience was required, with 87% of the ads for heads of serials departments/serials librarians specifying one or more years of experience as a requirement. Ads for serials cataloger positions most frequently required no prior experience. Almost without exception, ads for all positions specified some experience as preferred (see table 3).

Fifty-nine percent of the serials positions advertised were in ARL libraries. By position, ARL libraries accounted for only 30% of the heads of serials departments/serials librarians and for over 60% of all other categories (see table 4).

### DISCUSSION

If functional organization were supplanting organization by form, one would expect a decrease in the number of advertised positions for heads of serials departments. Instead, corroborating Hensley's results, we found that advertised vacancies for heads of serials departments increased in the latter half of the 1980s. An average of

### TABLE 3

**Positions Requiring One or More Years of Experience**

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<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Head, Serdals Dept/ Serials Librarian</td>
<td>8</td>
<td>7</td>
<td>4</td>
<td>9</td>
<td>8</td>
<td>14</td>
<td>17</td>
<td>12</td>
<td>11</td>
<td>90</td>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>12</td>
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<td>Serials Acq./Records Acquisitions/Records</td>
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<td>3</td>
<td>8</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>31</td>
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<tr>
<td>Supervisor, Serials Cataloging</td>
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<td>0</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>10</td>
<td>34</td>
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<tr>
<td>Serials Cataloger</td>
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<td>3</td>
<td>4</td>
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<td>15</td>
<td>20</td>
<td>36</td>
<td>36</td>
<td>28</td>
<td>30</td>
<td>219</td>
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### TABLE 4

**Positions IN ARL Libraries**

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<th></th>
</tr>
</thead>
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<td>2</td>
<td>2</td>
<td>2</td>
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<td>6</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>31</td>
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<tr>
<td>Assistant Serials Librarian</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
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<td>Serial Acquisitions/ Records</td>
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<td>0</td>
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<td>8</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>Supervisor, Serials Cataloging</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>4</td>
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<td>3</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Serials Cataloger</td>
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<td>9</td>
<td>8</td>
<td>88</td>
</tr>
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<td>21</td>
<td>27</td>
<td>28</td>
<td>19</td>
<td>22</td>
<td>193</td>
</tr>
</tbody>
</table>
eleven serials librarian/head of serials department positions were advertised each year from 1980 through 1988, with over half (65%) advertised in 1985–88. Likewise, specialists in serials acquisitions and serials cataloging continue to be in demand. The predicted leveling effect of automation to the contrary, the demand for supervisors of serials cataloging units increased 17% and the number of advertisements for serials catalogers remained constant throughout the period, with an average of fourteen positions each year advertised, half of them between 1985 and 1988.

Because “serials librarianship . . . is generally a specialization in large academic libraries,” it is not surprising that over half of all serials positions advertised were in ARL libraries. Unexpected was the discovery that only 30% of the serials librarian/head of serials department positions were in ARL libraries, as opposed to 60% or more for all other categories. This might be due to longevity on the part of ARL serials librarians or an indication that serials librarianship is not as limited by size of library as has been thought. ARL libraries are more likely to have larger and more specialized staffs; hence the higher incidence of assistant serials librarians, serials acquisitions/records librarians, and serials catalogers.

Serials positions increasingly are not for the inexperienced, with one-third or more of the advertisements for serials catalogers appearing from 1985–88 requiring one or more years of experience. Although a total of 110 positions in all categories (33%) did not require experience, almost without exception experience was a stated preference.

**CONCLUSION**

“As long as serials exist . . . there will be a division of opinion on whether to approach the processing of serials organizationally by format or by function.” Given this, the form-versus-function debate is unlikely to be put to rest as a result of these findings. Nonetheless, they do provide evidence that serials acquisitions and cataloging specialists continue to be in demand and that separate serials departments continue to be a fact of library life.

**REFERENCES**

2. Ibid., p.92.
5. Ibid., p.85.
11. Ibid., p.74.
12. Ibid., p.78–79.
13. Ibid., p.79.
15. Ibid., p.80.
17. Ibid., p.128.
In a recent study on bilingual subject authority control, Rolland-Thomas and Mercure describe four necessary conditions for a bilingual online public access catalog (OPAC): (1) reciprocal references in the same file; (2) subject or term searching in either language from one bilingual thesaurus, with retrieval in either the language used in the search or the second language; (3) equivalencies between forms in different languages; and (4) access to and retrieval from the whole collection in either language. Another fundamental criterion for the management of multilingual thesauri, and one, it would appear, that system vendors have had limited success in implementing, has been noted by Mandel. In her study prepared for the Library of Congress (LC), she observed:

A relatively few library bibliographic systems have been designed to support a library in maintaining more than one controlled vocabulary in its catalog.... None has yet been employed specifically to assist patrons in retrieval from multiple thesauri.

The whole question of the management of database access points in more than one language, or from different thesauri, has been the focus of several articles published since the introduction of online databases and multiple, noncompatible, indexing thesauri. The future importance of multithesaurus authority control is further underscored by Johnston's survey of authority-system vendors, which found, as far as the possible sources of authority records are concerned, that

One respondent... uses the National Library of Medicine's Medical Subject Headings (MeSH), and one vendor reports that Sears Subject Headings may be used...
as well as headings from LC and the National Library of Canada. Other sources named were ... Vedettes de l'Universitaire [sic] Laval, and "any source."4

Such is the rate of development for authority control systems that even as the essential criteria for subject retrieval in a bilingual system were being discussed, as in the comments above, one major vendor was introducing an automated authority control system that satisfies many of the conditions for a bilingual OPAC and associated thesaurus management.5 The authority control module of MultiLIS has been in use at Laurentian University, a bilingual institution in Northern Ontario, since June 1989, and manual authority entry for subjects, as well as for personal and corporate authors, has been done on an extensive basis. In this article the major features of the MultiLIS authority module and its current use in a bilingual setting, as well as its potential in a multilingual or multithesaurus environment, are described. A brief evaluation and critique of the authority module is also presented, principally in terms of its success in meeting the criteria for a multithesaurus management system, as outlined by Mandel.

Founded in 1960, Laurentian University is one of Ontario's three bilingual universities. The university's bilingual nature is emphasized in its statement of objectives, which appears in the academic calendar: "The University has pledged itself to the maintenance and promotion of both the English and the French languages and cultures, inside as well as outside the classrooms."6 Current full-time-equivalent enrollment is approximately 5,000 students, of which 25 percent are francophone. There are three federated colleges at the Sudbury campus; one is bilingual, and the other two are unilingual (English). In addition, there are three affiliated campuses located in other centers of Northeastern Ontario, one of which is unilingual (French).

The university offers most programs at the Sudbury campus in the humanities, social sciences, and professional schools in both official languages; many first-year introductory courses in the pure and applied sciences are also available in both languages. Courses at the Ecole des sciences de l'éducation and in the Co-operative Studies program are offered only in French. A certificate of bilingualism is awarded to graduating students from any discipline who can demonstrate written and oral proficiency in both languages.

Library service is offered in both English and French; the majority of support and professional staff are either completely bilingual or have a good working knowledge of both official languages. The use of a classified catalog for subject searches in a bilingual environment has already been described,7 as well as the return to a more traditional, but bilingual, dictionary subject catalog, with reciprocal references.8 Since 1976, when Laurentian became a member of the UNICAT/TELECAT consortium in the UTLAS network, descriptive cataloging and subject analysis have been done in French for French-language titles and in English for all other languages. Bilingual publications are cataloged in both languages, similar to practice at the National Library of Canada (NLC); all access points, plus imprint and notes, are entered in both English and French into one bibliographic record, with parallel titles, publishers, series, and notes separated by the ISBD equivalency symbol, the equal sign (=).

In September 1986, Laurentian signed a contract with the Sobeco Group, of Montréal, Québec, for the installation of MultiLIS. MultiLIS is a fully bilingual integrated library-management software package, with acquisitions, cataloging, circulation, online catalog, and report modules already in place. The initial version of the software also included a very powerful authority control component for basic maintenance of catalog access points. MultiLIS operates on Digital VAX hardware, using the VMS operating system, as well as on NCR computers with UNIX System V and on the MIPS system. It supports a network environment for institutions with multiple campuses or branch libraries. Two versions of the software are available, the MultiLIS text format, in which bibliographic data are input into
blank workform fields, and a MARC-compatible format, with appropriate tag, indicator, and subfield code prompts. In the initial version of the cataloging module, only the text format was supported. Laurentian decided to retain it, even after the MARC-compatible version was introduced in 1988, primarily because the text format greatly simplified training for data-entry personnel. The first part of a proposed serials module, automated check-in and holdings, is scheduled to be introduced in 1992. The most important feature, as far as Laurentian was concerned, was the ability to operate in either English or French, meaning that users and staff can choose their preferred language of display for all menu screens and system prompts during search, data-entry, and circulation transactions.

Since January 1987, all new acquisitions have been entered into the MultiLIS cataloging module. In addition, a government-funded inventory and data-entry project from January to September 1987 established the basis for Laurentian's OPAC, which was first made available to library users in October 1987. Ongoing retrospective conversion is undertaken when a document is circulated through the system for the first time: brief circulation records, with title, call number, and item number (bar code), are subsequently upgraded to full bibliographic status.

As of December 1990, approximately 250,000 bibliographic, order, and circulation records were available in nine database partitions. Of this total, over one-third, or some 95,000 records, were government publications; Laurentian is the only full depository library for federal and Ontario provincial publications, in both official languages, in Northeastern Ontario. The most recent report to the Ontario Council of University Libraries, for the year 1989-90, shows holdings of 727,606 monograph and government document titles, as well as 3,137 serial titles. In 1990-91, 35 percent of monograph purchases were for French-language materials; overall, the approximate percentage of French-language titles in the main library's collection is 30 percent.

**Bilingual Authority Alternatives**

Prior to the introduction of the MultiLIS authority control system, there were extensive discussions at Laurentian on possible alternate methods of implementing some system of reciprocal links between equivalent headings in English and French, should Sobeco's proposed authority module not prove satisfactory. Such a system was deemed to be an absolute necessity in Laurentian's particular context. Laurentian's mandate to serve both anglophone and francophone users precluded a strictly unilingual authority module in which, for example, French-language corporate authors are referred to the Library of Congress English-language form: neither bilingual nor unilingual francophone users would be served effectively by this method. A bilingual linking mechanism was required so that anglophone, francophone, and bilingual users could search and retrieve titles in the official language of their choice. The vast majority of Laurentian's francophone users are bilingual, and because of the paucity of resources in French for certain disciplines in our collection, a link to the equivalent English heading would direct these users to alternate sources of information. In addition, many English-speaking users would also benefit by being made aware of titles in French on their topic.

The proposal that received the most attention was a return to a modified classified catalog for subject searches! All subject terms in English or French would be linked by the appropriate Library of Congress Classification number for the headings; the class number itself would represent the authorized form of the heading, with "see references" from the Library of Congress Subject Headings (LCSH) or Répertoire de vedettes-matière (RVM) forms.

Another idea discussed was the upgrading of subject analysis to include a second set of subject headings, in the other official language, for all records in the database, regardless of language of publication. Bilingual subject access would be available for all titles; descriptive cataloging would continue to be done, as already estab-
lished, according to the language of publication. However, given the time and expense involved in translating, editing, and inputting both LCSH (English) and RVM (French) headings for each new title, this suggestion was rejected.

One of the stipulations of Laurentian’s contract with the Sobec Group provided for the introduction of an enhanced bilingual authority control system, linking equivalent English- and French-language headings in the catalog. Development and testing of this system was completed during 1988 and in the spring of 1989. In March 1989, Laurentian was asked to serve as a preliminary Beta test site for the enhanced authority system. A parallel database was mounted on the university’s VAX8530, and the MultiLIS software, with the authority system, was installed. During March and April 1989, selected technical services staff tested all aspects of the proposed authority control system, including the creation of original authority records, the merging and modification of existing terms, and the addition of equivalent terms for the bilingual link. Many of the software errors that Laurentian identified during the test period were subsequently corrected by Sobeco. The revised authority system was then supplied to all MultiLIS clients, including Laurentian, in June 1989.

**THE MULTI-LIS DICTIONARIES AND OPAC Indexes**

In order to understand better the functioning of the authority module and its application in a bilingual environment, some preliminary remarks about the indexing of access points in MultiLIS are necessary. Primary access points are indexed from a series of seven dictionaries, consisting of either “single” terms, without authority control, or “authority” headings, with appropriate cross-references added to an authority record. In both cases, single and authority terms, the accepted form is linked to bibliographic records.

During data entry, the appropriate dictionary is searched, and if an exact match is found, the heading is copied from the dictionary to the correct field of the bibliographic record. If no match is found, the operator can choose to enter the heading as a single term, or to create an authority record for the heading immediately. The seven dictionaries are checked, both during online searching and data entry, for an exact match of all characters entered, including internal punctuation. If no heading corresponding to the entered string is found, the term is a new heading. To illustrate this point, consider the following example, in which three headings refer to the same author:

- MANN, THOMAS, 1875-
- MANN, THOMAS, 1875
- MANN, THOMAS, 1875-1955

All would be treated as unique headings in MultiLIS’ author or subject dictionary due to the minute differences among the strings entered, namely, the lack of a hyphen in the second heading or the addition of a death date in the third.

With the exception of the personal author index, all MultiLIS heading indexes, and the title index, are keyword indexes. As defined by Chitty, keyword indexes isolate “each identifiable component of the bibliographic data element as a single unit, filing an index term for each component identified, usually word-by-word as identified by blank spaces or field delimiters.” Thus the search term “India” retrieves all strings that contain this term, regardless of its position in the heading, as illustrated in figure 1. Note that subject postings are not currently alphabetized, but listed in random order, usually with the most recent term listed first; the user is able to select a range, or individual terms, or both, up to a maximum of 128, to see the brief title display, as shown after the “Selection” prompt. Personal authors are indexed on the last name of the author, in combination with the complete first name, the first initial, or leading characters of the first name. Author searches are always browsable: only headings that begin with the sequence entered are retrieved (see figure 2). It is not possible to search by other elements of a personal author entry, such as forename, titles of nobility, dates, etc.

The subject dictionary indexes both complete subject strings and subdivisions of a heading. During data entry, the whole heading, starting from the right, is checked
Search the ON-LINE catalog

Search request: INDIA

1: (13 rec.) India
2: (1 rec.) Refugees--India
3: (1 rec.) Sirkanda, (India)
4: (15 rec.) India--History
5: (3 rec.) Ethnology--India
6: (15 rec.) India--Civilization
7: (6 rec.) Muslims--India
8: (9 rec.) India--Religion
9: (6 rec.) Nationalism--India
10: (1 rec.) India. Parliament
11: (2 rec.) Marriage--India
12: (1 rec.) India--Biography
13: (3 rec.) India--Population
14: (4 rec.) Family--India
15: (1 rec.) Elections--India

Selection: 1-5,7,9,12-14

Search the ON-LINE catalog

Search request: BOLA

1: (1 rec.) Bolam, David W.
2: (1 rec.) Bolan, Richard S.
3: (1 rec.) Boland, Eavan
4: (1 rec.) Boland, Robert G. A.
5: (1 rec.) Bolander, Karen
6: (3 rec.) Bolaria, B. Singh, 1936-

Selection:

Figure 1. Keyword Subject Search in MultiLIS OPAC.

Figure 2. Browsable Author Search.
against the subject dictionary; if the com-
pete term is not found, the last subdivision
is dropped, and the resulting partial head-
ing is searched. Subsequent constituent
parts of a heading are either verified and
copied from the subject dictionary, or
entered as single/authority headings, until
a new string is created and indexed. For
example, the heading "CANADA-
HISTORY—20TH CENTURY—CON-
GRESSES" is a possible new subject
string added to a bibliographic record.
MultiLIS first searches for the whole
term. If it is not found the subdivisions
"—CONGRESSES" is dropped, and the
rest of the heading is checked. The head-
ing could be entered into the subject dic-
tionary in the following order:
a. CANADA—HISTORY (Existing string
in subject dictionary)
b. 20TH CENTURY (New single entry
for chronological subdivision)
c. CONGRESSES (Existing string in
subject dictionary)
A new subject term can thus be created
by combining previously entered or new
strings into a unique, fully indexed heading
that is also searchable by each of its con-
stituent parts. From the above example, it
can also be seen that it is possible to create
dictionary forms, as well as authority rec-
dords, for all geographical, chronological,
topical, or form subdivisions of any subject
heading.

To clarify further the distinction be-
tween dictionaries and indexes, assume for
a moment that a MultiLIS OPAC exists
with only one subject entry: UNITED
STATES—HISTORY. Keeping in mind
that MultiLIS will create separate diction-
ary entries for each part of the heading
(651 $a, and 651 $x), as well as the com-
plete string, the subject dictionary consists
of three forms: UNITED STATES,
HISTORY, and UNITED STATES—HIS-
TORY. Each of these forms can exist as a
single form, with no authority record, or as
an authority heading, with cross-refer-
ences created. The subject index, however,
consists of each keyword from the diction-
ary forms: UNITED, STATES, and HIS-
TORY, which, singly or in combination,
will retrieve the appropriate dictionary
form. Keyword index terms retrieve diction-
ary forms linked directly to bibliographic
records.
The linking of dictionary terms to bibliographic records in the online catalog ensures that blind references do not occur. Indexed forms from the seven dictionaries—author, corporate author, series, uniform title, publisher, document type, and subject—appear in a list of retrieved headings only if a dictionary form is linked to a bibliographic record.

MultiLIS supports a network configuration, meaning that public library branches, specialized disciplinary libraries in a university setting, or even collections within a single library can have a separate database or partition, each of which is completely independent in terms of cataloging procedures, including authority control, circulation policies, and purchase or budgetary decisions. However, all indexing is done on a network basis, with links to records in each partition; the user has the option in an online search to access the overall network indexes, i.e., the access points for every partition, or a subset of the network, the selection of which is a user-controlled option (see figure 3). In other words, by restricting a search to specific databases of the network, the user limits the search exclusively to those indexed terms used in the partitions chosen.

**THE MultiLIS AUTHORITY SYSTEM: AN OVERVIEW**

The MultiLIS authority control system is an integral part of the software’s Cataloging module (see figure 4), available only to those authorized staff members, primarily in technical services, responsible for the entry or revision of access points in the online catalog. Figure 5 shows the authority control menu.

In addition to the traditional search terms—author, corporate author, series, uniform title, and subject—shown in the boxed window at the right, MultiLIS is perhaps unique in also having authority control over two other access points, document type and publisher. The former refers to free-text audiovisual, publication format, or special collection descriptors tailored by MultiLIS users to the needs of their own collections, such as “compact disc,” “microfilm,” “microfiche,” “pam-
Cataloging and indexing module

Available functions

1. Search the ON-LINE catalog
2. Create and update the ON-LINE catalog
3. Delete a bibliographic record
4. Add a new item
5. Update an item
6. Authority Control
7. Print labels

Function number:

Figure 4. Cataloging and Indexing Module Menu.

Authority Control

Available functions

1. Search - Add - Modify (Authority Records)
2. Delete Authority Records
3. Merge Authority Records

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<td>Document types</td>
</tr>
<tr>
<td>Uniform titles</td>
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<td>Subject headings</td>
</tr>
</tbody>
</table>

Function number:

Figure 5. Authority Control Menu.
Another system that includes publishers as an access point is the DOBIS/LIBIS system at Oxford University's Bodleian Library. MultiLIS goes one step further, in that the entry of publishers is also controlled by a list of forms, a dictionary, in exactly the same way as authors or subjects. Before a purchase order is generated in the order function of MultiLIS, the publisher must be linked to a vendor, usually a book jobber. By having a list of publisher forms, each of which is associated with a vendor, considerable time is saved in assigning a vendor to an individual order.

In a manner similar to the other system dictionaries, where forms are entered following guidelines established by Anglo-American Cataloguing Rules, 2d. ed. (AACR2) or the Library of Congress, Laurentian has implemented standards for the input of publishers. The standardization of publisher forms, with an abbreviated entry code, simplifies entry during order processing and bibliographic data entry. For example, the three-letter code "(puf)" retrieves and inserts the publisher form "Paris : Presses universitaires de France" into the publisher field of a bibliographic record.

To work with a specific heading in a partition, the duly authorized operator must first choose from the authority menu the type of dictionary form to be accessed, followed by one of three functions, shown at the left in figure 5. The system's authority control module permits the creation of revision of an authority record, the deletion of an authority form, or the merging of similar forms. All revisions to or merges of dictionary forms take place on an interactive, real-time basis, with no batch pro-

![Figure 6. Revising a Corporate Author Heading.](image-url)
cessing required; that is, bibliographic records linked to an authority form are immediately upgraded, with any changes to access points being reflected in the online catalog. Figures 6 through 8 illustrate examples of revisions to a dictionary form, and merges of variant or superseded terms into one authoritative heading.

As many as twelve forms can be merged into one heading (see figure 9) by combining the numbers that represent each heading into one expression. Also, as shown in figure 9, it is possible to change a superseded heading in one partition by merging it with the proper heading from another partition in the network, indicated by “- -” before the form; the authorized heading is transferred to the first file and indexed as the merge is done. A heading to be changed must be indexed in the first database in order to be merged with a heading from another file. For all revisions or merges, a real-time counter at the bottom right of the screen shows the number of records updated for each heading. The only restriction is that while bibliographic records are being revised, the corresponding catalog work forms cannot be accessed or be in display mode. Under optimum conditions, it is possible to revise or merge personal author, corporate author, subjects, or other headings in up to 100 bibliographic records per minute.

The principle of avoiding blind references in the OPAC is also respected in the authority module in terms of the display of related or equivalent headings. However, during searches to revise or merge headings, terms from other partitions are also retrieved, preceded by a double dash (- -), as well as indexed headings with no link to bibliographic records, indicated by “(0 rec.)” before the heading. For searches prior to deletion of an unused heading, only indexed headings from the partition chosen at login are displayed. MultILIS also has a built-in security feature, in that deletion of a dictionary form is not permitted when there is a bibliographic record linked to it, as illustrated in figure 10. The form must first be deleted from all bibliographic records before it can be deleted from the dictionary.

A single asterisk (*) appears before headings for which a local authority record has been created, the only level of author-
Figure 7a. Merging Duplicate Corporate Author Headings.

Figure 7b. Merging Duplicate Corporate Author Headings.
Figure 7c. Merging Duplicate Corporate Author Headings.

Figure 8a. Merging Subject Headings.
Figure 8b. Merging Subject Headings.

Figure 8c. Merging Superseded Subject Headings.
Do you still want to merge these headings? yes

Figure 8d. Merging Superseded Subject Headings.

Figure 9a. Merging Multiple Author Headings.
### Authority Control

#### Merge Authority Records

<table>
<thead>
<tr>
<th>Name</th>
<th>Authors</th>
</tr>
</thead>
</table>

Do you still want to merge these headings? **YES**

---

#### Delete Authority Records

<table>
<thead>
<tr>
<th>Name</th>
<th>Corporate authors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>international permafrost</strong></td>
<td></td>
</tr>
<tr>
<td>1: (1 rec.)</td>
<td>International Conference on Permafrost.</td>
</tr>
<tr>
<td>2: (1 rec.)</td>
<td>Organizing Committee of Canada for the 2d International Conference on Permafrost.</td>
</tr>
<tr>
<td>3: (1 rec.)</td>
<td>United States Planning Committee for the 2d International Conference on Permafrost.</td>
</tr>
</tbody>
</table>

Selection: 1

(0476) Heading used
ity control currently available. This means that authority records created by one partition of the Laurentian network cannot yet be copied to another partition. An authority record for the same heading must be entered independently into each partition's authority system. Any partition's local authority records will still affect OPAC displays of related and equivalent headings in an expanded network search, but only if the partition is among the files being searched. Currently, authority records from other partitions cannot be displayed, because each partition's OPAC defaults exclusively to its own authority records. In other words, in our present configuration, each network library is limited to the display of authority records created for its own partition. The authority record for a heading can be displayed in the OPAC by entering a plus sign (+) after the number for the heading given in the online display (see figure 11).

In the next version of the software, a higher level of authority control will be introduced, the network level. Headings for which a network authority record have been created will be preceded by a double asterisk (**). All network authority records, regardless of the partition into which they were initially entered, will be displayable in the online catalog. Eventually, a third level of control will be introduced for records from source files, such as LC authority tapes and CD-ROMs, or online authority files like UTLAS. Headings with source authority records will be preceded by a triple asterisk (***)

As shown in figures 12 and 13, typical MultiLIS authority records for corporate authors and subjects, respectively, contain all the key MARC fields for authorities or their equivalent in the MultiLIS text format Laurentian is using. Subject authority records also include fields for "general see" and "general see also" references, MARC tags 260 and 360. Complex, history, and general references (MARC fields 663 through 666) are all entered into one subfield reserved for notes, subfield 6. Two other fields are added to all MultiLIS authority records, Equivalent heading and Local characteristics. The "Equivalent heading" field corresponds to the CAN-MARC 9xx tags, where a link can be established between English and French forms

Search the ON-LINE catalog

Search request: POLITICAL SCIENCE

01-2101407 LOCAL

Political science.

Here and with local subdivision are entered works on the discipline of political science. Works on the political processes of particular countries, regions, cities, etc., are entered under the name of the place subdivided by: Politics and government.

SA subdivision: Politics and government under names of countries, states, etc., e.g. Canada--Politics and government; and subdivision: Political aspects, under subjects, e.g. Journalism--Political aspects

UF Civil government.

To be cont'd ... RETURN displays next page

Figure 11a. Authority Record Display in OPAC.
Search the ON-LINE catalog

Search request: POLITICAL SCIENCE

01-2101407 LOCAL

Political science. (2nd page)

UF Government.
   Political theory.
   Political thought.

RT Administrative law.
   Aristocracy.
   Authoritarianism.
   Authority.
   Autonomy.
   Biopolitics.
   Bureaucracy.
   Cabinet system.

To be cont'd ... RETURN displays next page

Figure 11b. Authority Record Display in OPAC.

Search the ON-LINE catalog

Search request: POLITICAL SCIENCE

01-2101407 LOCAL

Political science. (6th page)

Nationalism.
Oligarchy.
Opposition (Political science)
Filibusters (Political science)
Federal government.

ET Science politique.

(0357) Press RETURN to continue

Figure 11c. Authority Record Display in OPAC.
Authority Control

Update an authority record

Record: 18-2100973

Corporate authors

Verified

1- Established heading: Canada. Dept. of External Affairs
2- Control number (001): n 79-81352
3- Cataloging source (040): NUC ENG
4- See from reference (4xx):
   Canada. External Affairs.
   Canada. External Affairs, Dept. of.
   Canada. External Affairs Canada.
5- See also reference (5xx):
6- Note (6xx):
7- Equivalent heading (9xx):
   Canada. Ministère des affaires extérieures.
8- Local characteristics:

Field to modify:

Figure 12. Corporate Author Authority Record.

Authority Control

Update an authority record

Record: 01-2100853

Subject headings

Verified "national"

1- Established heading: United States--History--Revolution, 1775-1783
2- Control number (001): sh 85-140139
3- Cataloging source (040): lcsh eng
4- General see reference:
5- General see also reference:
6- See from reference (4xx):
   War of the American Revolution.
   Revolutionary War, American.
   American Revolution.
7- See also reference (5xx):
8- Note (6xx):
9- Equivalent heading (9xx):
10- Local characteristics:

Field to modify:

Figure 13. Subject Authority Record.
Search the ON-LINE catalog

Search request: SCIENCE POLITIQUE

1: (43 rec.) Science politique
2: (4 rec.) Related term: Histoire constitutionnelle
3: (2 rec.) Related term: Histoire
4: (26 rec.) Related term: État
5: (191 rec.) = Political science
6: (16 rec.) Related term: Federal government
7: (7 rec.) Related term: Opposition (Political science)
8: (2 rec.) Related term: Oligarchy
9: (25 rec.) Related term: Nationalism
10: (1 rec.) Related term: Local government
11: (81 rec.) Related term: Liberty
12: (31 rec.) Related term: Liberalism
13: (1 rec.) Related term: Koran--Political science
14: (3 rec.) Related term: Kings and rulers
15: (3 rec.) Related term: Jurisprudence

Selection:

Figure 14. Equivalency Links in OPAC.

of a heading. In the MARC-compatible version, the 9xx authority fields are only available at those sites configured to accept the CAN-MARC authority format. Links between equivalent forms of a heading are shown with an equal sign (=) (see figure 14).

The “Local characteristic” field, which also appears in the work form for bibliographic records, can identify up to twenty-six characteristics, A through Z, with the digits 0 or 1 representing the two possible conditions for a characteristic, OFF or ON, respectively. The meanings assigned to the twenty-six codes are entirely up to the individual library and can be used for statistical purposes, the production of lists, etc.

While MARC tags are not displayed in the MultiLIS text format Laurentian has adopted, authority records are stored in a modified MARC format in which links are established with the appropriate dictionary term (see figure 15). For users of the MARC-compatible version of the software, the authority work form displays all MARC authority tags and subfield codes.

BILINGUAL AUTHORITIES AT LAURENTIAN

At Laurentian, the equivalent form and bilingual capabilities of the MultiLIS authority module are used with four of the seven system dictionaries, in order to provide links between English and French forms of heading in its bilingual catalog. The four dictionaries are personal author, corporate author, document type, and subjects. Bilingual forms for the remaining three dictionaries—series, publisher, and uniform title—are either not required or used only very rarely for bilingual access to Laurentian’s collection.

PERSONAL AUTHOR

The use of equivalent forms for personal authors is very limited in scope, because the established LC or NLC form is normally adequate as an access point for both English and French users. One major exception is the case of selected classical
Display existing records
No. autorité: 01-2101180

1- Dernier numéro: 2- Niveau de vérification:
3- Numéro de contrôle:
4- Date d'enregistrement: 89-06-16 15:37:28
5- Date de transaction: 89-06-16 15:37:28
6- Marc 008:
7- Source de catalogage: $aLCASH ENG
8.1- Zones MARC (010-099)
   a) Etiquette de la zone:  b) Indicateurs:
   c) Texte de la zone:
9- Vedette établie: V85
10.1- Renvoi "voir":
11.1- Renvoi "voir aussi":
12.1- Formes rejetées
   a) Numéro de la forme: V256846
   b) Compléments:

PF1 to exit, PF2 for first page, PF3 for next page

(Figure 15a. MultiMARC Authority Record.)

Display existing records
No. autorité: 01-2101180

13.13- Voir aussi
   a) Numéro de la forme: V27727
   b) Compléments:
14.1- Notes (Zones 600-699)
   a) Etiquette de la zone:  b) Indicateurs:
   c) Texte de la zone:

15.1- Ved. équivalentes
   a) Numéro de la forme: V165948
   b) Compléments:
16.3- Liens VA: V99088  16.4- Liens VA: V155175
16.5- Liens VA: V25287
17- Caract. locales:

PF1 to exit, PF2 for first page, PF3 for next page

(Last page)

(Figure 15b. MultiMARC Authority Record.)
Latin and Greek authors, where forms of name differ significantly in the two languages. It was decided not to establish the French form as a rejected form of the established LC heading, because most francophone users looking for titles by these authors would be more familiar with the French-language heading. Figures 16 and 17 illustrate online displays for two such authors, Platon (=Plato) and Aristotle (=Aristote), in the author and subject dictionaries, respectively. Another possible exception is Russian names, due to the difference between transliteration schemes of Russian to English and Russian to French, e.g., Solzhenitsyn vs. Soljenitsyne, or Gorbachev vs. Gorbachev.

CORPORATE AUTHOR

At Laurentian, the primary application of bilingual access for corporate authors is in the case of government publications. Since the early 1970s, the system used for the organization of official publications is CODOC, in which the principal access point, as well as the basis for shelf arrangement, is the document’s issuing body—a government department, ministry, agency, or branch. The use of the authority module to upgrade CODOC headings to LC forms has been described elsewhere.

Linkages will be created, principally for Canadian federal agencies, between the English and French forms of a corporate author heading. For example, where LC establishes “Statistics Canada” as an official heading with the French-language form, “Statistiques Canada,” as an alternate rejected form, Laurentian will create a link between the two forms using the “Equivalent form” field of the authority workform. The user is automatically directed to equivalent forms in the other language, indicated by the presence of an equal sign before the equivalent form (see figure 18). Since Laurentian is a full-depository library for all Canadian federal publications in both English and French, the equivalency link will be established for corporate author headings at the federal level. Where applicable, this policy will also be put into effect for agencies of the Ontario government, which has recently undertaken to upgrade its services to the province’s French-language minority.
Search the ON-LINE catalog

Search request: **ARISTOTLE**

1: (2 rec.)  Aristotle
2: (1 rec.)  = Aristote

Selection:

Figure 17. English-French Equivalency Link, Classical Author as Subject.

Search the ON-LINE catalog

Search request: **STATISTICS CANADA**

1: (1 rec.)  Statistics Canada
2: (1 rec.)  = Statistique Canada

Selection:

Figure 18. English-French Equivalency Link, Corporate Author.
Another type of linkage applies to related headings, i.e., preceding or succeeding accepted forms of name for a government agency prior to or as a result of reorganization or a change in responsibilities. In the case of Canadian or international bodies with both an English and French form of heading, other established forms can be linked to the current heading, English or French; in an online search, the user will be directed to these headings with the indented phrase “See also.” (see figure 19).

One disadvantage of keyword indexing can be illustrated with a corporate author search, where cross-references, equivalencies, and related headings have been generated for one corporate entity. As noted above, indexing is done on all significant terms in a heading, including any cross-references. It is possible that terms used in rejected headings can refer to several established terms, which, in combination with equivalency links, lead to displays similar to those in figure 19. It is not sufficiently clear in the third listing, “Use: Canadian International Development Agency,” why the entry of the sequence “CANADA EXTERNAL AFFAIRS” has resulted in the posting of a seemingly totally unrelated heading. While many disparate corporate headings have been brought together in one online display, their arrangement is likely to generate confusion among users, in that the relationship between the terms retrieved and entered by the user is not explained adequately.

**DOCUMENT TYPE**

Policies for bilingual access by document type, as well as guidelines for a standardized list of bilingual form and collection descriptors, are currently under review. A choice will be made between two options: the entry of a document type based on the language of the item, with French-language titles assigned a document type in French and titles in all other languages one in English, or, alternately, all titles assigned a single bilingual document form. Figure 20 illustrates the former case, two document type headings having been linked through use of the “Equivalent form” field in the authority record.

For both media and special collection
document types, the ability to add cross-references and equivalencies to authority records in both languages means that users' or researchers' preferred terminology for various media or specialized files, in combination with other search keys, will lead directly to information in the format they prefer. Figure 21 is an example of a document type authority record, where possible alternate terms for one audiovisual format have been added as cross-references to a locally established form. A user looking for recorded performances by tenor Luciano Pavarotti of Verdi arias can enter the following combination search (Boolean): “au=Pavarotti and au=Verdi and dt (Document type)= enregistrement sonore”. The link between English and French terms for document type ensures that items assigned the English-language descriptor “sound recording” will be combined with the two author searches, and the resulting title posting will exactly match the user’s initial request.

**SUBJECT**

The full impact of the bilingual capability of MultiLIS can be seen most clearly in the subject catalog. For subject control, Laurentian uses two principle thesauri, LCSH for works in all languages but French, and RVM, prepared by la Bibliothèque de l’Université Laval, Québec, for titles in French. These two sources are supplemented by the bilingual list *Canadian Subject Headings (CSH)*, produced by NLC, for terms unique to Canada, where variations from LCSH are appropriate, e.g., GOODS AND SERVICES TAX—CANADA, instead of the LC heading VALUE-ADDED TAX—CANADA.

Figure 22 shows the online equivalent link between an LCSH and an RVM heading. Whenever an equivalent term is added to an authority record, a reciprocal authority is automatically generated (see figure 23), meaning that even though the link between the two languages is established only once by the creator of the original authority record, entry of either term will retrieve the linked heading.

Provided that an equivalency has been established, the entry of terms in one language, English or French, will also retrieve
Update an authority record
Record: 19-2104417
1- Established heading: sound recording
2- Control number (001):
3- Cataloging source (040):
4- See from reference (4xx):
   LP.
   Long-play recordings.
5- See also reference (5xx):
6- Note (6xx):
7- Equivalent heading (9xx):
   enregistrement sonore.
8- Local characteristics:

Field to modify:

Figure 21. Document Type Authority Record.

Search the ON-LINE catalog

Search request: QUEBEC HISTORY AUTONOMY
1: (4 rec.)  Québec (Province)--History--Autonomy and independence movements
2: (5 rec.)  = Québec (Province)--Histoire--Autonomie et mouvements
             indépendantistes

Selection:

Figure 22. LCSH/RVM Subject Equivalence Link.
Authority Control (Table)

<table>
<thead>
<tr>
<th>Record: 19-2104411</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field to modify:</td>
</tr>
</tbody>
</table>

- **1.** Established heading: Québec (Province) -- Histoire -- Autonomie et mouvements indépendantistes
- **2.** Control number (001): 
- **3.** Cataloging source (040): VML FRE
- **4.** General see reference: 
- **5.** General see also reference: 
- **6.** See from reference (4xx): 
- **7.** See also reference (5xx): 
- **8.** Note (6xx): 
- **9.** Equivalent heading (9xx): Québec (Province) -- History -- Autonomy and independence movements.

Figure 23. Reciprocal RVM/LCSH Subject Authority Link.

titles indexed with the equivalent term in the other language, as shown in figure 24.

In a bilingual catalog like Laurentian's, where publications cataloged in English and French are in the same file, conflicts occur when a term in one language also exists in the second but with a different meaning. An example is the LCSH term PAIN and the RVM heading PAIN; identical in spelling, these two headings refer to two different ideas, as the French heading means “bread.” Such cases, however, are extremely rare and are resolved as encountered. Where an English and a French heading are totally identical, e.g., FRANCE, no equivalency is made; however, the user is able to do a secondary limiting search by language on the retrieved title listing.

Another possible, but relatively rare, conflict occurs when the heading in one language is a rejected term in the other. For example, the RVM term PORTS (=Harbors), is a rejected form for the LCSH term. In order to create an equivalency for such cases, certain rejected terms are simply omitted from the appropriate authority record. We have also experienced some cases where the only difference between equivalent English and French headings is the presence of a diacritic in the French heading, e.g., EVOLUTION versus ÉVOLUTION. Since accents are stripped for indexing of a heading, the two terms are treated as identical for searching purposes; at present, while we can override the system’s verification routine and create an equivalency link between two otherwise similar terms, the link does not appear in the online display. Again, such instances are very rare. There are also certain RVM terms, such as LÉGUMES SECS, literally translated “dry vegetables,” where no equivalent has been established in English.

The fact that links are made only between two exactly equivalent subject terms means that even in a relatively small subject file such as Laurentian’s, the number of unique authority records to be generated in order to add bilingual cross-references would be totally beyond our present resources. Therefore, negotiations are currently under way to load Laval University’s RVM authority tapes into Laurentian’s database. Laval’s subject authority records
include the LCSH term as an equivalent form in the appropriate MARC tag, as well as all cross-references and related headings for French-language headings. Once this file is loaded, any RVM or LCSH heading in Laurentian's database will be linked to its equivalent in the other language, and these links will be reflected in the online catalog, provided, of course, that the equivalent term appears in at least one bibliographic record. Tests are also under way for the uploading of LCSH authority records for English-language cross-references and related terms from CDMARC Subjects and CDMARC Names, a process similar to the existing ability to transfer bibliographic records from CD-ROM sources such as Bibliofile.

**Multilingual and Multithesaurus Subject Authorities**

It is in also in the context of subject access that the potential of the MultiLIS authority module as a control system for multilingual or multithesaurus controlled vocabularies can best be viewed.

In the MultiLIS authority record, cross-reference fields, including the equivalency link, are repeatable, meaning therefore that an English-language subject heading can be linked to equivalent terms in more than one language. In the three examples shown (see figures 25–27), an LCSH heading has been linked to its equivalents in Spanish, French and German, and Italian, respectively. Again, as long as an equivalent heading appears in a bibliographic record, the online catalog will indicate the relationship of the headings with the equal sign. The upper limit for the number of equivalent headings in other languages that can be linked has not been explicitly stated in Sobeco's manual for the authority module. It would appear that the MultiLIS authority system is ideally suited for libraries in countries or institutions where multilingual catalog access is a primary factor, e.g., Switzerland, the United Nations, and the European Community.

For large North American university library systems, where branch libraries for medicine or law may use alternate subject thesauri, such as Medical Subject Headings...
Search request: SPAIN COLONIES

1: (1 rec.) Spain--Colonies--America--Administration
2: (1 rec.) = España--Colonias--América--Administración

Selection:

Figure 25. English/Spanish Equivalency Link in OPAC.

Search request: GERMANY HISTORY

1: (7 rec.) Germany--History
2: (1 rec.) = Deutschland--Geschichte
3: (3 rec.) = Allemagne--Histoire

Selection:

Figure 26. English/French/German Equivalency Link in OPAC.
within certain limitations, the MultiLIS authority module can link equivalent headings from different subject thesauri. Figures 28, 29, and 30 show links between an LCSH term and terms from CSH, MeSH, and Sears, respectively.

The authority module verifies a rejected term during entry and warns the operator if the term matches a reference to an already established heading. Consequently, for example, the use of an LCSH term that is a rejected term in MeSH, or vice-versa, means that the two thesauri cannot currently coexist in the same file. However, since each database partition within Laurentian's network configuration is completely independent as far as authorities are concerned, it would be theoretically possible to use LCSH in one file, MeSH in a second, and some other subject thesaurus in a third. As long as an authority link is made in at least one partition between a heading and multiple equivalents, MultiLIS will display the links at the network level, provided that the database where the link was created is one of the files being searched.

**THE MULTIILS AUTHORITY MODULE: AN EVALUATION AND CRITIQUE**

While the MultiLIS authority module does represent an advance in online authority control for multiple subject thesauri, there is room for improvement in selected areas. Of the eleven criteria for single or independent thesaurus management listed by Mandel, the MultiLIS authority module satisfies only three fully and another three partially or to a significant degree, confirming her assertion that "[n]o existing system supports all of these features." MultiLIS supports online input and edit, the creation of authority records for rejected terms, and the ability to link terms to records for subdivisions. In addition, MultiLIS authority records meet the requirements for the contents of authority records, according to ANSI standard Z31.19, even though Laurentian's records are stored in a modified MARC format; the MARC-compatible version stores the full MARC authority record. Three of four
Search the ON-LINE catalog

Search request: INUIT

1: (3 rec.) Inuit--Canada
2: (1 rec.) Related term: Indians of North America--Canada
3: (3 rec.) = Eskimos--Canada

Selection:

Figure 28. LCSH/CSH Equivalency Link in OPAC.

Search the ON-LINE catalog

Search request: DRUG ABUSE

1: (5 rec.) Drug abuse
2: (3 rec.) = Substance abuse
3: (1 rec.) Drug abuse--Complications and sequelae

Selection:

Figure 29. LCSH/MeSH Equivalency Link in OPAC.
Search the ON-LINE catalog

Search request: FIRST AID

1: (3 rec.) First aid
2: (1 rec.) Related term: Accidents
3: (4 rec.) = First aid in illness and injury

Figure 30. LCSH/Sears Equivalency Link in OPAC.

recommended features for linkages to references in other records—verification of BT, NT, and RT; creation of reciprocal references; and display of linkages—are supported.

With respect to Mandel's criteria for products and higher-level displays, MultiLIS does fall short; hierarchy display, flexible alphabetic display, flexible output, microthesauri, and bucket terms are currently not available. This tends to support the low ratings scored by MultiLIS in Johnston's survey for products and administrative statistics. The only authority product now supported by MultiLIS is a paper listing, by partition, of all terms in each of five of the dictionaries: publisher, author, corporate author, series, and subject. Figure 31 shows a part of such a list for the subject dictionary.

As cited by Mandel, Lancaster and Smith describe five approaches for multithesaurus support in an online environment. MultiLIS uses a form of "mapping," in which there is a "direct translation of terms in one vocabulary to corresponding terms in another." Mandel also includes a list of six recommended features for multithesaurus management. Currently, MultiLIS supports three of these: separate thesaurus management, verification of new terms against all thesauri, and cross-file relationships. Compatibility codes with LCSH, copying terms between thesauri, and user-specified searches and displays between lists are features not yet available.

Johnston's 1988 survey of vendor authority systems ranked MultiLIS eighth overall of the eighteen systems surveyed. Above-average scores were given for essential, desirable, and peripheral items. As we have already demonstrated, MultiLIS' principal strengths, and highest scores, are for the links between authority and bibliographic records (third overall) and "syndetic structure," i.e., the references between related headings (first, scoring 22 of a possible 24 points). Given the current ability to modify, display, add or delete individual authority records or individual fields in the records, as well as the very powerful global change capability, the relatively low score given for "database dynamics," (14th) i.e., the need to keep
<table>
<thead>
<tr>
<th>Subject Heading</th>
<th>Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany--Civilization--History</td>
<td>3 records</td>
</tr>
<tr>
<td>Germany--History</td>
<td>7 records</td>
</tr>
<tr>
<td>Germany--History, Military.</td>
<td>1 record</td>
</tr>
<tr>
<td>Germany--History--1806-1815.</td>
<td>1 record</td>
</tr>
<tr>
<td>Glass Bottle Blowers' Association of the United States and Canada--History--Sources</td>
<td>1 record</td>
</tr>
<tr>
<td>Glass Bottle Blowers' Association of the United States and Canada--Archives</td>
<td>1 record</td>
</tr>
<tr>
<td>Gouvernement fédéral--Canada--Histoire.</td>
<td>1 record</td>
</tr>
<tr>
<td>Great Britain.</td>
<td>2 records</td>
</tr>
<tr>
<td>Greek philosophy</td>
<td>1 record</td>
</tr>
<tr>
<td>Group work in education.</td>
<td>1 record</td>
</tr>
<tr>
<td>Hiking--Accidents and injuries.</td>
<td>1 record</td>
</tr>
<tr>
<td>Human immunodeficiency viruses</td>
<td>1 record</td>
</tr>
<tr>
<td>Hygiene, Sexual.</td>
<td>1 record</td>
</tr>
<tr>
<td>Indians of Mexico--Mexico, Valley of</td>
<td>1 record</td>
</tr>
<tr>
<td>Indians of North America--Canada</td>
<td>1 record</td>
</tr>
<tr>
<td>Indians of North America--Canada, Northern</td>
<td>1 record</td>
</tr>
<tr>
<td>Indians, Treatment of--Canada</td>
<td>1 record</td>
</tr>
<tr>
<td>Industry and state--Germany--History</td>
<td>1 record</td>
</tr>
<tr>
<td>Industry--United States--1890-1920.</td>
<td>1 record</td>
</tr>
<tr>
<td>International cooperation.</td>
<td>1 record</td>
</tr>
<tr>
<td>Inuit--Canada</td>
<td>3 records</td>
</tr>
<tr>
<td>Italian poetry--History and criticism</td>
<td>1 record</td>
</tr>
<tr>
<td>Johnston, Frances Benjamin, 1864-1952.</td>
<td>1 record</td>
</tr>
<tr>
<td>Journalists</td>
<td>1 record</td>
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<tr>
<td>League of Nations.</td>
<td>1 record</td>
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<tr>
<td>Lévesque, René, 1922-1987</td>
<td>1 record</td>
</tr>
<tr>
<td>Medical emergencies.</td>
<td>1 record</td>
</tr>
<tr>
<td>Mental illness--Chemotherapy</td>
<td>1 record</td>
</tr>
<tr>
<td>Mexico--Historia--1821-1861.</td>
<td>1 record</td>
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<tr>
<td>Mexico--History--To 1810</td>
<td>1 record</td>
</tr>
<tr>
<td>Minnesota multiphasic personality inventory.</td>
<td>1 record</td>
</tr>
<tr>
<td>Minorities--Canada.</td>
<td>1 record</td>
</tr>
<tr>
<td>Music, German</td>
<td>2 records</td>
</tr>
<tr>
<td>Narcotic habit</td>
<td>1 record</td>
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<tr>
<td>Narcotics, Control of</td>
<td>1 record</td>
</tr>
<tr>
<td>National characteristics, German</td>
<td>2 records</td>
</tr>
<tr>
<td>Nationalisme--Québec (Province)--Histoire--20e siècle.</td>
<td>1 record</td>
</tr>
<tr>
<td>National-socialisme.</td>
<td>1 record</td>
</tr>
<tr>
<td>Northwest Territories, Can--History</td>
<td>1 record</td>
</tr>
<tr>
<td>Operas</td>
<td>1 record</td>
</tr>
<tr>
<td>Operas, Italian--Excerpts</td>
<td>1 record</td>
</tr>
<tr>
<td>Operas--Excerpts</td>
<td>1 record</td>
</tr>
<tr>
<td>Oratorios--Excerpts</td>
<td>1 record</td>
</tr>
<tr>
<td>Parent and child.</td>
<td>2 records</td>
</tr>
<tr>
<td>Parti québécois.</td>
<td>2 records</td>
</tr>
<tr>
<td>Pearson, Lester B.</td>
<td>1 record</td>
</tr>
<tr>
<td>Personality.</td>
<td>1 record</td>
</tr>
<tr>
<td>Philosophie ancienne</td>
<td>1 record</td>
</tr>
<tr>
<td>Plato.</td>
<td>1 record</td>
</tr>
</tbody>
</table>
the authority file current by the addition or modification of records, is surprising. Perhaps this can be partially explained by the current lack of a workable interface with outside authority sources, such as LC tapes or CD-ROM. The lack of authority products and administrative statistics, where MultiLIS ranked 17th and 12th respectively, may also explain the slightly lower but certainly very respectable rating achieved in this survey.

MultiLIS, as a centrally developed and distributed system, is very dependent on continual and effective communication between clients and vendor for system enhancements. Since 1986, Laurentian and other clients have made many suggestions for improvements, including several for the authority system. One important concern will be at least partially addressed in the next version. Currently, for sites with the non-MARC version of the software, “see also” references are entered interactively into the same field of the authority workflow, MARC field 5xx; however, the online display for broader terms (BT), narrower terms (NT), and related terms (RT) all appear in the online display preceded by “Related term:”. Laurentian, a MultiLIS (non-MARC) site, has requested an improved system for the display of hierarchical relationships of headings. Ideally, BTs, NTs, and RTs should be each assigned their own field in the authority records, with the corresponding online displays revised to “Broader term:”, “Narrower term:”, or “Related term:” to assist users in placing searched terms in a hierarchy. The current system in the MultiLIS version does show a relationship between two headings but fails to specify its exact nature. The vendor has indicated that this feature is already available in the MARC-compatible version, where the type of “see also” heading is coded in the “$w” subfield of the 5xx authority tag. In addition, MultiLIS sites will receive this information in uploaded authority records. For non-MARC sites like Laurentian, the ability to interactively specify the relationship between two headings will also be available at a later date.

A second enhancement simplifies some of the procedures for global changes. Currently, modifications to dictionary forms must be done on an individual basis. For large files, e.g., LABOR AND LABORING CLASSES, each indexed heading must be accessed and revised. Laurentian requested an enhancement to the global change capabilities to allow a revision to the identical string in multiple headings. In 1991, two new functions will be added to the authority control menu, modification and deletion of subdivision or parts of a heading, including the “$a” portion of subject terms. Following entry of a string to be revised, the system will display a list of numbered headings in which the element occurs. Each heading selected from the posted list can be verified, in which case the heading as it will appear after the change appears in a separate box. Modifications must then be confirmed and made one heading at a time. A global modification to all headings containing the string can also be performed without verification. With this method, for example, the subdivision HIST can automatically be changed to the full form HISTORY in all headings in which the abbreviated string occurs and in a fraction of the time required to modify each heading. These improvements will greatly reduce the amount of time required to revise large files.

Overall, after almost two years of intense use of the enhanced authority module, Laurentian is very pleased with its operation and capabilities, especially with the ability to link terms in English and French. The speed of current procedures for global changes to and merging of dictionary terms is impressive; large files of superseded headings can be revised in a very short time with only a few keystrokes. However, even with the promised enhancements, there is still room for significant improvement. Laurentian has identified several other areas where further development is either necessary or highly recommended. The following brief list represents our outstanding complaints.

1. As recommended by Mandel, some indication of source thesaurus would be of great assistance to users in the online display of both equivalent links and authority records, especially in those partitions of our network that
may eventually use alternate thesauri, such as MeSH. While desirable, this improvement is not absolutely necessary in Laurentian's present strictly bilingual configuration, as the vast majority of our users are able to distinguish between an English LCSH term and a French RVM heading.

2. An improved method of linking rejected terms for a heading to other headings that contain the same base is needed. For example, the subject heading UNITED STATES—HISTORY—REVOLUTION, 1775–1783 has one rejected form AMERICAN REVOLUTION. Other subject strings, with subdivisions, use the established form as their base, e.g., UNITED STATES—HISTORY—REVOLUTION, 1775–1783—CAUSES. Because each unique subject term is a separate dictionary entry, the use of a rejected term will direct the user only to those headings where this cross-reference has been added and not to other similar headings with subdivisions, as illustrated in figure 32. The user is obliged to perform a second search, with terms from the posted accepted heading, in order to retrieve other headings on the same topic.

3. The MultiLIS authority products must be enhanced. Partial printouts of the system dictionaries, for example, would reduce the need to generate and print a 1,400-page subject dictionary list for the largest partition of the network. Listings by first letter or by a specific string would assist in the verification and revision of larger files. Other potentially useful partial lists should be developed by language or source thesaurus. For ongoing authority control of headings from recently entered bibliographic records, a printout, by date of initial entry, of specific access points or new dictionary forms would prove far more manageable than a larger, more comprehensive list of authors or subjects. Included in any partial printout of dictionary forms should be some indication of whether an authority record has been created for the heading.

**Conclusion**

The most important criterion to be met by any automated system, for authority control or any other library operation, is the degree to which it satisfies the institution's operational requirements and, above all, users' expectations and needs. For Laurentian, functionality in both official languages, as well as the ability to support multiple independent collections or affiliated libraries, was an absolute necessity. In terms of authority control, several language environments had to be supported, in the event that all of Laurentian's federated or affiliated colleges decided to contribute records to the network database.

In terms of meeting users' expectations, the choice of the preferred language of system displays and prompts is a two-keystroke, user-controlled option, performed directly at each OPAC station, with no effect on other stations or system operations. In addition, the fact that English and French subject terms, or related headings, can be linked and displayed in the online catalog means that most titles on a topic can be retrieved with only one search. The fact that users are directed from lay terms for a topic to LCSH or RVM standardized headings means that, more and more, an OPAC with an integral user-transparent authority system can become an independent tool for item retrieval from a library's collection, with no recourse necessary to external printed subject guides.

Somewhat surprising is the number of papers delivered over the last few years in which libraries with other automated systems are discussing future developments for authority control features, many of which MultiLIS already has, such as online display of authority records, global modifications, and the display of related subject terms. No doubt, given that MultiLIS rated eighth of eighteen systems in Johnston's survey of vendor authority control, other, more complete and sophisticated authority systems do exist. It would appear, however, that in terms of linkage of headings, especially from different thesauri or from different languages, most systems cannot yet offer all the features currently supported by MultiLIS, a fact
<table>
<thead>
<tr>
<th>Search the ON-LINE catalog</th>
<th>Subject headings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Search request:</strong> UNITED HISTORY REVOLUTION</td>
<td></td>
</tr>
<tr>
<td>1: (19 rec.) United States--History--Revolution, 1775-1783</td>
<td></td>
</tr>
<tr>
<td>2: (16 rec.) United States--History--Revolution, 1775-1783--Causes</td>
<td></td>
</tr>
<tr>
<td>3: (2 rec.) United States--History--Revolution, 1775-1783--Sources</td>
<td></td>
</tr>
<tr>
<td>4: (3 rec.) United States--History--Revolution, 1775-1783--Historiography</td>
<td></td>
</tr>
<tr>
<td>5: (1 rec.) United States--History--Revolution, 1775-1783--Bibliography</td>
<td></td>
</tr>
<tr>
<td>6: (1 rec.) United States--History--Revolution, 1775-1783--Women</td>
<td></td>
</tr>
<tr>
<td>7: (1 rec.) United States--History--Revolution, 1775-1783--Congresses</td>
<td></td>
</tr>
<tr>
<td>8: (1 rec.) United States--History--Revolution, 1775-1783--Influence</td>
<td></td>
</tr>
<tr>
<td>9: (1 rec.) United States--History--Revolution, 1775-1783--Afro-Americans</td>
<td></td>
</tr>
<tr>
<td>10: (1 rec.) United States--History--Revolution, 1775-1783--Collected works</td>
<td></td>
</tr>
<tr>
<td>11: (1 rec.) United States--History--Revolution, 1775-1783--Prisoners and prisons</td>
<td></td>
</tr>
<tr>
<td>12: (2 rec.) United States--History--Revolution, 1775-1783--Campaigns and battles</td>
<td></td>
</tr>
<tr>
<td>13: (1 rec.) United States--History--Revolution, 1775-1783--Regimental histories</td>
<td></td>
</tr>
</tbody>
</table>

Selection: 

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**Figure 32a. Search by Rejected Term.**

<table>
<thead>
<tr>
<th>Search the ON-LINE catalog</th>
<th>Subject headings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Search request:</strong> AMERICAN REVOLUTION</td>
<td></td>
</tr>
<tr>
<td>1: (19 rec.) Use: United States--History--Revolution, 1775-1783</td>
<td></td>
</tr>
<tr>
<td>2: (2 rec.) Use: United States--History--Revolution, 1775-1783--Sources</td>
<td></td>
</tr>
<tr>
<td>3: (16 rec.) Use: United States--History--Revolution, 1775-1783--Causes</td>
<td></td>
</tr>
<tr>
<td>4: (3 rec.) United States--History--Revolution, 1775-1783--Regimental histories--American loyalist</td>
<td></td>
</tr>
</tbody>
</table>

Selection: 

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**Figure 32b. Search by Rejected Term.**
confirmed by the top rating given by Johnston for syndetic structure support. Given the particular circumstances of Laurentian, a bilingual, multilibrary operation, the choice of MultiLIS for catalog management does seem very appropriate. We are confident that, in cooperation with both the system vendor, Sobeco, and other MultiLIS clients, most notably l’Université Laval and other bilingual users, future enhancements to the authority control module will be introduced that can only serve to improve the position of MultiLIS in the library automation marketplace.

REFERENCES AND NOTES
6. Laurentian University, Calendar (Sudbury, Ont.: Laurentian University, 1990), p.13.
11. In all figures, user input appears in boldface type. A <CR> after user input is understood but not shown.
12. According to a Sobeco representative, subject searches will be alphabetized in a forthcoming version, to be released in 1991.
15. For the purposes of this section, all examples are taken from a test database in Laurentian’s network. Approximately eighty records were copied from the main network partitions to the test environment, and the appropriate authority records were created. The test database is accessible in the online catalog, with the result that authority records created in test mode are linked to the network indexes; however, normally only six or seven of the partitions are accessed in Laurentian’s online catalog, meaning that users are rarely, if ever, even aware of the existence and creation of records in the test database. While every effort has been made to verify that subject headings from different thesauri are equivalent terms, the author wishes to emphasize that the examples chosen are intended for illustrative purposes only. Examples were selected from the latest available edition of the thesauri.
16. Glen J. Kelly and Ronald Slater, “CODOC to MARC Conversion in a Bilingual University Library: Developing a Methodol-
ology to Reduce Data Entry Revision” (unpublished; accepted for publication in Government Publications Review). CODOC was the Cooperative Documents Consortium.


18. Répertoire de Vedettes-Matière, 9th ed. (Québec, Qué.: Bibliothèque de l'Université Laval, 1983).


24. Sobeco has indicated that in the next version of MultiLIS, available in 1991, the use of a rejected term from one subject list as an accepted form in another will be permitted in the same file.


29. Ibid., p.9-10.


31. Ibid., p.248.

32. Ibid., p.249.

33. Ibid., p.247.

34. Ibid., p.250-51.


37. Mandel, Multiple Thesauri, p.10.

Full-text databases for the humanities scholar

The Patrologia Latina Database
a complete, machine-readable edition of J. P. Migne’s Patrologia Latina from the Patrologiae Cursus Completus.

The English Poetry Full-Text Database
an electronic version of the complete works of 1,350 poets from the Anglo-Saxon era (600 AD) to the end of the 19th century. Both databases are SGML-encoded in accord with emerging Text Encoding Initiative (TEI) standards and published with a liberal networking structure.

For more information, contact Melissa Henderson at 800-752-0515, or write to Chadwyck-Healey Inc., 1101 King Street, Suite 380, Alexandria, Virginia 22314.
Academic libraries increasingly are relying on the OCLC Online Computer Library Center or other bibliographic utilities for cataloging copy, and the Slavic field is no exception. In recent years, however, the quality and timeliness of Russian-language records in the OCLC Online Union Catalog (OLUC) seem to have significantly decreased.

To study this, I conducted a survey of OCLC bibliographic records for all new Russian-language monographic imprints received by the University of Texas at Austin General Libraries during the five month period between December 5, 1989, and May 5, 1990. All monographs were published in the Soviet Union, most of them in 1989 or 1988, and very few in 1987. Older imprints, added volumes, and added copies were ignored. When duplicate records were available, only one was counted. The topics were literature (including fiction), history, sociology, economics, geography, linguistics, and art. Considering the number of books received (507 new Soviet imprints in five months translates to approximately 1,200 such imprints a year) and the topics covered, the pool was probably typical of a medium-sized Russian-language collection in the United States.

RESULTS

OCLC search results showed that there were no hits (i.e., no bibliographic records located, thus original cataloging is required) for 37.3% (189) of the books. For 62.7% (318) of the books, hits were made (i.e., at least one record was located). Of these, 112 (35.2%) had Library of Congress (LC) call numbers, and 206 (64.8%) did not. The hits were broken down into the following subcategories.

- Full-level LC records with LC call numbers (can be handled by copy cat-
alogers) were found for twenty-one (4.1%) of the books. This represented 6.6% of all hits.

- Full-level member records with LC call numbers (can be handled by copy catalogers) were found for 91 (18%) of the books, representing 28.6% of all hits.
- Member records without LC call numbers (usually handled by professional catalogers) were found for 128 (25.2%) of the books, or 40.3% of all hits.
- LC sub-level records (minimal-level cataloging or preliminary on-order records), and National Coordinated Cataloging Program (NCCP) records without LC call numbers (usually handled by professional catalogers). Seventy-eight (15.4%) of the books fell into this category, representing 24.5% of all hits.

Of the 507 monographs searched, only 112 (22.1%) could be handled by a copy catalog, 189 (37.3%) required original cataloging, and 318 (62.7%) also needed the attention of a professional cataloger (at least to assign an LC call number).

These findings agree with the results of a much more comprehensive study described by Reid, which demonstrated that LC was responsible for only one-fifth of all new records added to the OLUC in 1989.1

**DISCUSSION**

The distinction made here between copy catalogers and professional catalogers is somewhat arbitrary. In many academic libraries, paraprofessionals are to a varying extent involved in cataloging above the level of simply editing complete records. However, a survey of forty academic libraries conducted by Eskoz in 1986-87 has shown that 65 percent of them were still using only professionals for assigning both call numbers and subject headings. In any case, only highly skilled and specially trained paraprofessionals are usually involved in either of the two operations.

At present, most of the Russian-language member records are added by several libraries that are not using the Library of Congress Classification. Furthermore, many member records are plagued with certain misinterpretations of the Anglo-American Cataloging Rules, 2d. ed. (AACR2) with respect to Russian imprints, as well as by typing errors, particularly when it comes to the diacritics. Such records can only be improved by libraries that are authorized to permanently change full-level master records in the OLUC in order to share the improvements with other member libraries.5

As a result, Slavic catalogers across the country are busy improving each other's records locally, often without being able to share the improvements with other member libraries. This leads to an enormous duplication of effort—the effort that could have been spent on cataloging new materials without putting them "on hold" (and thus generating more copy for copy catalogers at all member libraries), or on processing the backlogs, which often contain older and more rare materials that require original cataloging.4

**CONCLUSIONS**

In recent years, the role of LC in supplying Russian-language monographic records to the OLUC on a timely basis has been essentially taken over by other institutions, most of which do not use Library of Congress Classification. Consequently, fewer records can be handled by copy catalogers, which effectively reduces the usefulness of OCLC for cataloging purposes, especially for smaller Slavic collections with few or no Slavic original catalogers.

This situation adversely affects many member libraries and the field of Slavic studies in general, and there is an urgent need to discuss possible ways to improve it. The following steps can be suggested:

1. Slavic catalogers across the country should be encouraged to improve existing records. The new OCLC system, PRISM, makes it possible for all member libraries to add call numbers and subject headings to master records, and this new possibility should not be ignored.

2. OCLC needs further to encourage original full-level input by all member
institutions through its fee structure and other means. Some steps in this direction are already being taken.

3. Full-level records should be made more open to improvements by other member libraries in the fields other than those for call numbers and subject headings.

4. Organizing specialized workshops and preparing a manual for Slavic catalogers could significantly improve the quality of cataloging by member libraries and help to uphold cataloging standards with respect to Slavic materials.

Finally, the findings of this survey underscore the crucial role of universal standards in bibliographic control. The lack of uniformity in just one single aspect of cataloging, namely the use of two different classification systems (Library of Congress and Dewey Decimal Classification), is responsible for the fact that approximately one-half of all the hits in the survey, or nearly one-third of all the monographs, were represented by copy that might be unacceptable to most academic libraries. Another compromise of the standards—the minimal-level cataloging at the Library of Congress—has aggravated the problem still further. Standards change with time, but they should remain standards. The trend toward lowering cataloging standards unilaterally and reverting to various kinds of less-than-complete cataloging locally might eventually jeopardize the whole concept of shared cataloging using bibliographic utilities. An automated system does not generate cataloging copy by itself. Automation opens tremendous new possibilities, but its effectiveness is heavily dependent upon the quality of human input. At present, good cataloging is as essential as it has ever been.

REFERENCES AND NOTES


3. Such libraries are called “enhance-libraries,” after the OCLC “Enhance” quality-control program. Only sixty-two institutions are authorized to enhance monographic records in languages other than Chinese, Japanese and Korean, and not many of these libraries are involved in large-scale processing of Slavic materials. See Nita Dean, “Enhance Libraries Improve Database Quality,” OCLC Newsletter, no.187:17-19 (Sept./Oct. 1990).

**REPORT OF THE PRESIDENT**

Energy! Outreach! Services! Vision! Enthusiasm! Teamwork! Building on our Past! Shaping Our Future! The words and phrases that characterize the Association for Library Collections & Technical Services' (ALCTS) year fit my goals of building on ALCTS’ strengths and conveying the fun, excitement, and opportunities of working with library collections and technical services.

With the name-change year behind us, ALCTS members turned to organizing the association to meet current needs and prepare for the future. The division voted to rename the Resources Section (RS) the Acquisition of Library Materials Section (ALMS), and the Collection Management and Development Section (CMDS) was established. The board established an Out-of-Print Discussion Group, a Scholarly Communications Committee, and a Program Initiatives Committee. The Board of Directors also authorized the establishment of a Task Force on Organizational Structure chaired by Charlotta Hensley and charged with developing a recommendation for the reorganization of ALCTS in time for the spring 1993 ballot. The review of ALCTS’ structure encompasses examination of the role of discussion groups and the need to establish groups with flexibility as well as the ability to present programs and other substantive activities.

ALCTS has traditionally provided services to its members and others in the library community through regional institutes and preconference workshops. This year the executive committee brainstormed ideas for a new institute series and established the Serials Management Institute Planning Committee with Marjorie Bloss as chair. It is on target to hold the first of its institutes in the fall of 1991. A planning meeting chaired by Debra McKern started preparation for a 1993 institute on the care and preservation of magnetic media. Institutes and workshops planned for the year were:

- New Directions in Library Binding, scheduled for September 14–15, 1990—canceled due to low registration
- Business of Acquisitions, June 6–7, 1991
- Abridged 12 and DDC 20: A Dewey Classification Workshop, March 23–24, 1991

ALCTS’ initiatives continued in publications. At its spring meeting, the Executive Committee moved to establish the ALCTS Network News (AN2), the first division news issued in electronic form. AN2 will supplement but not replace the ALCTS Newsletter. It will be staff-edited with assistance from the ALCTS Newsletter editor and an editorial board.

ALCTS’ first venture into electronic publishing, the Newsletter on Serial Pricing Issues (NSPI), continued as a division publication until May 1991. At that time ALCTS’ Executive Committee and Marcia Tuttle, editor of and creative force behind NSPI, agreed that NSPI should be published independently by its editor. The Executive Committee expresses its deep appreciation to Marcia Tuttle and the Task Force on Serial Pricing Issues of the Publisher/Vendor-Library Relations Committee for their energy and commitment to making NSPI a valuable resource to librarians throughout the world.

In a more traditional publishing initiative, ALCTS began a monographic series, *ALCTS Papers on Library Technical Services and Collections*. Edward Swanson is

In addition to the first publication in the series, new ALCTS publications in 1990–1991 included:

- **1989 National Shelflist Count**
- **Guide to Budget Allocation for Information Resources**, Edward Shreeves, editor
- **Guide to the Library Binding Institute Standard for Library Binding**, by Jan Merrill-Oldham and Paul Parisi
- **ALA Target Packet for Use in Preservation Microfilming**, by Debra McKern and Sherry Byrne

Also this year, the *Library Resources & Technical Services* (LRTS) editorial board drafted and circulated a statement of editorial policy. The ALCTS Board of Directors approved LRTS' editorial policy at the Atlanta Annual Conference.

Conference programming, a traditional basic service to ALCTS members, continues to be strong. The 1991 President's Program was entitled "Collection Management in the Online Environment: A Sampler." In all, twenty-eight hours of programming were planned for the 1991 ALA Annual Conference in Atlanta. Preconferences were held on AACR2 Revised and The Collection Development/Public Services Librarian: The Challenge of Dual Roles.

In 1991 distinguished contributors to library collections and technical services were honored at the ALCTS Awards Breakfast. In addition, the division presented the Hugh Atkinson Memorial Award to Donald Riggs (University of Michigan). ALCTS cosponsors the award with the Library Administration and Management Association (LAMA), the Library Information and Technology Association (LITA), and the Association of College and Research Libraries (ACRL). The ALCTS Awards Breakfast featured keynote speaker Professor Winton Solberg, a historian at the University of Illinois at Urbana-Champaign.

The ALCTS Endowment Fund was established with a beginning balance of $10,000. ALCTS will finish fiscal year 1991 in the black. However, the future is less certain as there has been a slight loss in membership combined with more limited success in providing profitable continuing education opportunities.

ALCTS is actively engaged in legislative concerns through a revitalized Legislative Committee. ALCTS' concerns regarding preservation and access have been incorporated into the ALA's statements for the White House Conference on Library and Information Services (WHCLIS).

ALCTS was blessed with a full complement of staff this year. The capable, productive staff are: Karen Muller, executive director; Alex Bloss, deputy executive director; Yvonne McLean, program assistant; Marie Rochelle, administrative secretary; and Beatrice Calvin, administrative assistant. Karen Muller and Beatrice Calvin are shared by ALCTS and LAMA. The shared-staffing arrangement is working well and was made permanent by the executive committees of ALCTS and LAMA at their joint meeting in November 1990. Any membership organization requires time from many volunteers. As important as the volunteers are, however, the staff is essential to ALCTS' vitality. By the time we learn our jobs it is someone else's turn to carry the torch. The continuity is provided by the staff.

As I pass ALCTS' torch to my successor, I believe that my goals have been met. Working with technical services and collections is fun and satisfying. Working with others who share similar values is a personal fulfillment. There is so much energy in ALCTS right now that I have tremendous optimism about its future. Good people and good goals make a combination that can't be beat. ALCTS continues to be a vital component of the American Library Association and faces tomorrow with keen anticipation and enthusiasm.—**Ruth C. Carter.**
CATALOGING AND CLASSIFICATION SECTION

The Cataloging and Classification Section (CCS), in all of its areas of concern, continued to be very active and highly successful in 1990-91.

Interest in subject analysis continues to be particularly high. The Subject Analysis Committee (SAC) came forward with future program ideas ranging from the Art & Architecture Thesaurus to implementation of the guidelines for providing subject access to fiction.

Meanwhile, this year saw two gatherings indicative of the creative conceptualization taking place in the field of subject analysis. At the ALA Midwinter Meeting SAC held a forum on issues to be addressed by the Library of Congress invitational conference on Library of Congress Subject Headings (LCSH) subdivision practice in May. The attendance at and length of the forum showed the level of interest and concern among catalogers and other librarians. SAC chair Brad Young, ALCTS participant in the May conference, noted that the conference represented a historic turning point for LCSH. At the Annual Conference in Atlanta, SAC sponsored a program, "Rethinking the Subject Catalog: Time for a Paradigm Shift," which attracted an overflow audience.

SAC also brought forward two publications for approval, one on display of multiple subject headings in online catalogs and the other on subject access to audiovisual materials—responding again to the need for information and guidance in these areas.

Similarly, the Cataloging of Children's Materials Committee (CCMC) sponsored the program "Dewey Discovered: The New Abridged Edition" and had more attendees than anticipated. A spring Public Library Association postconference on the Dewey Decimal Classification originated with CCMC and was the first in a series of planned regional institutes. The committee is also exploring programming cooperation with the American Association of School Librarians. A revised edition of Cataloging Correctly for Kids also emerged from CCMC.

The Committee on Education, Training, and Recruitment for Cataloging continues to draw many observers at its meetings and had good attendance at its Annual Conference program, "Practical Practica: Graduate Library School Students in the Catalog Department." The committee experienced an injection of new energy through an increase in size, both in new members and interns, to cope with the quantity and variety of project and program ideas on its agenda.

The Committee on Cataloging: Description and Access (CC:DA) continued as one of the most active participants in maintenance of the Anglo-American Cataloguing Rules, and sponsored a preconference in Atlanta, "AACR2 Revised," which was very well received, judging from attendees' evaluations.

The Committee on Cataloging: Asian and African Materials (CC:AAM) approved several standards for romanization and word division. Identification of individuals with expertise to serve on this committee continues to be a challenge.

The CCS Self-Study, submitted to ALCTS during 1990-91, affirms the good health and smooth operation of the section. In addition to the committee activities mentioned above, CCS's many task forces; discussion groups, including the new Research in Cataloging and Classification Discussion Group; and operational committees enjoy high participation and productivity. This success is due to the energy, ideas, enthusiasm, and perseverance of the CCS members who serve so well as members and chairs of our committees—and in no small measure to the very able support and guidance provided by the ALCTS staff.—Marilyn McClaskey, Chair.

COUNCIL OF REGIONAL GROUPS

The Council of Regional Groups (CRG) has had a productive year during 1990-91, providing the essential communication link between ALCTS and the state and regional member groups that affiliate with ALCTS through CRG. It is through CRG that the state and regional groups learn about ALCTS activities that can be useful to them, and by the same token, ALCTS is
made aware of the interests of these groups that can be addressed programmatical-
ly.

In this year's spring election, a change to the ALCTS bylaws was passed to increase the effectiveness of CRG. The officers of the council were expanded from the vice-chair/chair-elect and the chair to include a past-chair and a secretary. Doubling the number of officers will make the production of the CRG Newsletter and the maintenance of the CRG Directory more efficient, and there will be more opportunity for participation by affiliate members.

For the past two years, CRG has had two ad hoc committees that have been very productive. The Speakers' Bureau Committee has worked to compile and produce a list of ALCTS' members who are willing to speak at state and regional meetings in return for the reimbursement of expenses only. The list will be mailed with the CRG Information Packet in the fall and also will be available from the ALCTS office. The list is especially useful, as it includes subject and geographical indexes.

The Affiliate Recruitment Committee has been actively contacting state and regional groups devoted to collections and technical services that are not currently affiliated with CRG. As a result, CRG has added four new groups to its roster this year: the Metropolitan Area Collection Development Consortium (Washington, D.C.), the Ohio Library Association's Technical Services Division, the North Dakota Library Association's Technical Services Roundtable, and the Mississippi Library Association's Technical Services Round Table. This increases the number of affiliated groups to forty-two.

Because these two ad hoc committees were deemed essential to the work of CRG, it was decided to make them standing committees immediately following the Annual Conference in Atlanta. The Affiliate Relations Committee became the Affiliate Recruitment Committee and broadened its charge to provide a more direct link to affiliates to help with programming information and advice, as well as continued recruitment of new affiliates.

In addition to strengthening the link from the council to its affiliates, CRG has strengthened its role in ALCTS. At the Midwinter Meeting the ALCTS board voted to add CRG representation to several division-level committees. CRG now has representatives on the Legislative Committee, the Nominating Committee, the Organization and Bylaws Committee, the Planning Committee and the Program Initiatives Committee, as well as continued representation on the Budget and Finance Committee, the International Relations Committee, the LRTS Editorial Board, the Membership Committee, and the Research and Statistics Committee. With the council fully participating in ALCTS, additional opportunities for affiliate participation have been provided.

CRG continues to demonstrate the value of membership in ALCTS, while serving as the vital link between state and regional groups and ALCTS. In addition, CRG's role of facilitating the sharing of ideas among the member groups has made this a successful year.—Joan Hayes, Chair.

**Preservation of Library Materials Section**

An important focus of the Preservation of Library Materials Section (PLMS) during 1990–91 continued to be to make the operations of its subcommittees and discussion groups, especially those established by its 1988 restructuring, as effective and coordinated as possible. A small group, under the leadership of Margaret Byrnes, who chaired the Task Force to Examine PLMS Committee Structure, worked throughout the year to clarify the language of the task force report to prepare it for submission to the ALCTS Organization and Bylaws Committee. Also currently under way is an examination of the role of the Preservation of Library Materials Discussion Group now that each committee has one or more corresponding discussion groups. In addition, a cooperative preservation programs discussion group has been set up to meet once a year for the next two years on a trial basis.

Section members also devoted a great deal of thought, time, and energy to the planning and organization of educational programs, preconferences, and institutes.
A very successful program, “Knowing the Score: Preserving Collections of Music,” on the preservation of all types of music materials was presented at the 1991 Annual Conference. During the next two years, programs will be given on preservation considerations in the design of library buildings and on managing major projects. Preconferences and institutes are being developed or updated on the following topics: disaster preparedness, library binding, management and preservation of magnetic media, preservation in public libraries, and preservation issues in collection management, which would take the very successful 1990 preconference sponsored by PLMS and the Resources Section on the road as an institute.

PLMS members Sandy Nyberg and Bob DeCandido, along with Grace Ann DeCandido, wrote the tip sheet Preservation, A Common Ground, which will be used, among other purposes, to brief delegates to WHCLIS on preservation issues. Also published during the year was the ALA Target Packet for Use in Preservation Microfilming sponsored by the ALCTS Preservation Microfilming Committee and written by PLMS members Debra McKern and Sherry Byrne with advice from several of their fellows. It should be noted that the special preservation issue of The American Archivist, vol. 53, no. 2, Spring 1990, which appeared in the spring of 1991, contained articles and a review essay by several PLMS members. PLMS cooperation with and support of other organizations wishing to inform their members about preservation is similarly being manifested by the input of several PLMS members to the preparation of Preservation in Acquisitions Processing by the ALCTS Resources Section Acquisitions Committee Guides Subcommittee. Finally, work is currently well advanced on new editions of the Core Bibliography and of the Continuing Education Directory. It seems clear that as PLMS succeeds in its mission to make the entire library community aware of the importance of preservation to the full range of library functions, the section’s activities will be increasingly involved with those of other ALCTS sections as well as of external organizations.

Careful management and coordination will be required to avoid duplication of effort as well as to ensure the dissemination of accurate preservation information in such a diffuse operational environment.—Margaret Child, Chair.

**Reproduction of Library Materials Section**

1990-91 was an atypical year for the Reproduction of Library Materials Section (RLMS). In addition to its committee activities, the section participated in a five-year review as required by the ALCTS Board of Directors.

The review, which included an exhaustive inventory of RLMS’ accomplishments from 1986 to 1991, benefitted from the internal review conducted by the Policy and Research Committee (changed to Policy and Planning Committee in 1990) and the active input of committee chairs and five past section chairs. Information gathered showed that RLMS solidly serves its stated functions.

In committee activities there were quite a few accomplishments. The Bibliographic Control of Microforms Committee is ready to analyze the data gathered in its recent survey of libraries with microform-set cataloging experience. It was also pleased to see the acceptance of its proposal to the National Information Standards Organization (NISO) that a committee be established to develop standards on bibliographic guides that accompany sets. The Copying Committee presented a well-received program entitled “Managing Photocopying Services in a Digital Age” and arranged for an exhibit of color copiers in collaboration with Library Technology Reports at the 1991 Annual Conference. Moreover, it formed a subcommittee to focus on issues related to reprographic equipment—a need identified by participants at the Public Service Managers of Microform Facilities Discussion Group. The Standards Committee continued to monitor the status of standards work by U.S. and international agencies (e.g., NISO, Association for Information and Image Management (AIIM), and the International Standards Organization) and
to provide input as appropriate. Such effort contributed to the establishment of a Library Ad Hoc Group by AIIM in September 1990, thereby instituting a formal channel for communication and collaboration with the library and information community. In addition, the committee is close to a final version of its “Specifications for Preservation Microfilming—Microfiche.” The Electronic Imaging Technologies Committee is planning to present a program on scanning technologies at the 1992 Annual Conference. The Education Committee formulated a concrete work plan to compile a core bibliography on topics related to reprographics. The Contract Negotiations for Commercial Reproduction of Library Materials Committee made excellent progress in identifying issues for libraries to consider in contract negotiations with publishers.

Aside from the work of its committees, the Reproduction of Library Materials Discussion Group, the Public Service Managers of Microform Facilities Discussion Group, and the RLMS-PLMS Discussion Group continued to serve as well-attended forums for discussion and reporting on a range of topics related to reprographics. They also helped to generate ideas for RLMS committees to follow up in a more focused manner, as exemplified by the establishment of a subcommittee to address reproduction equipment needs by the Copying Committee.

Given the strong performance of its committees and discussion groups in 1990-91, RLMS is expected to continue an active course in the coming year.—Shirley Leung, Chair.

**RESOURCES SECTION**

The Resources Section (RS) sponsored a number of successful programs. A pre-conference on “The Collection Development/Public Services Librarian: The Challenge of Dual Roles” was coproduced with the Reference and Adult Services Division (RASD) Collection Development and Evaluation Section (CODES). Two programs were sponsored at the 1991 Annual Conference: “Pricing Issues with the New Media,” sponsored by the RS Library Materials Price Index Committee, and “Collection Development Librarians and Library Development Programs: Partnership for Profit,” sponsored by the Collection Management and Development Committee. RS also cosponsored the RASD CODES Collection Development Policies Committee program “Invisible Collection Policies: Making Them Visible.” The Acquisitions Committee’s Northeast Business of Acquisitions Institute was held June 6-7, 1991. The Mid-Atlantic Institute is being planned for 1993. The Florida Collection Management and Development Institute is being planned for late 1992 or early 1993.

The ALCTS Publications Committee has approved publication of the proceedings of the 1989 Midwest Collections Management and Development Institute as part of the new series *ALCTS Papers on Technical Services and Collections*. Two guides completed by the Collection Management and Development Committee were published prior to the 1991 Annual Conference: *Guide to Review of Library Collections: Preservation, Storage, and Withdrawal* and *Guide to Budget Allocation for Information Resources*. The 1989 *National Shelflist Count* was published just before Midwinter. The Micropublishing Committee’s “Survey of Microform Packaging in ARL Libraries” was approved by the RS Executive Committee for submission to the *ALCTS Newsletter*. The Acquisitions Committee’s draft “Guide to Preservation in Acquisition Processing” was reviewed in open hearing and will be revised accordingly. “A Selected Bibliography of Library Acquisitions” was revised for the Northeast Institute and will be published in the *ALCTS Newsletter*.

The section completed its initial reorganization plans and presented these to the section membership at an open meeting on July 1, 1991. The new Collection Management and Development Section (CMD) was established at the 1991 Midwinter Meeting. With the approval of the Resources Section membership the section’s name and charge were changed following the 1991 Annual Conference to reflect its newly defined responsibility as the Acquisitions of Library Materials Sec-
tion (ALMS). Both RS and CMDS carried out a two-tiered review of committee structure and planned to make committee appointments immediately following the 1991 Annual Conference. A list of the new committees and their charges will appear in the ALCTS Newsletter.—Gay N. Dannelly, Chair.

SERIALS SECTION
The dominant theme of activities of the Serials Section (SS) during 1990-91 was “cooperation.” This was accomplished in a number of ways, but most significantly by the 1991 Annual Conference program: "Serial Links That Bind: Serials and International Cooperation." A panel of experts discussed the increasingly powerful ways that international cooperation has aided serials access by the application of standards to the acquisitions and cataloging of serials and the reporting of serials holdings.

The major accomplishment for the year was the approval of the First Step Award. The purpose of the grant is to provide librarians new to the serials field with an opportunity to broaden their perspective and to encourage professional development by attendance at Annual Conference and participation in SS activities. All ALA members with five or fewer years of professional experience in the serials field who have not previously attended an ALA Annual Conference are eligible for the award. Cash awards are applicable toward round-trip transportation, lodging, registration fees, etc.

The Acquisitions Committee, under the direction of Jana Lanberger, concentrated its efforts on completing two titles for publication: Guide for Handling Library Orders for Serials and Periodicals, and Serials Acquisitions Glossary. In addition, the committee is also working on a Guide for Performance Evaluation of Serials Vendors. It will also cosponsor with the ALMS Acquisitions Committee the 1992 program "European Acquisitions after 1992: East and West."

The Education Committee reviewed for the final time the Syllabus for Serials Cataloging Unit. It also reviewed the Syllabus for Collection Development and Acquisitions of Serials Unit and the Syllabus for Collection Management, Records Systems, and Preservation. The committee is also monitoring the Preliminary Draft of the Accreditation Standards and has also urged the Executive Committee to appoint a task force to review the draft and create a list of competencies.

The Policy and Research Committee took several important initiatives in 1990-91. It passed a recommended revision to the Bowker/Ulrich's Serials Award Committee charge, monitored the status of the First Step Award, and discussed the role of research as it relates to the committee itself and to the section as a whole. The committee is also working on the creation of an orientation guide for the section.

The Committee to Study Serials Cataloging reported on a meeting attended by more than sixty guests who learned of recent developments from the Library of Congress and CC:DA. Issues of concern included merged bibliographic records in the OCLC Online Computer Library Center Online Union Catalog (OLUC) and their impact on holdings and union lists, and the implications of CD-ROMs, electronic journals, and computer files for serial catalogers. This committee was reviewed and recommended for retention. It serves as an excellent forum for serial catalogers to identify and discuss current concerns and to gain awareness of how others are dealing with similar problems. The committee will publish its minutes so those unable to attend ALA will have access to the topics that are discussed.

The Committee to Study Serial Standards reported that the committee was instructed in the ramifications of using the MARC holdings format and its relationship to the Z39.44 standard, and the Library of Congress's role in maintaining older formats and advancing new ones. The committee is also working on an article that will report the results of an automation survey that is to be sent to serials vendors.

The Committee on Union Lists of Serials discussed tape loading of serial records into the OCLC OLUC, the project to merge the NISO standards for serials holdings (Z39.44 1986) with the nonserial hold-
mended for retention. In the hope of attracting more participation, the suggestion to change its name to the Serials Section Discussion Group was made.

The year ahead promises to be a challenging one for the Serials Section. With the developments in electronic publishing, reduced budgets, electronic mail, and new formats to catalog, the section will continue to be a center for discussion, support, and cooperation for all serial librarians and those concerned with serials.—Elaine K. Rast, Chair.

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The ninety-seventh meeting of the Decimal Classification Editorial Policy Committee (DCEPC) was held at the Library of Congress, Washington, D.C., on October 12-13, 1989. At this meeting, the committee welcomed a new member, Patricia M. Thomas, Head Cataloger at the Stockton San Joaquin County Public Library, who replaced Liz Bishoff as the liaison between the Cataloging and Classification Section (CCS) of the Association for Library Collections & Technical Services and the DCEPC. Also during this meeting DCEPC bade farewell to Liz Bishoff, who resigned from the committee after serving nine years (1980-89) as a member and as liaison between CCS and DCEPC.

Discussions and actions taken during the 97th meeting include:

**Committee Business**

Lois Mai Chan was reelected as the chairperson of DCEPC for a two-year term beginning in January 1990.

**Draft Tables and Schedules for Abridged Edition 12**

As this was the last meeting before the publication of Abridged Edition 12, its contents became the focal point of discussion. Approximately 40 percent of the schedules, tables, manual notes, and index of this edition had been approved in principle at the previous meeting. The remaining portions of these items were presented for discussion at this meeting. Parts returned to the editors at the spring 1989 meeting for additional work or revision were resubmitted for examination. After thorough deliberations and a lengthy discussion, all parts of Abridged Edition 12 were approved for publication. The complete index was to be prepared after the schedules, tables, and manual notes were finalized.

**MARC Format for Classification**

The Subcommittee on the MARC Format for Classification, chaired by Joan Mitchell, continued its work by closely monitoring the development of the format and by responding with comments and suggestions representing the needs of the Dewey Decimal Classification (DDC). In preparation for the meeting of the Machine-Readable Bibliographic Information (MARBI) Committee at the ALA Annual Conference in June 1990, the subcommittee met at LC on May 8, 1990, to discuss the proposed MARC format for Classification (revised April 15, 1990). Discussion focused on the following areas:
- Revision of the fixed field
- Simple and complex references
- 75X and 76X (subfielding and field order)
- 6XX (option 2 vs. option 3)
The subcommittee's main concern relates to the tracing of the history of the numbers and display of the hierarchical structure, features that would aid greatly in online retrieval and database maintenance. DCEPC's recommendations were presented at the MARBI meeting during the ALA Conference.

**PLANNING FOR THE FUTURE OF DDC**

With the publication of Edition 20 and the completion of Abridged Edition 12, DCEPC is looking toward the future development of the DDC. The next two meetings of DCEPC will be devoted to discussion of the immediate needs of Edition 21, as well as long-term prospects for DDC. In preparation for these two meetings, a planning meeting was held at LC's Decimal Classification Division on March 15, 1990, to discuss the agenda. The major topics for DCEPC's consideration were identified as follows:

A. Publication matters: nature and scope of the standard English-language editions, frequency of publication of edition, format, and the concept of continuous revision

B. Contents of Edition 21: extent and frequency of complete revisions, priority areas for improvement and revision

C. Editorial rules for Edition 21

D. Policy on index

E. Meeting international needs

F. Electronic DDC

One of the topics of continuing concern to DCEPC and the editors has been the form and content of the index. The fall 1990 meeting will offer the opportunity for structured and thoughtful consideration of this topic. A subcommittee, chaired by Arnold Wajenberg, was established for the purpose of drafting the policy statement on indexing as background material for discussion by the full committee. The issues to be examined include the scope of the index, criteria for inclusion of terms, impact of the DDC database and electronic formats on the print index, and whether the index should be viewed as a book index or a system thesaurus. Another subcommittee, chaired by Barbara Branson, was established to draft a policy statement on meeting international needs, including removal of Western bias from standard English-language editions, role of translations, options, and "local" publication of expansions.

**JULY 1, 1990–JUNE 30, 1991**

With the completion and publication of Edition 20 (1989) and Abridged Edition 12 (1990), the DCEPC is now turning its attention to the long-term goals and objectives of DDC as well as to the areas in need of revision for Editions 21 and 13. These were the main topics of discussion at the Committee's ninety-eighth meeting (an intensive three-day planning session held in Washington, D.C., on October 17–19, 1990) and its ninety-ninth meeting (held at LC, Washington, D.C., on April 11–12, 1991).

**PLANNING FOR THE FUTURE OF DDC**

Issues and questions relating to the long-term goals and objectives of DDC include the following: the information needs of users in the twenty-first century, DDC as an effective tool for retrieval as well as storage of information, the print and electronic formats of DDC, and increasing international use of the system. With regard to these long-term goals and objectives, the following recommendations were proposed by DCEPC:

A. Complete revisions of major areas or disciplines will continue to be made when deemed necessary.

B. Priorities for complete revision in future editions were discussed and the following areas, in order of priority, were identified as those most urgently needed: 350-354 Public administration, 370 Education, 570-590 Life sciences, 510 Mathematics, 200 Religion, 700-770 Arts, 800 Literature, and 100 Philosophy. From this list, the areas for complete revision to be included in Edition 21 will be chosen. A list of areas in need of less-extensive revision identified by the editors was also discussed.

C. With the ever expanding use of DDC worldwide, the committee considered
means to improve the system for international use, including removing Anglo-American bias from the schedule and index.

D. In an effort to improve the index, the DCEPC Subcommittee on Indexing made recommendations relating to the nature of the index (i.e., it should be an index to a system rather than to a book), content and scope, terminology, form of entry, and the inclusion of synthesized numbers.

PLANNING FOR EDITION 21 AND ABRIDGED EDITION 13

Publication of the twenty-first unabridged edition of DDC is scheduled for 1996, and of the thirteenth abridged edition for 1997. With these dates in mind, the committee considered and approved the following documents: the five-year work plan developed by the editors of DDC and the editorial rules for schedules, tables, index, and manual.

The committee also identified 350-354 Public administration and 570-590 Life sciences as areas to be considered for extensive or complete revision. The education schedule (370) is being considered for extensive but not complete revision. Other areas that will receive special attention are 290 Comparative religion and religions other than Christianity (especially 296 Judaism and 297 Islam and religions originating in it) and 368 Insurance.

OTHER BUSINESS

Committee Business

At the fall 1990 meeting, Joanne Anderson was elected vice-chairperson of DCEPC for a two-year term beginning in January 1991. Also at this meeting, the committee bade farewell to Lucia Rather, who has served as the alternate representative for LC since 1987 and whose term on the committee expired upon her retirement in early 1991.

Changes and Corrections for Edition 20 and Abridged Edition 12

A list of corrections and changes for Edition 20 and Abridged Edition 12, compiled by the editors, was considered and approved for inclusion in the next issue of DCE: Additions, Notes and Decisions. Many of the errors in Edition 20 were detected in the course of preparing the abridged edition. Numerous notes were added in order to assist further the users of the schedules, tables, and index. Many of the changes resulted from an effort to make the numbers in the unabridged and abridged editions compatible. In order to keep such corrections to a minimum, it was decided to publish in DCE only those corrections that would affect the application of class numbers. Minor errors in spelling or punctuation have been corrected in the machine-readable database but will not be published in print until the next edition.—Lois Mai Chan.
1991 Division and Section Awards

The Esther J. Piercy Award, 1991: Carol Pitts Hawks

The achievements of leading librarians who are honored in mid or late career may be more easily judged than those of nominees for the Esther J. Piercy Award. Piercy nominees must be recognized as much for their potential contributions to the profession as for their achievements in their first decade of service as technical services librarians. In Carol Pitts Hawks, this year's jury has identified a thoroughgoing professional (some call her the "acquisition librarian's acquisition librarian"), a proven library leader whose already-extensive record of accomplishments exemplifies the best in the field and shows the clear promise of a stellar career.

Evidence provided by librarians from across the nation shows that Carol Hawks has all the qualities that promise a continuing brilliant career. She began her career in serials cataloging but quickly found her calling in acquisitions at the University of Houston, where she led a large department with great verve and sensitivity to provide model service. Since 1987 she has served with distinction as head of acquisitions at The Ohio State University, where she has been an important leader not only within technical services and the library, but also in university service and in the pioneering statewide OhioLINK project. Her professional association committee service in Texas and Ohio, and especially in ALA, has been substantial and highly praised.

Carol Hawks has always sought to learn from others but also to share knowledge with the profession, especially to improve applications of automation to library services. She has done so in her teaching for the Kent State University School of Library Science; in many well-received presentations at state, regional, and national professional meetings; and in timely and thoughtful articles in leading journals. Emulating Esther Piercy's dedication to sharing knowledge through professional journals of high quality, Carol Hawks has within the last year begun service as editor-in-chief of Library Acquisitions: Practice & Theory.

The record of Carol's accomplishments cannot be fully appreciated, however, without understanding more about her as a person. She is proof that we are long past the time when John F. Kennedy might use his wit to contrast Southern charm and Northern efficiency: it is evident in all that Carol Hawks is and does that she carries with her the sensitivity and poise of a Louisiana upbringing and the high quality of a Texas education! But her successes also have come because of her commitment to principle and purpose. These qualities have won Carol rapid professional advancement and a host of admiring colleagues and loyal friends across the United States.

Having worked closely with Carol for several years and having attended more than a few library outings, I can attest that she has a fine ear for country music. She also keeps an edge on a good game of tennis and relishes a day of fun in the sun in Ohio amusement parks! Her ability to meld superb professional skills and dedication to library service with so obvious an
enjoyment of people makes Carol Pitts Hawks one of this generation's most promising leaders in librarianship and a most worthy recipient of this prestigious award.—Wesley L. Boomgaarden, Preservation Officer, The Ohio State University, Columbus.

**Best of LRTS Award, 1991:**
**Beth M. Paskoff and Anna H. Perrault**

The Best of LRTS Award for 1991 was presented to Beth M. Paskoff and Anna H. Perrault for their article "A Tool for Comparative Collection Analysis: Conducting a Shelflist Sample to Construct a Collection Profile." This article, which appeared in the April 1990 issue of Library Resources & Technical Services (LRTS), was selected as the outstanding article published in LRTS during 1990. Nominations for the citation are judged on the basis of three criteria: significance of the contribution, adequacy of the research or documentation, and clarity and readability of the writing style.

In "A Tool for Comparative Collection Analysis," Paskoff and Perrault place the description of a local research project in an interesting methodological context. They clearly and carefully explain how information gathered from a shelflist sample was used to construct a meaningful profile of Louisiana State University's library collections. Paskoff and Perrault argue persuasively that similar studies would be useful elsewhere. The authors' shelflist sampling technique and collection profile concept are significant contributions to the study of library collections.

Paskoff received her M.L.S. from SUNY-Albany in 1972 and her Ph.D. in Library and Information Studies from Florida State University in 1989. Currently Paskoff is an assistant professor at the School of Library and Information Studies, Louisiana State University, Baton Rouge. She is also serving a two-year term on the board of directors of the Special Libraries Association.

Perrault is head of Interlibrary Services and Reference Collection Development at the Louisiana State University Libraries in Baton Rouge. She is currently the president of the Louisiana Library Association. Additionally, Perrault is a doctoral student in the School of Library and Information Studies of Florida State University. She earned the M.L.S. from Louisiana State University in 1969.

Both Paskoff and Perrault have numerous awards, conference presentations, and publications to their credit. With the support of a Council on Library Resources Faculty/Librarian Cooperative Research Grant, they have expanded the collaborative research project that resulted in the "Best of LRTS" article. The findings of this expanded project are presented in a monograph entitled Collection Profiles of Academic Libraries: Comparative Collection Analysis for Cooperation, Final Report, Council on Library Resources Project #4041 (Baton Rouge, La.: School of Library and Information Studies, Louisiana State University, 1990).—Roxanne Sellberg, Head, IO Catalog Management Department, Indiana University Libraries, Bloomington.

**Margaret Mann Citation, 1991:**
**Margaret F. Maxwell**

Margaret F. Maxwell, professor at the Graduate Library School of the University of Arizona, Tucson, is recipient of the 1991 Margaret Mann Citation, awarded in recognition of outstanding achievement in cataloging and classification through publication, teaching, service in professional organizations, or practice.

In a manner that reflects well the namesake whose illustrious career this award memorializes, Margaret Maxwell has made extraordinary contributions in all of these areas of endeavor. First and foremost, she is a respected and effective teacher of cataloging who has influenced many students toward careers in cataloging, and she has been an effective participant in professional associations. But she is probably best known for her books, *Handbook for AACR2: Explaining and Illustrating Anglo-American Cataloguing Rules, Second Edition* (American Library Assn., 1980), and its sequel, *Handbook for AACR2, 1988 Revision: Explaining and*

The publication of the first of these works was greeted with enthusiasm and intense gratitude by the cataloging community. At that time, the impending implementation of AACR2 was viewed with apprehension by catalogers and library administrators alike. Maxwell's Handbook (as it has come to be known) laid out in an understandable and thorough manner the major points of the new edition, making it possible for catalogers and administrators to prepare themselves for a new code and to consider how it might affect their work. Although the library community conducted many regional training workshops, Maxwell's Handbook was accessible to those unable to attend and could be permanently ready to help with training and retraining in every catalog department.

Practitioners may agree with the publishers of the Handbooks that Margaret Maxwell is a facilitator of change. She helped practitioners get over the hurdle of implementing the radical new descriptive cataloging code published in 1978, and she continued to fulfill their need for help when subsequent changes in materials, rules, and perspectives gave rise to the issue of a substantially revised edition a decade later. It is probably not an overstatement to say that more than any other single publication or activity, the Handbook enabled an informed and effective implementation of the new code. Nor did the Handbook lose its usefulness once implementation was past. Both it and its sequel continue to be of value as teaching tools in library school cataloging courses, catalog department training programs, and in catalogers' reference collections.

An active member of the American Library Association and the Arizona Library Association, she has participated in activities that have brought awareness of national concerns and issues to the grassroots practitioner, along with her penetrating analyses of how those issues affect local standards of service.

As a professor of the University of Arizona's Graduate Library School, she earned a campuswide reputation, having won that institution's Five-Star Teaching Award, a universitywide honor usually bestowed on members of large faculties whose students number in the thousands. A former student wrote:

[Her] students graduate with the skills necessary to create cataloging. . . . Thanks to her hands-on approach, [I received] a foundation in the practicalities as well as the theory of cataloging and classification. She imparts a sense of the ever-evolving nature of the cataloging code, classification and subject thesauri. [She] teaches her students, including those whose careers take another direction, to appreciate cataloging as both a science and an art.

Born in Schenectady, New York, Margaret Maxwell spent her early childhood in Pittsfield, Massachusetts, home to such literary giants as Nathaniel Hawthorne, Herman Melville, and Edith Wharton. At age 11, she moved west when her father, a General Electric engineer, was transferred to Ontario, California. She studied English literature in college and in 1948 was graduated from Pomona College magna cum laude. Next, she went north to earn a library degree at the University of California, Berkeley, which she completed two years later. She then travelled across the nation to serve a professional apprenticeship as an intern at the Library of Congress, where she remained for several years as a descriptive cataloger. During that period, she also earned a master's degree in English literature from George Washington University. Afterward, like her forebears, she struck out for the heartland, practicing as a librarian and instructor in English and Library Science at Upper Iowa University in Fayette until 1968, when she set off to Ann Arbor to continue her education.

In 1971, Margaret Maxwell received a doctorate in Library Science from the University of Michigan, studying the life and work of the great booksman William L. Clements and the Clements Library for her dissertation research, under the tutelage of then-director (later dean) Russell Bidlack. She accepted appointment to the faculty of the University of Arizona Graduate Library School after graduation, ris-
ing from assistant to full professor in only eight years. In addition to teaching, she guided the school through a period of change from 1984 to 1986, serving as its acting director.

It may surprise those who know Margaret Maxwell primarily through her work in cataloging and classification to learn that she has a profound love of history and that she is a scholar of Southwest history as well as of Arizona women and of those librarians, such as Lawrence Clark Powell, whose inspired leadership, determination, and vision were an essential force in the development of our profession. Recently, in a brief paper titled “From Columbus to Computers” (Library Resources & Technical Services 34:231–34, 1990), Maxwell combined her loves of cataloging and history in tracing the Bodleian Library’s leap into the world of standard online cataloging in the 500th year of its existence. As always, she does more than describe the amazing transition. She analyzes and explores it, argues and applauds it, and reveals and interprets it, gently leading the reader to that state of grace in which information becomes knowledge.—Sheila S. Intner, Professor, Graduate School of Library & Information Science, Simmons College, Boston.

BLACKWELL/NORTH AMERICA SCHOLARSHIP AWARD, 1991:
GARY DANIELL BYRD


The Blackwell/North America Scholarship Award, which was first given in 1976, honors the author or authors of the outstanding monograph, article, or original paper in the field of acquisitions, collection development, and related areas of resource development in libraries. In addition to honoring an author, Blackwell/North America donates a $1,000 scholarship to the U.S. or Canadian library school of the winning author’s choice. The scholarship is given to a student concentrating in the acquisitions or collection development area. Byrd has indicated that he would like to have the $1,000 scholarship awarded to the School of Information and Library Science of the University of North Carolina at Chapel Hill.

The committee noted that Byrd’s essay is a measured and thoughtful analysis of the scholarly journal publishing and pricing dilemma that confronts academic research libraries. It presents a carefully documented review of the general economic principles underlying this tragedy and specifically addresses the conundrum of the “scholarly information marketplace.” In addition, the article proposes strategies by which academic research libraries can avoid the “approaching tragedy.” The author’s talent as a writer and scholar come through in his admirable analysis of a crisis about which many have written but few have explained in such a clear and instructive manner. This article provides a major step in the critical exploration of scholarly journal publishing and pricing trends.

Gary Daniell Byrd is assistant director for Finance, Planning, and Research at the Health Sciences Library, University of North Carolina, Chapel Hill. Byrd is also a doctoral student at the School of Information and Library Science at the university.—Frank D’Andraia, Director of Libraries, University of North Dakota, Grand Forks.

SERIALS SECTION BOWKER/ULRICH’S SERIALS LIBRARIANSHIP AWARD, 1991:
DEANA L. ASTLE AND CHARLES A. HAMAKER

The ALCTS Serials Section Bowker/ Ulrich’s Serials Librarianship Award is awarded, for the first time, to two individuals, Deana L. Astle and Charles A. Hamaker. According to Sue Anne Harrington, chair of the award committee, Astle and Hamaker, working both together and separately, have gone far beyond the daily commit-
ment to serials librarianship by raising the awareness of the entire library community of European serials publishers' pricing practices. Their efforts have led to international attention to the pricing policies of journals and publishers' practices. In addition, they continue to encourage other efforts to research pricing and scholarly communication studies and let publishers know that the issue of unfair pricing will not disappear.

Astle has master's degrees from the University of California, Los Angeles, and Brigham Young University, and a bachelor's degree from Brown University. She is head of technical services at the R. M. Cooper Library, Clemson University, and has held positions at the University of Missouri-Columbia and the University of Utah.

Hamaker has a master's degree from Brigham Young University and a bachelor's degree from Eastern Illinois University. He is assistant director for collection development for the Louisiana State University Libraries and has held positions at the University of Missouri-St. Louis, Yale University, LDS Church Historical Department, and Brigham Young University.

Astle and Hamaker have collaborated on three influential studies of journal pricing. In addition, they have separately written articles and made presentations on this and other topics. Both serve on the editorial board of Newsletter on Serials Pricing Issues.

The award is supported by the R.R. Bowker Company with funding of $1,500 annually. It is presented in recognition of distinguished contributions to serials librarianship, demonstrated by such activities as leadership in serials-related activities in professional associations and library-education programs, contributions to the body of serials literature, conduct of research in the area of serials, development of tools and methods to enhance access to and management of serials, and other advances leading to a better understanding of the field of serials.—Michael H. Randall, Assistant Head, Serials Department, University Research Library, University of California, Los Angeles.

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**Subject Analysis in Online Catalogs.**

By Rao Aluri, D. Alasdair Kemp, and John J. Boll. Englewood, Colo.: Libraries Unlimited, 1991. 303p. $37.50, $45 outside North America (ISBN 0-87287-670-5), LC 90-49786. The title chosen by the authors—two Americans and one Briton—does a disservice to this book. Its scope is much broader: it covers not only the topical analysis of works and the indexing process, but also the languages and systems used for this purpose, as well as the methods of retrieval and the evaluation of online catalogs.

The authors discuss first the various files that constitute the database, focusing on the MARC format with due regard to its inherent limitations. Chapter 3 on language is a lucid exposition of fundamental linguistic notions underlying natural as well as all indexing languages—a topic seldom, if ever, treated in textbooks on indexing but quite rightly put here ahead of the discussion of indexing languages. The diagram comparing all subject indexing methods on a linguistic basis (p.38) will be particularly helpful to students of this topic. The subject indexing process itself (to which the book’s title refers) is discussed in Chapter 4, demonstrating indexing accuracy, consistency, exhaustivity, and specificity with the help of (sometimes hilariously wrong) examples. Chapter 5 examines subject heading systems, mainly the Library of Congress Subject Headings (LCSH) and Medical Subject Headings (MeSH), critically evaluating their performance in an online environment. The syntactic structure of LCSH is justly deemed to be confusing for the user. Keywords as a means to subject access are dealt with in Chapter 6, which also considers citation indexing and the integration of back-of-the-book indexes into online catalogs as potential future developments.

Chapter 7 on bibliographic classification (evidently written by Mr. Kemp, the British coauthor) eschews the “marking and parking” approach of most American textbooks on that topic, discussing instead the theoretical basis of classification, the pros and cons of enumerative versus faceted schemes, and the potential of the classified approach to online subject retrieval, especially if used in conjunction with verbal retrieval tools (a state of affairs not yet achieved in any current real-life application). Going from theory to practice, Chapter 8 is devoted to the Dewey Decimal Classification (DDC) and the Library of Congress Classification (LCC), neither of which was ever intended to be used in an online mode and which, therefore, are woefully inadequate when so employed. Still, DDC fares much better in this respect than LCC, whose structure does not lend itself to any useful online application, as shown by numerous examples. Current attempts to force LCC into the online age “will calcify the LCC structure and make change, development, and improvement virtually impossible” (p.204). The DDC, on the other hand, as has already been demonstrated in a pilot project, is much easier to adapt as an online retrieval tool, although some structural faults need to be fixed. It is regrettable that the Universal Decimal Classification (UDC), which is based on DDC but whose synthetic and faceted structure avoids almost entirely the faults of DDC and which has also been successfully applied in computerized retrieval, is not treated in this context. Although UDC is widely used in the United Kingdom, Canada, Australia, and many other countries in which this book will no doubt find a ready market, it is only briefly mentioned as the first faceted classification scheme, and to add insult to injury, the bibliographic reference to it lists an obsolete 1961 edition instead of the current 1985–88 Medium Edition.

Chapter 9 is devoted to that unpredictable variable, the users and their needs, their multifarious and often inscrutable intents, and the last chapter summarizes the conclusions.

Throughout the book, extensive and for the most part recent references are given...
that will enable readers to delve deeper into any of the topics treated. Regrettably, the reference to the British Standard on indexing has a misleading typo (BS 6529 instead of 6519). Otherwise, there are very few misprints.

How a book on indexing comprising more than 300 pages can have an index of less than three pages is a mystery. Lack of space cannot be pleaded, since the index is followed by five blank pages. It would seem that this travesty of an index was hastily cobbled together by an undergraduate student on a Monday morning after a raucous party. A second edition of this work, which will undoubtedly be called for in a few years, will need the extensive analytical index that the otherwise excellent text deserves. Perhaps it could then also be set in a typeface more pleasing to the eye than the ugly sans serif type used here.—Hans H. Wellisch, Professor Emeritus, University of Maryland, College Park.


Standard Cataloging for School and Public Libraries is wide ranging. It covers descriptive cataloging (based on the Anglo-American Cataloguing Rules, 2d ed. (AACR2) and concentrating on the first and second levels of description); subject headings (including chapters on Sears Subject Headings and the Library of Congress Subject Headings (LCSH)); classification (emphasizing Dewey Decimal Classification (DDC) and the Library of Congress Classification (LCC)); and automation (bibliographic utilities, local systems, and the MARC formats). There are brief chapters on cataloging history, decision making, and policies. The book includes bibliographies, a glossary, and two indexes (a general index and an index to the examples).

In some ways, this book resembles a textbook. There are numerous cataloging examples and exercises with answers. However, the reader cannot complete the physical description area for many of the exercises, because not enough information is furnished. (For instance, it is not known how many pages are in a book, whether it is illustrated, or how tall it is.) To do the exercises, one must have access to the Sears and LCSH lists and to the DDC and LCC schedules.

Some of the authors’ attempts to be comprehensive are awkward. For instance, the text refers to both the full and concise versions of AACR2, with frequent reminders that the numbering systems used are different. Some of the cataloging examples are given twice, once for a library in the United States, and again for a library in Canada.

Standardization is a prevalent theme. The authors favor the use of standard tools and methods and discuss the implications of deviating from them. There is much discussion of automation, and the latest tools are cited (such as the 1988 revision of AACR2). Standard Cataloging for School and Public Libraries gets high marks for currency.

Although the title refers to both school and public libraries, there is an emphasis on school libraries. Some of the discussions refer repeatedly to the “media center” and to the “media specialist.” Elsewhere in the text, public libraries are mentioned, but it is almost as though the public library audience is an afterthought.

I like the book’s treatment of various media. Instead of relegating nonbook cataloging to a separate chapter, there are examples throughout the text for formats such as kits, sound recordings, and videos. (The index to the examples lists the types of media covered.)

Will Standard Cataloging for School and Public Libraries, by itself, teach a beginner how to catalog? No. However, it is an adequate introductory or refresher book on cataloging. It might also have use in library school curricula as a supplemental text.—Wendy Allex, Lee County Library System, Ft. Myers, Florida.

This volume contains a selection from among the papers delivered in October 1988 at a symposium held by the Technical Association of the Pulp and Paper Industry (TAPP). Covered are the causes of paper deterioration, aging and testing of paper, and the development of alkaline paper and technologies for dealing with acidic paper. Contributions range from general to technical, including papers that readers without some knowledge of chemistry might find heavy going.

The thirty-five papers have been grouped into five sections, the first containing expressions of concern for preservation of our written heritage by Congressmen Owens and Brown, and the text of the Pell permanent paper resolution (now Public Law 101-423).

Part 2, Preservation Concerns, presents overviews of the problems and existing solutions, along with descriptions of preservation programs at several American and foreign institutions. The viewpoints of the National Endowment for the Humanities and the Commission on Preservation and Access are presented, including rationales for microfilming and digitization.

In Part 3, Testing and Monitoring of Paper Aging, Caulfield and Gunderson offer clear descriptions of tests for paper strength. Others discuss paper aging and conclude that accelerated aging is not necessarily an accurate model of natural aging. Erhardt points out that the paper-making industry employs aging tests for significantly different reasons from conservators. Pore reports on the effects of pollution before and after aging, and the damage caused by poor environmental controls on volumes in the New York Public Library compared to identical volumes in the Dutch Royal Library.

Alkaline paper is the subject of Part 4. Two reports describe permanent durable paper, its place in the paper-making industry, and conversion of acidic paper mills. Two further reports describe standards for permanent paper, and Scaggs discusses the realities of alkaline paper use by the Government Printing Office and why it is of limited effect.

The last section, Book Preservation Technologies, is introduced by a useful technical and historical discussion of deacidification by Richard Smith. Descriptions follow of the use of Wei To in Canada, the diethylzinc (DEZ) process, the Book Preservation Association process, the Bookkeeper Process, the Austrian method of aqueous deacidification, paper strengthening using parylene, and strengthening by graft copolymerization.

Because the affiliations and qualifications of authors are not given, readers unfamiliar with the field may not realize that all the authors have connections with the processes they report. The only evaluation and comparison of the processes is by Oye, who reports test results for DEZ and Wei To.

Also in this final section is a report on the successful use of microwave radiation to kill insect infestations; it lacks investigation into any long-term effects on volumes. In the final paper Jones presents the pros and cons of lamination and encapsulation, although omitting to point out that most conservators now find lamination unacceptable.

Overall this volume provides a good deal of information on paper preservation and the state of deacidification and paper strengthening as of 1988. As such it also serves as a benchmark against which to measure our progress in meeting the preservation challenge. In keeping with its theme, the volume is printed on acid-free paper.—Janet Gertz, Columbia University, New York City.


The fifth edition of the Serials Directory lists more than 130,000 serials published around the world. Information for more than 80,000 titles has been updated in this edition. The Directory lists more than 240 serials available on CD-ROM, reflecting that medium's increasing role in the publishing industry. Sources of information for the Directory include the CONSER database, EBSCO's own internal subscrip-
tion database, and responses to publisher questionnaires.

The Directory is in three volumes and consists of four major sections. The first section (comprising volumes 1 and 2) lists the serials alphabetically in 285 categories (147 major topics and 138 subtopics). Here is found the complete information for each serial—its key title and/or “title statement,” variant titles, publisher and/or subscription address, frequency, price, volume, related earlier or later titles, etc., and the titles of indexing and abstracting services that cover it. The remaining sections, found in volume 3, are an alphabetical title index, an index of serials that have ceased, and an ISSN index.

The Directory therefore provides access to an individual serial by subject, ISSN, and title, but usually not by issuing body, even if the title proper is solely a generic term. The devastating impact of the lack of such access is immediately obvious when one examines the alphabetical title index, where, in general, each serial is listed only once—by “primary title,” which is either the key title (from field 222 of the MARC record) or the “title statement” (from MARC field 245, which often includes a statement of responsibility in addition to a title but may be limited to just the title proper even if it is generic). The index also contains references from earlier or later serials (from MARC fields 780 and 785). These references are found under a corporate heading rather than title if a corporate name is contained in subfield $a of the MARC field. Thus, one finds in the alphabetical title index entries such as the following:

- Annual report (p.3650; fifteen entries are found here—thirteen “title statements” and two references)
- Annual report/Department of Employment and Industrial Affairs, Queensland (p.3656)
- Annual report of Department of Fisheries (Halifax) (p.3666)
- Annual report of the Department of Business Regulation (Helena) (p.3668)
- Annual report - Queensland Dept. of Commercial and Industrial Development (p.3675)

The Directory’s tendency to rely almost solely upon title access seems to be patterned after the approach adopted by the ISDS Register, which provides access only by title. However, unlike the Serials Directory, the Register never allows a generic term such as “Annual report” to stand alone, but follows the term with the name of the issuing body; moreover, it indexes each serial not only by key title but also by all pertinent variant titles. Because of these facts, one is eventually able to find the desired entry in the Register, although often not without difficulty. As seen from the examples above, this is, alas, not the case with the Serials Directory, where inconsistency reigns. A serial’s single entry might be found variously under: (1) the title proper alone, even if it is a generic term; (2) the title proper and statement of responsibility; (3) the key title, or one similarly constructed; or (4) a corporate heading. Especially given this situation, the Directory must provide additional access by corporate name to assure the user of being able to locate a serial with a generic title.¹

Other sources of similar information for many serials include the CONSER database itself, accessible online via the bibliographic utilities, and Ulrich’s International Periodicals Directory. Ulrich’s, a directory with a long tradition, has an easy-to-understand and predictable method of entry.

The Serials Directory gives extensive, valuable, and up-to-date information for the myriad serials it lists. It is indeed unfortunate that because of the extreme difficulties in locating items in the alphabetical title index, one might not be able to utilize that information.—Jim E. Cole, Iowa State University, Ames.

REFERENCE

1. Günter Franzmeier has demonstrated the need for access by corporate name in ISDS as well. See his ‘Can ISDS Replace...
When Nancy D. Lane was asked to teach an introductory course for the University of Washington's Continuing Education Certificate Program in Library Automation, she was unable to find a text available “that covered a wide range of information technologies, giving brief background information while concentrating on applications in librarianship and related fields such as education, communication, journalism, and publishing.” To fill the need, she teamed up with Margaret Chisholm, and together they compiled this very useful volume.

Although this book is to be considered an introductory text, there are some purposeful omissions. There is no introduction to computing in general. Basic automation terms and concepts, such as input, CPU, RAM, and ROM, are not treated in the text but are defined in the glossary. The glossary is very comprehensive, covering forty-five pages. It includes frequently encountered acronyms and abbreviations, such as AI (Artificial Intelligence), and ETV (Educational television). It also lists the more obscure such as ITAP (in the United Kingdom, the Information Technology Advisory Panel reporting to the Cabinet Office), and VINITI (in the USSR, the All-Union Institute for Scientific and Technical Information). In addition, the glossary also defines terms, including aspect ratio (the relationship of horizontal to vertical units in a television image) and parity (a measure of the number of binary 1s in a digital character; parity can be used for verification and control purposes).

There are twelve chapters on special topics that have been contributed by thirteen specialists, most of whom are librarians. These include Data Communications by Joseph Ford; Networks by Kerry Webb; Telecommunications Applications by Joel M. Lee; Television and Video by Margaret E. Chisholm and K. Michael Malone; Teletext and Videotext and CD-ROM and Multimedia Publishing by Nancy D. Lane; Micrographic and Optical Disc Technologies for Document Management by Duncan MacKenzie and Andrew Link; Personal Computer Software by Linda Main; Database Management Systems by Terrence A. Brooks; Artificial Intelligence and Expert Systems by Donald E. Riggs; Research on Information Access by Raya Fidel; and Information Policy and Information Technology: An International Context by Peter J. Judge.

Most chapters give the historical background of the topic and discuss the range of products available. They look at current applications in libraries as well as in education, communications, and related fields, and envision what the future portends. Suggested readings are included at the end of each chapter. An excellent index is included. The intent of the book, as mentioned earlier, is to supply the very obvious need for a library automation text. In spite of this, the chapters do not read like a textbook. I found each contribution to flow very smoothly. The format, which clearly delineates each area of a chapter, allows quick perusing for topics in which you are especially interested. The amount of information I gleaned from this tome in a relatively short time was astounding. It is written in language that is familiar to all and does not get bogged down in automation jargon. Not only would I highly recommend this as a very useful text for a library automation course, but I would also endorse its addition to any library collection as an overall excellent introduction to the world of library automation.—Elaine K. Rast, Northern Illinois University, DeKalb.


This loosely organized medley of articles is an uneven and unusual mixture that often makes for stimulating, thought-provoking reading. The reference in the subtitle to
"subject access" does not allude to traditional subject indexing but to providing access to the content of a wide variety of nonbook media, i.e., access to the content of materials often lacking title pages, tables of contents, or even words. The MARC format, intended initially as a means for communicating bibliographic data between computer systems, has become the basis for information retrieval in library bibliographic systems. As library information systems expand to extend access to an ever-widening array of resources, can the MARC format continue to serve adequately as the basis for information retrieval databases? Each of the essays in this collection discusses a particular aspect of this general question.

The editors have gathered articles that consider the use of MARC for a variety of media: slides, archives, moving and still images, art objects, music, and museum artifacts. Authors write of using MARC in a variety of nonlibrary venues: art museums, thesaurus editorial offices, university artfact collections, government agencies. Some of the articles are descriptions of specific projects and applications of MARC, such as Jeanne Keefe’s account of a project at Rensselaer Polytechnic Institute to incorporate records for slides into the online catalog and Christine Hennessy’s discussion of the Inventory of American Sculpture. The project descriptions can serve as useful source material for others coping with similar objectives and introduce issues in handling special material.

Other articles are instructive, such as Linda Evans’ illustration of using MARC for realia (clothing in her example) and Martha Yee’s carefully organized, informative explication of issues involved in applying MARC to moving-image materials. The best of the instructive essays is the excellent piece by Jackie Dooley and Helena Zinkham presenting the theory and use of MARC fields 655 and 755 for terms describing genre and physical characteristics of materials. Dooley and Zinkham present a clear, thorough, state-of-the-art description of the use of fields for content description and raise unresolved issues in a constructive manner. As a group, the instructive articles succeed in providing a highly readable and enlightening introduction to MARC applications for nonbook materials.

The most provocative articles in the collection are those that touch on the technical and political issues that confront the feasibility and acceptability of MARC as the basis for information systems in the multimedia environment of the future. Deirdre Stam provides an entertaining, although somewhat distressing, account of the lack of standardization in the museum cataloging world. Howard Besser and Maryly Snow consider MARC versus relational database technology for access to collections of images. As Besser and Snow describe their project at the University of California, Berkeley, the subtext indicates that the politics of standardization is an issue as potent as the database technology. David Bearman confronts both issues head-on in his essay on MARC for museums and archives. Pat Molholt closes the collection with a thoughtful piece on the design of information systems for retrieval aided by artificial intelligence; she notes that if we do not begin building information on conceptual relationships into records (i.e., creating the knowledge base), we are not preparing for a future AI front end that could retrieve this information in powerful ways.

The loose organization of the varied contributions does not aid the reader in making connections and pulling together threads. The themes highlighted in the introduction are only a partial characterization of the rich content of this collection. One finishes this volume wishing for a different book, one that used these articles as source material and then pulled the issues and themes together into a vision of future information systems and a clear path for the evolution of MARC. Most likely, this is exactly the sense the editors hoped to instill in their readers, for, of course, the wished-for book is not quite ready to be written. When it is, many of the essays in *Beyond the Book* will have played a major role in shaping it. *Beyond the Book* is highly recommended reading for thoughtful catalogers and anyone inter-
ested in the MARC format.—Carol Mandel, Columbia University, New York City.


Nine contributors report on their current work of “listing and finding” graphical objects—i.e., pictures, line drawings, and images of pages. Only one paper (by Harold E. Thiele, Jr.) is theoretical. Four report work in progress at such diverse places as NASA-JSC Image Archives (Gary A. Seloff), National Library of Medicine (Frank L. Walker and George R. Thoma), Rensselaer Architecture Library’s Slide Collection (Jeanne M. Keefe), and the Canadian Centre for Caricature’s optical disc imaging system (Gerald Stone and Phillip Sylvain). Toni Petersen describes the unfolding of the Art & Architecture Thesaurus (AAT); Lois F. Lunin confronts the descriptive challenges of fiber art; Howard Besser at the University of California, Berkeley, offers a prototype visual browsing tool; and William G. Beadley details how the Department of Defense CALS (Computer-Aided Acquisition and Logistical Support) has enforced standards on the electronic publishing hardware and software vendors.

Rorvig in his introduction describes these contributions as “the great revolutionary transfer of ideas once confined to documents, to the universe of nonlinguistic knowledge; a great stripping away of the ‘biblio’ portion of bibliography from the graphic component” (p.639). To this reviewer the revolution so described did not begin with these contributors but with many researchers and developers who are not even mentioned in the references of any of these papers: J. C. Gardin, who worked on lexicographic problems in handling archeological specimens; K. Markey Drabenstott, who wrote a historical review on the classification of art objects and images up to and including automatic classification efforts; B. Parker at the Library of Congress, who did the pioneering work on the use of optical disc technology with prints and photograph collections; and many others forgotten perhaps because they came before hypertext and the Macintosh.

Lunin’s comprehensive search for the vocabulary terms needed to describe fiber art’s materials and objects, techniques, creators, and users resulted in a very complex database record with thirty-nine fields, only less than ten of which coincide with the typical bibliographic record. Her discussion of the many interweaving efforts to produce such a record and make it available to users with sophisticated technologies says a great deal about the expansive demands graphic materials will impose on the keepers of bibliographic standards. Petersen’s story of the AAT confirms this by relating to the reader how much the AAT has changed because of user comments and demands, and how in turn the MARC record and Library of Congress Subject Headings have changed or will have to change to remain useful. As neither Lunin nor Petersen will have the force of papers are very instructive, especially in Keefe, Seloff, Lunin, Walker and Thoma, and Besser. Unhappily, the references with each and every paper are inadequate, and the index included (which covers the entire volume, not just this number) is little more than an alphabetized table of contents. Little attention has been given to gathering related papers under a given index entry. Instead, the index entry is tailor-made to fit one paper, and the subheadings merely itemize in page order the contents of the paper. “MARC” might be an exception, where three papers are referred to, but under “image” the scatter is very apparent.

This collection of papers makes for interesting reading on the subject, but it must be seen for what it is, a collection of work in progress, not a historical review or a trend-setting symposium. It will be extremely valuable for anyone with current
interest in the subject, but cannot be expected to provide a tutorial or general perspective on all the work presently going on.—Pauline A. Cochrane, Professor Emeritus, Syracuse University.


Automated information-retrieval systems not only are quite different from printed sources in their format and organization, but also inspire a different reaction from users and librarians than those generated by computers and automated systems. Thus teaching how to use a computer-based information source cannot be the same as teaching how to use printed reference materials. A discussion of how this instruction can be effective forms the basis for Teaching Technologies in Libraries, which explains options for technology instruction.

Computer-based sources offer no idea of the size of the information covered or of the steps involved in searching the sources, unlike a printed source which you can see and feel and with which you yourself construct the search strategy. Standards of user interfaces do not exist from one computer-based source to another, and each user approaches an automated source from a multifaceted personal perspective. Thus rather than decreasing the need for instruction as might have been assumed, automated information systems have actually increased the need for teaching how to use these various technologies.

Various options for teaching technologies in libraries are discussed in detail in separate chapters. Caution is advised when deciding among the options (such as CAI—computer-assisted instruction, artificial intelligence, hypertext, video, or handouts), since no one option will be best for all computer-based sources. The logical steps listed to follow in order to make the best option selection possible are: identify the problem, state goals and skills, determine learner characteristics, review the resources, compare media features, consider media in context, and, finally, select the media. Case studies are presented to underscore the use of the options available.

In the chapter on onscreen help, Joseph Matthews and Joan Frye Williams' UFI (User Friendly Index) is listed in a discussion of the overall generally poor design of system-provided onscreen help screens. The index rates user friendliness from +4 (The User Intimate System) through points such as -1 (The User Crabby System) down to -4 (The User Vicious System), and it is a humorous but effective guide in helping to understand the various levels of effective onscreen help. Help screens for both online and CD-ROM systems are included in this chapter. Emphasis is placed on the principles that librarians must be familiar with the help facilities of the systems in the library, that librarians direct users to good help facilities, and that librarians take an assertive role by telling system designers when "a weak help facility needs to be reworked."

Library instruction requirements for CD-ROM sources and online services as well as the renaissance of audiovisual instruction (AV combined with microcomputers) are expanded upon in separate chapters and include tips on the hows and whys of designing an audiovisual help facility. More information is provided on expert systems, hypertext, and CAI as instructional aids for the new technologies before the final chapter is reached, which contains details on the needs of special users, those users in public, school, academic, and medical libraries.

Overall, Teaching Technologies in Libraries is a collection of detailed information on various approaches to providing instruction in the use of computer-assisted information sources. Each chapter contains a good bibliography of further readings. This work is also, however, an excellent source of basic information on both the computer-assisted sources themselves and the various approaches to instructing how to use the sources. Recommended for public and technical services staffs.—Denise A. Garofalo, Mid-Hudson Library System, Poughkeepsie, New York.


The Library and Information Technology Association (LITA) has released the proceedings of its second national conference, held in Boston in 1988, in a series of four publications—one a general set of papers and three smaller volumes that include papers on specialized subjects.

The theme of the conference, "Effective Technology, Excellent Service: Putting the Pieces Together," is well represented by the papers in the general volume, Convergence. There is something for every interest here. The articles range from the visionary to the "how we did it good" brand. There is humor, practical information, and inspiration to be found here. For the sake of brevity, only four of the forty-three articles in this volume will be reviewed here.

"The Role of Technology in Libraries: Thoughts and Observations," by Thomas T. Suprenant, reminds us of the creative side of technology and the important role of librarians as teachers and innovators. Technology is changing the structure of libraries and enhancing the role of librarians as "information engineers." Suprenant contends that technical services people are the "most important individuals in every aspect of this enhanced role."

John P. Abbott and Jinnie Y. Davis present practical information in "Extending Service beyond the Library Walls: The Effect of Remote Access to Online Catalogs in Large Academic Libraries." Many of the problems of supporting remote access to a library catalog are discussed. The blurring of lines between traditional reference service and technical support is mentioned, as well as the difficulty in training unseen and unheard users. Practical advice is given for those planning to offer remote access to their catalog.

Expert systems applied to reference service is described by Charles W. Bailey in "Building Knowledge-Based Systems for Public Use: The Intelligent Reference Systems Project at the University of Houston Libraries." Development activities are described, including attempts to use different expert system shells, some of which were rejected for not meeting specifications. The goal of the project was to produce a working prototype of an expert system to aid users seeking indexes and abstracts.

We are reminded again of our service role by Miriam Drake in "Don't Promise What You Can't Deliver: Developing the Image of the Library as a Technological Institution and Service Organization." Finding Billy Crystal quoted in library literature is refreshing. We need to be refreshed and reminded that computers...
don't provide service, we do. Your collection might look marvelous, but do you provide marvelous service?

This is a fine collection of articles with broad appeal. Our commitment to service seems to be alive and well. Library school students will find it a useful resource and so should jaded, tradition-bound librarians. Reading this volume makes me look forward to the third national LITA conference in 1992.

Videotechnology and Libraries gives a brief introduction to such applications in libraries. The articles include a description by Carol Henley of the DEC VAX VTX user-friendly interface to the DEC Library network. Angela Giral writes about AVIADOR, Avery Videodisc Index of Architectural Drawings, available on the Research Libraries Information Network (RLIN). Joan Parker and Alice Littlejohn of California State University, Long Beach, describe bibliographic instruction aids developed with HyperCard, Pilot, and Guide software. Littlejohn also writes about interactive video reference services using Datapoint's Multimedia Information Network Exchange (MINX). In the last section, three videodisc projects are described: the Forest Service photograph collection at the National Agricultural Library, image database development at the University of California, Berkeley, and the Project Emperor center multimedia project. These "articles" were probably more effective as presentations where visual aids were no doubt used to great advantage. They lose something in the translation to paper; those looking for in-depth information about videotechnology might want to look elsewhere for a comprehensive treatment.

MARC Format Integration presents a useful overview of issues surrounding the planned integration of the various MARC formats into one format. Richard Greene of the OCLC Online Computer Library Center describes the process for implementing routine changes to the MARC format: analyzing and coding system changes, testing these changes, preparing documentation, training users, and coordinating schedules for implementing the changes. Greene contrasts the changes required by conversion to the second edition of the Anglo-American Cataloguing Rules with those needed to implement format integration. Anne Highsmith gives the librarian's perspective on format integration. Uppermost in the librarian's mind are the ways that format integration will change retrieval capabilities and how integration will change the cataloging process. Highsmith is reassuring on both topics: format integration will not take away any retrieval capabilities and will in fact shield the catalog user from arbitrary format decisions required by current MARC standards (Is it a music item or a serial item? Can't be both!) and should streamline the cataloging process. The local system perspective is presented by Karen Coyle. Retrieval enhancements are addressed here as well as some potential problems with integration. For example, ambiguous data elements will have to be dealt with as well as the problem of reconciling "old" style records with "new" style records.

Standards make the world go round, and this first LITA Monograph, Library and Information Technology Standards, does a fair job of presenting a thorough overview of the subject. The Technical Standards for Library Automation Committee (TESLA) of LITA presented two sessions at the Second LITA National Conference; the eight papers included here cover the standards development process and the implementation process. The standards development process is succinctly described by Patricia Harris, executive director of the National Information Standards Organization (NISO). Katherina Kemplerer describes work on the Common Command Language standard. The USMARC standard for holdings and locations data is reviewed by Nolan Pope. A course called "Information Processing Standards," taught at the University of Pittsburgh School of Library and Information Science, is described by Toni Carbo Bearman. On the implementation side of this monograph, Gary McCone writes of the National Agricultural Library's conversion to USMARC. Use of USMARC for law materials is covered by Naomi Ronen. Stephen Salmon writes of the need for standards for circulation systems. The standards guru, Walt Crawford, tells about
technical standards that have failed. If you're just realizing how important standards are to librarianship, this publication is a good starting point.—Janet Woody, Virginia Commonwealth University, Richmond.


How a library collects and makes accessible materials that are sexually explicit is a prominent professional concern because such materials are inherently value laden and controversial. No other topic, with the possible exception of religion, has a literature with such a wide range of quality and the ability to evoke such strong emotion. Libraries, Erotica, Pornography is a collection of essays about this very issue. An underlying theme of several of the seventeen chapters is that there is a conflict, an ongoing tension, for librarians in relation to collecting what is good and helpful for library users on the one hand, and what is representative of "variety and plurality as moral and social goods" on the other hand. Editor Martha Cornog and the other contributors provide a well-written summary of how they see this conflict working itself out—primarily over the last three decades.

Reading Libraries, Erotica, Pornography reminds one of some of the basic principles of life and librarianship. This reviewer is also reminded of an incident in 1968 while having coffee with a library school student at the University of Illinois. The student complained that a class assignment required him to read Claude Brown's Manchild In The Promised Land (Macmillan, 1965), which he described as "absolutely filthy" and inappropriate for library selection. While I have forgotten the rest of our conversation that day, I do remember that about one week later the same student observed that Manchild had an important message and was fairly well written. Perhaps redeeming qualities really do influence acceptable limits—regardless of whether the librarian is dealing with profanity, erotica, etc.

In the introduction to the book the editor and her husband (Timothy Perper) discuss the historical context that precipitated the writing of this book. The intent is to enlighten and guide librarians in their treatment of sexuality materials—including the erotic and pornographic. The introduction closes by suggesting that "Each library must walk its own tightrope amidst staff, community, and professional priorities." Such a tone is found in most of the other essays. I would not classify most of the contributors as intellectual freedom purists (in the sense that anything and everything is acceptable). While most of the chapters represent substantive contributions, no single chapter of this collection stands out. It is the cumulative impact of all the essays that makes the collection worthwhile. Gershon Legman, described as the world's leading authority on erotic literature, provides a brief history of erotica and its creators and its collecting by libraries. He makes the telling observation that "Sexual perversion is not funny, not rare, and not to be taken lightly, as anyone who has ever been married to a homosexual or sadist or pervert knows" (p.51). The editor and her husband attempt to deal with the meanings attached to the words erotica and pornography and others. There is food for thought here—but not much guidance. Bill Katz and Will Manley respectively provide pro and con arguments on collecting pornography in libraries, and those who like easy answers might appreciate their thoughts. Manley's argument against pornography in the library is pragmatically based. Vern Bullough's essay on the "Research and Archival Value of Erotica/Pornography" is of questionable value (only six pages including two pages of references). There is a chapter dealing with the feminist position on pornography and another on the Minneapolis and Indianapolis "porn ordinances," which dealt with women's civil rights. Both chapters are well written and well documented. Martha Cornog's "A Case Study of Censorship? The Library of Congress and the Brailling of Playboy" is an excellent contribution. It should not go unnoticed that one of the conclusions of this case study is "Recognition (again) that a (good) selection policy is the best defense against censorship"
There are chapters on "Erotica Research Collections" and "Homosexuality Research Collections," and chapters providing bibliographies on various aspects of the issue of "Libraries, Erotica, Pornography." Robert Rimmer (author of The Harad Experiment) contributed "A Connoisseur's Selection of X Rated Videotapes for the Library." His selection of sixty videos compares with three thousand he has reviewed—of which "85% . . . belong in the category of sick sex or are just boring to watch" (p.241).

Timothy Perper concludes the book with a long, almost rambling, essay on librarian attitudes toward sex books. His image of librarians is outdated, in my opinion. Particularly interesting, however, are his insights regarding any connection between sexuality materials and sexual crime. Also worthwhile is his commonsense question, "Do you mean to assert that rapists go to the library before attacking women?" (p.291) I found the book to be helpful as I reevaluated my own commitment to intellectual freedom. It helped me realize again that even professionals might come to John Berry's point of "Drawing The Line." The content, the balanced approach, the full pages of text, and the references and bibliographies all combine to make this an appropriate acquisition for most libraries.—Don Lanier, University of Illinois at Chicago, College of Medicine at Rockford.

**Reference**


**Issues for the New Decade: Today's Challenge, Tomorrow's Opportunity. A Conference Sponsored by the Florida State University School of Library and Information Studies and the Center for Professional Development and Public Service.**


The participants at the eighth annual Library Conference at Florida State University in March 1990 must have come away feeling invigorated and stimulated by a lively set of papers on a wide variety of topics given by nationally renowned speakers. This collection of papers from the conference discusses four "issues for the new decade": preservation, pressures on the scholarly exchange (a librarian/publisher discussion of the serials pricing controversy), the role of the public library, and federal and state legislative agendas. The presenters are all recognized experts in their fields, and each of the individual papers is well worth reading.

How well these papers hang together as a monograph, and whether they succeed in fulfilling the premise of the title are other questions. Clearly these topics are all important issues. However, the volume suffers from the absence of an overview article to put them in the context of the increased national awareness of the essential nature of information access, the exponential growth of information available, and the centrality of the profession's role. It is also surprising that there is no detailed discussion of communications and electronic access as issues for the 1990s, except for a reference to the National Research and Education Network (NREN) in Gary Strong's Samuel Lazenrow Memorial Lecture and Eileen Cooke's section on federal legislation pertaining to information issues. Moreover, I would consider the current grim budget picture, both in terms of library allocations and the shrinking size of the available resource base, as something that will continue through the decade and influence many of our decisions and much of our long-range planning. In his discussion of the role of the public library, Charles Robinson even goes so far as to say that for him preservation and serials pricing are non-issues. All of the articles deal with information access in one respect or another, and a more focused introduction would have helped tie together seemingly disparate topics.

There are some excellent articles in this volume. For instance, the reader will find: a succinct overview of preservation from the national perspective by Pat Battin, the president of the Commission on Access and Preservation; a thrilling account of the fire-bombing of the Joliet Public Library and its subsequent recovery by the director.
James Johnston; a clearly organized and well-documented discussion of the current serials pricing crisis by Duane Webster, Association of Research Libraries executive director; a useful set of guidelines to be used as a model for disaster planning from the Illinois State Library Preservation Office; and a good summary article on both current and developing federal legislation affecting libraries, by Eileen Cooke, director of the American Library Association's Washington D.C. office—to mention just a few of the contributions. These papers could be especially useful for library school students or new entrants to the profession because several of the articles provide thumbnail sketches of where we are and what we have done on certain issues.

In summary, this collection of papers is not essential reading, but if one happened to stumble onto it, the time would be well spent perusing its contents.—Gillian M. McCombs, State University of New York at Albany.


This practical "how-to-do-it" guide is designed to introduce school library media specialists and youth services public librarians to a technique for gathering information about the collection that can be used in decision making. Collection analysis as a means of measuring the quality of the collection is presented in the context of managing resources to achieve a desired outcome. The work opens with a discussion of collection analysis and presents one of the author's experiences to demonstrate why collection analysis is an effective tool for measuring quality and for collecting data to communicate fiscal needs to funding sources.

Data analysis is described in terms of sampling techniques, qualitative and quantitative methods for collection evaluation, ways to estimate updating costs, and ways to assess whether the collection is meeting curricular needs. The need to evaluate policy and goals is addressed. Practical suggestions for carrying out weeding procedures include removal, retention, and discard of materials. The techniques are described in terms of manual and computerized operations. One chapter is devoted to preparing the collection for automation.

Throughout the work the practical applications used by librarians and media specialists enhance and explain the more theoretical aspects of the work. Terms are clearly defined, with illustrative applications and directions for using the forms presented in the figures. All the forms are reprinted in one of the appendixes. The advice is sound and reflects the authors' knowledge of the realities of working in schools and public libraries. For example, readers are encouraged to limit the size of reports to administrators (an actual one page report is displayed as a figure). References to related works and bibliographies provide additional sources for the interested reader.

Investing in this work will save librarians and media specialists money that can be used to replace items in the collection.—Phyllis Van Orden, Wayne State University, Detroit, Michigan.


The program from which this publication derived took place in a very large and very crowded room. For those of us who spent time standing or sitting on the floor in that room, the new volume offers a welcome chance to return to the topic in comfort, although it cannot convey the atmosphere.
of keen interest and excitement that filled the hall, prompted by the April 1986 debut of the machine-readable Library of Congress Subject Headings (LCSH-mr). Still, most of what was said remains fresh and pertinent.

Lois Mai Chant’s paper discusses the use of LCSH-mr to support cataloging, file maintenance, thesaurus maintenance and development, and retrieval activities. Noting that LCSH-mr falls short of being a true authority file in that it does not contain all the valid subject strings that have been used on Library of Congress (LC) bibliographic records, Chan proposes that such a file be built to assist with automatic heading validation. (This proposal was scheduled for discussion at the May 1991 conference on LC subject subdivision practice.)

Ioanna Rood and William Garrison discuss the use of LCSH-mr in UTLAS and NOTIS, respectively. Rood offers a cautionary tale of UTLAS’ efforts to provide LC-based online authority files, repeatedly outflanked by LC’s own releases. She also has words of wisdom for those contemplating batch processing of controlled headings and enhancements to LCSH-mr. Garrison focuses on what NOTIS learned from processing updates to LCSH-mr, and on blind reference problems resulting from LC’s use of headings in complex references and explanatory notes, and as pattern headings.

Issues relating the use of LCSH-mr as a public access tool are addressed by Liz Bishoff and Carol Mandel. Bishoff notes differences in the attitudes of public and technical services staff toward controlled vocabularies, and calls for further investigation into the design of authority files for public display. Carol Mandel’s discussion of strategies for displaying multiple controlled vocabularies identifies problems with each approach in this emerging field of research.

As Karen Markey Drabenstott notes in her introduction, research into these areas promises a new stage of online catalog development. Meanwhile, this volume does an excellent job of framing the general issues driving this development and outlining problems and possible solutions.—Stephen Hearn, University of Minnesota, Minneapolis.


This latest addition to library automation literature is intended to assist in the development of requests-for-proposals (RFPs) and has several strengths: the breadth of its directory-style coverage of automation services available to libraries, a selection of essays providing both historical and state-of-the-art information, and extensive indexing. The handbook consists of three major sections including essays on five industry categories (hardware, software, network services, communications, and value added vendors); corporate and product profiles; indexes and a bibliography.

This is not a handbook for the neophyte. Written by industry specialists, the essays are crucial to understanding the classification scheme used by Muro in the corporate and products “Profile” section. The essays provide a broad industry coverage and give a basic historical background. They also run the gamut from a highly technical hardware essay written by Audrey Grosch of the University of Minnesota to an overview essay on telecommunications by Larry Learn of the OCLC Online Computer Library Center. A glossary would complement this section quite nicely.

The meat of the handbook is the corporate and product profiles. Compiled from a 1989 survey of automation firms marketing to libraries, this section is based solely upon the information supplied by those firms. Consequently, there are some gaps in the coverage of the industry. Organized alphabetically by name of the vendor, this section includes basic information such as address, phone, contact person, sales, and target markets. The product profile information includes applications; hardware, software, and communication requirements; information products; and standards supported. Not all corporate and
product profiles provide complete information in every category, due to the amount of information submitted by the responding organizations.

The final section of the handbook is composed of two very detailed indexes (of industry, products and services, and of corporate, trade and personal names), a bibliographic listing of related books, articles, and reference sources, and a copy of the survey questionnaire. The depth of indexing and the typesetting make the index hard to read and somewhat hard to use. The bibliographic list is eclectic in its subject coverage, concentrates on journal articles (and consequently misses such standards as Joseph R. Matthews' *Choosing an Automated Library System* (American Library Assn., 1980) and John S. Quarterman's *The Matrix* (Digital Press, 1990)), and unfortunately needs updating.

A phone interview with the author revealed that *Automation Services for Libraries: A Resource Handbook* is one volume of a growing series. The series is expected to include companion volumes on marketing and sales information and on user evaluations of systems. The author intends to update these volumes annually.

This handbook is not adequate as a stand-alone resource for evaluating automation services for libraries. It does not address the general questions such as "How do I begin to locate the hardware and software needed to automate my library?" or "Why is RISC architecture important and how does it affect my library automation decisions?" Librarians and vendors with enough computer savvy to understand the essays fully and to be able to relate the use of the different platforms, standards, hardware, and software listed will find the handbook helpful as a reference tool for quick look-ups. The handbook will also be valuable to computer professionals who may need an introduction to automated library services.

The handbook has great potential. When combined with the forthcoming companion volumes and annual updates, it might well grow into the "authoritative reference" claimed by Muro in his preface.—Jeanie Fraser, Failure Analysis Associates, Inc., Menlo Park, California.


These recently published books in the Ablex Information Management, Policy, and Services series are intended to appraise the current condition of library research and to help us proceed with it. The first succeeds admirably; the second is without distinction among similar works. *Library and Information Science Research* is the result of the American Library Association Library Research Roundtable (LRRT) 1990 program planners' invitation to nationally recognized researchers to submit papers about improving research in library and information science. All essays are printed here, with royalties to be added to the Shera Award for Research Endowment. The editors' objectives are to "provide a state-of-the-art assessment, discussion, and overview of research in library and information science; . . . offer specific recommendations and strategies for resolving issues related to research in library and information science and for improving the quality, quantity, and impact of that research; . . . increase the profession's (and library school students') awareness of the role and importance of research in library and information science;" and "identify and analyze key issues and topics from a broad perspective cutting across a number of groups within library and information science" (p.xvii-xviii).

There are twenty-eight chapters (each with abstracts and references) organized into three sections, author and subject indexes, and information about the thirty-one authors.

Part 1, "Overview of Research in
Library and Information Science,” has eleven essays about the nature of research: resources; national agendas; the role of the U.S. Department of Education; international aspects; the development of disciplines/professions; quality; quantity, and impact; cross-disciplinary; ideology; funding, and standards; and the ethos and function of library education. Part 2, “Practical Context of Research in Library and Information Science,” focuses on the roles of library administrators, practicing librarians (written by an administrator), professional associations, journal editors and editorial boards, consultants, private funding agencies, networks and consortia, and the information industry. In Part 3, ten authors address a variety of “Issues and Concerns Related to Research in Library and Information Science,” including communicating findings; requirements for academic, public, school, special, and state librarianship; paradigm shifts; and theoretical foundations. The concluding chapter is by Beverly Lynch.

It is appropriate that librarians assess authors with differing experiences offer perspectives about research in librarianship; identify issues, constraints, and opportunities; and suggest improvement strategies. They present an array of ideas for our consideration, meeting the editors’ objectives.

Consistent themes throughout the essays are (1) establishing the proper role of research in a field dominated by practitioners and (2) finding the appropriate model to inform research in library and information science. The editors and many of the authors share the general angst about librarianship: Is it a profession? Is it a discipline? Without an unequivocal answer, librarians apparently have a difficult time constructing a theoretical base for research endeavors. Several essayists here propose that it is both a discipline and a profession, while others aver that it is neither. It is in this debate that I find the book most interesting and disappointing. Unlike Mary Jo Lynch’s Academic Librarians: Research Perspectives (American Library Assn., 1990), where authors almost uniformly reflect the prevalent assumption in librarianship throughout the past thirty years that research is the variety of data-collection and analysis techniques common to the social sciences, essayists here do discuss moving beyond that model but suggest that we follow yet again other social or expert paradigms. What cause for celebration would be acknowledging that librarians’ option of choosing from a variety of methods for adding to knowledge has been and is our strength. Why aren’t we our own model instead of attempting legitimacy by imitation?

This book should appeal to anyone interested in library research but specifically to educators, students, and practitioners who hope to make significant contributions to the literature of librarianship. Members of the Association for Library Collections & Technical Services (ALCTS) should particularly note Joe Hewitt’s elegantly written chapter about the role of administrators in improving research.

Hernon’s intent in Statistics: A Component of the Research Process is to meet a perceived “need for a basic work that presents the research process and different statistical techniques clearly, succinctly, and as simply as possible” (p.xiv). In eleven chapters, he gives an overview of research, evaluation, and statistics; identifies journals in library and information science most likely to publish research (although one wonders what purpose is served by pointing out that College & Research Libraries uses “research” in its title); discusses reference tools that provide access to research literature; demonstrates the use of microcomputers in data analysis; introduces basic statistical concepts, definitions, and terminology; presents statistical procedures that appear most often in library literature; discusses their application to library decisions; and summarizes decisions researchers make in selecting statistical techniques. The author does not intend this book to be a complete source.
The most logical companion is Hernon et al., *Statistics for Library Decision Making: A Handbook* (Ablex, 1989) because, he notes, it provides the conceptual foundation missing here. There is also duplication between these two books, as well as with other of Hernon’s works.

Hernon does succeed in his objective to provide a basic overview of the research process, emphasizing quantitative analysis and the use of descriptive and inferential statistical methods for “library school students, academic librarians new to the expectations of faculty status, and librarians wanting to be more effective consumers of the research literature of library and information science” (p.xiv). This work, however, is among many introductory and specialized statistics and research methods texts. Perhaps the primary reason for choosing it is the author’s use of examples from library literature. For ALCTS members there is little specific here.—Charlotta C. Hensley, University of Colorado at Boulder.


In the preface of this guide to IBM’s DOBIS/LIBIS integrated library system, the authors state that they are attempting to give a general overview of the functions and operation of DOBIS/LIBIS. (In the United States the system is marketed under the name DOBIS/LEUVEN.) The observations made are based on experience the authors gained in the mid- to late 1980s implementing and operating DOBIS/LIBIS Version 1.4 at Bristol Polytechnic in the United Kingdom. The authors report on Version 2.0 changes throughout the text.

The authors provide an easy-to-read, broad overview of the system that is honest in reporting not only the system’s strong points but also its limitations. Although not always fully comprehensive and not up to date in that some features are not covered, the reader can gain a basic understanding of the system.

In a broad sweep the introduction sets the scene with a background piece on IBM and the development of the DOBIS/LIBIS software. Background continues in chapter 1 with Polytechnic’s implementation history—from specification, to system choice, to hardware configuration, to conversion of records to machine-readable form (done online directly into DOBIS/LIBIS), to preparation of the staff for the new system. Separate chapters describe the various DOBIS/LIBIS functions: i.e., OPAC, acquisitions, periodicals and serials control, cataloging and maintenance, circulation, etc. In a concluding chapter on doing business with IBM, the authors note that IBM seems unaware of what a good product they have. IBM marketing and support of the system have been erratic, and few installations have been sold in the United States. (Reviewer’s note: there were no reported U.S. sales of the system in 1990.)

Chapter 3, perhaps the most important in the book, provides a good overview of the DOBIS/LIBIS software, in terms readily understood by the layperson. The chapter describes the uniqueness and strongest assets of the DOBIS/LIBIS system—its integrated file structure, permuted indexes, and the flexibility of options available for installing and running the software.

The chapter dealing with cataloging, catalog maintenance, and bibliographic data conversion leaves questions unanswered as regards data conversion, MARC format support, and the importing and exporting of records. The authors state that Bristol Polytechnic staff lacked MARC expertise. They were happy and satisfied with the cataloging module and its “hidden” MARC. Librarians steeped in working with MARC records and accustomed to thinking in MARC tags will more than likely be very dissatisfied with the cataloging module as delivered. Furthermore, read carefully or you might miss the information that programming is necessary to translate data being loaded from external sources into DMARC (DOBIS MARC). Such programming is available from DOBIS/LIBIS sites, such as Emory
Comprehensive discussions of these issues would increase the relevance of this chapter.

Throughout the chapters detailing DOBIS/LIBIS functions, reference is made to tasks that can be carried out by staff with proper authorization levels. However, the text devoted to an explanation of authorization levels is very sparse. The book would be improved with much more attention given to this important aspect of any system.

The book is recommended for those libraries wishing to maintain a comprehensive collection of titles dealing with library automation systems. Those libraries that have already purchased the DOBIS/LIBIS (DOBIS/LEUVEN) system will be tempted to purchase this title but will find it to be of limited value. It confirms the implementation experience. However, fundamental knowledge needed to operate the system is just as adequately covered in the manuals and documentation supplied with the purchased system. —Sally J. Armistead, Catonsville Community College, Baltimore County, Maryland.


This brief book focuses on the various models employed for the management of information technology on a number of American campuses. Within that framework, particular attention is given to the scattered emergence of Chief Information Officer (CIO) positions and the roles played by persons in those positions, with emphasis given to relationships to the library.

The methodology behind this report, which displays twenty-two data tables, is as follows. Twenty-eight CIOs were interviewed either in person or by telephone in 1986 and 1987. The author also reviewed the relevant literature and applied personal observation to describe a variety of models of information technology management, with the purpose of helping "a college or university identify the administrative configuration most suitable for its campus culture" (p.6). This purpose might have been achieved, for the report does provide a choice of organizational perspectives as food for thought, but surely it is not so thorough that, from its findings, "the elements needed for successful coordination and integration of [information technology] on campus will unfold" (p.viii).

Few academic librarians would debate the idea that the management of information technology on campus is a very timely subject of study and discussion. But it is such a fast-moving target that the validity of this snapshot of the way things were in 1986 and 1987 is questionable in 1991. This potential weakness of the report is not offset by much analysis or tenacious pursuit of issues suggested by the data. As a consequence, the reader is tempted to think that the report might better have been published as a journal article, perhaps making it more timely.

These quibbles notwithstanding, Woodsworth's work captures in one convenient place information and ideas about a most fascinating social phenomenon on our campuses and, therefore, may serve a useful springboard function for better understanding and further study.—Charles B. Osburn, The University of Alabama, Tuscaloosa.


In the preface, the authors state that their purpose is to "provide readers with a basic appreciation of serials acquisition practices and possibilities." Basch and McQueen do an outstanding job of discussing both the difficulties faced by libraries when acquiring serials and the continuing challenge of maintaining current serial collections. They emphasize the basic premise that libraries in the 1990s must develop responsible acquisition programs in order to maximize
the return on their ever-increasing serial expenditures.

The placing of serial subscriptions signifies a long-term commitment of library funds and human resources. The authors point out that the very nature of serial publications coupled with the various idiosyncrasies found among publishers is often more frustrating to a serials manager than the actual acquiring process. The use of serial subscription agencies is advocated as a viable step towards the goal of improving a library’s serial acquisition process. While Basch and McQueen stress that purchasing serials through serial vendors might not work for every library, they cite definite cost- and labor-saving benefits to be derived from their proper usage.

Subscription agencies act as facilitators between libraries and serial publishers by placing new orders, claiming missing materials, and renewing ongoing subscriptions. More importantly, their services are aimed at reducing the amount of human and monetary resources libraries would normally spend if performing these same functions in-house, as well as furnishing extremely useful managerial reports. Basch and McQueen provide a detailed and insightful examination of serial subscription agencies. They carefully guide the reader through the initial steps of analyzing a library’s needs and operations to translating those needs into the criteria to be used in the vendor selection process. After an agency has been chosen, the key to successful library/vendor relations, according to the authors, is effective communication and the ongoing evaluation and monitoring of a vendor’s performance.

*Buying Serials* is a valuable resource tool for new and experienced serial managers in both public and academic libraries and succeeds as a practical guide for purchasing serials through domestic subscription agencies. While not all serials are obtainable via serial vendors, their services do provide an attractive alternative to the repetitive and time-consuming task of ordering all subscriptions direct from the publisher. Also included is a useful bibliography of related works and an excellent overview of several automated serial acquisition/subscription-management products and services available in today’s market. —Michael D. Cago, Indiana University, Bloomington.


SPEC Kit 162, *Audiovisual Policies in ARL Libraries*, opens with an introduction to the topic of audiovisual materials in the collections of research libraries. The introduction also discusses the results of a survey by the Systems and Procedures Exchange Center (SPEC) of seventy-two academic research libraries with audiovisual collections. The SPEC Kit is divided into the following sections: Survey Results, Brochures and Fact Sheets, Circulation and Fine Policies, Collection Development and Selection Policies, Reserve Policies and Procedures, and Selected Readings. The introduction, by Kristine Brancolini, provides a good summary of the SPEC survey results and the contents of the kit.

The section titled “Survey Results” includes the actual SPEC questionnaire and the tabulated responses. The questionnaire covers types of materials, the purposes of audiovisual collections, audiovisual staff, budgeting and expenditures, alternative means of acquisition, and audiovisual policies and collection services. Responses include the number of responses for each question, and the range, mean, and median for each response.

The sections covering facilities (Brochures and Fact Sheets), circulation, collection development and selection, and reserve policies consist of examples of documents from libraries participating in the survey. The documents provide clear and detailed information on maintaining and operating an audiovisual collection or media center. The documents are varied, demonstrating the many possible approaches to establishing and maintaining an audiovisual collection. One drawback to
the documentation is that many of the examples are outdated. Although many of the documents are from 1989 and later, some are also dated as early as 1984. It would have been more effective (when possible) to include the most current documentation.

Following the sections on facilities, collection development, reserve policies, etc., is a list of selected readings. The list is brief, consisting of six entries, and cites books as well as journal articles.

In general, SPEC Kit 162 provides a clear overview of the major issues involved in the establishment and management of an audiovisual collection. However, narrative and explanation (in addition to the introduction) would have enhanced the kit's effectiveness. In addition, although the libraries included in the survey are medium-sized to large academic research libraries, the kit will be useful for any library wanting to establish an audiovisual collection.—Mary Beth Fecko, Rutgers University, Piscataway, New Jersey.

**Materials Budgets in ARL Libraries.**


SPEC Kit 166 grapples with several weighty issues facing acquisitions librarians and other library administrators today. The budgeting process is affected by rising costs, shrinking budgets, and new technology. Managing funds for maximum benefit is a challenging responsibility. To that end, equitable distribution of funds (including allocation formulas), monitoring fund balances, and accountability are becoming increasingly important. The results of a Fall 1990 SPEC survey of 108 academic library members of the Association of Research Libraries are presented in this kit as an aid to dealing with these management concerns.

The scope of this publication is broader than the title indicates. Considerable space is devoted to collection development and materials selection policies for machine-readable data files (MRDFs), also referred to as electronic resources, or computer files. The reason for inclusion is the impact of MRDFs on financial planning for libraries. Related direct and indirect costs such as staffing, training, equipment, and security constitute substantive considerations in the budgeting process.

Other factors receiving attention in the materials selection policies are whether MRDFs provide improved access to information if it is already available in some other format, the number of users, and whether a common vendor is chosen, thus facilitating the use of similar searching protocols. All policies advise employing extreme caution when substituting MRDFs for printed information.

The Allocation Principles from the State University of New York at Buffalo provide an interesting example of a guide for the distribution of acquisitions funds. Goals, process, and fiscal contingencies are clearly delineated. Other budget procedures include the University of Toronto's "A Mechanism for the Protection and Establishment of Library Acquisitions." This is noteworthy because it attempts to protect the acquisitions budget from reduction in real purchasing power each year by adjusting for price inflation and currency fluctuation, both serious problems for acquisitions librarians and other library administrators today. An end-of-the-fiscal year funds report from the University of Miami and a detailed preliminary estimate of the 1991-92 serials commitment from Brown University round out the collection of budget procedures and reports.

A sample agreement for the acquisition and placement of a financial database in the Graduate School of Management of the University of California, Riverside, follows. This is an excellent example of such a policy and one of the first to be published anywhere. A current list of selected readings completes the volume.

SPEC Kit 166 is an essential purchase for acquisitions librarians, collection development coordinators, and library administrators involved in the budget and

This report is the result of a survey of Association of Research Libraries (ARL) member libraries and is an update of SPEC Kit 39, published in 1977. Libraries were asked whether they had or were planning to use remote storage. There is little change from the earlier survey. In 1977, 45 of 97 libraries responding used remote storage. In 1990, 45 of 90 store materials in a facility away from the rest of the collection; 10 more are planning for storage; 35 neither use nor plan for remote storage.

In 1990, more than half responding (30 of 50) either use or plan to use storage by operating their own facilities. Of the others who share storage, some do so with libraries from the same campus with different reporting lines, some from the same institution but with different campuses, some with libraries from other institutions, and some with organizations that are not libraries. The 40 of 50 (68 percent) using or planning storage are in the process of adding additional space, but even so 17 of 41 (39 percent) say additional space will not have an impact on remote storage arrangements. Factually, 34 of 50 (68 percent) ARL libraries indicate that remote storage is an acceptable long-term solution to space problems in their library buildings.

The survey covered planning, selection of materials, and user services at remote facilities. Most of the kit is a reproduction of planning documents supplied by some of the libraries using remote storage. Steel concludes, “While the use of remote storage facilities is considered to be an acceptable solution to long-term space problems, libraries will want to measure the effectiveness of the storage arrangements in order to minimize inconveniences to users” (p.2).

Some of the criteria for selection of materials for remote storage include: condition, use or lack of it, age, format, limited holdings (less than a run of two years), and value (used by the Smithsonian). Documents reproduced cover most of the considerations needed for decision making and specifications for planning and execution.

From a technical point, since the documents have been copied as received, appearance of some is not the best and there are some internal inconsistencies. For example, letters at the beginnings of paragraphs are missing; there are manuscript changes for updates and corrections, especially for numbers, but also for added information; the date of 1850 on page 77 was surely intended to be 1950. The kit has limited usage, and the price of $30 could deter all but those still planning for storage. However, for those libraries needing this kind of information, the detailed documents included should be very useful.


This work resulted from a Research Libraries Group (RLG) project begun in 1987 for the purpose of developing models for collecting and providing access to what were then called machine-readable data files (MRDF). In 1989 RLG convened a workshop for MRDF project members (Dartmouth, Cornell, New York University, Northwestern, University of Florida, and University of Pennsylvania) and other interested parties. The papers delivered at this workshop constitute the body of this work along with the discussion results and project summaries from the participating libraries.

RLG broke important new ground in its project and the subsequent discussions. Many libraries that were not involved in collecting in 1987 what are now called computer files are finding their collections
include a variety of these materials such as CD-ROMs, software, textual files, and data files. Some of these materials have been deliberately selected. Other files have arrived with journal subscriptions or as a result of faculty requests. The issues of selection, acquisition, control, and access have become the concern of many rather than an elite few. The papers were written by practitioners in large research libraries, but the issues they discuss are the concern of many types of libraries, like it or not. The decision to collect unique research material or sophisticated numerical data files requiring a mainframe computer may still be a negative for many libraries lacking the staff and resources to select, catalog, and service such materials. The basic concepts, however, of collection development, access, and service are equally applicable to many smaller and more common computer files. Such files are rapidly becoming a standard part of libraries' programs in the 1990s.

The four papers are aimed at different aspects of computer-file management, but except for the Marko paper there is significant overlap in the issues covered. Nevertheless, this slim work should be required reading for all librarians as we face a world increasingly filled with computer files.—

Sara Heitslu, University of Arizona, Tucson.


This book is one of a series prepared for the Program for Research Information Management (PRIMA) of the Research Libraries Group (RLG) and is based on interviews with scholars and librarians closely involved with teaching and research in eight scientific disciplines: physics, chemistry, biology, geosciences, astronomy, engineering, mathematics, and computer science.

These are difficult days. The purchasing power of the library dollar is dwindling rapidly. Although more money is spent, fewer titles are purchased. As Gould and Pearce point out, most scientists rely heavily on the periodical and serial literature, much of which comes from abroad. The weak position of the dollar over the past few years has further eroded buying power. When budgets must be cut, the tendency is to look at lists of the most expensive purchases, usually books and journals in the sciences. Such conditions increase the need, stressed by these authors, for the development of collaborative efforts at all levels.

For each discipline, the authors discuss the nature of research and information and the way scientists use information. It is apparent that there are as many differences between the disciplines as there are similarities. Despite these differences, they note that most scientists today have some common needs. The desire for rapid access to current information, preferably at one's desk or in one's laboratory, is a thread that runs through all eight chapters.

Different kinds of literature are important in different areas. Each kind of information generates problems in location and access. Many scientists need access to a broad range of information from a number of disciplines. The wide variety of print and electronic bibliographic databases helps, but many scientists are not able to take full advantage of such services. The purchase of CD products or databases mounted on local networks seems to increase use. In each section, there is a fairly extensive list of print and electronic services, as well as specialized databases. Although not every information tool available has been included, the important ones are listed. In addition, the authors discuss a number of projects that attempt to provide access to a whole spectrum of information from a terminal on a scientist's desk.

This book contains a fair discussion of the problems of scientific information, but it serves as a prescription for the future. While the needs of scientists for older information haven't changed and while their dependence on the traditional journal literature remains strong, there are many possibilities for the development of new and exciting tools for packaging,
accessing, and delivering information.—Katherine Porter, Duke University, Durham, North Carolina.


These additions to the Collection Management and Development Guides series follow the format of their predecessors. Each is in outline form, with a detailed table of contents for ease of reference. Each has a glossary of technical terms and a helpful bibliography.

**Guide to Budget Allocation** begins by reviewing the purposes of a budget document, its audiences, and its general characteristics. It then proceeds to cover allocation principles, the actual process of allocation, choice of allocation units (format, administrative unit, subject, etc.), allocation criteria, and the application of allocation methods. Because the guide is meant to be of use in all types of libraries, a wide range of options is presented both for the format of the document itself and for the allocation of funds. The guide stresses the need for clarity and intelligibility in budget documents and for careful planning, consensus building, and continuous review in regard to allocation criteria and methods. An appendix lists sources of price information about library materials.

**Guide to Review of Library Collections** covers the related topics of preservation, storage, and deselection. It opens with a discussion of why such reviews are needed, e.g., widespread deterioration of materials, space limitations, budget constraints, and changing needs and goals. Next the guide covers staffing considerations and possible procedures. It then treats preservation, storage, and deselection in successive sections. Each of these sections is subdivided into discussions of basic principles and possible methods of implementation. The deselection portion includes a timely discussion of criteria and methods for deselecting periodicals and standing orders.

These guides will be useful to anyone involved in collection management, especially those new to the field. Because of the frequent references to other volumes in the series (to avoid duplication of material), they are best used in conjunction with these.—Fred W. Jenkins, University of Dayton, Ohio.


The MARC (Machine-Readable Cataloging) format revolutionized many aspects of library service, although it is now taken for granted by most librarians (and patrons, even though they are probably unaware of it). Few, however, are very familiar with the evolution and principles of the current MARC format, which has its roots in the pre-MARC systems of the mid-1960s. **MARC Manual** provides the reader with a solid working knowledge of the history, rationale, and usage of MARC in libraries. Although the international implementation of MARC is discussed, the manual concentrates on the USMARC standard and its variation, OCLC-MARC. Examples of practices from the OCLC Online Computer Library Center predominate, presumably because OCLC is the largest MARC-based bibliographic network.

Following a concise and informative treatment of MARC theory and develop-
The MARC Manual gives an overview of the structure of the MARC system, including a helpful chapter on patterns with MARC that make it easier to use (such as repetition of codes and numerical order of fields). A large portion is devoted to a detailed chapter on the major bibliographic MARC codes used for books and selected nonbook materials, intended to give a representative overview of the code system. The official USMARC definition is provided for each major fixed and variable field, as well as a very useful “description, potential uses, and caveats” section for each. One of the cautions cited for the 245 (title statement) field, for example, is the common problem of inaccurate filing indicators for initial articles. The potential uses described for each field might clarify for many readers the reasons for including such technical information as that found in the 008 (commonly known as the fixed field of a MARC bibliographic record). Much of this technical data is of great potential value for reference and collection management purposes. There are examples throughout the book illustrating the tagging and content of MARC fields, but more examples for the various fields could have been included in this rather technical section on commonly used bibliographic fields.

The second half of the book revolves around MARC-related issues and their impact on automated systems. Here the author’s background as a library automation consultant is demonstrated to advantage. Emphasis is placed on features that need to be considered when selecting an automated system. The nuts and bolts of MARC record storage mechanisms and mediums are described with prospective automating libraries in mind. Major database processing issues, such as deduping and smart barcode processing, receive thorough treatment. Each operation is further analyzed by relevant “library specifications” and “vendor responsibilities.”

Subsequent chapters deal with database products—what is available and what specifications to consider; and hardware, software, and database aspects of online systems. The chapter on MARC use in three different types of libraries provides a good final analysis of the value of MARC. Each chapter is supplemented by a bibliography and occasional notes, but the index and glossary are rather sparse for a manual. This volume is to be praised for its excellent organization. The presence of consistent subheadings within chapters facilitates analysis and readability. The MARC Manual is useful for anyone wishing to gain an understanding of the structure and advantages of MARC and MARC products—librarians (even catalog librarians could benefit from its general overview approach), programmers, vendors, library school students (this would be an excellent source of reading for automation courses), and library board members.—Christina Sokol, WLN Bibliographic Information Services, Lacey, Washington.

Libraries, Networks and OSI: A Review with a Report on North American Developments. By Lorcan Dempsey. Bath, England: U.K. Office for Library Networking, The Library, University of Bath, 1991. 232p. paper, £28, $60 U.S. (ISBN 0-9516856-0-0). In any explosively expanding profession such as information technology, it becomes impossible to keep up with developments on all fronts. One is forced to become selective, focusing upon initiatives that will have direct bearing on one’s particular specialty or area of interest. However, it often happens that a particular project or development will suddenly assume increased importance and become directly relevant to one’s daily life, thereby creating the need to quickly catch up. This is not always easy to do because of the lag time between developments and their subsequent documentation in the traditional literature sources.

Open System Interconnection (OSI) is a case in point. OSI is the exchange of information among systems that are “open” to one another by virtue of their mutual use of applicable standards. It has moved from being just another acronym to an indispensable piece of the 1990s telecommunications jigsaw puzzle, and this publication is an excellent resource for
those who both need to find out about current developments in networking and need some historical background.

This report, commissioned by the British Library Research and Development Department (BLRDD), examines aspects of the use of networks by libraries, with special emphasis on North American developments. It describes the application and development of OSI standards within the North American community and is an excellent overview of developments in networking among research and academic library systems. Concerns that the genesis of the report indicates a transatlantic bias are needless. The basis for the report was a twenty-five-day fact-finding mission in March 1990, during which the author visited twenty-six institutions or organizations, ranging from the Library of Congress to Educom, from the OCLC Online Computer Library Center and the Research Libraries Group (RLG) to Carnegie Mellon and the Rensselaer Polytechnic Institute.

This report should be recommended primarily to academic librarians and library school faculty. It explains, very simply and using a minimum of technological terms just what OSI is and why the future of networking in libraries is dependent upon protocol suites such as OSI and TCP/IP. This is a very well-organized "snapshot" of networking developments as of March 1990. Naturally, as with any fast-developing field, there have been many changes since then, and there will continue to be many more. RLG is positioning itself for a new role in the provision of information services; the National Research and Education Network (NREN) is coming closer to a reality; and institutions are resolving the policy issues that have provided stumbling blocks when technological barriers have been overcome. The report comes with a variety of bonuses, such as an introductory overview that tells you how to get the best out of the book according to your needs and level of technical expertise; a select list of acronyms in library automation and networking, the length of which belies its description as "select"; a list of relevant standards; a comprehensive bibliography and index as well as specific bibliographic references throughout the text; and an appendix that includes the study tour itinerary. Individual networks and systems are described succinctly; specific network applications are discussed; and there are chapters on document delivery, Inter-library loan (ILL) protocols, and the local systems/end user interaction.

If the subsequent reports that result from the BLRDD's review of networking activity live up to the standard set by this report, the profession will have gained a superior body of literature in an area where not enough time has previously been spent on accurately documenting and describing change. The BLRDD is to be commended for its commitment to "fostering an improved understanding of the role of information in the economy and society and to developing an agenda of public policy issues and initiatives aimed at maximizing the benefits to society of the changing role and character of information and the information industry." (Preface). — Gillian M. McCombs, State University of New York at Albany.

Integrated Online Library Catalogs.

The diverse material contained in this monograph represents eight papers delivered at the Computers in Libraries conference held March 1989 in Oakland, California. The dominant theme of the conference was how to meet "the changing information needs of twentieth-century society." Jennifer Cargill, who edited this text, states in the introduction that the basic online catalog, which has been available for several years, has led librarians and patrons to expect and, in many instances, demand a more efficient product able to offer additional services that expand our information needs. The papers delivered at the conference, although prepared mainly for organizations that are already involved with online catalogs, also offer
relevant guidelines for the organization just beginning the process of obtaining an online catalog.

Issues such as preliminary document preparation and the contract process, library cooperation through consortia, the role of in-house automation personnel, and interaction with vendors are of interest to the organization in the first stages of automation as well as the experienced organization in the process of changing vendors or upgrading its system. The discussion on system migration implies that many of the considerations associated with the first-time purchase of an online system resurface when an organization becomes involved in vendor-change or upgrade.

Changes in user expectations after exposure to online catalogs, changes in the way the operating staff organizes and executes its work, and the effect on the broader library constituency, especially regarding the changing interactions between technical services and reference services, are all addressed by one contributor.

The remaining chapters, which deal with the participation of networks through brokering, consulting, and training, and database preparation services are applicable to any library organization involved in automation.

An excellent annotated bibliography of works published between 1983 and 1990 presents “general, comparative, and philosophical” material useful to the automation process. I would recommend this monograph to administrators, systems personnel, and reference services and technical services personnel in any library organization at any stage of automation.—Carol T. Lagasse, Capital District Library Council, Schenectady, New York.


Other chapters cover the politics of change, the technology of change, implementing change, and the management of change. The work concludes with two case histories and a thinly veiled commercial for an automated library system that is out of character with the rest of the book.

The editor and several of the contributors have made an effort to place discussion of one kind of organizational change (from one library system to another) in the broader context of organizational change in general. Thus, while the book is not a substitute for works on managing change, it may serve a useful role in encouraging the reader to read more widely on the topic. A well-researched bibliography at the end of the book to supplement the rather uneven chapter bibliographies would have been helpful.

Many of the considerations that need to be taken into account in preparing to change from one library system to another are the same as those to be considered in selecting a library’s first system. Machovec’s chapter, “The Technology of Change,” and Flank’s chapter, “The Implementation of Change” would be equally useful in either case.

If one accepts the premise (captured in the startling phrase “If it ain’t broke, fix it anyway. If it ain’t broke, you haven’t looked hard enough”) that change is not only inevitable but essential to an institution’s long-term stability and success, then this book can be recommended to a large group indeed: librarians planning for a change or major upgrade in their library system, those planning for their first system, and those at libraries where “it ain’t broke.”—Thomas Lehman, University of Notre Dame, Notre Dame, Indiana.

Evaluation of library services has become a critical management function with the growing emphasis on accountability and planning, as well as the need to set priorities in a period of tight budgets. In *Evaluation and Library Decision Making,* Hernon and McClure have produced a clearly written, practical introductory text that concentrates on evaluation as a process to provide management data for decision making in libraries. Their stated goals are to introduce readers to the relationship between planning and evaluation, to discuss the components of an evaluation study, to foster an attitude that recognizes the importance of evaluation for the development of library programs and services, to offer examples of the evaluation process that can serve as models for those conducting similar studies, to identify writings on evaluation in libraries and information centers, and to encourage organizational change and underscore the importance of evaluation to library decision making.

Among topics covered are an overview of the evaluation process, the literature on evaluation, steps in conducting an evaluation study, evaluation designs and data collection techniques, sampling, improving the evaluation process with a library management information system, performance measures in the evaluation process, communication of study findings, barriers to evaluation and the political context, and organizational change. Reports of two sample studies are also included along with an extensive and well selected bibliography.

This work is an organized presentation of information on the process and techniques of evaluation from a wide variety of sources held together by its focus on decision-oriented applications in library contexts. Its coverage is broad; thus the strengths of the work are as an introduction and overview, as a justification for the role of evaluation in decision making, and as a guide to other sources for the mastery of the techniques of evaluation. Chapters on sampling, evaluation designs, and data collection techniques, for example, are rudimentary and simply define and describe various concepts and techniques. These chapters are primarily suggestive for the beginner and are not developed sufficiently to serve as guides to conducting an evaluation project, while general chapters on planning an evaluation study are more adequate as guides to the initial stages of evaluation.

In terms of its stated objective, *Evaluation and Library Decision Making* must be acknowledged as a successful work. It effectively promotes a realistic appreciation of the role of evaluation in management. It is especially useful as a source of information for readers at beginning and intermediate levels of knowledge of evaluation strategy and technique. Several implicit assumptions, however, limit the value of the work for the practicing manager already committed to evaluation. Although the authors recognize that evaluation studies are often undertaken by staff, the predominant perspective in the important chapter on political context is of an outside, independent evaluator. The political complexities of evaluation studies by staff groups and/or individual stakeholders in the organization are not fully treated. Hernon and McClure also appear at times to assume a dichotomy between the "evaluator" and the "decision maker" that does not exist in most libraries. The frequent and facile use of the term "decision maker" as if it had an unambiguous referent in libraries in which decision making is a complex organizational and institutional process oversimplifies most organizational settings. If the goal of library managers is to embed evaluation in the decision-making process, a somewhat more thoroughgoing treatment of evaluation in its organizational context would be required.

In spite of its limitations, this is a very useful work. One might say that it points in the right direction and does an excellent job of motivating the reader to take that direction, but it does not do a great deal to lead one there. Nonetheless, it is a valuable work, as there remain many librarians who need to be convinced of the value of evaluation.—Joe A. Hewitt, University of North Carolina at Chapel Hill.

Peggy Johnson examines the impact of automation on the structure and environment of academic libraries. She begins with a fascinating history of changes that have occurred in academic libraries from the colonial period to the present. She then turns to a discussion of changing processes and services. As one reads her account, one is struck by how rapid change has become in recent years.

This is a scholarly, and heavily documented, work. The author provides a thorough review not only of library literature but also of literature from the fields of organizational behavior and management information systems. To test her own assumptions about the effects of automation and the theories set forth in the literature, Johnson sent a questionnaire, a copy of which is in the appendix, to heads of technical services of all 119 members of the Association of Research Libraries (ARL). A similar survey was conducted by ARL in October 1984. The ARL questionnaire was significantly shorter, with eight questions as compared to Johnson's sixty-five. In examining the impact of automation, both surveys relied only on the perceptions and views of a single, high-level library staff member. Neither survey attempted to determine how long functions had been automated or whether the effects of automating different kinds of functions varied. The number of responses from the ARL survey was eighty-two (a 70 percent response rate) as compared to fifty-four (a 45 percent response rate) for Johnson's, yet the findings are similar. Both found that although changes in formal organizational structure are not yet prevalent, other changes are taking place, as evidenced by the increased use of committees and task forces to address mutual concerns. In addition, Johnson concludes that automation has led to more communication among staff, wider distribution of decision-making responsibilities, requirements for greater analytical skills, and broader understanding of the library mission.

A discussion of strategies for facilitating technological change is included in the chapters on "Implementing Change and Innovation" and "Implementing Automation in Libraries." Johnson examines how the studied libraries have dealt with technological change in relation to approaches recommended in the literature.

Although the focus of the book is clearly on academic libraries, the discussion of implementation strategies should be useful to administrators of any type of library that is either undergoing, or plans to undergo, automation. The chapters on historical background and analysis of the impact of automation on library organizational structure make interesting reading for any librarian or student of library science.—Jean P. Altschuler, Arnold and Porter, Washington, D.C.

REFERENCE


**Correction**

Letters

From Birdie MacLennan, Serials Cataloger and SERIALST Listowner, Bailey/Howe Library, University of Vermont

I am writing to you to call your attention to an error in the July issue of LRTS (vol. 5, no. 3). On page 250, under the section heading “Electronic Communications,” Karen A. Schmidt, in her review of the literature of acquisitions, 1990, cites “an electronic bulletin board, SERIALST, [which] is edited by Pamela Bluh of the University of Maryland. . . .” This information is incorrect!

Pamela Bluh of the University of Maryland set up the electronic bulletin board, LIBADMIN, which is a forum for issues in library administration. She does not “edit” SERIALST. SERIALST is an unedited and unmoderated open forum that does, indeed, relay “a wide range of questions on serials, including both acquisitions and cataloging.” It is administered by a “listowner,” Birdie MacLennan, in conjunction with technical support from Computer Operations at the University of Vermont.

Response from Karen A. Schmidt:
Thanks for pointing out this inaccuracy. Obviously the information I obtained was incorrect. Apologies for overlooking your efforts, and credit where credit is due!

IN MEMORIAM
CHARLES W. BUFFUM
DECEMBER 14, 1900–AUGUST 18, 1991


Born in Dobbs Ferry, New York, Buffum received his undergraduate degree from Amherst College in 1922 and his library science degree from Syracuse University in 1932.

In 1935 Buffum went to work at the Library of Congress as a cataloger and in 1941 took the newly formed position of map cataloger. During World War II he was responsible for maintaining the Library of Congress’ collections of war maps. At his retirement in 1970 he held the position of senior map cataloger. In recognition of his work he received the Library of Congress’ Superior Service Award and the Special Libraries Association’s Honors Award.

During his career he was a contributor to the Library of Congress Classification: G and the Bibliographie Cartographique Internationale, and he served as associate editor of the Special Library Association’s Geography & Map Bulletin. He was a member of ALCTS and its predecessor divisions of ALA for sixty-two years.—Editor.
General Procedures Used in Compiling the Index

The following types of entries are included:

a. authors—of articles, reviews, and letters
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 also are 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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