

# Library Resources & Technical Services

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**The Future of Cataloging**  
Deanna Marcum

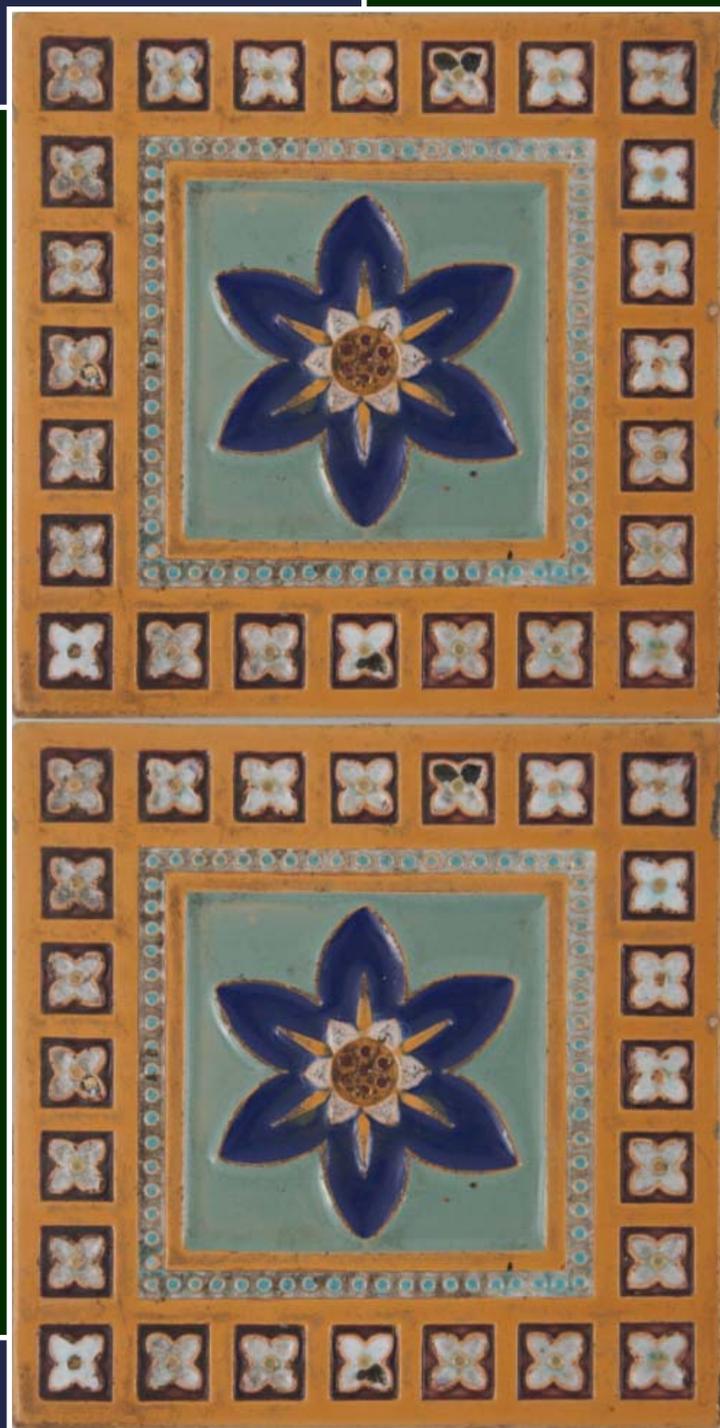
**Utilizing the FRBR Framework in Designing  
User-Focused Digital Content and  
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**Serials**  
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**Becoming an Authority on Authority Control**  
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**Evidence of Application of the DCRB Core  
Standard in WorldCat and RLIN**  
M. Winslow Lundy

**Use of General Preservation Assessments**  
Karen E. K. Brown



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## ABOUT THE COVER

Cover photo by Angela Hanshaw shows a late-nineteenth century tile from the Minton Pottery Works in England.

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# Editorial

## Peggy Johnson



In June 2005, I was part of an ALCTS preconference, “Writing for Publication: Demystifying the Process,” co-sponsored by the ALCTS Publications Committee and the *LRTS* editorial board. Topics covered identifying research topics in technical services; finding time to write; choosing topics; finding and using the right style for a topic; the essentials of copyright for authors; and the benefits of writing and publishing. I spoke on grammar and punctuation, which (though not the most compelling topic) is one of the most critical aspects of writing well and getting published. One reward of being part of a group presenting at a preconference is the opportunity to spend time with one’s colleagues. Over dinner the evening before the presentations, we entertained each other with stories of egregious writing and editing faux pas. Editors have a wacky sense of humor. Take care in your writing not to be the cause of editors’ and readers’ amusement.

As *LRTS* begins volume 50, I am going to give potential authors some advice. I want to encourage, not intimidate, you, but I do want to stress three important aspects of writing for publication. First, conduct your research with rigor. Second, write clearly and document your sources carefully. Third, pay attention to *LRTS*’s style and the types of papers that are published.

The research process involves identifying a research question, conducting a literature search, designing a research project, gathering data, analyzing results, and writing a report. Several resources can help with this process. I recommend *Qualitative Research for the Information Professional: A Practical Handbook* by G. E. Gorman and Peter Clayton (London: Facet, 2003) and *Basic Research Methods for Librarians*, 4th ed., by Ronald R. Powell and Lynn Silipigni Connaway (Westport, Conn., Libraries Unlimited, 2004).

Several books address writing well. Some are basic primers, others focus on specific aspects of good prose. A few of my favorites are *Under the Grammar Hammer* by Douglas Cazort (Los Angeles: Lowell House, 1992); *Eats, Shoots & Leaves* by Lynn Truss (New York: Gotham Books, 2003); *Style: Toward Clarity and Grace* by Bill Walsh (Chicago: Univ. of Chicago Pr., 1990), and, of course, *The Elements of Style*, 4th ed., by William Strunk and E. B. White (Boston: Allyn and Bacon, 2000). Refer to *The Chicago Manual of Style*, 15th ed. (Chicago: Univ. of Chicago Pr., 2003) for guidelines in all aspects of preparing a manuscript for submission, and consult “Author FAQs about LRTS” and “LRTS Instructions to Authors” (both at [www.ala.org/alcts/lrts](http://www.ala.org/alcts/lrts)) for specific advice about *LRTS* requirements.

Because librarianship is an applied profession, much of what we publish arises from the work of librarians and the problems they encounter and solve. Therefore, *LRTS* publishes papers in a section called “Notes on Operations.” These cannot be simply “how we did it good in our library” reports. “Notes on Operations” should meet certain criteria. They must:

- Present a unique solution that does not replicate similar work done at other libraries.
- Begin with a clear description of the problem to be addressed.
- Include a literature review, showing other work in this area (or its absence).

- Place the project or program in the larger context of librarianship, making clear the value of the approach or solution to other libraries.

Authors of all types of papers are encouraged to work with experienced colleagues for help in developing and refining their manuscripts prior to submission. We are eager to work with authors to cultivate their ideas and writing into publishable manuscripts. Please contact me if you are considering submitting a paper. If our referees feel that a

submitted paper has potential but needs additional work, we will ask the author if he or she would like to work with a mentor to address deficiencies and improve the paper's quality.

Writing well is hard work. Bringing a paper from concept to publication is a challenge. The rewards, however are great—both in personal satisfaction and in benefit to the profession. I look forward to receiving your submitted manuscripts.

# Letter to the Editor

August 12, 2005

To the Editor:

The ALCTS Subject Analysis Committee (SAC) deserves high praise and heartfelt thanks for its twenty-six recommendations regarding subject reference structures (*LRTS* 49, no. 2 [July 2005]: 154–66). The SAC suggestions are at once wise and necessary. Implementing them will doubtless enhance subject searching in library catalogs.

Because public (or scope) notes also constitute an intrinsic and useful element in authority records and reference structure, but too often are not displayed in OPACs due to system defects or simply oversight, I suggest this addition to “Part II: Recommendations for Display of Headings and Reference Structures”:

Make it possible to display public or scope notes under the initial, unsubdivided appearance of topical and other headings, even in the case of O-posting primary forms that exist in the database only in subdivided forms.

Examples:

American dream.

Here are entered materials on “An American ideal of a happy and successful life to which all may aspire.”

Culture wars.

Here are entered materials on disputes and confrontations in American public policy and culture dating from the early 1980s and typically involving such ideologically and religiously based issues as abortion, gun control, censorship, church-state separation (including school prayer, the Pledge of Allegiance, teaching evolution, and faith-based government programs), and homosexuality.

Krumping.

Here are entered materials on a form of freestyle dance, originated in South-Central Los Angeles and involving elaborate face-painting, that is often performed in competition between crews.

Plutocracy.

Here are entered materials on government by the wealthy.

Slow movement.

Here are entered materials on a global movement advocating deceleration and an unhurried approach to life.

(Alert colleagues will immediately recognize that the above examples represent descriptors and notes that do not yet appear in the Library of Congress Subject Headings, but should.)

Sanford Berman  
ALA Honorary Member  
Edina, Minn.

# The Future of Cataloging

Deanna B. Marcum

*This paper explores cataloging in the Age of Google. It considers what the technologies now being adopted mean for cataloging in the future. The author begins by exploring how digital-era students do research—they find using Google easier than using libraries. Mass digitization projects now are bringing into question the role that library cataloging has traditionally performed. The author asks readers to consider if the detailed attention librarians have been paying to descriptive cataloging can still be justified, and if cost-effective means for access should be considered.*

My career in librarianship has included work in cataloging, which I have always understood to be a major part of library functioning. But I did not fully realize how major until I made a discovery when I became associate librarian of the Library of Congress. The discovery was financial—the Library of Congress is investing in cataloging at the rate of \$44 million a year! You can well appreciate that a cost of that magnitude really got my attention.

If such an expenditure produces great benefits for the Library of Congress, libraries across the country, and others around the world, then we can justifiably argue that the \$44 million is well spent. But in the age of digital information, Internet access, and electronic key word searching, just how much do we need to continue to spend on carefully constructed catalogs? That is the question I have come here this evening to pose—how should we think about cataloging in the Age of Google?

I have not come to say that we no longer need the cataloger-produced bibliographic entry. I recognize that my own institution, the Library of Congress, created the bibliographic structure that is used by nearly every library in this country and by many around the world. Before starting any revolution against that structure, I want to take care to consider the potential consequences.

But I have many questions about cataloging, and I believe we must face them together and begin answering collectively. I therefore welcome the invitation to speak here as an opportunity to begin that discussion. I need your advice, your judgment, and that of others in the library and research communities to consider what the technologies that all of us are now adopting mean for cataloging in the future. I ask you to think of this evening as the first step in a longer exploration of a difficult issue.

## Using the Library versus Googling

Let me begin with a practical demonstration of the question's importance—an example of how digital-era students work. Let us suppose that you are a librarian at a small college near the middle of the continental United States. Let us even suppose that yours is the library whose Web site I recently picked at random to see what digital resources it was offering. I am pleased to tell you that I was impressed. In addition to an electronically searchable catalog of your own

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The paper is based on an address presented at the EBSCO Leadership Seminar, Boston, on January 16, 2004.

physical holdings, I found that you offer fourteen EBSCOHost online databases, thirteen online databases from OCLC FirstSearch, eleven InfoTrac online databases, five Lexis Nexis online databases, three Proquest online databases, and at least nine other online resources, including encyclopedias, dictionaries, electronic books, and materials for research on current issues. Consequently, users of your library have online access to literally hundreds of scholarly journals and other resources on all kinds of topics in a wide range of academic fields.

Now let us suppose that I am one of your college's students with a term paper coming due. Let us also suppose that I have been assigned to write about the foreign policy of President Fillmore. In the old days, I might have walked to your library, looked in an encyclopedia there for "Fillmore," searched your paper card catalog to identify books on Fillmore, located these books by call number on a shelf, and looked through their tables of contents and maybe indexes to find what they contained on foreign policy. But today I do not want to go to the library. I want to stay in my cozy dorm room, where I have a computer that your college may even have provided me. So I decide to use it to do my research. One option, I find, is to do it through your library's Web site.

I click on your library's Web site (that is, on the Web site of the actual library that I selected). There I find the term "Online Catalog," and click on that. Then I see a menu of five aggregations of leased databases, identified by company names or as "other." Not knowing which aggregation will contain databases of use for research into Millard Fillmore, I click on one of the aggregations at random. There I find such references as American National Biography, Encyclopedia Britannica, and World Book Encyclopedia, which, I discover through more clicking, have information about Millard Fillmore. After clicking on each in turn, I find some short articles to use.

But I am trying to get an A, and therefore I want more in-depth information on Fillmore's foreign policy. So I go back and click on another database-aggregation company button (I will not say which one), where I find another database menu. There, I click on a database from the History Resource Center, which provides access to full-text journals, reference articles, and historical documents, including—as I find out after a lot more clicking—some useful stuff about Millard Fillmore and foreign policy. Now maybe I can write my paper. Note that I have not set foot in your library, or even checked your online catalog for print resources.

But today, for me as your student, there is an alternative to all this clicking, this navigating, that I have done on your site. I also have the option, sitting there in my cozy, computer-equipped dorm room, of ignoring your library entirely and going online to a commercial search service such as Google. With Google, all I have to do is type my sub-

ject—"President Fillmore Foreign Policy"—into a search box and click on "Google Search." If I have used "Advanced Search" to get only references containing all four words, up will come what Google calls the first ten references out of literally thousands. I do not have to go through multiple organizational layers to get to something about Fillmore's foreign policy.

Never mind that the first five references include articles from Encarta and LookSmart that come with commercial advertisements. Never mind that the second reference is a sketch about Fillmore by, quote, "Caroline," last name not given, who turns out to be a Pocantico Hills School fifth grader. And never mind that the fifth reference gives some information on Fillmore from a decade-by-decade outline of events, provided by some unidentified individual who records, rather shakily, that he or she, quote, "tried to make all the information as accurate as possible." Through the LookSmart Directory, which is third on the list, I can get to articles from the Columbia Electronic Encyclopedia. And I may also find other material of real value in those thousands of references to my subject. So, is it any surprise that many students just go Googling instead of to the library, virtual or physical, and use whatever turns up first in the keyword search?

In fact, we already know from many studies that students—and other researchers—are going first to Google and other search services rather than to library catalogs. The Pew Internet and American Life Project has just published a new study of Internet use titled *Counting on the Internet*.<sup>1</sup> The report says that more than 60 percent of Americans now have Internet access, and 40 percent have been online for more than three years.<sup>2</sup> High percentages of Internet users expect the Web to contain information they need about such matters as news, health care, electronic commerce, and government services. In the words of the study, "most expect to find key information online, most find the information they seek, and many now turn to the Internet first."<sup>3</sup>

The same is true for students. Last November, participants in the most recent meeting of the American Society for Information Science and Technology heard a paper titled "I Still Prefer Google: University Student Perceptions of Searching OPACs and the Web."<sup>4</sup> The paper reported on a study of a group of graduate and undergraduate students who performed searches in Google and on a university OPAC. In the words of the report:

. . . while students were aware of the problems inherent in Web searching and of the many ways in which OPACs are more organized, they generally preferred Web searching . . . students were able to approach even the drawbacks of the Web—its clutter of irrelevant pages and the dubious authority of the results—in an enthusiastic and proactive manner,

very different from the passive and ineffectual admiration they expressed for the OPAC.<sup>5</sup>

Why? Essentially, the study showed, because they found searching with Google easier.

Earlier, OCLC published a “White Paper on the Information Habits of College Students,” which focused on their use of campus library Web sites and other Web resources.<sup>6</sup> An abstract of the report says that:

college and university students look to campus libraries and library websites for their information needs and value access to accurate, up-to-date information with easily identifiable authors. They are aware of the shortcomings of information available from the Web and of their needs for assistance in finding information in electronic or paper formats.<sup>7</sup>

Inside, however, the report says that “the first-choice web resources for most of their assignments are search engines (such as Google or Alta Vista), web portals (such as MSN, AOL, or Yahoo!), and course-specific websites.”<sup>8</sup> In fact, nearly eighty percent use search engines “for every assignment” or “for most assignments.”<sup>9</sup> Four-fifths are bothered “at least a little” by ads on the Web, but nearly three-fifths believe “that there is no difference in the reliability of information on websites with advertising.”<sup>10</sup>

### Digitizing Content

Recognizing that students—and many other information users—increasingly go to Google before going to a physical library for what they need, libraries and publishers are converting their print collections to digital formats so that high-quality, authentic resources will be electrically accessible. We librarians, particularly those who serve students, believe this is important for educational reasons. But as we develop digital resources, the question arises—do we need to provide detailed cataloging information for these digitized materials? Or can we think of Google as the catalog?

Not everything can be converted to digital form, of course. We have to recognize that many of the resources that libraries have digitized are old books and other items, mostly from the nineteenth century, on which copyright has expired. But this material is useful and being used—digital librarians are amazed at the extent to which some material, once put online, gets visited more than it ever did on library shelves. Moreover, great amounts of newer material of value to students, teachers, scholars, and others also are electronically available by license, whether from commercial publishers of journals, e-books, and databases, or from such nonprofit archives as JSTOR. More and more is being

made accessible on the Web, where it is discoverable—and in many cases searchable—not through library catalogs but through electronic search boxes.

I have only begun to describe this phenomenon. Commercially driven technological developments are taking digital word-level indexing even further, in leaps of great magnitude. Major new developments have come to light just in the past few months. A subsidiary of Amazon.com called A9.com says it is in an early stage of developing what it calls “innovative technologies to improve search experience for e-commerce applications.”<sup>11</sup> Amazon.com, itself, has unveiled a “Look Inside the Book” feature that allows potential buyers to do keyword searches that turn up, not just authors, titles, or publishers, but also excerpts from digitized texts containing the key words sought, thus providing another way for you to identify books that you might wish to buy from Amazon. Amazon intends to provide this search function for thousands of books.

Even more recently and amazingly, you have all seen the announcement by Google that it is now going to digitize and make substantial parts of the contents of five major research libraries searchable using its keyword search engine. On December 14, 2004, Google announced, “that it is working with the libraries of Harvard, Stanford, the University of Michigan, and Oxford University as well as the New York Public Library to digitally scan books from their collections so that users worldwide can search them in Google.”<sup>12</sup> Google plans to underwrite, and contribute technical expertise to digitizing, tens of thousands of pages daily at the libraries over a decade, through an agreement that covers more than fifteen million books and other documents.<sup>13</sup>

There is some fine print to note. Google is up against the same obstacles that confront digitizing libraries themselves, such as copyright. Google says its system will work as follows:

Users searching with Google will see links in their search results page when there are books relevant to their query. Clicking on a title delivers a Google Print page where users can browse the full text of public domain works and brief excerpts and/or bibliographic data of copyright material.<sup>14</sup>

That is, unless publishers agree to inclusion of copyrighted materials, Google will not be able to offer access to entire libraries such as Harvard’s or Stanford’s. The new development is still a long way from what an enthusiastic media reporter called “Google’s goal” to “have everything at your fingertips, all the world’s information digitized and instantly available . . .”<sup>15</sup> But Google does plan to digitize much more of the participating libraries’ collections than the libraries, themselves, have been able to do. Apparently Google is even working on ways to digitize and search collections of handwritten manuscripts.<sup>16</sup>

One must remember that Google is a business that must profitably finance all this. Those who search Google's new digital library will find advertisements along the way as well as what Google calls "buy-this-book links" to publishers who sell the books being searched or related titles. A reviewer for *Newsweek* has raised "the very big issue of how much we want the world's information transformed into a giant ad environment."<sup>17</sup>

But the participating libraries find ads of little, if any, concern in light of the great benefits that massive library digitization could have. As the president of the University of Michigan said, "We believe passionately that such universal access to the world's printed treasures is mission-critical for today's great public university."<sup>18</sup> And Michael Keller, Stanford University librarian, explained as follows:

This is a great leap forward. We have been digitizing texts for years now to make them more accessible and searchable, but with books, as opposed to journals, such efforts have been severely limited in scope for both technical and financial reasons. The Google arrangement catapults our effective digital output from the boutique scale to the truly industrial.<sup>19</sup>

### Implications for Cataloging

Think about all this in relation to cataloging. Such mass digitization, with its word-level indexing, forces us even more than previous digital developments have done to ask questions about the future of library cataloging as traditionally performed. When Google cofounder Larry Page says that users will be able to "browse the full text of public domain works and brief excerpts and/or bibliographic data," the latter may sound like catalog records, and the need for classification of works may continue.<sup>20</sup> Indeed, a *New York Times* account of the libraries' Google agreement, which it calls a "major stride toward" the "long-predicted global virtual library," says Google plans to create a "digital card catalog" along with its "searchable library."<sup>21</sup> But what is happening now may well go beyond current cataloging for bibliographic control. Google has declared its "mission" to be nothing less than, quote, "to organize the world's information."<sup>22</sup>

Libraries have a long, proud history of cataloging. Our previous systems for classifying books and other forms of information, and for recording information about them, including our creation of CIP and of MARC records—all undertaken for collections control and the benefit of our patrons—have been ingenious and effective. As Arlene Taylor of the Library and Information Science faculty at the University of Pittsburgh has said, the objective of cataloging, description, and indexing operations is "to provide an

intermediate level at which choices can be made as to which information packages one wishes to view or search."<sup>23</sup>

But now, digital full-length texts are available, and thousands if not millions more of them are in prospect. Potentially, people will be able to search every word from a book's dust jacket to its back-of-the-book index. The need for intermediate-level descriptions will come under serious scrutiny. When library schools began at the end of the nineteenth century, cataloging had a central part in the curriculum. But then, so did handwriting.

### A Shift in Access

My staff at the Library of Congress believes that, in providing access, there already has been a major shift. Cataloging now involves identifying metadata that already exist and taking advantage of existing description and access points. Different approaches are needed depending on whether resources are archived or linked and how long they will last. New hybrid systems take advantage of traditional library catalog information along with abstracting and indexing tools and online reference tools.

Staff members at the Library of Congress are experimenting with an access-level record focused on access by subject, which is more useful for digital resources that are constantly changing. Also within the Library of Congress, we are looking at ways to take advantage of self-describing metadata in digital resources and to make more use of computer systems to capture bibliographic information from others. We are also working with publishers and with software vendors on the development of more useful metadata.

Additionally, we are rethinking who does what in cataloging. For example, with the advent of ever more automated sophistication, the detailed attention that we have been paying to descriptive cataloging may no longer be justified. If the task of descriptive cataloging could be assumed by technicians, then retooled catalogers could give more time to authority control, subject analysis, resource identification and evaluation, and collaboration with information technology units on automated applications and digitization projects. This coming spring, the Library of Congress will host a small, informal gathering of managers of bibliographic operations at national libraries to review the assumptions underlying cataloging, and, I hope, to develop more cost-effective ways to meet future needs for bibliographic control.

### Conclusion

The future of cataloging is not something that the Library of Congress, or even the small library group with which we will

meet, can or expects to resolve alone. We are eager to work with many relevant communities of librarians, publishers, and others to deal with cataloging issues. I hope that what I have said today will encourage you to join in an expanded discussion of that subject. In the discussion, the following seem to me the critical questions for all of us to face:

1. If the commonly available books and journals are accessible online, should we consider the search engines the primary means of access to them?
2. Massive digitization radically changes the nature of local libraries. Does it make sense to devote local efforts to the cataloging of unique materials only rather than the regular books and journals?
3. We have introduced our cataloging rules and the MARC format to libraries all over the world. How do we make massive changes without creating chaos?
4. And finally, a more specific question: Should we proceed with AACR3 in light of a much-changed environment?

Whatever the answer to these questions, all of us in the library world must recognize that, in the future, the Internet is increasingly where people will go for information, whether from Google's library or to our own Web sites or both. Let me conclude with a light note about that point. When I, myself, was looking for something on the Web recently, I came across a press release from the Internet company Yahoo! The release reported the results of what it called an "Internet Deprivation Study," designed to see how Web users would react to, quote, "life without the Internet."<sup>24</sup> The study purported to find that users have such "emotional connections" to the Internet that "nearly half . . . indicated they could not go on without" it "for more than two weeks" and "the median time [that] respondents could go without being online," said the report, "is five days."<sup>25</sup> "All participants," the study showed, "found living without the Internet more difficult than they expected, and in some cases impossible."<sup>26</sup> They experienced what the report called "withdrawal and feelings of loss, frustration, and disconnect-edness when cut off from the online world."<sup>27</sup>

Shall we dismiss all that as the self-serving, scientifically questionable hyperbole of an Internet company?<sup>28</sup> Perhaps. But there is enough truth in it for us to get busy exploring and resolving such questions as those I have posed about the future of cataloging. The library, up until now, has been viewed as the place for reliable, authentic information. The catalog linked the users to vetted resources. Can we rethink cataloging to achieve something similar in the world of Google? I hope so.

Thank you for considering this issue with me.

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# Utilizing the FRBR Framework in Designing User-Focused Digital Content and Access Systems

Olivia M. A. Madison

*This paper discusses the rapidly expanding environment of emerging electronic content and the importance of librarians to partner with new research and teaching communities in meeting users' needs to find, identify, select, and obtain the information and resources they need. The methodology and framework of the International Federation of Library Associations and Institutions' Functional Requirements for Bibliographic Records could serve as a useful tool in building expanded access and content systems.*

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This paper is based upon two related papers given by the author: "The Functional Requirements for Bibliographic Records: A Tool for Defining Library Services," presented at the EBSCO Leadership Seminar, Boston, January 16, 2005; and "The Functional Requirements for Bibliographic Records and Library Services," presented at the Association for Library Collections and Technical Services, Cataloging and Classification Section Preconference, "Back to the Future: Understanding the Functional Requirements of Bibliographic Records Model (FRBR) and its Impact on Users, OPACS, and Knowledge Organization," American Library Association 2004 Annual Conference, Orlando, Florida, June 24-25, 2004.

In today's information world, whether planned or not, mature library Web sites are used as fully fledged electronic libraries. Most major academic library Web sites offer a substantial array of library services (such as reference, interlibrary loan, reserve services, instructional tutorials, and circulation), with extensive electronic collections. Increasingly, they provide direct links to numerous external discovery tools and services, which often result in confusion for their users who, once they enter, can easily become lost as they navigate outside the walls of our electronic internal infrastructures. At one point, they may be navigating online catalogs and, with single nuanced clicks, they find themselves in remote content sites, such as Project Muse or Science Direct, with no clear way to return. As they migrate from one electronic area to another, they unknowingly may leave the comfort zones of authority control for the vast, undisciplined data content world of the Internet. Moreover, within library sites, jargon-laden library terminology used for headers and placement of services and information can be confusing and misleading as users try to guess where they need to go. Librarians need to be strong knowledge managers, with clear understanding of user approaches and needs, as libraries maintain, extend, and create pathways across their disorganized information environments.

This paper looks to this broadening nature of library information services and bibliographic access, and how the International Federation of Library Associations and Institutions' (IFLA) Functional Requirements for Bibliographic Records (FRBR) might offer a framework to analyze user needs for current and emerging discovery tools and their interoperability.<sup>1</sup> The rapidly changing bibliographic and information environment is discussed first, with a brief scan of four emerging discovery tools (portals, digital image management systems, institutional repositories, and instructional or learning management systems) that increasingly do or could coexist with holdings catalogs, and whose accessibility to content would benefit from user-focused systems and metadata-supporting

frameworks. To understand the strengths of the FRBR analytical framework and its potential application, this paper then describes the FRBR development process and standards for bibliographic control.

### Emerging Discovery Tools

For libraries to retain their trusted place in today's information environment, it is imperative that users believe that their libraries are the first places to go for reliable vetted information and research assistance. Libraries today, with their digital or electronic libraries, are used more than they ever have been—primarily due to the impressive growth of electronic reference tools and journals. However, the architectures we have designed are problematic to our future success. We must build and manage stronger, redesigned discovery systems that support straightforward access and delivery systems combined with services and instruction. The online catalog, while still a central library discovery tool, is residing (often unconnected) with other powerful discovery tools, including other-focused catalogs or databases for such resources as government documents, maps, and course reserves; serials management tools, such as Serials Solutions; powerful commercial access systems with direct links to full-text content; digital finding aids for manuscript collections; digital image databases and management and delivery systems; federated searching systems or portals; and rich new gateways to external digital libraries. Adding to this complex array are tools that reside in a broader academic context (including instructional management systems [IMS], geographic information systems, research databases, institutional repositories, extension-based content and information systems, and so on) and in the larger context of the Internet, with its increasing competitive mega search engines and sophisticated commercial book sellers.

One immediate challenge is that many key library users simply do not know what is held by libraries in their digital collections. This is most problematic with electronic journal literature, given its primary role within the academic research community and its budgetary costs. Serial budgets often represent 65 to 85 percent of academic library acquisitions budgets. Pathways provided for serial access often imitate the old print world, but the allure and transformation of the digital environment have changed expectations and breadth of choice. The Association for Research Libraries (ARL) 2003 LibQual+ survey data for participating ARL libraries found that the most telling difference between expectations and reality is that faculty and graduate students generally do not believe that their libraries have the journal literature they need.<sup>2</sup> This is true, in part, because of the devastating effects of major journal cancellation projects over the past decade and the inability of overextended

budgets to accommodate new journal purchases. Perhaps the greatest difficulty for users, however, is actually finding what their libraries own. Very few unrelated access systems talk with each other. Imagine the different access pathways we expect library users to operate when they want to find citations to particular articles, browse back issues of specific journals, find the new journals or access tools for their disciplines, or do literature searches across markedly different disciplines when no single indexes or publishers adequately provide necessary coverage as well as when the scholarship of interest appears in published and unpublished conference proceedings and when their libraries do not subscribe to the journals that they need for specific articles. Quite simply, more holistic and federated approaches toward journal access are needed.

The array and complexity of new emerging digital objects and how we describe, access, and obtain them represent new challenges within bibliographic systems—particularly as they deal with content usually not included in traditional holdings catalogs. There now are new content providers, both new internal library partners (such as special collections librarians, map librarians, reserve staff, and instruction librarians) and new external partners (such as teaching and research faculty, extension colleagues, museums curators, archivists, and other libraries). Layered onto this environment of additional complex management and discovery tools (whether integrated or stand alone) is the need to provide efficient new access pathways to their content and, if possible, provide compatibility and interoperability among the new and traditional systems. Following are brief discussions of four emerging discovery tools that could have strong potential or existing benefits as partnered content systems with holdings catalogs. They could benefit also from stronger access systems using metadata and greater interoperability within electronic libraries and information management systems.

#### Portals

Portals have many different definitions because they have a wide variety of residences and purposes. This paper uses a relatively simple definition for a library portal: a discovery tool that provides broadcast or federated searching capabilities via a single metasearch across multiple information resources, with the potential of full-text retrieval or delivery through such mechanisms as fax, e-mail, and so on. Within this portal environment, Z39.50 and simple (but rarely elegant) screen-scraping technologies are typically employed to yield search results. For those libraries employing federated searching systems, current technologies and partnership matrixes are clearly limiting fully developed visions of multiple search strategies. Portals usually reside outside of online catalogs and have abilities

to vary the designated resources to be searched according to personal interests. As such, they emphasize user needs and have great potential to facilitate interdisciplinary research and learning.

Accessed content might represent public domain or commercially produced resources (e.g., indexing and abstracting or full-text resources or both) and, increasingly, a broad range of locally created tools and resources (e.g., online catalogs, unique born-digital or digitized full-text materials, special collections finding aids, electronic theses, reformatted audio-visual materials, and instructional learning objects). Portals can be expanded to include gateways to other library services, such as reference and inter-library loan services, for assisting users in selecting and obtaining content. Portals may also provide links to and integration with campus-based learning management systems as well as a broad array of university-based resources and services.

Usually a portal's basic search covers a select group of general resources, such as the online catalog, OCLC's WorldCat, and broad-based core indexing, abstracting, and content resources, such as Gale's Expanded Academic ASAP, Ebsco Host, JSTOR, Project Muse, and Elsevier's Science Direct. The number of searchable resources is largely dictated by affordable unlimited user licenses. For more specialized subject areas, focused federated searches are often constructed. For example, a business-focused search might include ten to twenty additional resources. The attractiveness of portals rests with combining the online catalog, with its greatest strength in its monographic access, and indexing and abstracting databases, with their greatest strengths at article-level access. This harkens back to when catalogs included in-analytics for individual works. Last and most importantly, portals often bring actual journal content to users' desktops. Their current drawbacks and difficulties stem from lack of standards within citation systems and display when screen scraping is used, and minimal cooperation with the commercial content industry. Moreover, navigating around portal-based resources can be very confusing—however, library users who are used to the haphazardness of the Web, particularly young undergraduates, may not care.

Portals can profoundly change the roles of holdings catalogs, indexing and abstracting tools, and library management systems. For local planning, management, and ongoing assessment, involving a wide range of librarians and staff who are focused on the needs of users and use their feedback as they make decisions on where the portal resides, is essential. Questions to be considered include where and how one enters the portal; how is it searched—is it explicitly found, or does it exist as a behind-the-scenes tool; what databases it searches; what the display designs are; and what are the relationships to other library management systems,

including the holdings catalog, and, if present, the university portal, is.

### **Digital Image Management and Delivery Systems**

Large numbers of image or visual digital collections are now being created, many within a growing number of national and international digitization projects. The resulting objects, whether born digital or reformatted from print, come from a broad array of disciplines and interests. All repositories (whether found in libraries, museums, galleries, or private collections) face the same challenge of how to create long-lasting, high-quality images that can be managed, accessed, searched and retrieved, and preserved through a variety of methods. These issues are highlighted, given the interest in creating preservation-level copies as well as lower-grade access versions for the public. How and if these complex collections are accessed through public holdings catalogs or other gateways represent serious planning issues. Furthermore, interest in creating necessary links between images of any given artist's creative work and the conventional printed works (found in book and journal collections) about that artist is growing.

Companies such as LUNA Imaging offer sophisticated software systems that support building and managing these complex databases, complete with metadata cataloging systems. This new environment calls for new partners to create access pathways for users who are interested in the actual creative work and the academic discourse about the work. As a result, joint planners face making complex decisions regarding the advisability of a stand-alone catalog as well as integrating that catalog or database within a library portal or bringing new metadata into the holdings catalog.

### **Institutional Repositories**

Institutional repositories represent a new and exciting shift in the research landscape of accessible scholarship. This shift recognizes a new role for universities in managing, accessing, promoting, and preserving institutional scholarly assets. The concept of institutional repositories is, however, gaining traction slowly on academic campuses. In some campuses, the exploration centers on focused disciplinary-based efforts; in other campuses, the initiatives are broader-based. Lynch defines university-based institutional repositories as "a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members," that require "an organizational commitment to the stewardship of these digital materials."<sup>3</sup> He goes on to call for the collaboration of librarians, information technologists, archives and records managers, faculty and university administrators, and policy makers to collaborate in the

creation of such repositories, which would include approving the necessary policies, building the digital architectures, identifying content, and creating the necessary access and preservation systems.

Early attention on institutional repositories has been based largely on the initial successes of and publicity surrounding the Massachusetts Institute of Technology's DSPACE, a digital repository system created in collaboration with Hewlett Packard.<sup>4</sup> DSPACE is designed to capture, store, index, preserve, and redistribute an organization's research material in digital formats. As new implementers use DSPACE or other systems, it is becoming clear that the possibilities of potential content contained in institutional repositories are endless. As a result, the types of owners and the various roles for libraries and academic computing centers within this arena of scholarship are equally endless.

Examples of unpublished content might include:

- unpublished research on particular topics (e.g., plant sciences, polio, ethics in cultural heritage, ground water quality);
- series of local symposium or conference papers (e.g., annual symposiums on Shakespeare, icebergs, nanotechnologies);
- extension materials (e.g., research on equine leg fractures, small business revitalization efforts, impact of radiated food on health);
- oral histories (e.g., remembrances and experiences of women engineers, civil rights leaders, Native American entrepreneurs, Gulf War veterans); and
- recorded campus student or faculty musical performances or student theater productions.

Major challenges in developing institutional repositories involve building access frameworks for the content, which includes determining metadata standards and appropriate access systems (such as an online catalog, a portal, a separate database, resolving rights management issues) and deciding on the necessary preservation infrastructure. Furthermore, through new partnerships, the needs, perspectives, and concerns of the content creators and expected audiences are coupled with the experience librarians have and the creative roles they may play in creating these new resource systems.

### Learning Management Systems

In May 2004, McLean and Lynch issued an influential joint white paper on behalf of the IMS Global Learning Consortium and the Coalition for Networked Information titled "Interoperability between Library Information Services and Learning Environments—Bridging the Gaps."<sup>5</sup> In their paper, they called for greater partnerships between libraries and their academic partners in expanding the

academic support, content, and expertise that libraries can provide in building learning management systems. They made a strong case that libraries should not only want to incorporate collections of learning objects into their distributed information environments, but also should identify unfamiliar metadata and attributes and look for new searching interfaces based upon these new attributes. In particular, they advocated that libraries should be:

- examining the relationship to individual reserve articles associated with a specific courses;
- ensuring that digital rights, copyright, and fair-use are properly managed;
- providing reference component services; and
- creating single authorization systems.

The following roles also should be considered for public service and technical service librarians:

- working with academic instructors in identifying key resources that might be of use to students in course assignments or background readings;
- providing increased library instruction through course-related instruction;
- enriching the learning or instructional module with online tutorials on information literacy and plagiarism;
- taking advantage of how best to capitalize on rich resources, such as the holdings catalog, full-text databases, indexing and abstracting tools, and other pertinent discovery tools; and
- creating metadata for instructional learning objects that could support searching across local instructional or learning management systems.

### Partnering and Tools

Today's electronic environment library environment is providing access to an enormous array of commercially produced electronic collections and is beginning to extend electronic access to pivotal unique library collections that have been hidden largely from public view. Moreover, libraries are becoming partners in providing access to a large new array of university and public research and learning materials. As mentioned earlier, librarians must be seen as highly relevant knowledge managers and facilitators, and libraries as the first place where people come to for quality information and trusted content.

With all of these expansions to digital content, the definitions for professional and staff positions are evolving as they create and maintain new knowledge systems. Positions such as metadata managers, electronic acquisitions librarians, and

digital curators or content specialists are increasingly common. Knowledge management teams with floating memberships of catalogers or metadata specialists; subject librarians responsible for reference, collection development, and instruction; technical staff for digital and Web-based applications; researchers and teachers; and faculty and student content creators are necessary. Such teams might systematically realign and redefine the vetted local bibliographic universe with its disparate discovery systems through the use of intertwined metadata (bibliographic, technical, and subject) to access a broad range of content that, as mentioned earlier, is increasingly unique and local. These partnership projects require tools that support access systems of structured and unstructured content of all formats. Their needs reflect what gave rise to the initial international IFLA study known as FRBR, whose methodology and foundation could serve as a useful tool for building these new systems and facilitate their interoperability.

### FRBR Background

The IFLA study on FRBR has exerted strong influence on international bibliographic control standards and theory since its publication in 1998.<sup>6</sup> The original study, commissioned in 1992 by the Standing Committee of the IFLA Section on Cataloguing, was designed to address international interests in reducing escalating costs of cataloging and to create a user-focused framework of standards for bibliographic control. The study group employed a framework for developing neutral bibliographic standards in such areas as structure and design of international bibliographic databases, cooperative cataloging project guidelines, bibliographic descriptive or metadata standards for electronic media and other new materials, and new collocation operating functions for searching and display within online bibliographic and full-text online systems. The work culminated in a set of core functional requirements for bibliographic records for all formats and media, and it reasserted the goals for structured bibliographic access in a complex and transforming electronic environment.

With today's focus on new and rapidly evolving discovery tools for exploding amounts of digital content, the original study's goals and framework are more relevant than ever. Stepping back ten years, imagining the capabilities of our current environment would have been difficult; however, it was clear then how quickly the electronic information landscape was changing.

### FRBR Entity-Relationship Framework

The FRBR study used the entity-relationship analytical framework, which was based on Chen's 1979 entity-relationship model, to explore the functions of the bibliographic

record through the identification of core bibliographic entities and their associated attributes.<sup>7</sup> Based on this analysis, the study proposed a basic functionality for national bibliographic records.

Since its publication, the interest in FRBR has been broad and international in scope. It has influenced and continues to influence the revisions and evolution of many standards, including IFLA's several International Standards for Bibliographic Descriptions, basic cataloging requirements for national bibliographic agencies, the Dublin Core Initiative, and the Anglo-American Cataloguing Rules. Numerous conferences have been held on FRBR (initially held in Europe and, more recently, at a 2004 American Library Association preconference held by the Cataloging and Classification Section). The study's conclusions and framework have been the research topic for an ever-increasing number of articles and discussions. A simple search on Google yields thousands of citations and Web sites on the topic of FRBR (including extensive links on the IFLA Web site).<sup>8</sup> FRBR has been incorporated into the curriculum of a number of library and information graduate programs throughout the world, and one now hears of catalogs and databases being "FRBRized." Within the metadata and systems industries, several organizations are actively pursuing new discovery tools and library management systems that FRBRize search results through innovative collocation displays recognizing the FRBR entities with their corresponding attributes and relationships. Most noted of these are OCLC's Fiction Finder (which, in addition to its records for print editions, includes more than seventy thousand records for audio recordings), RLG's (Research Library Group) search engine RedLightGreen, and VTLS's (Visionary Technology in Library Solutions) Virtua (its integrated library system).<sup>9</sup>

The FRBR record functions (i.e., to find, identify, select, and obtain) have clear antecedents in the objectives of the catalog espoused by Charles Cutter in his 1876 objectives and by Seymour Lubetzky as he influenced IFLA's 1961 Paris Principles.<sup>10</sup> In particular, Cutter's interest in the catalog serving the "convenience of the public" is evident in the finding and collocating functions of the FRBR user-focus framework.<sup>11</sup> The study defines a powerful conceptual model represented by three groups of entities. The most recognized group contains the work, expression, manifestation, and item. The other two groups represent the entities responsible for intellectual or artistic custodianship and subjects. With its use of the entity-relationship modeling technique and its focus upon the needs and interests of the user, FRBR provides a framework to evaluate and define metadata content and structure provisional displays of bibliographic entities with their relationships. Beyond its framework, its emerging strength resides in how it defines bibliographic relationships and how they

could be portrayed through powerful collocation displays of numerous expressions of different works. Just consider how one might coherently display all the different versions of Shakespeare's play *King Lear*, including various manuscripts, published editions, Braille versions, translations, movie versions, and cartoon versions, as well as works based on *King Lear*, such as Jane Smiley's *A Thousand Acres*.

FRBR's framework and its modeling technique provide a proven and useful method for analyzing discovery tools, their interoperability, and growing usability complexities and for suggesting display standards that promote design mechanisms to support collocation. The need for a neutral framework for analyzing and creating discovery tools is increasingly apparent as we face the growing call to establish standards, within libraries and within consortial and cooperative environments, to address such areas as:

- structures and design of cataloging project guidelines;
- metadata standards for specific projects; and
- new collocation operating functions for searching and display within emerging information systems that can envelop online catalogs with other local and commercial discovery tools.

## Conclusion

The expertise and perspectives of librarians building collections and access systems, along with instructional and research support systems, are increasingly valuable in building the next generation of information and content systems that users want to use. In repositioning traditional bibliographic records and catalogs within our expanding environments, the FRBR framework can help facilitate and influence the development of the new discovery tools and their metadata creation within local and cooperative environments. FRBR's enduring strength is its neutrality as to bibliographic conventions and its theoretical approach that focuses on the user, the object, and function—all of which has enabled its timelessness to application.

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# Serials

## Review of the Literature 2000–2003

Lauren E. Corbett

*The topic of electronic journals (e-journals) dominated the serials literature from 2000 to 2003. This review is limited to the events and issues within the broad topics of cost, management, and archiving. Coverage of cost includes such initiatives as PEAK, JACC, BioMed Central, SPARC, open access, the “Big Deal,” and “going e-only.” Librarians combated the continued price increase trend for journals, fueled in part by publisher mergers, with the economies found with bundled packages and consortial subscriptions. Serials management topics include usage statistics; core title lists; staffing needs; the “A–Z list” and other services from such companies as Serials Solutions; “deep linking”; link resolvers such as SFX; development of standards or guidelines, such as COUNTER and ERMI; tracking of license terms; vendor mergers; and the demise of integrated library systems and a subscription agent’s bankruptcy. Librarians archived print volumes in storage facilities due to space shortages. Librarians and publishers struggled with electronic archiving concepts, discussing questions of who, where, and how. Projects such as LOCKSS tested potential solutions, but missing online content due to the Tasini court case and retractions posed more archiving difficulties. The serials literature captured much of the upheaval resulting from the rapid pace of changes, many linked to the advent of e-journals.*

Serials literature from 2000 through 2003 was dominated by the topic of electronic journals (e-journals). This seemed to be a natural correlation to the rise in academic library expenditures on e-journals, documented by Association of Research Libraries (ARL) reports. The data from the reports show that the median expenditure on electronic serials went from \$156,754 in 1994–95, to \$571,790 in 1998–99.<sup>1</sup> Cost remained a significant concern, as libraries increased expenditures on e-journals in addition to maintaining print subscriptions. A longstanding debate over ownership versus access filtered down to questions regarding the sustainability of existing pricing models for electronic resources, which included consortial purchasing and subscriptions to large collections of titles. Both the electronic format and changing models of scholarly communication brought expectations of lower prices. The volatility in the field, with numerous mergers of publishers and vendors, raised concerns about price increases and difficulties libraries faced keeping acquisitions and cataloging records in step with the volume and rapidity of the changes. Librarians and library staff needed different competencies to work with electronic resources. The newer responsibilities, such as licensing and maintenance of hyperlinks in the catalog, increased with the rise in e-journals. Without an increase in personnel, librarians and staff strained to keep up with the additional workload. Those with growing physical collections wondered if they should turn to more electronic resources as part of a solution to lack of space in addition to cost savings. As desire for e-journals increased along with financial pressures, librarians shifted from print

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plus online to electronic-only subscriptions. Concern grew over missing content and preservation of nonprint materials, resulting in discussion of the various obstacles in archiving electronic information. E-journals presented both advantages and difficulties to librarians. Much of the literature was written to share potential solutions to problems or to advise colleagues of tools or management practices being developed. Recorded initiatives, projects, and market trends in American academic libraries showed the intensity of this effort in many areas of librarianship. Certain major events and research activities of significance did not appear in peer-reviewed periodical literature, and this author included other sources to provide the fullest context possible for the time period and topics covered. The scope of this review is limited to three areas in order to restrict overlap with potential or existing reviews of collection development, cataloging, preservation, and technical systems. The three areas addressed in this literature review are cost, management (including topics relative to collection development and technical services), and archiving.

### Cost

From 2000 to 2003, librarians and publishers tested methods of delivery and pricing for e-journal content while costs continued to rise. Dingley's examination of periodical prices showed a persistent inflation rate, with increase percentages of 8.3, 7.9, and 7.7 for 2001, 2002, and 2003, respectively.<sup>2</sup> Librarians explored a variety of cost control methods that included bulk purchasing resulting from either a number of titles or a number of libraries subscribing together; new publishing initiatives from nonprofit groups; a new publishing model called open access; and deduplication of formats by canceling print subscriptions in favor of the electronic version. Publisher mergers, questions about the sustainability of the new publishing models, and delays in availability of e-journal issues complicated these cost-control efforts. A large number of papers in the literature illustrated these activities, and all could not be represented in this review. The author attempted to choose papers that illustrated pivotal conclusions, events, or stages of development relative to cost control.

In 2000, librarians perceived subscriptions to large collections of titles, variously known as bundled packages or the Big Deal, mostly as a way to get more content with flat or reduced budgets. Librarians also subscribed to journals through consortia to gain savings. In a combination of the two approaches, the OhioLINK consortium demonstrated the benefits of the Big Deal by simultaneously expanding patron use of journals (tripled over print on average) and saving millions of dollars compared to the cost of adding subscriptions for the titles used.<sup>3</sup> Sanville's statistics for the

OhioLINK Electronic Journal Center (EJC) usage after twenty-six months of operation indicated that, "On average each Ohio university uses 3.5 times more titles than they previously held in print, and 51% of downloaded articles were not available in print on each campus."<sup>4</sup> Sanville wanted to expand access with both low- and high-priced publishers equally, and felt that collection development methods for journals needed to be re-examined in the context of this new environment, but he did not think that the "single, state-based library consortium" was "empowered to immediately change the market's economic fundamentals that many feel are out of balance."<sup>5</sup>

In another experiment to expand access electronically, but with multiple pricing models, Elsevier Science Publishers collaborated with twelve libraries in the Pricing Electronic Access to Knowledge (PEAK) project. Button reported three types of pricing in the experiment: publisher-selected content for \$4 per article; content by the bundle at \$548 for 120 articles; and pay-per-view at \$7 per article.<sup>6</sup> Haar of Vanderbilt University reported statistics demonstrating that the university's patrons did not read articles from 28 percent of the titles in PEAK to which Vanderbilt also subscribed in print; the university did not subscribe in print to fifteen of the thirty most heavily used titles (underscoring the underfunded subject of engineering); less than two percent of the total journal content available online was used; and the articles that were used were viewed an average of 2.7 times.<sup>7</sup> Haar observed that the experiment had been worthwhile. McKay suggested that pay-per-view could be a patron self-service alternative to interlibrary loan.<sup>8</sup>

One significant project varied from OhioLINK's bundled Big Deal, but also sought to save money through consortial purchasing. In this initiative, the California State University worked with a subscription agent, EBSCO, to arrange licensing of a customized collection of electronic journals on behalf of a multilibrary system in the Journal Access Core Collection (JACC) project.<sup>9</sup> JACC differed from other consortial arrangements primarily by the customization, or selection, of titles instead of acceptance of a publisher- or vendor-defined collection. The project attempted to address many of the strong concerns of the time, including archiving, a question looming large as libraries were reaching a point of heavy investment into e-journals.<sup>10</sup>

While bundled collections or the Big Deal were initially touted as a means of getting more bang for the buck (measuring cost per unit), they were later disparaged by some librarians as strangling an institution's ability to select appropriate titles from a wider array of publishers. Some librarians also feared a homogenization of titles held by multiple libraries because of consortial bundles, but in 2001, Peters indicated that most academic libraries spent 15 to 20 percent of their entire materials budget on e-resources, with only a fraction of that being for consortial spending, and

thus it would be a long time before such a homogenization could occur.<sup>11</sup> Peters summed up various published opinions of the time that were against and for the big deal:

[Kenneth] Frazier and [Robert] Michaelson have articulated a position that could be called the traditional model of collection development: It is possible to know “a priori” what a given community of users wants and needs, and it is best, whenever possible, to select information items (e.g., books and journals) at the title level. [Ross] Atkinson and various writers associated with OhioLINK and other consortia (e.g., Tom Sanville and David Kohl) have articulated an untraditional model for electronic collection development: Provide access to as much electronic information as possible, usually by selecting whole chunks of information, level the playing field so that all academic users have access to the same basic core collection, then analyze usage carefully to determine the interests and needs of a user population. Although these two positions seem antithetical, they probably will continue to co-exist—more or less peacefully—for the near future.<sup>12</sup>

In winter 2003, several well-known libraries rebelled at Big Deal pricing, which they considered exorbitant. California institutions, Cornell, and Harvard all publicized plans to pull back from Elsevier’s Science Direct package.<sup>13</sup>

Bundled packages occasionally swelled as the result of a merger and, according to an analysis by economist McCabe, “quality and cost-adjusted price increases have been substantial over the past decade and . . . past mergers have contributed to these price increases.”<sup>14</sup> Stankus reported merger activity that took place between 2000 and 2003: Taylor & Francis bought Gordon & Breach; Reed Elsevier bought Harcourt and the Academic Press IDEAL package; Blackwell Publishing and Blackwell Science were merged; and Wolters-Kluwer bought SilverPlatter.<sup>15</sup> He also saw one significant failure, when Taylor and Francis withdrew an offer for Blackwell, and one significant success, with the Candoover and Cinven purchase of both Kluwer Academic Press and Springer.<sup>16</sup>

Group-based efforts to increase competition to commercial publishers included the Scholarly Publishing and Academic Resources Coalition (SPARC) and BioOne. SPARC was developed by the Association of Research Libraries (ARL) and supported by membership of academic institutions. SPARC had several programs, with a focus on scientific scholarly communication, but perhaps the best known was the Create Change initiative responsible for the launch of new journals designed to compete, at lower prices, with existing titles having the same scope.<sup>17</sup> Supporting

the initiative, the former editorial board of *The Journal of Academic Librarianship*, whose members had resigned when Elsevier took over the title, created the journal *portal: Libraries and the Academy*.<sup>18</sup> BioOne, which was formed by “collaboration among scholarly societies, universities and university libraries, and a specialist in scholarly journal production,” held the view that “scientific literature should be priced as a public good,” and offered a database of journals in biology.<sup>19</sup> “BioOne was founded to provide participating journals an alternative to affiliation with commercial publishers, and to foster the continuing financial health of the small societies.”<sup>20</sup> Fyffe and Shulenburg explained that BioOne shared 50 percent of revenue with the societies and kept administrative and production costs low.<sup>21</sup> They also recommended that “societies should be developing diverse streams of income and diverse member services” and “publishers should be developing additional sources of financial support beyond subscription costs.”<sup>22</sup>

Another group-promoted shift in the market, open access (online content free to the user via the Internet), gained strength in late 2003, when SPARC announced a partnership with the Public Library of Science (PLOS), following up on a statement previously issued by ARL and SPARC that lauded “legislation by Congressman Martin Sabo (D-MN) to place articles reporting on federally funded research into the public domain (H.R. 2613, the Public Access to Science Act of 2003).”<sup>23</sup> PLOS, a nonprofit organization supporting free access to scientific information, began publishing its first open access e-journal, *PLoS Biology*, in 2003. BioMed Central, another open access model, had 396 institutional memberships as of November 2003, showing “amazing growth.”<sup>24</sup> Wilson emphasized that open access, often having copyrighted materials, does not equate with public domain.<sup>25</sup> With open access, information producers rather than the consumers carried the cost of the publishing process. In some models of open access, the author paid to be published, and in others an organization, such as a university, bore all or part of the cost on behalf of member authors. Falk recorded concerns of critics that Sabo’s “bill could hamper academic publishing and nonprofit publishers,” and “it might negatively affect research funding, academic research and publishing.”<sup>26</sup> Publishers expressed concerns, especially about the sustainability of the open access model. Morris listed cost-contributing items, such as editors, communications, preservation and maintenance, customer support, and linking.<sup>27</sup> Butler cited “considerable costs for staffing and administration.”<sup>28</sup> Both authors noted another obstacle to a transition to open access: persuading the information producers to participate while the subscription model was still in place. Even if institutions or organizations subsidized the authors’ costs, the authors would be taking a risk by choosing the new alternative over the established, prestigious journal that could assure career

success. Prosser reviewed some of the same difficulties and recommended a hybridization of existing journals as a means to promote the transition, meaning that the publisher of well-known titles could offer the author a choice of paying for open access or having the traditional free-of-charge, closed publication.<sup>29</sup> Prosser proposed that authors would be motivated to make the change because higher citation rates to their papers would come from open access. Falk reported that the Directory of Open-Access Journals was created to promote use of open access journals that had “an appropriate quality control system,” and that there were 350 such journals at the time.<sup>30</sup>

In addition to bulk purchasing and group initiatives for affordable publications, the longstanding cost-control method of cancellation continued to be used. From 2000 to 2003, cancellation projects often focused on reducing duplication of print and electronic formats, using specific criteria or use statistics, or both. (Use statistics are addressed later in this paper.) In the case study by Sprague and Chambers, the authors found shortcomings in database versions of print journal titles when examining the databases for currency, coverage, representation of graphics, and stability.<sup>31</sup> Rupp-Serrano, Robbins, and Cain wrote a detailed paper covering a full range of important criteria in making format choices.<sup>32</sup> They grouped criteria into six areas: licensing, provider (reliability and duplication), local politics, publication structure, technological considerations, and local resources (money, space, and staffing). Kaylan’s case study, an examination of all of the library’s subscriptions in both print and electronic format, began with the premise that print subscriptions would be cancelled, but resulted in the retention of selected print titles when the embargo period was a year or more in the database version.<sup>33</sup>

Librarians witnessed the rise of embargoes on the aggregated electronic collections of multiple publishers supplied by such distributors as EBSCOhost and Proquest. An embargo determined by the publisher can delay the release of current issues to databases by as much as a year after initial publication. After having imposed lengthy embargoes previously, Sage ended contracts with EBSCOhost and Proquest because the royalties from aggregators were not enough to sustain journal publication.<sup>34</sup> Sage continued to offer “free” electronic access with print subscriptions through a variety of third-party platforms, including Ingenta and EBSCOhost Electronic Journals Service (previously named EBSCO Online). As explained by Brooks, senior vice president of sales and marketing at EBSCO Publishing, a publisher could not have stayed in business without protecting the direct print or e-journal subscription revenue via embargo because databases were priced for the aggregation of many titles, resulting in a lesser cost per title and subsequently a smaller revenue to the publisher from the database, even if the aggregator “shared every penny.”<sup>35</sup> Brooks

concluded that because embargoes encouraged publishers to participate in databases, they enabled patron access to titles the library might not have had other than through the aggregation or to older volumes not included in the library’s current electronic subscription.<sup>36</sup>

In addition to keeping print subscriptions due to embargoes in databases, librarians had also continued with print to address archiving concerns, but this practice of dual format subscriptions began to change after the events of September 11, when state economies plummeted across the nation. Librarians began to realize that electronic publication would not result in lower prices. In 2001, Meyer published the results of several statistical tests that predicted continued increases in prices and monopoly power as publishers introduced electronic versions of titles. The tests had an extremely high degree of reliability (correct more than 99 percent of the time with the monopoly power test). A table of twenty titles, including both commercial and society publishers, listed a significant difference of more than 100 percent between the institutional price charged by the publisher and the price predicted by the model. Meyer offered this model as a tool to “reduce the guesswork implicit in the price analysis” used in selection.<sup>37</sup> As choices had to be made due to the financial constraints, librarians began to cancel print subscriptions in favor of keeping the electronic versions, known as “going e-only.” The shift to electronic subscriptions raised an interesting question at the 2002 ALA Annual Conference, which included a program by the Association for Library Collections and Technical Services (ALCTS) Committee on Library Materials Cost Index titled “Predicting Publication Prices: Are the Old Models Still Relevant?” While papers based on presentations given at the program by Bluh, Neal, and Call cited various causes for a less significant role for publication price indexes, a common reason given was the increased interest in electronic resources, along with the fact that the traditional materials pricing indexes had not included electronic resources or considered consortial pricing.<sup>38</sup> A few months after the Conference, another prediction caught the attention of librarians. By October 2002, “The hot piece of paper circulating at the recent Charleston Library conference was the front page (only) of a recent Morgan Stanley Equity Research (Europe) report entitled ‘Scientific Publishing: Knowledge is Power.’”<sup>39</sup> The report featured Reed Elsevier and Wolters Kluwer, and forecasted “industry growth slowing from 8% in 2001 to 3% in 2002 as library budgets come under pressure.”<sup>40</sup> The report also purported that both libraries and publishers should benefit from going e-only.<sup>41</sup> Morgan-Stanley calculated that scientific publishers could anticipate an estimated 16 percent improvement in profitability per customer going e-only.<sup>42</sup> The report furthermore projected that “Reed is likely to continue to outperform the market . . .”<sup>43</sup>

Prior to publication of the Morgan Stanley report, Karen Hunter, senior vice president of Elsevier, had written a paper about going e-only that included the perspective of both librarians and publishers.<sup>44</sup> Hunter attributed the increase in e-only subscriptions to market forces—patrons and authors desiring electronic versions, and libraries seeking to serve patrons while needing to reap savings from publishers, who offered an e-only option at a lower cost than print or print plus online choices. Hunter questioned whether subscription agents had a viable role in an online-only arrangement, where license terms must be negotiated directly with the publisher. In describing the situation where Academic Press based subscription rates on the electronic version and placed the supplemental charge on the print for customers desiring both versions, Hunter was giving an example of flip pricing without using that label. Initially, contracted bundles of titles from a publisher were based on a library's or a consortium's existing print subscription list, with electronic access having an added charge, but Academic Press had flipped the price structure to be the opposite. Hunter saw obstacles to this becoming a prevalent pricing model, such as the above question about the role of the subscription agent and also the significantly higher European value-added tax for the electronic compared to the paper version of a journal. Hunter also noted archiving as a concern that prohibited some libraries from fully embracing e-only subscriptions. (Archiving is discussed later in this paper.) Van Orsdel and Born documented that OhioLINK became the catalyst for the spread of flip pricing, that the model lowered income for subscription agents due to print subscription pricing at as little as ten percent of list price, and that publishers working directly with libraries for the e-journal subscriptions also lowered the agents' income.<sup>45</sup> Van Orsdel and Born suggested that flip pricing was an indication that librarians were ready to make the transition to electronic "with or without an archiving solution."<sup>46</sup>

The move toward going e-only with subscriptions rather than paying for both print and electronic formats gained noticeable momentum. Montgomery and King documented the shift from print to electronic subscriptions at Drexel University over six years: 1,710 print and 200 electronic subscriptions in 1998, and 370 print and 8,600 electronic in 2002.<sup>47</sup> They considered an understudied impact of going e-only, "the changes in the library's operational costs associated with shifts in staffing, resources, materials, space and equipment."<sup>48</sup> The results of the case study "suggest that, when all costs are considered, electronic journals are more cost effective on a per use basis"—however, Montgomery and King cautioned that because of "methodological difficulties with the data available to make the analyses, this study should be viewed as a single first step to address an issue of critical importance to academic libraries."<sup>49</sup> Cox built upon the work at Drexel when he juxtaposed the

operational cost analysis information from the Montgomery and King paper with information he obtained from two publishers (Emerald and the Institute of Physics Publishing) to form a preliminary conclusion that greater cost-savings were gained with e-journals than print. Cox indicated his tentative conclusions were based upon admittedly broad assumptions, when he used data drawn from just two publishers and decided upon "a compromise view that fifty percent of the subscription revenue should be attributed to the electronic version."<sup>50</sup> Differences in data collection, such as print reshelving counts versus electronic use statistics and definitions (for example, the term "use" itself), presented problems for Cox's analysis as well, but he hoped to stimulate further study based upon standards.

In summary, from 2000 to 2003 the price increase trend for journals continued, fueled in part by publisher mergers, and librarians combated it with the economies found in bundled packages and consortial subscriptions. In another effort to control costs, academic groups created competing journals at a lower subscription price than similar commercial titles. Librarians began to shift toward electronic-only subscriptions to save money in spite of embargoes that deterred them from relying upon aggregated databases alone. Even though a shift was beginning, after analyzing the cost of journal publication and distribution in the electronic arena and considering the impact of such initiatives as SPARC, Quandt affirmed in 2003, that the "paper journals may well become less important over time," but "the predicted demise of the paper journal and, even more so, of commercial publishers, is vastly exaggerated," and "it is unlikely that the increasing dominance of electronic publications will ease the economic plight of libraries in the short run."<sup>51</sup>

## Serials Management

When high costs necessitated cancellation decisions, usage studies often served as a collection management tool in making choices. The literature revealed various models for these studies, such as counts, attempts to define value, cost analyses, behavioral studies, and combinations of methods in order to extrapolate meaning or make projections. For example, Enssle and Wilde described collecting and using statistics from multiple sources, such as interlibrary loan, reshelving counts, *Journal Citation Reports* from the Institute for Scientific Information (ISI), and vendor-supplied e-journal usage reports to make cancellation decisions.<sup>52</sup> As another example, Galbraith explained how low use and cost-per-use of more than \$100 placed journals on a cancellation list each year, but stated that electronic collections had to be analyzed as special cases.<sup>53</sup> Other studies reviewed later in this paper explored new perspectives, formulae, and standards for analyzing use. As collection manag-

ers began to develop new techniques of analysis tailored to e-journals that would complement or build upon traditional methods, library workers in technical services experienced significant changes in workflow due to e-journals. They needed new skills and tools to license and track subscriptions. Librarians and staff in technical services also provided new access services that complemented or enhanced the online catalog's role in leading patrons to content. New companies arose to provide assistance with these new access services. Journal management faced challenges because of corporate mergers and the demise of two integrated library systems and a major subscription agent. This author selected research papers and case studies that have useful foundations for future application or were not so location-specific that they precluded replication elsewhere.

Librarians employed usage studies for cancellation as well as for collection building or adjusting. Talja and Maula conducted an exploratory qualitative study with the goal of "contributing to the development of a domain [discipline] analytic model for explaining e-journal use."<sup>54</sup> The authors' study confirmed "that electronic journal services were more used by those using directed search as the only or dominant method of information retrieval."<sup>55</sup> Article-oriented research was also a strong predictor of e-journal use in this study. Talja and Maula found very little browsing of print journals in the library by the scholars in the fields of nursing and ecological environmental science; in contrast, they found that scholars in history and literature and cultural studies were more book-oriented and browsed for resources.

Davis and Leah examined patterns of individual use, identifying university departments by Internet Protocol (IP) addresses and examining downloads per IP (with IP equated to user).<sup>56</sup> They noted that most users downloaded from a small number of titles. In this study, when Davis and Leah analyzed "American Chemical Society electronic journal downloads at Cornell University by individual IP addresses," they found "a very strong relationship between the number of article downloads and the number of users, implying that a user-population can be estimated by just knowing the total use of a journal."<sup>57</sup> Two mathematical discoveries of particular note were recorded in this paper. "Each 'user' (IP) can be represented by approximately  $11 \pm 3.5$  downloads. This prediction method may be useful for estimating user populations of other publishers' journals when only total number of downloads are provided," and "The quadratic relationship between the number of journals consulted and number of articles downloaded per user suggests that some power law (specifically an inverse square law) may be in effect. . . ."<sup>58</sup> The authors believed user behavior to be a critical element in properly interpreting numerical data.

Gathering usage statistics electronically enabled computer manipulation, which provided greater opportunity

for analyzing the numbers in meaningful, contextual ways. In 2003, Bollen, Vemulapalli, and Xu, of the computer science department at Old Dominion University, published a paper with Luce of the Los Alamos National Laboratory (LANL) Research Library describing an automated method of computer log analysis in which they examined relationships of article downloads "much in the same manner Google's PageRank evaluates the impact of web pages for a given subject on the basis of its context of hyperlinks to other pages."<sup>59</sup> The log analysis for the LANL Research Library created a library-specific, ranked journal list that was compared to the citation impact factor (IF) from ISI, which represented a larger research community. A marked difference in the rankings of titles between the two lists demonstrated that the method "successfully identified a planned and deliberate research project . . . that caused the local impact of journals to deviate strongly from the ISI IF over a period of three years."<sup>60</sup> The authors recognized some issues that could affect the validity of their data, due primarily to differences in calculating citation impact factor and download data, but noted a lack of alternatives to using impact factor for the broader measurement. Bollen and his colleagues proposed that a representative sample of download logs from different institutions could be aggregated to form a generalized basis of comparison to a specific institution. The authors also suggested that financial constraints increased the importance of tools enabling librarians to make community-specific content decisions, and suggested that future research could lead to an ability to "detect not only past research trends, but also to extrapolate . . . to the future so that DL [digital library] evaluation can pro-actively indicate shifts and trends in the interests of user communities."<sup>61</sup>

Through use statistics, Hahn and Faulkner found a way to include the interests of their users in analyzing the value of potential new subscriptions.<sup>62</sup> The authors determined average cost per access, average cost per article, and content-adjusted usage (proportion of total articles used out of total offered). The authors then utilized the cost per article for potential new subscriptions along with the known usage measurements for peer subscriptions in order to set evaluative benchmarks for the potential new subscriptions. Hahn and Faulkner emphasized statistics about the title or collection, such as the amount of content available, as another context needed for e-journal usage statistics to have meaning. As Hahn and Faulkner noted, this need was previously recorded in Judy Luther's *White Paper on E-journal Usage Statistics* for the Council on Library and Information Resources.<sup>63</sup> Luther's paper covered this point of context as part of a broad range of needs and concerns from publishers and librarians, such as standard definitions and presentation of data.

Zhang gave a succinct historical overview of measurement developments from the mid-nineties through the 2003

publication of her article, "Measurement and Assessment of Networked Resources and Services in Academic Libraries." The article explained the difficulties of defining standard measurement terms, particularly when applied to counting e-journal subscriptions based on the various ways librarians may track them in an integrated library system (ILS).<sup>64</sup> Zhang discussed statistics from the perspective of preparing annual statistics at her library, referencing the annual questionnaires of ARL and explaining an ARL project called E-Metrics, which sought in part to standardize use statistics from suppliers of e-journals.

While E-Metrics was an initiative based in the United States, Project COUNTER (Counting Online Usage of Networked Resources) was "an international initiative designed to serve librarians, publishers and intermediaries by facilitating the recording and exchange of online usage statistics," and "had its genesis in the UK, with the PALS (Publisher and Librarian Solutions) group formed by JISC, ALPSP and The Publishers Association."<sup>65</sup> The variables considered in the first release of the guidelines, or "Code of Practice," included "the data elements to be measured[;] definitions of these data elements; usage report content, format, frequency and methods of delivery; [and] protocols for combining usage reports from direct use and from use via intermediaries."<sup>66</sup> Project COUNTER showed promise but was not a panacea at this stage, and Molyneux pointed out three positive aspects of the project: it was limited to a reasonable number of variables as a starting point, it would "monitor how the data are collected and tweak definitions as necessary," and it had received feedback from the field.<sup>67</sup> On the other hand, Molyneux professed skepticism regarding vendors openly sharing statistics on their products' usage, wondered if the execution of the plan would live up to the concept and be speedy enough, and hoped that another phase of COUNTER would address concerns he presented. Molyneux emphasized the importance of being able "to retrieve data on institutions by type (public, academic), by geographic area (country, state or province, electoral district), size (by budgets or collections) and other such variables," which he labeled as demographic data.<sup>68</sup> Finally, Molyneux pointed out the need for "a general, flexible, and adaptable data exchange format" such as XML (Extensible Markup Language for automated document interpretation), making it possible for users of the statistics to work with them without needing to massage the data.<sup>69</sup>

In addition to continuing to employ usage studies, librarians demonstrated continued interest in core title lists as a collection management tool. In a series of papers first published separately in *The Serials Librarian* and then cumulated into *Journals of the Century*, Stankus arranged for experts from several disciplines to write about the "most important, enduring, or influential journals" of the twentieth century.<sup>70</sup> Building on earlier work with Bensman, Wilder

illustrated a new measure to aid in producing core title lists for scientific and technical journals. He wrote:

The method requires the creation of a new measure of value called the Estimated Annual Citation Rate (EACR), which is derived from the Journal Citation Reports' total citation variable. EACR allows researchers to compare the relative value of ST [science and technology] journals, and because it is an annual estimate of citations, it can be compared directly to subscription price to produce a measure of cost-effectiveness.<sup>71</sup>

Wilder also calculated the cost per EACR and concluded that "when ST journals are properly grouped according to subject, value is highly concentrated among a small number of titles" and that "the high value titles are many times more cost effective than the remaining titles."<sup>72</sup>

While collection management librarians improved their tools, technical services librarians grappled with changing processes and heavier work loads. At the start of the millennium, Tuttle's paper gave perspective to the management of serials in technical services through a progression from the paper-based tracking of orders and receipt of periodical issues in the 1970s to the use of the ILS and the arrival of e-journals in the 1990s.<sup>73</sup> Serials management was not easy then, and, as the volume of e-journals rapidly grew, technical services librarians had difficulty tracking what they had purchased from which publisher or aggregator. Four conditions contributed to the problems. First, existing expertise and staffing were insufficient for the volume of work with licensing, adding and subtracting titles as they changed publisher or distributor, correcting broken links as Uniform Resource Locators (URLs) changed, and troubleshooting denial of access. Second, integrated library systems were not designed to record the special attributes of e-journals. Third, mergers both in publishing and in subscription agents added to the complexity in tracking subscriptions. Fourth, e-journals were often acquired by libraries through direct arrangements with publishers, eliminating the subscription agent, sometimes because the publisher refused to permit the use of the agent.

Concerns in libraries about adequate staffing to acquire and maintain electronic resources got little coverage in the literature between 2000 and 2003, but results of three surveys about staffing for electronic resources were published. In 2001, Gardner's survey results, which covered a range of needs (from organizational structure to training) at ARL institutions, indicated that "88 percent of the respondents believed that e-journals require a greater number of professionals to be involved," while "thirty-eight percent of responding libraries stated that no new positions had been created to handle e-journals over the previous two years."<sup>74</sup>

In 2002, Duranceau and Hepfer collected data from fifteen institutions and stated that “the survey’s bottom line is that in academic libraries today, more staff is needed to support e-collections which are growing rapidly in size and significance.”<sup>75</sup> Also in 2002, Boydston and Leysen’s paper focused on staffing for cataloging, reporting that “approximately one-third of the libraries reported an increase in MLS staff since beginning the cataloging of electronic resources and almost one-half reported an increase in support staff.”<sup>76</sup> Two other papers discussed staffing changes in technical services relative to e-journals. Anderson and Zink explained that the library staff at University of Nevada, Reno, gave up checking in and binding most print serials to spend that time in providing access to e-journals after finding that print journals “get very little use—about .5 reshelvings per issue.”<sup>77</sup> In late 2003, Zhang charted differences in ordering and receiving workflow between print and electronic versions, fully illustrating the additional work and then discussing the need to hire a librarian specifically to manage the work with electronic resources.<sup>78</sup> Reporting on a symposium at the 2003 ALA Midwinter Meeting in Philadelphia, Davis noted, “While many libraries are reducing the number of technical services staff, the workflow to support electronic resources is complex, complicated, and costly. [Dan] Tonkery admitted that neither library nor subscription agent nor publisher is fully prepared to manage effectively the new e-resource environment.”<sup>79</sup>

Licensing for e-resources required special expertise. Because few staff had that expertise, librarians tried new ways to complete the work in a timely manner. Wolverton reported (from a panel presentation at Mississippi State University in 2001) that librarians were interested in learning more about license negotiation points, such as the definition of authorized users, state of jurisdiction, fair use, interlibrary loan, indemnity, and downtime, and were also investigating the potential ramifications of the Uniform Computer Information Transactions Act (UCITA).<sup>80</sup> According to presenter Meraz, “Existing views of First Amendment rights, intellectual property, copyright, fair use, first sale, and privacy could be substantially altered by the passage of UCITA.”<sup>81</sup> Wolverton also reported that EBSCO offered a new service to assist libraries in completing a license agreement, presenting the license to the publisher and ensuring finalization in addition to assisting with IP address registration.<sup>82</sup> Keeping up with the volume of licensing had become a problem for some librarians. In 2003, Duranceau reported success with an experiment to send a standard license to publishers, eliminating a backlog and utilizing more staff time rather than having one librarian as a bottleneck: “Ten out of 17 publishers (59 percent) who were sent the MIT license accepted it in some form, either with no changes or few changes.”<sup>83</sup>

As librarians licensed more e-journals, they looked for a vehicle to track titles and make them accessible. The

tool needed the capability to keep pace with the volatility of the titles and URLs with less human intervention. This need gave rise to companies, such as Serials Solutions and TDNet, whose main product was both a service and a system to manage changes in e-journal title sources and their URLs.<sup>84</sup> Dynamic generation of an alphabetized title list of a library’s electronic holdings, frequently called an “A to Z list,” formed part of the service offered by these companies. McCracken and Markwith, of Serials Solutions and TDNet respectively, wrote papers for a joint presentation at the 2002 North American Serials Interest Group (NASIG) Conference, and both mentioned economies of scale as a primary benefit of using their companies to provide e-journal access to library patrons.<sup>85</sup> Metcalf provided a description of a homegrown product of similar nature in “An Open Source Solution to Managing Electronic Journal Links with Database-Generated Web Pages.”<sup>86</sup> McCracken of Serials Solutions described a newer service, one that provided subject access by supplying bibliographic records for librarians to load into the online library catalog as well as including an updating service for the URLs and tracking title changes in aggregated databases.<sup>87</sup> These tools used by technical services provided a navigational service with linking for patrons.

Librarians also began to learn about the technologies involved in deep linking or reference linking—the ability to access a piece of information, such as a journal article, from a citation or other bibliographic data by means of a hyperlink. In 2001, Deeken reported on a presentation by Inger, who explained the benefits of a Digital Object Identifier (DOI), a unique identifier created by a standardized method, resulting in more stability than a URL.<sup>88</sup> Once DOI proved useful, services were built upon its foundation. For example, publishers were able to link to each other’s content with CrossRef, an organization that served as a “switchboard” by providing “a method for collecting standardized metadata” and “for looking up DOIs using metadata” (metadata being the bibliographic data for the content referenced).<sup>89</sup>

Needleman explained a new linking standard that underpinned a commercially available navigation service: “OpenURL defines an abstract name for an Internet resource and assumes some resolution mechanism to resolve that abstract name to a current location at which the resource can be found.”<sup>90</sup> The resolution system developed with the OpenURL standard, called SFX (licensed by The Ex Libris Group), provided for “context-sensitive” linking that solved the “appropriate copy problem.”<sup>91</sup> In other words, the system permitted librarians to input the data for locally held subscriptions, so that the link selectively resolved or led to a resource that the patron was entitled to access as opposed to resources containing the same content but to which the library did not subscribe. Using the system’s options, librarians could provide alternatives for titles not available

electronically, such as a link to search the catalog for non-electronic formats or a link to an interlibrary loan form. Later similar systems from other companies, such as EBSCO and Serials Solutions, were commonly called “link resolvers.” In 2003, Soderdahl described the implementation of SFX at the University of Iowa. In addition to managing links to subscribed content, librarians could control the search result displays of multiple sources for the same title, suppressing one in favor of another, such as preferring the version of an e-journal supplied by the publisher to the version supplied via an aggregator. Soderdahl noted that SFX became “one of the most important and well-received new services that the library has implemented in recent years.”<sup>92</sup>

SFX enabled management of navigation to e-journals in a visually familiar textual style, but some publishers and institutions began to manage a patron’s access to e-journal content with new, visually oriented approaches to navigation. McKiernan reviewed a variety of these “novel technologies” and presented some examples that used screen displays filled with shapes such as spheres, which also illustrated the relationship of one topic to another, and others that utilized color or graphs to indicate a percentage of content on a given topic or cluster of topics.<sup>93</sup>

The link resolvers and other commercial services described above did not assist with tracking the terms of licenses for the e-journals. Many libraries used a home-grown database to track and share information from license agreements within a system or consortium and to show the status of the acquisition. Penn State was an early leader, with an Access database that was originally designed to assist in obtaining and paying invoices for electronic resources, and that developed into a means of providing “information about license agreements and the status of orders, and to answer many other questions.”<sup>94</sup> At the 2001 NASIG Conference, Emery shared information on the development of a database for the University of Texas at Arlington.<sup>95</sup> The database was designed to meet the needs of acquisitions, reference, interlibrary loan, and collection management librarians as well as other staff who needed to know the negotiation or payment status and license use restrictions for an electronic resource. In 2003, Innovative launched an electronic resource management module designed to work with INNOPAC or stand alone. The Electronic Resource Management Initiative (ERMI) of the Digital Library Federation (DLF) attempted to provide some standardization for license administration databases. Chang’s overview of ERMI explained the primary goal of developing metadata schemata for license terms and the additional goals of “developing workflow, identifying best practices, promoting the standards, and engaging library vendors to implement this system.”<sup>96</sup>

While implementing or building independent tools to cope with the fact that most extant integrated library systems were not designed to track e-journals, many librarians

also were facing systems migration, mainly due to two vendor actions: NOTIS was no longer being developed by the newest owner, epixtech, and Sirsi had bought DRA. Other libraries moved to an integrated system after having used separate systems for public and technical services. Migrating serials data presented a challenge. Alan described the careful planning required for such a migration, and how it was handled at Penn State in 2002.<sup>97</sup> Sill also described a system implementation in depth, emphasizing that migration necessitated changes to workflow and highlighting the need for interconnectivity between groups of people affected by the migration and integration between the ILS and other systems, such as a separate binding system.<sup>98</sup> In an interesting twist that engendered some concern in libraries, Elsevier bought an ILS vendor, Endeavor. Eberhart quoted Richard Johnson, enterprise director for SPARC, as saying, “The long-term issue is how the hardwiring of content into infrastructure will affect the control that libraries have over providing information to their users. The short-term issue is one of fair competition.”<sup>99</sup>

Adding to the concerns of librarians regarding fair competition and staffing needs, subscription agent mergers and a bankruptcy took place. Basilone reported on a panel presentation by librarian Gammon, publisher Cox, and subscription agent representative Tonkery that noted the increased volume of labor for both libraries and subscriptions agents resulting from mergers.<sup>100</sup> Mergers caused unanticipated additional work for library staff members, who reviewed multiple title lists for accuracy as a result of system changes when two companies merged into one. Library staff went through this process with SwetsBlackwell (so named as the result of an earlier merger, but renamed Swets again by late 2003), which bought W. H. Everett & Son Ltd., “the world’s oldest independent bookseller and subscription agent.”<sup>101</sup> SwetsBlackwell had previously taken the standing order business of Martinus Nijhoff. Mergers were not the only cause of the additional labor for library serials staff. The unexpected bankruptcy of RoweCom, the subscription agent formerly known as Faxon, left many publishers unpaid for library subscriptions even though the libraries had prepaid the subscription agent. To resolve the problem, librarians worked with publishers and EBSCO, which salvaged RoweCom’s business. That situation taught many librarians to watch the financial health of companies to which as much as millions of dollars are sent in advance of receiving goods. Stankus provided a history of RoweCom and its parent company, divine, with an analysis of the situation in his column in *Technicalities*.<sup>102</sup> Little coverage of these events and their effects appeared in the literature.

From 2000 to 2003, both collection management and technical services librarians developed tools to address new needs brought by the growth of e-journal subscriptions. Collection management librarians took advantage of use

statistics gathered by computer to move beyond counts and cost-per-use to form bases for more contextual comparative measurements, such as local and national community use and content-adjusted usage. Librarians needed standardized measurements to compare between resources, and COUNTER provided a baseline, although gaps remained, such as inclusion of demographic data and a technological standard to reduce the need to massage data before using it. Benchmarking with core title lists still proved to be an important measure, but the Estimated Annual Citation Rate introduced a new methodology. These updated tools focused on management of limited resources to target patron needs more closely. Librarians in technical services worked in homegrown databases, participated in developing standards, and adopted commercial services as they became available in order to track subscribed titles and license terms and meet the access and navigation needs of patrons. While developing new management tools, librarians and staff in technical services coped with extra work caused by changes in integrated library systems and subscription agents.

### Archiving

During the years 2000 through 2003, archiving grew in importance, but had the appearance of becoming a lesser concern toward the end of 2003, as some libraries, due to budget or physical space pressures or both, went e-only without proven archiving practices for electronic materials. The literature contained ideas and discussions that illustrated the difficulty of archiving electronic materials. Contrast and comparison to familiar practices with print formed a starting point for examining issues, which exposed a struggle in defining who would ideally keep electronic archives, and how and where such archives would be kept. Remote storage played an archival role, though it was used primarily to solve space shortages. Some libraries relied upon a shared collection of print journals as a means of archiving. Cases of missing online content further complicated the archiving issues. The lighter coverage of archiving in the literature reflected the early stages of addressing the problems.

Guzi recorded the thoughts expressed by presenter Drewes at the 2000 NASIG Conference.<sup>103</sup> Drewes raised the possibilities and questions relative to archiving both print and electronic journals at the time: whether or not to bind, the impact of ARL statistical counts of bound volumes on decision-making, publisher focus on profits rendering them imperfect as archivists, the possibility of consortia serving as an archiving entity rather than individual libraries, the space savings by going e-only, the ability to provide interlibrary loans, differences between versions, the title of record usually being print, and the impermanence of CD-ROMs as archival copies. Drewes recommended that librarians

retain paper issues of journals without binding and also lobby organizations collecting statistics to include e-journals in measurements. Boyce described an environment with a focus on maintaining access to information, contrasting old and new modes of thinking about the functionality of publications, libraries, and archiving, and he also described the new concept of preservation as an automated system for refreshment of data residing in multiple repositories:

In the modern world of electronic information, the medium of choice is a redundant array of hard disks (RAID). Because of the automatic testing and backup inherent in the RAID system, deterioration of the storage medium is not a factor any more. The automated, active system keeps the material refreshed and readable at a very low cost, and the information is available within milliseconds. This is a far cry from the days of off-line tape storage, where accessing and refreshing were expensive, manual chores and there was a delay of hours or days to even get access. Today the data are rewritten many times, being kept fresh, readable, and intact by the automated systems.<sup>104</sup>

Storage facilities addressed space shortages in libraries, but also became de facto archives of print journals, particularly in cases where electronic access was available. JSTOR (Journal Storage: The Scholarly Journal Archive), a large digitized collection of the back files of selected print journals, served as a primary model, with an archive collection of print on behalf of many libraries. Young explained, "Originally begun with a grant from the Mellon Foundation, JSTOR was seen as a partial solution to the problems of diminishing library stack space for bound volumes, the increasing fragility of older volumes, and the difficulties for publishers inherent in maintaining a printed archive."<sup>105</sup> Librarians who were ready to rely upon use of the electronic version of journals were not always ready to give up the locally owned print volumes to rely upon another archival copy. At the University of Nebraska-Lincoln, Tyler and Zillig recommended moving the bound volumes that duplicated the material in JSTOR to remote storage.<sup>106</sup> Block's essay on the history of remote storage, beginning with antiquity, gave a timeline listing notable facilities built in modern times, including the Harvard Depository, which is not a shared facility, but one that pioneered in construction approach, and the two California regional facilities, which contain the holdings of multiple University of California libraries.<sup>107</sup> Weeks and Chepusiak reviewed the Harvard Model and recorded that more libraries collaborated in joint storage facilities, including a number of libraries in Minnesota, with a statewide facility, and also Princeton University, Columbia University, and the New York Public Library joining together to form

the Research Collections and Preservation Consortium.<sup>108</sup> As those facilities were in beginning stages, Hill, Madarash-Hill, and Hayes recorded that the University of Akron Science and Technology Library determined that storage away from the library resulted in a negative impact on the use of serials, with a post-move decrease of 70.58 percent in use of the oldest volumes.<sup>109</sup> The literature suggests that few such shared storage archives existed by the end of 2003.

Electronic archiving was difficult to define and more complex than print archiving. In 2000, Hunter of Elsevier wrote about options surrounding the usual questions of who would do the archiving, where and how many copies would be kept, what kind of access would be needed, and how much archiving would cost. Hunter wrote that there was “a presumption [among librarians and publishers] that for online journals, migration will be the methodology of choice.”<sup>110</sup> Baudoin took the stand that preservation of e-journals must be independent of platform and preserve the dynamism as well.<sup>111</sup> She cited examples in both the sciences and humanities. Flecker provided an overview of the initiatives to tackle the archiving problems in 2001.<sup>112</sup> He described LOCKSS (Lots of Copies Keeps Stuff Safe), one of several archiving projects funded by Mellon grants, which is “is intended to automatically, and with little cost or overhead, support the large-scale replication of e-journal content.”<sup>113</sup> Flecker stated that minimizing costs would be a primary consideration in the future of archiving. Hughes’ paper in 2002, building upon the papers of Hunter and Flecker, provided a recap and update of the archiving initiatives and issues, suggesting that having a third party (other than publishers or librarians) was the preferred archiving concept at the time.<sup>114</sup> In a paper listing a few of the same initiatives described by Flecker and Hughes, Thomas noted, “One of the chief reasons cited by librarians for retaining paper is the inability of the publisher to guarantee the longevity of documents.”<sup>115</sup>

In addition to assured longevity, completeness and accuracy issues needed to be resolved. One reason for loss of online content became evident as early as 2000, in the wake of the 1999 Tasini versus *The New York Times* Supreme Court case decision, which stated that specific electronic as well as first-publication rights are necessary for articles written by freelance authors in order to publish them electronically. Garman stated the concern that publishers and aggregators would “have to remove thousands, if not millions, of full-text articles to be in compliance with authors’ rights” if terms could not be negotiated for the electronic version.<sup>116</sup> By 2001, Bates reported that content providers had indeed removed some articles from sources such as newspapers in Dialog.<sup>117</sup> In 2002, Chen published a paper about missing content in aggregated databases due not only to the Tasini case, but also to embargoes and publishers choosing not to participate in aggregations. Chen

emphasized the loss of 100,000 articles from the *New York Times* and the full or majority loss of online text for nineteen newspapers from several major cities in the United States.<sup>118</sup> Chen found a wide range of embargoed titles, from “less than 5% to over 40%, depending on products and aggregators” and noted that the aggregators “seemed” to include citations to embargoed material only after the embargo period had passed.<sup>119</sup> In the print version of journals, publishers could only print notices of retraction or errors once an article had been publicly released; however, they had the ability to remove the improper articles entirely in the electronic version, changing the historical record. In 2003, an editorial by Plutchak recommended that publishers’ retraction and correction policies balance between protecting “the integrity of the scientific record” and a publisher’s “legal liability,” citing Elsevier’s progressive actions in this endeavor as an illustration.<sup>120</sup>

From 2000 to 2003, archiving questions included both the print and electronic versions of journals. Librarians archived print volumes in storage facilities, with or without having electronic access as an alternative, due to space shortages. The paper by Hill, Madarash-Hill, and Hayes documented the decline in use of stored materials and how some librarians made efforts to send print volumes of titles also available electronically, such as those in JSTOR, to storage facilities.<sup>121</sup> Universities constructed more shared storage facilities. Librarians and publishers struggled with electronic archiving concepts, discussing questions of who, where, and how, as the dynamism of the format complicated issues. Projects such as LOCKSS tested potential solutions, but missing online content posed more difficulties.

## Conclusion

The papers reviewed illustrated significant changes driven primarily by the growth of electronic resources in the first few years of the new millennium in the serials industry. Electronic journals became a focal point as both a source of problems for archiving and management and as a solution to patron desires and space shortages. Librarians first hailed e-journal bundles as a cost-saving model of scholarly communication and later disparaged them as a model for locking up the materials budget. Nonprofit initiatives such as SPARC promoted cheaper access to serials. Open access made information freely available to readers, having been paid for by the authors. Mergers led to higher costs in both expenditures and increased labor to manage serials. Research highlighted staffing shortages as librarians and staff, who acquire and manage e-journals, required new skills. Librarians and vendors developed new standards and delivered new linking and navigation

services to patrons, and librarians applied features of the services in tackling title and license term management problems. The literature identified problems and expectations with who should archive electronic materials and how. Missing online content complicated the archiving problems, but librarians began testing potential solutions such as LOCKSS.

Papers highly relative to collection management topics, such as costs and usage studies, were plentiful, but finding peer-reviewed literature related to management needs in technical services proved more difficult. Current events that had significant impact on technical services for serials, such as corporate mergers and their effects, were not well-documented in peer-reviewed literature. This author found no papers on the effects of consortial purchasing on librarians' use of the subscription agent and whether consortia usurped the agent's role to any degree. How would librarians fare without subscription agents for e-only subscriptions? Research for a solution to electronic archiving was only beginning in earnest as print subscriptions were dropping, and it was not surprising to find relatively few papers on the topic. Considering the rapid pace of changes with the advent of e-journals, much of the upheaval was captured in the literature, and perhaps the next review of serials literature will contain research showing how librarians surmounted obstacles regarding the cost, management, and archiving of electronic journals.

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  88. JoAnne Deeken, "Developments and Uses of the DOI and Other Identifiers in Reference Linking and Access/Rights Management," *The Serials Librarian* 40, no. 3/4 (2001): 245-51.
  89. Ed Pentz, "Brief Communication: Reference Linking with CrossRef," *Interlending & Document Supply* 29, no. 1 (2001): 20-22.
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  94. Donnice Cochenour, "Taming the Octopus: Getting a Grip on Electronic Resources," *The Serials Librarian* 38, no. 3/4 (2000): 364.
  95. Gale Teaster-Woods, "Tackling the Monolith: Licensing Management at the Consortial and Local Levels," *The Serials Librarian* 42, no. 3/4 (2002): 275-80.
  96. Sheau-Hwang Chang, "The DLF Electronic Resource Management Initiative," *OCLC Systems & Services* 19, no. 2 (2003): 45.
  97. Robert Alan, "The Serials Data Migration Dilemma," *Technical Services Quarterly* 20, no. 1 (2002): 29-38.
  98. Laura Sill, Pamela Nicholas, and Lisa Stienbarger, "Serials Workflow Adaptation and the New ILS: A Case for Continuous Process Improvement," *Serials Review* 28, no. 4 (2002): 298-315.
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  101. "Swets Blackwell Acquires Everett's, 2 Sep. 2003," *Serials-eNews from UKSG*, no. 50 (Sept. 29, 2003). Accessed June 12, 2005, [www.biblio-tech.com/uksg/SI\\_PD.cfm?PID=10&ArticleID=905&issueno=50&XSection=Business](http://www.biblio-tech.com/uksg/SI_PD.cfm?PID=10&ArticleID=905&issueno=50&XSection=Business).
  102. Tony Stankus, "Making Sense of Serials: The Divine Comedy and Its Purgatorial Aftermath for Serials Librarians," *Technicalities* 23, no. 3 (May/June 2003): 1, 12-14.
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  104. Peter B. Boyce, "Who Will Keep the Archives? Wrong Question!" *Serials Review* 26, no. 3 (2000): 53-54.
  105. Naomi Kietzke Young, "Printed Back Volumes and Issues: A Thing of the Past?" *The Serials Librarian* 38, no. 3/4 (2000): 238.
  106. David C. Tyler and Brian L. Pytlík Zillig, "Caveat Relocator: A Practical Relocation Proposal to Save Space and Promote Electronic Resources," *Technical Services Quarterly* 21, no. 1 (2003): 17-29.
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  108. David Weeks and Ron Chepesiuk, "The Harvard Model and the Rise of Shared Storage Facilities," *Resource Sharing and Information Networks* 16, no. 2 (2002): 159-68.
  109. J. B. Hill, Cherie Madarash-Hill, and Nancy Hayes, "Remote Storage of Serials: Its Impact on Use," *The Serials Librarian* 39, no. 1 (2000): 38.
  110. Karen A. Hunter, "Digital Archiving," *Serials Review* 26, no. 3 (2000): 62.
  111. Patsy Baudoin, "Uppity Bits: Coming to Terms with Archiving Dynamic Electronic Journals," *The Serials Librarian* 43, no. 4 (2003): 63-72.
  112. Dale P. Flecker, "Preserving Scholarly E-journals," *D-Lib Magazine* 7, no. 9 (Sept. 2001). Accessed Mar. 27, 2005, [www.dlib.org/dlib/september01/flecker/09flecker.html](http://www.dlib.org/dlib/september01/flecker/09flecker.html)

113. Ibid.
114. Janet A. Hughes, "Issues and Concerns with the Archiving of Electronic Journals," *Science & Technology Libraries* 22, no. 3/4 (2002): 113–36.
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116. Nancy Garman, "The Tasini Decision and Database Integrity," *Online* 24, no. 1 (Jan./Feb. 2000): 8.
117. Mary Ellen Bates, "Houston, Do You Copy?" *EContent* 24, no. 7 (Sept. 2001): 64.
118. Xiaotian Chen, "Embargo, Tasini, and 'Opted Out': How Many Journal Articles Are Missing from Full-Text Databases," *Internet Reference Services Quarterly* 7, no. 4 (2002): 30.
119. Ibid., 29.
120. T. Scott Plutchak, "Vanishing Act," *Against the Grain* 15, no. 2 (Apr. 2003): 36, 38.
121. Hill, Madarash-Hill, and Hayes, "Remote Storage of Serials."

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# Becoming an Authority on Authority Control

## An Annotated Bibliography of Resources

**Robert E. Wolverton Jr.**

*Authority control has long been an important part of the cataloging process. However, few studies have been conducted examining how librarians learn about it. Research conducted to date suggests that many librarians learn about authority control on the job rather than in formal classes. To offer an introduction to authority control information for librarians, an annotated bibliography is provided. It includes monographs, articles and papers, electronic discussion groups, Web sites related to professional conferences, additional Web sites related to authority control, and training offered through the Name Authority Cooperative Program and the Subject Authority Cooperative Program. A summary of possible future trends in authority control is also provided.*

Authority control, long an integral part of the cataloging process, has been defined as “the process of maintaining consistency in the verbal form used to represent an access point in a catalog and the further process of showing the relationships among names, works, and subjects.”<sup>1</sup> It helps provide structure and uniformity to information, which can make it more accessible and valuable to the library user. As the amount of information available to the public continues to expand, the effective use of authority control concepts can greatly assist library users by making information more accessible and help catalogers in formulating access points for the bibliographic records they prepare for public access.

The ongoing development of computer technology over the past several decades has made authority control easier and more efficient to implement for many libraries, either as an in-house process or by using a vendor. With the development and evolution of authority control and online public access catalogs (OPACs), library users can now be directed automatically from an earlier or alternative form of a name, title, series, or subject to the authorized one. While this may appear to be a seamless process for the library user, catalogers behind the scenes must ensure that the authority work is done properly so the entire information retrieval process continues to be seen as seamless.

Despite the importance of authority control, few studies have been conducted examining how librarians learn about it. A 2002 study of how librarians learned about authority control and authority work was conducted by Mugridge and Furniss, using replies to a four-question survey that they posted on the Autocat cataloging and authority control electronic discussion list.<sup>2</sup> The results revealed that of the forty-nine survey respondents, the majority learned about authority control and authority work on the job rather than in library school. The authors further noted that, even when exposed to authority control concepts in library school, some respondents felt they received only a minimal amount

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of information and perceived a lack of hands-on, practical training in authority work. In their conclusions from the survey, Muir and Furniss suggested that regional workshops or conferences should be offered as a way for librarians at the local level to learn more about authority concepts and practices. They also recommended that library schools review their courses and consider offering courses dedicated to authority work or discussing authority work in detail in advanced cataloging courses. Employers were encouraged to invest in continuing education activities and to allow the use of work time for further study. Muir and Furniss concluded by stating that librarians responsible for authority work need to keep themselves updated on developments in the area through additional reading and education.

To further ascertain how authority control is learned, Taylor conducted a survey of 114 people whom she identified as teaching in the area of organization of information in schools of library and information science in the United States and Canada.<sup>3</sup> Those surveyed were first asked about their views on the basic principles and components of authority control that needed to be understood by all students before receiving their MLIS degree. They were then asked if they taught authority control in any of their classes. If so, they were asked to complete twelve additional questions asking for more details about their teaching of authority control. Taylor received responses from forty-two people, with five stating that they did not teach in that area or had not done so for several years. Based on the answers of the remaining thirty-seven respondents, Taylor discussed several findings on how they viewed the teaching of authority control. She noted that authority control concepts tended to be taught in introductory courses, such as "Organization of Information" or "Cataloging" classes, although some programs touched on authority control in courses such as "Indexing and Abstracting" and "Library Automation." The methods used to teach authority control varied, with some teachers preferring to focus on the theoretical aspects of authority control, and others offering students practical, hands-on experience in creating authority records, sometimes through the use of an actual system like OCLC's Connexion. Other teachers used a combination of theory and practical application to cover authority control concepts.

Taylor concluded that a number of respondents felt very strongly that authority control should be covered in library coursework, although teachers and students may differ in their perceptions about its importance. The relative brevity of library science programs could also work against the coverage of authority control concepts. Overall, Taylor felt optimistic that authority control was being taught in library science programs either formally or informally, and that the chaotic environment of the Web presented a new opportunity to teach the concepts of authority control to a new audience.

To achieve a more complete understanding of the status of authority control in library and information science curricula, the author conducted a brief review in March 2005 of course offerings listed on the Web sites of the fifty-seven ALA-accredited library and information science programs in the United States and Canada. The review focused on whether or not courses devoted primarily to authority control were offered, and whether the phrases "authority control" and "authority work" occurred in the library and information science course descriptions. While no courses specifically devoted to authority control were identified, twenty-one of the fifty-seven Web sites reviewed used the phrase "authority control" or "authority work" in their course descriptions, primarily in "Organization of Knowledge" or "Cataloging" courses.

Although authority control may not be taught in great detail in library and information science programs, many librarians seem aware of its importance. Two recent surveys have explored librarians' views and practices regarding authority control. Wells surveyed libraries at 102 public community colleges, four-year colleges, and universities in Mississippi on their authority control practices, and found that of the sixty-three respondents, almost 80 percent performed some sort of authority control work.<sup>4</sup> Wolverton surveyed 258 institutions designated by the 2000 Carnegie Classification as doctoral/research universities at either the extensive or intensive level on their authority control practices, and found that, of the 193 respondents, 95 percent performed authority control work at some level.<sup>5</sup> Both surveys found that many of the libraries that did not perform authority work cited lack of funds or staff time or both as reasons.

One additional indicator of the importance of authority control in libraries today could be its appearance in job titles. Wolverton's authority control survey found that twenty-seven of the 193 libraries responding had a position with the title of "Authority Control Librarian" or "Authority Control Specialist." An additional nineteen libraries had job titles that contained either the word "authority" or a variation of "authority," bringing the use of the word somewhere in the job title to forty-six libraries (24 percent).<sup>6</sup> In addition, library job advertisements for positions specializing in authority work seem relatively commonplace, suggesting that authority control is very much an important part of the cataloging profession.

Given this evidence that authority control is important to many libraries, but is not emphasized in formal educational settings, how can librarians learn about it? Fortunately, a variety of resources are available that can help those who are interested in becoming an authority on authority control, including monographs, articles and papers, Web sites, and electronic discussion groups. In addition, the Library of Congress and international participants

coordinate the Program for Cooperative Cataloging (PCC), which focuses on providing authoritative bibliographic and authority records that meet mutually accepted standards of libraries worldwide. PCC has four component programs: the Name Authority Cooperative Program (NACO), the Subject Authority Cooperative Program (SACO), the Bibliographic Record Cooperative Program (BIBCO), and the Cooperative Online Serials Program (CONSER). The NACO and SACO programs offer a number of resources related to the development of authority records for names, series, uniform titles, and subjects, and provide training in the creation of authority records.

The author selected the resources discussed in the following annotated bibliography because they provide general information about authority control work and may be a starting point for those unfamiliar with authority control concepts.

### General Principles and Overviews of Authority Control

A number of monographs, articles and papers, and conference Web sites have addressed general principles and provided overviews of authority control. These include:

Auld, Larry. "Authority Control: An Eighty-Year Review." *Library Resources & Technical Services* 26, no. 4 (1982): 319–30.

As its title states, this article provides an overview of authority control literature from circa 1900 to 1982, drawn from catalog codes, cataloging handbooks and manuals, and authority file practices from institutions, including the Library of Congress, Simmons College and the University of Texas at Austin. Auld also discusses the then-emerging automation trends in authority control, most of which have since come to pass at many libraries. A recommended reading list is also provided.

Australian Committee on Cataloging. "What's in a Name? The Role of Authorities in the 21st Century." 2005. Accessed July 20, 2005, [www.nla.gov.au/lis/standards/grps/acoc/papers2005.html](http://www.nla.gov.au/lis/standards/grps/acoc/papers2005.html).

This conference was held in Sydney, Australia, January 31, 2005. Papers and PowerPoint information can be seen for presentations on the Virtual International Authority File, Australian people names, archival authorities and open network information infrastructure, Faceted Application of Subject Terminology, and authority control in AACR3.

Ayres, F. H. "Authority Control Simply Does Not Work." *Cataloging & Classification Quarterly* 32, no. 2 (2001): 49–59.

In this article, Ayres uses the retrieval tool BOPAC2 to conduct case studies for selected personal names and subjects in the Library of Congress OPAC. His results indicated that standard authority control practices did not work in retrieving all relevant bibliographic records. While acknowledging that authority control is an important concept, Ayres expresses the concern that it may work better in theory than in actual practice. He recommends several courses of possible action to improve authority control practices, including using the MARC format itself to create cross references automatically, creating cross references for variant spellings of established headings, and developing a national and international database of alternate spellings and misspellings to create cross references.

Buizza, Pino. "Bibliographic Control and Authority Control from Paris Principles to the Present." *Cataloging & Classification Quarterly* 38, no. 3/4 (2004): 117–33.

Buizza presents an overview of the development of authority control from the 1960s to the present, beginning with the 1961 International Conference on Cataloguing Principles held in Paris. He also mentions specific efforts made since then to achieve authority control, including cooperative programs such as NACO, the Anglo-American Authority File, the Guidelines for Authority and Reference Entries and its later form, Guidelines for Authority Records and References. Work done by the International Federation of Library Associations and Institutions (IFLA) related to authority control is described, including the IFLA Universal Bibliographic Control and International MARC Core Activity Working Group on Minimal Level Authority Records, which was formed to identify obstacles to the exchange of authority data. While much work remains to be done in achieving the goal of true international authority control, the efforts undertaken since the Paris Principles have brought that goal within reach.

Burger, Robert H. *Authority Work: The Creation, Use, Maintenance and Evaluation of Authority Records and Files*. Littleton, Colo.: Libraries Unlimited, 1985.

Burger's work provides an overview of the authority control process, with chapters on the definition and history of authority work, a historical perspective of the authority control process, how to create authority records and implement an authority system, the use and maintenance of authority systems, the measurement and evaluation of authority systems, and future trends in authority work.

Chan, Lois Mai. *Cataloging and Classification: An Introduction*, 2nd ed. New York: McGraw-Hill, 1994.

Chapter 5 in this book, "Name Authority Control and Forms of Headings and Uniform Titles," provides information on MARC fields used in authority headings, principles of uniform and unique headings, and the establishment of authority headings for persons, corporate bodies, and uniform titles. Chapter 6, "References," discusses the concept of "see" and "see also" references for names and uniform titles. Chapter 7, "Subject Cataloging," contains information on subject authority control, including levels of subject authority control and functions of a subject authority file.

Clack, Doris Hargrett. *Authority Control: Principles, Applications, and Instructions*. Chicago: ALA, 1990.

As its title states, this book examines authority control from a number of perspectives, with chapters on the fundamentals of authority control; automation and authority control; general principles of authority work; the MARC format for authorities; and information on establishing personal names, corporate names, uniform titles, series, and subjects. The book also provides a chapter on reference sources that can be used in establishing authority records.

Ghikas, Mary W., ed. *Authority Control: The Key to Tomorrow's Catalog*. Phoenix: Oryx, 1982.

The contents of this book contain the edited proceedings of an institute sponsored by LITA and held in Atlantic City, New Jersey, May 21–23, 1979. These papers addressed many elements of authority control, including the syndetic structure of the library catalog, authority control in networked environments, vendor perspectives on authority control, an author name authority file system, authority control in the National Library of Canada, and authority systems at the Library of Congress. Several chapters in the book include transcripts of discussions following the presentations.

Gorman, Michael. "Authority Control in the Context of Bibliographic Control in the Electronic Environment." *Cataloging & Classification Quarterly* 38, no. 3/4 (2004): 11–22.

In this article, Gorman discusses his views on the critical role that authority control plays in bibliographic control. He covers the construction of authority records and the limitations of metadata and authority control. Future directions in authority control are also discussed, including the development of an international authority file, which could lead to Universal Bibliographic Control.

Maxwell, Robert L. *Maxwell's Guide to Authority Work*. Chicago: ALA, 2002.

Maxwell's book presents a wealth of information related to authority work, with chapters on standards governing authority control, basic authority control procedures, and information on authority work needed for names, uniform

titles, series, and subjects. He also discusses the concepts of thesaurus building and use of genre and form terms. Finally, Maxwell provides information on the PCC, NACO, SACO, BIBCO, and CONSER programs.

NELINET Cataloging and Technical Services Advisory Committee. "Authority Control: Why It Matters." 1999. Accessed July 20, 2005, [www.nelinet.net/edserv/conf/cataloging/cts/1999/cts99.htm](http://www.nelinet.net/edserv/conf/cataloging/cts/1999/cts99.htm).

This conference was held in Worcester, Massachusetts, on November 1, 1999. Several papers and summaries are available for review, with such topics as the definition and importance of authority control, its history and possible future, form and genre authority control, vended authority control, and the use of the Cooperative Online Resource Catalog in authority control work.

OCLC Online Computer Center. "Authority Control in the 21st Century: An Invitational Conference, March 31–April 1, 1996, Proceedings." 1996. Accessed July 20, 2005, <http://digitalarchive.oclc.org/da/ViewObject.jsp?objid=0000003520&reqid=354>.

This conference was held in Dublin, Ohio, March 31–April 1, 1996. The "Proceedings" link leads to eighteen papers presented at the conference by experts in the field. The papers cover an array of topics related to authority control, including its role in the digital library environment, geographic name changes, ethical issues, development of a music thesaurus, and internationalization efforts in authority control.

Talmacs, Kerrie. "Authority Control." In *Technical Services Today and Tomorrow*, 2nd ed. Ed. Michael Gorman, 129–39. Englewood, Colo: Libraries Unlimited, 1998.

This section of the book discusses authority control, including its importance, authority work in online catalogs, international projects related to authority control, use of references in online catalogs, proposals for changes in cataloging rules, authority control for retrospective conversions and maintenance, and future directions for the field. Notes and further readings are provided at the end of the section.

Taylor, Arlene G. "Authority Control." In *Wynar's Introduction to Cataloging and Classification*, 429–41. 9th ed. rev. Westport, Conn.: Libraries Unlimited, 2004.

This chapter provides an overview of the authority control process, beginning with a discussion of its identifying and collocating functions. Taylor discusses how a lack of authority control can affect retrieval results and describes authority work needed for names, uniform titles, series, and subjects. The chapter covers the advantages and disadvan-

tages of using the library catalog itself as an authority file and the maintenance of authority systems. Notes and a list of suggested readings on authority control are provided at the end of the chapter.

———. “Metadata: Access and Authority Control.” In her *The Organization of Information*, 2nd ed., 201–39. Westport, Conn.: Libraries Unlimited, 2004.

This chapter describes the importance of access points in bibliographic records and includes a section on authority control. Taylor makes a distinction between the terms “access control” and “authority control,” stating that in a global environment, access control records should contain all the variant forms for an entity without a single “right” form. However, one variant can be assigned as a default heading if desired, and the concept of authority control enters into the selection of that heading. Taylor describes the principles for selecting headings for personal names, corporate names, and uniform titles, and provides examples of actual authority and metadata records. The chapter concludes by discussing activities related to international authority control. Notes and suggested readings are provided at the end of the chapter.

———. “Authority Control: Where It’s Been and Where It’s Going.” Paper presented at “Authority Control: Why It Matters,” conference held at College of the Holy Cross, Worcester, Mass., sponsored by the NELINET Cataloging and Technical Services Advisory Committee, Nov. 1, 1999. Accessed July 20, 2005, [www.nelinet.net/edserv/conf/cataloging/cts/1999/taylor.htm](http://www.nelinet.net/edserv/conf/cataloging/cts/1999/taylor.htm).

Taylor provides her perspectives on the development of authority control, beginning with her experiences as a descriptive cataloger at the Library of Congress in the mid-1960s. She discusses research questions related to authority control that were examined in the 1980s and 1990s, including the impact of new technologies on authority control work, the administrative cost of authority control, and the concept of subject authority control. Future trends, including the concept of international access control, subject access to internet materials, and authority control of names on the internet, are addressed.

Taylor, Arlene G., and Barbara B. Tillett, ed. *Authority Control in Organizing and Accessing Information: Definition and International Experience*. Binghamton, N.Y.: Haworth, 2004. Copublished simultaneously as *Cataloging & Classification Quarterly* 38, no. 3/4 (2004) and 39, no. 1/2 (2004).

This work is a compilation of papers presented at the international conference, Authority Control: Definition and International Experiences, held in Florence, Italy, February 10–12, 2003. It is organized by themes related

to authority control, including “state of the art and new theoretical perspectives,” “standards, exchange formats, metadata,” “authority control for names and works,” “authority control for subjects,” and “authority control experiences and projects.” The collection provides the reader with current insights into how authority control is viewed both theoretically and operationally from an international perspective.

Tillett, Barbara B. “Authority Control: State of the Art and New Perspectives.” *Cataloging & Classification Quarterly* 38, no. 3/4 (2004): 23–41.

Tillett offers a wide-ranging discussion of authority control in this article, touching on its implied need in the writings of Charles Ammi Cutter and Seymour Lubetzky to its practice in the present day and beyond. She specifically compares the current state of authority control to the views expressed by the 1979 Library Information and Technology Association (LITA) institutes and the 1984 Authority Control Interest Group. While the earlier hopes for an ideal authority control system have not been completely fulfilled, Tillett provides evidence that great strides in authority control are still taking place today. This is shown particularly in the efforts to internationalize authority control. Tillett describes specific projects that are currently underway in this area, such as the development of the Virtual International Authority File.

———. “Authority Control on the Web.” Discussion paper presented at the *Bicentennial Conference on Bibliographic Control for the New Millennium*, held at the Library of Congress, Washington, D.C., November 15–17, 2000. Accessed July 20, 2005, [www.loc.gov/catdir/bibcontrol/tillett\\_paper.html](http://www.loc.gov/catdir/bibcontrol/tillett_paper.html).

This paper offers a discussion of how information on the Web can be enhanced through authority control work done by libraries. Tillett describes how the retrieval of information on the Web can be greatly improved through the precision and recall qualities of authority control. She offers a discussion of international efforts related to authority control, including the proposal of a virtual international authority file put forth by IFLA. New technologies related to authority control are also discussed, including the use of crosswalks, multiple scripts, and options for users to switch computer displays for bibliographic records or entries. The concept of an International Standard Authority Data Number is presented as a possible method to help link international authority files, and scenarios are used to illustrate how international authority control might work in practice. Tillett concludes by discussing the need for authority work related to subjects on the Web and commenting on the usefulness of cooperative projects in lowering the cost of authority control.

Tillett, Barbara B., ed. *Authority Control in the Online Environment: Considerations and Practices*. New York: Haworth, 1989. Copublished simultaneously as *Cataloging & Classification Quarterly* 9, no. 3 (1989).

This book provides a theoretical and practical view of authority control from a variety of perspectives. Individual chapters define and describe authority control work, how it operates in an international context, research and theories related to authority control, and how authority control functions are handled by selected online systems. In addition, the results of institutional authority control studies are discussed, focusing on personal names and uniform titles in music.

Tucker, Ruth, ed. *Authority Control in Music Libraries: Proceedings of the Music Library Association Preconference, March 5, 1985*. Canton, Mass.: Music Library Association, 1989.

This book may be of particular interest to librarians working with music collections. The information in this publication was collected from the proceedings of a music library preconference, and provides an overview of authority control concepts, a public service view of music authority control, and information about the creation of authority records for music materials.

Vellucci, Sherry L. "Metadata and Authority Control." *Library Resources & Technical Services* 44, no. 1 (2000): 33–43.

Vellucci's article offers an in-depth discussion of the emerging relationships between metadata and authority control. She notes that while authority control has functioned well in the MARC environment over the years, questions exist regarding its functionality in newer and potentially more complex metadata schemes. Vellucci provides an overview of authority control functions and the four factors related to its success, which include a controlled operating environment, a trained provider, application of standards, and reference to authoritative lists. These factors are then compared to several existing metadata schemes to determine their chances for success in those new environments. Vellucci concludes that while some authority control appears achievable in metadata schemes, catalogers must expand their concepts of authority control and see beyond Anglo-American Cataloguing Rules (AACR) and the MARC record.

Younger, Jennifer A. "After Cutter: Authority Control in the Twenty-first Century." *Library Resources & Technical Services* 39, no. 2 (1995): 133–41.

Younger's article examines the use and value of authority control and suggests that the concept of "utility" be considered as part of its value system. Beginning with

the objectives of the library catalog espoused by Charles Cutter, Younger discusses the goals of effective information retrieval and how authority control systems have affected those goals. While some have argued that authority control is not needed in the era of online searching with its options for using truncation and keywords, Younger suggests that it still can play an important role in information retrieval, particularly with regard to personal name selection. The concept of utility in authority control is seen by Younger as a complement to Cutter's concept of comprehensiveness, where the usefulness of the information retrieved is highly valued by library users.

## Web Sites

### Noncommercial

A number of noncommercial Web Sites have been developed in recent years that provide detailed information on various facets of authority control. These include:

Brigham Young University. Web World of Authority Control. Accessed July 20, 2005, [www.lib.byu.edu/%7Ecatalog/catalogwebsite/authority](http://www.lib.byu.edu/%7Ecatalog/catalogwebsite/authority).

Created and maintained by Shannon L Hoffman, Deborah Hatch, and Kevin Reed Rieske, this site is a bibliography listing of authority control resources including tools, thesauri and dictionaries, Library of Congress Web pages, articles and workshops, and Web sites with authority control policies and procedures.

Library of Congress. Library of Congress Authorities. April 26, 2005. Accessed July 20, 2005, <http://authorities.loc.gov>.

This site can be used to search for authority headings for names, titles, name and title combinations, series, and subjects. Retrieved information shows the type of heading and indicates if it is an authorized heading or a reference to another heading. Links are provided to the full authority record and can be viewed as a MARC display or labeled display. The site also contains search tips and help pages. Authority records are updated every night, Monday through Saturday.

Library of Congress, Network Development and MARC Standards Office. *MARC 21 Concise Format for Authority Data*, 2004 concise ed. Accessed July 20, 2005, [www.loc.gov/marc/authority/ecadhome.html](http://www.loc.gov/marc/authority/ecadhome.html).

This Web site offers extensive information related to MARC fields used in authority records. Each individual field is discussed in detail, along with examples. In addition, full authority record examples are provided. The information on the site is updated once a year, and red highlights

are used to indicate changes from the previous published edition. Site information is also available in print format.

Library of Congress, Network Development and MARC Standards Office. *Understanding MARC Authority Records: Machine-Readable Cataloging*. 2004. Accessed July 20, 2005, [www.loc.gov/marc/uma/index.html](http://www.loc.gov/marc/uma/index.html).

This site provides detailed information on MARC authority records, including their content and structural components. The first part of the site addresses basic information about MARC authority records, including what they are and why they are important. The remainder of the site provides more detailed information about MARC authority records, including definitions and examples of their tags. Sample authority records are also provided, along with a selected bibliography and list of Library of Congress Cataloging Distribution Service publications. A short quiz on MARC 21 Content Designators is offered at the end of the site.

OCLC Online Computer Center. *OCLC Authorities User Guide*. 2005. Accessed July 20, 2005, [www.oclc.org/support/documentation/worldcat/authorities/userguide](http://www.oclc.org/support/documentation/worldcat/authorities/userguide).

This guide provides detailed information on locating, exporting, saving, modifying, and creating authority records in the OCLC Authority File. While not developed to provide instructions on the basics of authority work, it still offers in-depth information about authority control work done with the use of such OCLC cataloging tools as Connexion. The guide provides examples of authority records, definitions of their fixed and variable fields, and a glossary of cataloging and authority control terms.

Subcommittee on Authority Tools of the OnLine Audiovisual Catalogers (OLAC) Cataloging Policy Committee. *Authority Tools for Audiovisual and Music Catalogers: An Annotated List of Useful Resources*. Jan. 6, 2005. Accessed July 20, 2005, <http://ublib.buffalo.edu/libraries/units/cts/olac/capc/authtools.html>.

This site, available since 2001 and edited by Robert Bratton, has been regularly updated and expanded. It brings together dozens of information sources that can be helpful in creating authorized headings for use in audiovisual and music catalog records. Both print and electronic resources are described, with practitioners providing annotations or short reviews of how each resource is useful in authority work.

University at Buffalo. Authority Control. Accessed July 20, 2005, <http://ublib.buffalo.edu/libraries/units/cts/ac>.

This site contains a large amount of information related

to authority control, including an authority control bibliography and a basic glossary of terms. It also contains links to other Web sites, including the Canadian Geographical Names site, NACO, OCLC resources, and the Library of Congress Subject Headings Weekly Lists.

University of Southern Mississippi. MARC Authority Tutorial. 2004. Accessed July 20, 2005, [www.lib.usm.edu/%7Etechserv/pdc/auth\\_tutorial](http://www.lib.usm.edu/%7Etechserv/pdc/auth_tutorial).

This interactive Web site, created by Kathleen Wells and Nashaat Sayed at the University of Southern Mississippi (USM), is designed to offer a way to study and practice creating authority records. The site includes four lessons: "What Does MARC Mean?" "MARC Terms," "What is a MARC Authority Record?" and "Rules and Structures." Each lesson consists of multiple learning units and quizzes. A glossary of terms related to authority control is also provided. The tutorial title screen provides links to related Web sites, including the MARC Standards site, the Tag of the Month site from Follett Software, the Follett Neighborhood site, and the USM Libraries' Bibliographic Services Home Page.

### Commercial Resources

Over the years, a number of commercial vendors have offered authority control services for libraries, and some of their Web sites provide detailed information about those services. These include:

Backstage Library Works. Accessed July 20, 2005, [www.bslw.com/authority\\_control.html](http://www.bslw.com/authority_control.html).

This company was formed in 2003 from the MARC Link and Access Imagery service companies. In 2004, they acquired the MARS authority control service from OCLC. Their Web site offers an overview of their authority control services as well as a planning guide with more detailed information, including profiles of specific authority reports and services.

Library Technologies, Inc. (LTI). Accessed July 20, 2005, [www.librarytech.com/ACTOC.html](http://www.librarytech.com/ACTOC.html).

LTI offers authority control services for Library of Congress (LC) name and subject headings, as well as LC Children's, Sears, and National Library of Medicine subject headings, and selected genre subject headings. The LTI Web site includes detailed information about their authority control services, including a discussion of what constitutes authority control, steps in authority control, and details of their authority processing services. Pricing information can also be reviewed, as can a searchable list of LTI clients.

MARCIVE, Inc. Accessed July 20, 2005, [www.marcive.com/HOMEPAGE/web1.htm](http://www.marcive.com/HOMEPAGE/web1.htm).

MARCIVE was incorporated in 1981 and offers a variety of authority processing services, including options for a monthly notification service for new authority records, an overnight authority service, and a “Demand! Authorities” service for MARCIVE cataloging customers. Their Web site has a link to an “Authorities Processing” site, which in turn links to a PDF with detailed information on their authority processing services, including authority work done for libraries using LC, Sears, and National Library of Medicine Medical subject headings. The MARCIVE Web site also offers an example of an authorities processing profile and a request for proposal to obtain automated authorities processing.

### **Expert Views of Authority Control: NACO and SACO**

Perhaps the best way to become an authority on authority control is to receive specialized training and supervision in the creation of authority records. To create and contribute authority records for names, uniform titles, and series, an institution must first join NACO, which is PCC’s name authority component. Only institutional membership is possible in NACO, and an application form to join must be submitted to PCC. Following approval, a NACO representative leads participants through five days of training, typically at their home institution. While there is no cost to join NACO, institutions are expected to pay the travel, food and lodging expenses of the trainer. Following training, a NACO representative reviews the authority records created by the institution, and decides when the institution can be granted independence in creating name authority records. After being given independent status, institutions are free to create name authority records and submit them to the LC/NACO Authority File (LC/NAF).

The NACO Web site contains a wealth of information about the program, including FAQs, a list of NACO members and trainers, and instructions on how individual institutions can join the program. Information is also provided on how to start or join a NACO Funnel Project, which is a group of libraries that join together to contribute name authority records to the LC/NAF. Links are also provided on documentation, tools, and rules relating to the creation of name authority records. Additional information about the program can be reviewed at the NACO Web site: [www.loc.gov/catdir/pcc/naco/naco.html](http://www.loc.gov/catdir/pcc/naco/naco.html) (accessed July 20, 2005).

Initial NACO training does not include developing authority records for series. Training for creating Series Authority Records (SARs) can occur only after an institution has achieved independence in creating authority records for both personal and corporate names. PCC periodically offers a three-day series institute for NACO libraries at the Library

of Congress. Additional information for the series institutes can be seen at [www.loc.gov/catdir/pcc/naco/series/seriesinfo.html](http://www.loc.gov/catdir/pcc/naco/series/seriesinfo.html) (accessed July 20, 2005).

The process of creating authority records for subjects differs somewhat from that of names. SACO, PCC’s subject authority component, coordinates the process of developing authority records for subject headings and classification numbers, and allows PCC-member institutions to submit proposals for new subject headings and classification numbers and changes to existing headings and classification numbers. The proposals are reviewed by Library of Congress staff and, if approved, become part of the Library of Congress Subject Headings (LCSH) or Library of Congress Classification (LCC) schedules. While any institution that participates in one of the PCC component programs is automatically considered to be a SACO member, those not affiliated with the PCC can become a SACO-only member by submitting a SACO membership application and agreeing to contribute ten to twelve proposals per year. The proposals can include any combination of new or changed LCSH headings, new or changed LC Classification numbers, or both.

The SACO Web site includes a list of SACO mentors, FAQs, information on how to join SACO, and how training is conducted. The site contains a link to the *SACO Participants’ Manual* (described later in this section), which provides detailed information on the program and how to create and submit proposals for new LCSH. The site also contains a link to the LCSH Web form that can be used to submit subject heading proposals and changes. The “Proposal Status” section of the site provides links to tentative (unapproved) weekly lists of subject headings as well as the approved weekly lists of subject headings and classification numbers. A link is also provided to information about the SACO electronic discussion list. Additional information can be reviewed at the SACO Web site [www.loc.gov/catdir/pcc/saco/saco.html](http://www.loc.gov/catdir/pcc/saco/saco.html) (accessed July 20, 2005).

SACO has no formal training requirements for participation, but institutions making proposals are expected to be familiar with LC policies and practices related to subject heading assignment. SACO training is generally offered by PCC at library-related conferences, such as the American Library Association Midwinter Meeting and Annual Conference. Subject cataloging workshops are also offered periodically by PCC in conjunction with the Association for Library Collections & Technical Services (ALCTS). Additional information about SACO training can be seen at the SACO Workshops Web site, [www.loc.gov/catdir/pcc/saco/sacowkshops.html](http://www.loc.gov/catdir/pcc/saco/sacowkshops.html) (accessed July 20, 2005).

In addition to the NACO and SACO Web sites, the following resources provide additional information about the programs:

Byrum, John. "NACO: A Cooperative Model for Building and Maintaining a Shared Authority Database." *Cataloging & Classification Quarterly* 38, no. 3/4 (2004): 237–49.

Byrum traces the development of the NACO program and presents a case for why institutions might want to consider joining NACO. He discusses the requirements for NACO membership and NACO funnel projects. The NACO model emerges as one that successfully demonstrates how a cooperative approach among institutions can lead to stronger authority control on an international scale.

Cristán, Ana L. "SACO and Subject Gateways." *Cataloging & Classification Quarterly* 39, no. 1/2 (2004): 309–22.

This article focuses on the SACO program and its connection to subject gateways. Cristán describes the work of SACO and offers several definitions and examples of subject gateways. SACO is described as a gateway that can be used by catalogers and institutions worldwide to submit new and revised subject headings to LCSH. Cristán describes the history of SACO and the participation of institutions worldwide in contributing subject headings through the program. Work has also been done to train catalogers to translate LCSH into other languages and to contribute vernacular subject headings through SACO. A virtual international authority file is discussed as a way to help develop the capability for multi-lingual searching of subjects in the future.

Kuhagen, Judith A. "Standards for Name and Series Authority Records." *Cataloging & Classification Quarterly* 21, no. 3/4 (1996): 131–54.

Kuhagen's article provides an in-depth look at the historical development of Name Authority Records and Series Authority Records. While the creation of authority records for names and series initially began with the Library of Congress, other libraries have since been trained to create and submit authority records through the NACO program. In addition to tracing the historical development of authority records for names and series, Kuhagen describes the specific components of these records, as well as the cataloging rules and rule interpretations pertaining to them.

*NACO Participants' Manual*, 3rd ed. Washington, D.C.: Library of Congress, Cataloging Distribution Service, 2005. Accessed August 24, 2005, [www.loc.gov/catdir/pcc/naco/npm3rd.pdf](http://www.loc.gov/catdir/pcc/naco/npm3rd.pdf).

This manual was developed as a resource for NACO training and provides in-depth information on how to create new authority records for names, with a detailed examina-

tion of the MARC fields used in the process. It also covers how to make additions and changes to existing name authority records. Numerous examples are provided throughout the manual to illustrate the key components of name authority records. General information is also provided on how to join the NACO program.

### Electronic Discussion Groups and Other Interactive Sources of Information

Electronic discussion groups have emerged in recent years as a valuable information resource for librarians. The following may be of interest to those interested in authority control:

AUTOCAT. Accessed July 20, 2005, <http://ublib.buffalo.edu/libraries/units/cts/autocat>.

AUTOCAT began operation in 1990, becoming available on the Web in 1997. It is a semi-moderated international discussion list for issues related to library cataloging and authority control. Subscribers consist of recognized cataloging experts as well as those new to the field. AUTOCAT maintains a searchable archive of all messages posted to the list.

LITA/ALCTS. Authority Control in the Online Environment Interest Group. Accessed July 20, 2005, [www.ala.org/ala/lita/litamembership/litaigs/authority-alcts/authoritycontrol.htm](http://www.ala.org/ala/lita/litamembership/litaigs/authority-alcts/authoritycontrol.htm).

This group was established in 1985 and provides a forum to discuss issues related to authority control for online catalogs and for international sharing of authority control data.

OCLC Online Computer Library Center. ACS. Accessed July 20, 2005, <https://www3.oclc.org/app/listserv>.

ACS is set up through OCLC and offers announcements, support information, and discussions about authority control.

Program for Cooperative Cataloging. PCCList. Accessed Oct. 27, 2005, [www.loc.gov/catdir/pcc/pcclist.html](http://www.loc.gov/catdir/pcc/pcclist.html).

PCCList was originally developed for PCC participants and is used as a forum to discuss cataloging and authority control issues and to disseminate information from the PCC to its members.

Program for Cooperative Cataloging. SACOList. Accessed July 20, 2005, [www.loc.gov/catdir/pcc/saco/sacolist.html](http://www.loc.gov/catdir/pcc/saco/sacolist.html).

This list is open to all who are interested and was originally established to facilitate communication

among SACO contributors. The Summaries of the Weekly Subject Editorial Review Committee are posted weekly so subscribers can see which subject headings have been approved for use.

### Future Trends

While the resources discussed in this bibliography span a number of years, several trends that relate to authority control consistently emerge, and these trends will likely continue into the future. First, interest in authority control and its value to the library catalog has existed for many years and continues to grow today. Many of the resources in this bibliography looked back at the nineteenth-century writings of Charles Cutter and noted that his views on the importance of the finding and gathering functions of the library catalog strongly influenced the development of modern-day authority control concepts. Later events, such as the formulation of the 1961 Paris Principles and the development of the Functional Requirements for Bibliographic Records and Functional Requirements for Authority Records, have continued to show the value placed on authority control of information in library catalogs. In addition, a number of monographs, articles and papers, Web sites, conferences and electronic discussion groups devoted to authority control have emerged in recent years, demonstrating that interest in the topic remains high.

A second trend related to authority control is the dramatic evolution of technology. Many discussions about authority control from earlier decades pointed out that the then-developing automation systems would play a major role in making authority control a reality for many institutions. Years later, those predictions largely have come true, with the Web, OPACs, authority control databases, and global changes to bibliographic records reflecting new developments in technology. Commercial vendors have developed automated authority control systems, and developments in technology such as the Z39.50 protocol have enabled many libraries to obtain authority records for their own databases. Advances in technology have also assisted many institutions in creating authority control records and submitting them electronically through programs such as NACO and SACO, and into databases where they can be shared on an international scale.

A third trend that has continued to emerge is that of internationalizing authority control. While individual countries have long pursued the development of authority control records, more and more attention has been focusing on how a true international system of authority control could be established. Organizations such as IFLA and programs such as Project AUTHOR have examined ways to interna-

tionalize authority control, and projects such as the Virtual International Authority File have explored ways to link authority records in different countries' national authority files to one another.<sup>7</sup> The international interest in authority control was clearly seen at the 2003 authority control conference "Authority Control: Definition and International Experiences" held in Italy, where experts from a number of different countries came together to explore ways that authority control could be achieved on a global scale.

A final trend is the more formal integration of authority control concepts and practices into training resources available to catalogers. As previously mentioned, many monographs, articles and papers, electronic discussion groups, Web sites, and conferences related to authority control have emerged in recent years, offering those interested a way to study authority control from both a theoretical and practical viewpoint. In addition, programs like NACO and SACO offer formal training in creating authority records for names, series, and subjects. The trend toward more formal integration of authority control into training resources may also be seen in the near future with authority control concepts expected to be an integral part of the Resource Description and Access (RDA) rules that are planned to replace AACR. While previous AACR versions have provided guidance to catalogers in certain aspects of authority control, such as selecting access points, developing headings, and providing references, some have proposed that future rules provide a definition of authority control and offer specific instructions on providing authority control for headings in catalogs. If this information becomes part of RDA, catalogers and those learning cataloging will have a comprehensive resource for cataloging rules and the authority control concepts underlying those rules.

While this annotated bibliography has drawn upon a modest portion of the authority control information currently available, the author hopes it will be sufficient to introduce librarians to basic concepts and practices, and encourage further learning. Authority control will remain an integral part of cataloging for years to come; becoming an authority on authority control is a goal that can be achieved by any interested librarian.

### References

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2. Rebecca Mugridge and Kevin Furniss, "Education for Authority Control: Whose Responsibility is It?" *Cataloging & Classification Quarterly* 34, no. 1/2 (2002): 233-43.
3. Arlene G. Taylor, "Teaching Authority Control," *Cataloging & Classification Quarterly* 38, no. 3/4 (2004): 43-57.
4. Kathleen L. Wells, "Authority Control in Mississippi Public and Academic Libraries: A Survey," *Technical Services Quarterly* 18, no. 2 (2000): 1-14.

5. Robert E. Wolverton, "Authority Control in Academic Libraries in the United States: A Survey," *Cataloging & Classification Quarterly* 41, no. 1 (2005): 111–31.
6. *Ibid.*
7. CoBRA+: Computerised Bibliographic Record Actions, "AUTHOR: Feasibility into the Networking of National Name Authority Files: Factsheet." Accessed Aug. 12, 2005, [www.kb.nl/gabriel/projects/pages/cobra/author.html](http://www.kb.nl/gabriel/projects/pages/cobra/author.html).

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# Evidence of Application of the DCRB Core Standard in WorldCat and RLIN

M. Winslow Lundy

*The Core Standard for Rare Books, known as the DCRB Core standard, was approved by the Program for Cooperative Cataloging for use beginning in January 1999. Comparable to the core standards for other types of materials, the DCRB Core standard provides requirements for an intermediate level of bibliographic description for the cataloging of rare books. While the Core Standard for Books seems to have found a place in general cataloging practice, the DCRB Core standard appears to have met with resistance among rare book cataloging practitioners. This study investigates the extent to which such resistance exists by examining all of the DCRB Core records in the OCLC Online Union Catalog (WorldCat) and the Research Libraries Group Union Catalog (RLIN) databases that were created during the standard's first five years. The study analyzes the content of the records for adherence to the standard and investigates the ways in which the flexibility of the standard and cataloger's judgment augmented many records with more than the mandatory elements of description and access.*

In 1994, the Program for Cooperative Cataloging (PCC) adopted the Core Record Standard for Books (Books Core) that had been defined by its predecessor group, the Cooperative Cataloging Council. Since that time, core record standards have been developed for most formats of materials. The impetus for the creation of the core bibliographic standard was finding a cost-effective means to streamline cataloging at the national level through the Bibliographic Record Cooperative Program (BIBCO), "the monographic bibliographic record component" of the PCC, with an intermediate level of bibliographic description.<sup>1</sup> The core standards require a minimum set of elements in the bibliographic record below which the description cannot go, placing it between full level and minimal level. Retaining the same reliability of description and authorized headings as full-level cataloging, the core standards permit the omission of all but a few mandatory note fields and allow the use of fewer subject headings and added entries. The core standards encourage flexibility and cataloger's judgment in decisions about inclusion of subject headings and added entries in an individual bibliographic record rather than requiring a specified number of each.<sup>2</sup>

Several years after the Books Core was implemented in 1994, members of the rare book cataloging community began discussing the need for a core standard for rare books. The standard would be based on *Descriptive Cataloging of Rare Books* (DCRB), the specialized cataloging rules used primarily for printed materials issued in the years 1500–1800.<sup>3</sup> The final report of the DCRB Core Task Group, which led to the PCC's January 1999 approval of the Core Standard for Rare Books (DCRB Core), gave a threefold rationale for the proposal of the

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standard: to provide an alternative to the minimal-level standards defined for rare books in DCRB's appendix D, to create another cataloging option for libraries to address their large backlogs of rare books, and to increase the number of dependable cataloging records in the national databases for use by copy catalogers.<sup>4</sup>

## Degree of Acceptance of the Core Standards

### Evidence in the Literature

The cost-effective purpose of the core standards is to produce "faster, better, cheaper" general cataloging.<sup>5</sup> Most catalogers pride themselves on creating high-quality bibliographic records, but they often equate such records with full-level cataloging, which is frequently time-consuming to produce. The problem of growing backlogs in libraries and the recognition that cooperative cataloging was a key element in creating timely bibliographic records led to the adoption of the core standards as one possible solution. The core standards seek to keep the level of cataloging high by requiring descriptive elements that correctly identify the materials, giving sufficient access with headings that are reliable because they are all under authority control, and encouraging the cataloger's judgment in deciding when to apply the standards and in including more fields than are required. For the core record to be successful, BIBCO participating libraries and their catalogers would need to accept the core standards.

Shortly after the Books Core standard was approved, and as articles began to appear explaining and encouraging the use of the core record as part of the national cooperative effort of the BIBCO program, several authors addressed some of the concerns of catalogers about less-than-full cataloging. In 1994, Cromwell discussed the genesis of the core standard in a task group of the Cooperative Cataloging Council. In addition, she noted that a yearlong test of a similar standard at Stanford University resulted in variable success. She cautioned that success of the core standard would depend largely on the care with which the standard was introduced, encouraging an appreciation among catalogers of the goals of core-level cataloging and instilling in catalogers a confidence in the use of judgment and in the flexibility of the standard.<sup>6</sup> Schuitema addressed catalogers' wariness that library managers would see the core record as so efficient that it would eclipse full-level cataloging. She noted that the core record was a new option but was not intended to replace full- or minimal-level cataloging.<sup>7</sup> Swanekamp similarly noted that the PCC, in placing value in the process of cataloging, "seeks to authorize catalog librarians to choose from a portfolio of cataloging levels, the one most appropriate for the item in hand (full, minimal, core, collection level, DCRB, etc.)."<sup>8</sup>

As catalogers began to use the Books Core standard, libraries evaluated the extent to which they would use the new standard in their contributions to the BIBCO program. Several libraries reported their decisions to designate the core record as the default for original general cataloging: Columbia University, Cornell University, and Indiana University.<sup>9</sup> Leaving the decision for selecting the level of cataloging to their catalogers, however, none of them contribute all of their BIBCO records at the core level. Following a 1996 experiment investigating the use of the core record, the Library of Congress (LC) decided in May 1997 to adopt core-level cataloging and implemented the standard in some of its cataloging in November 1998.<sup>10</sup> By 2001, when the majority of BIBCO participants continued to contribute primarily full-level records, Banush designed a study to interview catalogers and cataloging managers to discover their opinions of the quality of the core-level record. He found that cataloging managers were more satisfied with the core-level record than catalogers, but that overall the respondents expressed less dissatisfaction with the standard than the BIBCO statistical reports indicated. He discovered that "an interesting dichotomy exists between the use of core in copy cataloging and in original cataloging. While most catalogers and managers are happy to find and use core records, far fewer are interested in creating them."<sup>11</sup>

### Numerical Evidence

Among the BIBCO statistical cataloging reports issued through the years, evidence has continued to indicate that, even though the total numbers of core records may have fallen short of expectations, a number of BIBCO libraries have embraced the application of the core standards. The PCC annual report for fiscal year (FY) 2001 stated that, during the life of the BIBCO program, 286,773 bibliographic records had been created, and of those 87,558 (30.5 percent) were created at the core level.<sup>12</sup> Close to the end of the PCC's FY2004, almost one-third of all the year's BIBCO records were created at the core level. As of August 11, 2004, of the total 61,301 bibliographic records, 19,537 were created at the core level.<sup>13</sup> The PCC 2004 annual report noted a total of 71,661 BIBCO records but did not distinguish between core- and full-level contributions.<sup>14</sup> The cumulated statistics for the first six months of FY2005 reported that 11,055, or 32.1 percent, of the total 34,403 records were created at the core level.<sup>15</sup> The individual library statistics for the first half of FY2005 indicated that 33 of the 46 BIBCO libraries (71.7 percent) had created some core records, that 9 of those libraries had created more core-level records than full-level records, and that 3 had created all of their BIBCO contributions at the core level.<sup>16</sup> These statistical reports from LC clearly indicate

that the core-level bibliographic record has found a place in the cataloging routines of many of the libraries that participate in the BIBCO program.

#### DCRB Core Standard in the Literature

While the BIBCO general cataloging community seems to have accepted and used the Books Core and other core standards, as evidenced by the number of core records created over the lifetime of the Books Core's existence, rare book catalogers have not expressed enthusiastic or widespread acceptance of the DCRB Core standard. With the exception of discussions that occurred in committee meetings or on e-mail lists during the drafting of the DCRB Core standard, little can be found in the literature addressing the use or adoption of the standard. In Russell's discussion of the DCRB Core standard in her historical survey of the standards for rare book cataloging, she gave an assessment that use of the standard would fulfill the need for accurate description and access points with "minimum standards of completeness," as recognized earlier by Davis and by Flannery.<sup>17</sup> In her 2003 white paper, "Hidden Collections, Scholarly Barriers," Jones assessed the serious situation of backlogs in special collections. Although she did not discuss them in detail, she mentioned the three levels of cataloging that exist for printed materials.<sup>18</sup> She recommended that libraries "consider various levels of cataloging and processing for all types of special collections materials, depending on institutional priorities and use of materials—but still following standards and practices."<sup>19</sup> In a recent study, Lundy reported the results of a 2002 survey sent to catalogers or special collections administrators who either use the DCRB Core standard or have made a decision not to use the standard.<sup>20</sup> In addition to determining the reasons why libraries do or do not use the DCRB Core standard, one of the findings of the survey was that only 6 of the 37 respondents reported they had used the DCRB Core standard to catalog some of their rare books.<sup>21</sup> Two other libraries informally indicated that they had used the DCRB Core standard, although they did not respond to the survey itself.<sup>22</sup> Most of the survey respondents who had used the standard estimated that they had contributed small numbers of DCRB Core records to the OCLC Online Union Catalog (WorldCat) or the Research Libraries Group Union Catalog (RLIN) databases.

The possibility of future use of the standard led to further research on the existence of DCRB core-level records in the bibliographic utilities. The current study investigates the actual use of the DCRB Core standard to determine whether other libraries missed by the 2002 survey have used the standard, analyzes the content of the DCRB core-level records, and investigates how oth-

ers may have subsequently used those records in their own cataloging.

#### Definition of the DCRB Core Standard

The DCRB Core standard shares many elements with the Books Core, which follows the descriptive conventions of the *Anglo-American Cataloguing Rules*, 2nd edition (AACR2).<sup>23</sup> Some of the differences arise with the application of the provisions of DCRB:

One of the basic overarching differences between AACR2 and DCRB is the method and extent to which bibliographic details (fields 245–4XX) are recorded. As to method, bibliographic details should be recorded as correctly as possible, according to the style expected for the field. As to extent, DCRB provides some options for abbreviating descriptive fields, and creators of core records for rare books are encouraged to invoke these options wherever pertinent.<sup>24</sup>

The content of the DCRB Core standard essentially has not changed since the PCC's approval in January 1999, but the presentation of the standard has. As approved in 1999, the DCRB Core standard existed as a separate document supplementary to the Books Core document.<sup>25</sup> In 2002, the PCC Standing Committee on Standards reviewed the core standards for all formats and brought them into harmony of presentation and language. The resulting documentation presents each core standard in a separate chart designating which Machine-Readable Cataloging (MARC) elements and fields in the bibliographic record are mandatory or mandatory if applicable, with footnotes leading to explanations and differences in application for each MARC field. In addition, all the core standards are presented in a combined chart followed by the footnotes arranged by MARC field.<sup>26</sup> In the combined chart, core standards for books and rare books appear in adjacent columns. Based on the BIBCO charts, the appendix presents the elements in the DCRB Core standard, including the elements it shares with the Books Core.

Even though one of the strengths of the Books Core standard is that it mandates a call number from a standard classification scheme, the DCRB Core standard does not require a call number. Many rare book collections are not classified, but rather arranged by collection, accession number, or locally devised call number. The DCRB Core standard encourages the addition of standard classification numbers if the cataloging library uses them.<sup>27</sup>

The note area is one of the areas in which the cataloging record can be shortened, as "only those notes that support identification of the item need be included. . . . Notes are

not required to justify added entries.”<sup>28</sup> In addition to the four mandatory-if-applicable notes in the Books Core (501, 502, 505, and 533 fields), the DCRB Core requires two other notes, if applicable. A 500 field is required if the data on the title page has been transposed in the transcription of that data in the title statement (245 field). The requirement of the citation/reference note (510 field), if applicable, for the five reference sources required by DCRB rule 7C14 provides a method of eliminating lengthy description that otherwise would be needed to identify accurately the edition in hand. If the cataloger cites other references in the 510 field, the citations should be to the fullest resources to aid in identification of the item and to eliminate the use of many citation fields.<sup>29</sup> The frequently used 504 field (bibliography, etc. note) is not required.

The last element in the DCRB Core standard that augments the requirements of the Books Core is the index term-genre/form (655 field). The field contains standard terms from the various thesauri that rare book catalogers use to bring out the form of the materials they catalog (such as genre, provenance, or binding terms).<sup>30</sup>

All of the core standards encourage cataloger’s judgment in assigning the access fields for subjects (6XX fields) and added entries (7XX fields). For subjects, the core standards suggest assigning the number of headings needed to provide access to the primary topic or form of the work, but not assigning headings or index terms for secondary or lower aspects of the work.<sup>31</sup> Judgment is also necessary in assigning a complement of added entries to bring out the primary relationships with the item.<sup>32</sup>

### **Method for Identifying Records in the Bibliographic Utilities**

Elements that identify a record as core level created by a BIBCO participating library occur in two MARC fields. Character position 17 in the MARC Leader contains a code for the encoding level of the bibliographic record. The value in the encoding level “indicates the fullness of the bibliographic information and/or content designation of the MARC record.”<sup>33</sup> Encoding level 4 designates a core-level record. Records created by BIBCO participants have MARC field 042 with the authentication code “pcc” that:

signifies that the record was authenticated under the auspices of the Program for Cooperative Cataloging. All name and series headings have been checked against the appropriate national level authority file, and authority records have been created if they did not already exist. Subject headings are checked for authorized forms or combinations supported by the relevant authority.<sup>34</sup>

While the core-level standards were written and approved for use by BIBCO libraries, any library, whether BIBCO or not, may use the standard. A core-level bibliographic record created by a non-BIBCO library has an encoding level 4, but does not have a field 042 that contains “pcc.” Like all other core bibliographic records, the DCRB Core record has an encoding level 4, but, in addition, it has the code for the descriptive convention “dcrb” in MARC field 040 subfield e (\$e). The other subfields in field 040 contain codes for the cataloging organizations that have created, input, or modified the bibliographic record.<sup>35</sup>

To determine how extensive actual use of the DCRB Core standard has been since its approval in 1999, the author sought evidence in WorldCat and RLIN, two large, international bibliographic databases to which many member libraries contribute their cataloging records. While numerous indexes and search strategies are available for accessing bibliographic records in both databases, the method for identifying records created according to encoding level and date of creation is not within the capabilities of regular users and required that personnel at the two utilities perform the searches. The query to both the utilities sought record control numbers for bibliographic records satisfying similar search criteria: records created or updated since January 1, 1999, with the code “dcrb” in field 040 \$e, and grouped in sets according to the value of the encoding level. A list of control numbers for records with encoding level 4 would designate all core-level records, but to be able to compare numbers and the content of the records, the author’s requests to OCLC and RLG asked also for a separate list of record control numbers representing each encoding level. Because the two utilities are different, the details of the actual searches needed to be tailored to the structure of each database and to the processes by which new bibliographic records are added or existing records are updated so that the searches would retrieve all the appropriate records in both of the databases. A brief, simplified description of the composition and structure of each database will help explain some of the differences.

As of June 2004, the WorldCat database contained more than 55 million unique bibliographic records.<sup>36</sup> Even though some duplicate records representing the same bibliographic resource exist in the database, in the ideal those 55 million records do represent distinct editions. When a bibliographic record enters the database, it is known as a “master record.” In cataloging a copy of the same bibliographic edition, another library edits the data in a working copy of the master record for its own catalog (either online or once the record is brought into its local system) and attaches its OCLC holding symbol to the master record.<sup>37</sup> The master record, however, does not change in WorldCat from one user to another unless a library with enhance status replaces the record with permanent changes. To know how a particular library has used and

edited the master record for its own purposes, one must look at the bibliographic record in the library's online catalog.

The RLIN database consists of nearly 139 million bibliographic records representing more than 45 million distinct bibliographic editions.<sup>38</sup> Each bibliographic record in RLIN represents an individual member library's cataloging of a bibliographic resource, which means that many bibliographic records may represent the same edition. Those records represent various ways other libraries have used the first record for the edition or any other version of the record (from any source) to enter the system. The individual bibliographic records are regularly and automatically "grouped into clusters."<sup>39</sup> Searching the database retrieves a record for a bibliographic resource with all the associated cluster members so that an individual library's record can be viewed without having to access the library's online catalog. Changes made locally in an RLG library's online catalog generally are reflected as updates to the library's records in the RLIN database. Ideally, each distinct edition is represented by one cluster of bibliographic records, but sometimes more than one cluster of records exists for the same edition.

### Results of the WorldCat and RLIN Searches

By the beginning of June 2003, the results from OCLC, arranged in files of control numbers for each of the encoding levels used for records created according to the DCRB rules, were available. The lists together contained a total of 16,034 bibliographic records added to the WorldCat database with a "create date" from January 1, 1999, through June 2, 2003. Table 1 displays the number of records in each encoding-level group, with a brief definition of the codes used in WorldCat to indicate the fullness of the bibliographic description.

The predominant level of fullness of DCRB records created for WorldCat is full level. A total of 15,688 records use one of the full-level encoding levels ("blank," 1, I, and L) and represent 97.8 percent of the records created. The less-than-full-level records (K-level and M-level) total 259 records, or 1.6 percent of all the DCRB records. Seventy-three core-level records (encoding level 4) comprise 0.5 percent of the DCRB records. The numbers alone indicate that OCLC member-library catalogers of rare materials who use the DCRB rules prefer to apply them at the full level.

The search OCLC performed in Spring 2003 reported records that had been created since January 1, 1999, but did not include records that had been created before that time. The possibility thus existed that some pre-1999 records that might have been enhanced to the DCRB Core level were missed in the

initial search. In March 2004, OCLC did a second search to retrieve all records in the entire WorldCat database that had "dcrb" in MARC field 040 \$e and encoding level 4. The results included 29 additional records that fell into two groups. Sixteen of the records were pre-1999 records that had been enhanced to the DCRB Core level; the other 13 were new records created since June 2003. The second search revealed that a few older records had been enhanced to the DCRB Core level, and it also found that some libraries have continued to find reasons to create DCRB core-level records. The discussion following will treat all 102 records, created by 8 libraries, found in both OCLC searches.

The results of the RLG search in the RLIN database were completed in October 2003. The reports, arranged by 8 different encoding levels, included a total of 103,032 bibliographic records created according to the descriptive conventions of DCRB after January 1, 1999. The RLG research analyst used the RLIN "update date" as a search criterion to retrieve the records. RLIN bibliographic records retain the original date of cataloging ("add date") even when they are batch loaded or generated in retrospective conversion projects and when they are used by other libraries to generate their own versions of the record. Consequently, the update date was the essential date for this study.

Table 2 presents the total number of RLIN DCRB records for each encoding level, with a brief definition of the encoding level. RLIN encoding level codes are identical to the MARC 21 codes and do not include equivalents to the OCLC lettered codes I, K, L, and M. Encoding level "blank" represents full-level records created, edited, and updated by RLG member libraries, including national library and BIBCO contributors. By far, the predominant group is full-level records (encoding level "blank"), with 94,825 records, or 92.0 percent of the total. The other category of full-level records (encoding level 1), for materials created at the full level but not examined by the cataloging library, contains 1,348 records, or 1.3 percent of the whole. The group of core-level records (encoding level 4) includes 2,640 records,

**Table 1.** OCLC records created according to the provisions of DCRB, by encoding level, Jan. 1, 1999–June 2, 2003

Encoding level	OCLC/MARC 21 definition of fullness*	No. of records	% of records
"Blank"	Most complete, national agencies and PCC	4,429	27.6
1	Full level, material not examined	9	<0.1
4	Core level	73	0.5
5	Partial (preliminary) level	1	<0.1
7	Minimal level	13	<0.1
I	Full level, OCLC member input	9,773	61.0
K	Less-than-full level, member input	198	1.2
L	Full level, batch input	1,477	9.2
M	Less-than-full level, batch input	61	0.4
Totals		16,034	100.0

\**Bibliographic Formats and Standards*, p. FF39-40.

or 2.6 percent of the total, while 3,194 minimal-level records (encoding level 7) form 3.1 percent of the total.

The number of RLIN records encoded as DCRB Core records totals 2,640. Among those are 131 records that represent printed editions cataloged by 9 libraries. Of the 131 records, 124 are unique and represent the work of 6 libraries. Four of the 131 records duplicate 4 DCRB records created by the same library. Three others are records that have been used from either RLIN or WorldCat that were already DCRB Core records. Each is the single instance of a DCRB Core record used by 3 RLG libraries.

The other 2,509 DCRB Core records are microform records created by a company that publishes microform reproductions of early printed monographs. The microform bibliographic records have been used by the RLG libraries that hold copies of those microform editions. The following discussion will treat only the records for the printed editions. The microform records form a cohesive group of records that were all created or updated by the same agency and represent an unexpected use of the DCRB Core standard. They fall outside the interests of this study but may provide a focus for further investigation. None of the OCLC DCRB Core records describes a microform resource.

The lists of record numbers created at encoding level 4 in both WorldCat and RLIN provided the search key to access each record in the two utilities.

After searching and printing the DCRB Core records in each database, the author analyzed both descriptive characteristics and all access points and quantified the usage by library. For records in WorldCat, the holding libraries of each bibliographic record were significant in the investigation of whether the bibliographic records had changed and developed over time. To determine how other libraries used an OCLC DCRB Core record, the author searched the records in the holding libraries' online catalogs. Because the records in RLIN provide evidence for an individual library's cataloging, the libraries' online catalogs generally were not searched. The cluster members indicated other holding libraries, and comparison of the records in the cluster sometimes revealed changes in the bibliographic record from one use to another.

Thirteen libraries contributed DCRB Core cataloging records to WorldCat or RLIN, with only one library contributing to both, in the five years since the standard was approved. To preserve the anonymity of the libraries, arbitrary numbers have been assigned to the institutions in each utility; for example, RLG Library 1 or OCLC Library 6. OCLC Library 3 is the same library as RLG Library 6 and contributed 2 identical DCRB Core records to both databases; the 2

records are counted only once in the grand total of DCRB Core records.

A total of 224 unique DCRB Core records were identified in the two utilities (102 records in WorldCat, 124 in RLIN, 2 duplicates removed). The number is small in comparison with the vast size of the two databases, but the records provide sufficient data for analyzing how libraries have used the standard. Table 3 presents the number of records each of the 8 OCLC libraries created and enhanced, with totals. Four of the libraries (OCLC Libraries 1, 2, 4, and 6) were responsible for making the majority of the DCRB core-level records, both creating and enhancing them. Three of the remaining 4 OCLC libraries created a small number of records, and the other enhanced only a single record to the DCRB Core level. Five of the libraries cataloged a total of 51 records as BIBCO records (042 = pcc). Table 4 indicates similar categories for the RLIN DCRB Core records. RLG Libraries 1 and 5 created and updated the majority of the records. The other 4 RLG libraries created a small number of DCRB Core records, with 1 library also updating 1 record. Ninety of the RLIN records were created as BIBCO records by 5 of the 6 libraries.

After the removal of 2 duplicate records from the totals, the 224 DCRB Core records consist of 180 unique

**Table 2.** RLIN records created according to the provisions of DCRB, by encoding level, January 1, 1999–October 14, 2003

Encoding level	MARC 21 definition of fullness**	No. of records	% of records
"Blank"	Full level, material examined	94,825	92.0
1	Full level, material not examined	1,348	1.3
2	Less-than-full level, material not examined	132	0.1
4	Core level	2,640	2.6
5	Partial (preliminary) level	234	0.2
7	Minimal level	3,194	3.1
8	Pre-publication level	2	<0.1
u	Unknown	657	0.6
Totals		103,032	100.0

\*\* MARC 21 Concise Bibliographic," Leader 17.

**Table 3.** OCLC libraries creating or enhancing records at the DCRB Core level

Library	Records created	Records enhanced	Total records	042 = pcc
OCLC Library 1	10	3	13	12
OCLC Library 2	21	3	24	24
OCLC Library 3	2	0	2	2
OCLC Library 4	40	4	44	8
OCLC Library 5	5	0	5	5
OCLC Library 6	3	9	12	0
OCLC Library 7	1	0	1	0
OCLC Library 8	0	1	1	0
Totals	82	20	102	51

records and 44 enhanced or updated records, of which 139 (62.1 percent) are coded as BIBCO records. Sixty-eight of the records created by RLG Libraries 1 and 5 are BIBCO records that have been added to WorldCat. In the uploading process, all of the records retained the encoding level 4 but lost from field 040 the “\$e dcrb” that identifies the records as following the descriptive conventions of DCRB. When BIBCO records are batch loaded to WorldCat, “OCLC’s policy is to treat all records in a batch-load file with an 042 ‘pcc’ as originating from the contributing institution.”<sup>40</sup> The 040 for each batch-loaded record, therefore, contains the institutional code of the cataloging library in \$a and \$c. It does not, however, retain the code “dcrb” in \$e. When the 68 RLIN DCRB Core records were loaded as BIBCO records in WorldCat, they retained their encoding level 4 but not 040 \$e dcrb. None of them, therefore, appear on the OCLC list of DCRB Core records.

Among the 13 libraries that have contributed DCRB Core records to WorldCat or RLIN, only 3 indicated that they use the DCRB Core standard in their responses in the author’s 2002 survey and preliminary query concerning the use and perception of the standard.<sup>41</sup> Five others whose records appear in the two databases did not respond to or were unaware of the survey. The remaining 5 libraries whose DCRB Core records have been identified in WorldCat or RLIN responded to the 2002 survey and indicated that they do not use the DCRB Core standard. While 2 of the libraries created DCRB Core records after the time of the survey, the respondents at the other 3 libraries may not have been aware that their catalogers had created records at the core level, as relatively few records are involved.

The 2002 survey and preliminary query determined that 8 libraries said they had used the DCRB Core standard. Three libraries’ records appear in WorldCat and RLIN. Two of the 8 libraries indicated that their records had either not been uploaded to the utilities or did not retain the value of “dcrb” in the 040 field as required for DCRB Core records.<sup>42</sup> The reason the other 3 libraries’ records are not found in the two databases is not clear.

### Analysis and Discussion of the Records

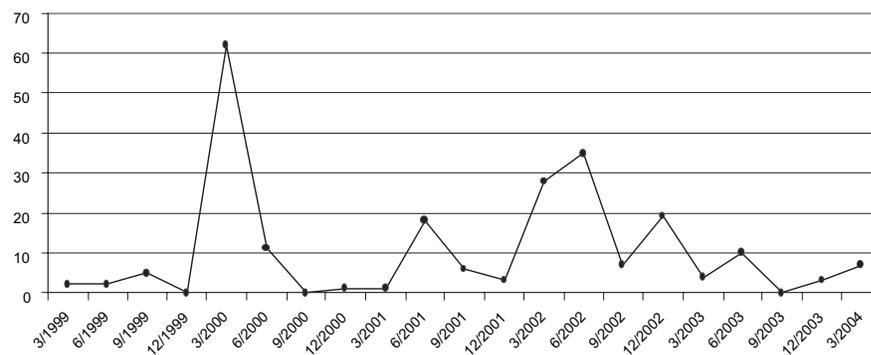
Before analyzing the various elements of the DCRB Core records, some general observations and remarks may help characterize the records as a group. The dates of creation or enhancement of the

DCRB Core records are spread throughout the lifetime of the standard. Figure 1 presents the number of records created in each quarter of the years since the standard took effect in January 1999. With the exception of a few peaks, the line is fairly flat, with 10 or fewer records created each quarter. The greatest contribution occurred in the first quarter of 2000, with 62 records. Most were added to the RLIN database by Library 1. More than a year later, catalogers created 18 records in the second quarter of 2001. The year 2002 saw creation of almost 40 percent (89 records) of the total number of DCRB Core records in this study. After that time, the line has remained fairly flat, with 10 or fewer records created each quarter.

Like the full standard of DCRB, the DCRB Core standard is written for application to books published within the years 1500–1800, excluding incunabula (books with imprint dates preceding 1501) but permitting usage with books after 1800.<sup>43</sup> While most of the records fall within the expected range of dates, 2 are incunabula and 28 have nineteenth-century imprint dates. The 194 records for the expected imprint dates include 21 records with dates in the range 1501–1600, 73 records with imprint dates 1601–1700, and 100 records for dates 1701–1800. Eight languages are the primary language of the text of the 224 DCRB Core

**Table 4.** RLG libraries creating or updating records at the DCRB Core level

Library	Records created	Records updated	Total records	042 = pcc
RLG Library 1	51	9	60	28
RLG Library 2	4	0	4	4
RLG Library 3	2	0	2	0
RLG Library 4	2	1	3	3
RLG Library 5	39	14	53	53
RLG Library 6	2	0	2	2
Totals	100	24	124	90



**Figure 1.** Number of DCRB Core records created or enhanced per quarter from January 1999 through March 2004 (n=224)

records: Dutch (1 record), English (21 records), French (118 records), German (33 records), Hebrew (2 records), Italian (25 records), Latin (23 records), and Portuguese (1 record). Six of the records represent broadsides, and 82 records represent items that may be considered pamphlets (with an arbitrarily selected seventy or fewer pages).

Because every bibliographic resource presents its own set of descriptive elements and possible access points for the cataloging record, neither presence or absence of MARC fields nor the length of the bibliographic record can be used as sole indicators of which fields catalogers might have chosen to include or exclude when they created their records at the DCRB Core level. MARC fields may be absent from a cataloging record simply because the data for that field does not occur in the resource in hand. Table 5 presents the categories of MARC fixed or variable fields that may be affected by the DCRB Core standard and includes brief definitions of the fields, the total number of occurrences, the total number of records with occurrences in each category, the percentage of records in each category, and the number of libraries using each of those fields.

As noted above, 139 of the 224 records are BIBCO records (coded "pcc" in field 042). All headings in these records therefore are supported by authority records in the LC Name Authority Cooperative Program (LC/NACO) Authority File and the LC Subject Authority Cooperative Program (LC/SACO) Authority File. Nine of the 13 libraries created the 139 BIBCO records. The total of 139 BIBCO records is not surprising, as the DCRB Core standard is a BIBCO standard. More than one-third of the records (85), however, were not created as BIBCO records, indicating that some libraries that are not BIBCO participants have found the DCRB Core standard appropriate for their cataloging needs. Although specifically not required by the DCRB Core standard, classification numbers in standard schemes appear in 152 records (almost 68 percent) created by 9 of the 13 libraries. The records use a broad range of classification numbers.

The rules in DCRB are written primarily for materials issued in the hand-press period, from the beginning of printing with movable type in the mid-fifteenth century through the beginning of the nineteenth century. Unlike more modern imprints, in which copies in an

entire print run are expected to be identical, pre-1801 copies often varied because corrections were made during the printing process as errors were discovered or as the content was changed for various reasons. Because such changes may be of significance to users, the cataloger must describe the resource accurately so that researchers can distinguish between variants and identify the desired resources. Accuracy of information transcription from the prescribed sources in the bibliographic resource, therefore, is essential for correct identification of the item. The title and statement of responsibility area (245 field), publication, etc. area (260 field), and the extent and dimension statements in the physical description area (300 field \$a and \$c) are mandatory fields for both the full and core DCRB records and require the same faithfulness of transcription. In rules where abbreviation is allowed, application is the same for the core level as the full level. Similarly, although it may not occur in every text, the edition area (250 field) is mandatory if applicable, and the same rules apply to both the full- and core-level records.

The note area (MARC 5XX fields) in DCRB Core records is one of the primary locations to look for evidence of strict adherence to the standard. Only 22 of the 224 DCRB Core records lack 5XX fields. Table 6 categorizes the 664 5XX fields that are used in the other 202 DCRB Core records. Of those, only 27 are required by the DCRB Core standard: 13 note the source of the title proper from a location other than the title page; one 500 field notes that the elements on the title page have been transposed in the transcription in the 245 field; 501 fields indicate that 8 of the

**Table 5.** Categories of elements with significance in the application of the DCRB Core standard in 224 bibliographic records of 13 libraries

MARC field	Definition of field	No. of uses	No. of records	% of records	No. of libraries
FF: Cont=b; no 504	Contains bibliography; no note	3	3	1.3	2
FF: Indx=1; no 500	Contains index; no note	7	7	3.1	4
042=pcc	BIBCO record	139	139	62.1	9
050, 082, etc.	Standard classification number	152	152	67.9	9
100 not justified	Main entry not justified	18	18	8.0	6
246/740	Variant title added entry	151	110	49.1	10
Total 5XX	Note fields	664	202	90.2	13
Required 5XX	Note fields required	27	27	12.1	7
Non-required 5XX	Note fields not required	637	196	87.5	13
No 5XX	No note fields	22	22	9.8	6
6XX	Subject heading (s.h.)	350	192	85.7	13
6XX \$v	S.h.—Early works to 1800	136	94	42.0	9
No 6XX	No subject headings	32	32	14.3	8
655	Genre, form index term	90	82	36.6	7
7XX – bibliographic	Added entry	114	64	28.6	9
7XX – manufacture	Added entry	48	34	15.2	6
7XX – provenance	Added entry	21	17	7.6	4
7XX - not justified	Added entry not justified	9	7	3.1	4
No 7XX	No added entries	128	128	57.1	11
752	Hierarchical place name	45	42	18.8	5

bibliographic records represent resources that are bound with other resources; two 505 fields give the contents for multi-volume resources with individual titles for the volumes; and three 510 fields cite reference sources that are required by DCRB 7C14.<sup>44</sup> The two other mandatory-if-applicable notes, the dissertation note (502) and the reproduction note (533), do not occur in the 224 DCRB Core records.

The 637 nonrequired note fields have been supplied at the discretion of the catalogers. The lower part of table 6 uses the DCRB prescribed order of notes to categorize the nonrequired DCRB Core note fields. While notes frequently contain information that can be placed in only one category, catalogers often combine information about more than one area of the description. In such cases in the table, notes were placed in the category that seemed to be more significant so that they would be not counted more than once.

Thirteen 500 fields for the title and fifty-one 500 fields for the statement of responsibility comprise the 64 notes of area 1 of the bibliographic description. The notes relating to the title indicate other titles on added title pages, separate title pages for the parts of a text in a single volume, or the title of other volumes in a set. The notes regarding the statement of responsibility are of two types. Thirty-five notes justify main or added entries. Sixteen notes acknowledge the responsibility of writers of introductions and dedicatory letters, note that the preface is signed, or identify an engraver. The attributions of responsibility to those 16 persons, however, do not lead to added entries. Even though neither the notes nor the added entries that they justify are required by the DCRB Core standard, the catalogers of 51 records determined that acknowledging intellectual or creative responsibility in the notes and further in the added entries was appropriate for their cataloging records. Contrasted with the exercise of cataloger's judgment to include 51 notes is the adherence to the DCRB Core standard in 27 records (as indicated in table 5), in which 18 main entries and 9 added entries are not justified.

Among the six 500 fields concerning the edition area, 5 provide information about the edition history and 1 gives the source of the edition statement. The content of 36 notes concerning the publication, etc. area includes the source of the imprint, transposition of title-page data in the 260 field, variations in the imprint on the title pages of a multivolume title, acknowledgement that the imprint is fictitious, publication history, and information about the printer. The total of 119 notes for the physical description (area 5) includes 100 notes about the extent of the item—i.e., pagination or foliation—and 19 notes concerning illustrations. In the first category, 83 of the notes give the details of the signatures or gatherings, variations in which

can often help users and other catalogers distinguish impressions or editions. The other notes about the extent include the pagination of multiple volumes, errors in pagination, and numbers of folded or blank pages. The 19 notes concerning the illustrative elements include indications about the engravings, woodcuts, initials, ornaments, and arms or printer's marks on title pages. Catalogers provided no notes for the third element in the physical description, the dimensions of the item.

As noted above, 3 of the 114 citation notes (510 field) giving references to bibliographic resources are required by the DCRB Core standard. The other 111 nonrequired 510 fields occur in 87 of the DCRB Core records. In contrast to using a 510 field in a full-level record to justify including more detail in the record, in a core-level record the cataloger may provide a reference to further information without having to note the greater detail in the cataloging record. Some of the citations are to catalogs of a national library, bibliographies of books published within a specific time period in a particular language, bibliographies on specialized subjects, and the English Short Title Catalogue database.<sup>45</sup> The entries in the bibliographies cited vary from simple listings of author, title, imprint, and pagination or format to comprehensive descriptions. Sometimes the entries in the cited bibliographies may be no fuller than the bibliographic record itself, but the reference may be of significance to users who often can search such citations in the keyword or special indexes of online catalogs. Clearly, a citation to a bibliography with comprehensive entries can aid the user in identification of research materials. Use of

**Table 6.** Categories of 664 note fields (5XX fields) used in 202 DCRB Core records containing notes

Required notes	No. of notes	No. of records	No. of libraries
Source of title proper	13	13	3
Transposition of data on title page for title area	1	1	1
With note (501 field)	8	8	1
Formal contents note, multi-volume title (505 field)	2	2	2
Citation note (510 field, required by DCRB 7C14)	3	3	3
Total required notes	27	27	7
Nonrequired notes			
Nature, scope, etc.	10	10	5
Language of text (546 field)	3	3	2
Area 1: title and statement of responsibility	64	58	9
Area 2: edition	6	6	6
Area 4: publication, etc.	36	30	9
Area 5: physical description	119	91	9
Citation note (510 field, not required by 7C14)	111	87	10
Other notes (total 288):			
Formal contents note, single-volume (505 field)	2	2	2
Informal contents note	51	46	8
Local notes	167	74	13
Miscellaneous	68	65	8
Totals	637	196	13

510 fields is expected in full-level DCRB records. That catalogers have chosen to include nonrequired citations to such references in more than a third of the DCRB Core records not only underscores the flexibility of the standard, but perhaps also is indicative of the catalogers' unwillingness to give up a practice they feel is beneficial to both their own work and that of their users.

The remaining 288 nonrequired notes in the DCRB Core records include formal and informal contents notes (53), local notes (167), and miscellaneous other notes (68). Two formal 505 fields are for single-volume titles. The informal contents notes indicate that the books contain advertisements, bibliographical references (504 field), charts, errata, half-title pages, hymns, indexes, a printing privilege, a table of contents, and various short texts at the end of the primary text. Two bibliographical references notes (504 field) and 11 index notes (500 field) appear in the DCRB Core records. In 10 other records in this study, however, catalogers did not use the notes but included coding in the fixed field to indicate the presence of bibliographical references or indexes in the book. Character positions 24–27 (for the nature of contents) of the MARC 008 field define the use of the code “b” for bibliographies. Character position 31 defines the use of the code “1” as including an index.<sup>46</sup> The codes “b” and “1” appear in the WorldCat fixed field elements “Cont:” and “Index,” and in RLIN in the 008 field in the same positions as defined by the MARC format. By using the fixed field coding for bibliographical references and indexes, the catalogers were able to omit the corresponding note fields but did not overlook the presence of the two characteristics of the content of the books. While public users may not have access to the fixed field coding, other catalogers certainly do and may find the coding useful in confirming the identification of other copies.

Local notes, designated by two different MARC fields, 500 with subfield 5 (\$5) or 590, are particularly important for a library's own catalog but are less so for another library whose copy does not have the same copy-specific characteristics. The difference in the two fields may be influenced by the significance of the copy-specific information and by the database that is used for cataloging. The 590 field is strictly a local field. The control \$5 identifies the institution to which the information in the 500 field applies.<sup>47</sup> Application varies from institution to institution. Only five 500 fields with \$5 appear in WorldCat and RLIN, while 590 fields appear in the RLIN records 77 times. Because OCLC master records do not retain 590 fields, the author determined the number of notes used in OCLC records (85) by searching the libraries' local online catalogs. The information in local notes in the DCRB Core records examined for this study encompasses characteristics that may include binding descriptions, item condition, imperfections of any sort, indications of provenance, manuscript marginalia, rubrication, hand illus-

trations, or location designation for the item in a collection, such as a pamphlet collection. Such information may be of special significance to a library's own users, and the catalogers have invoked the flexibility of the DCRB Core standard to include it in the local notes in their cataloging records.

Of the 68 remaining notes that do not fit into any of the other categories, 19 miscellaneous 5XX fields denote the description based on an imperfect copy, additional title-page information such as a quotation of poetry, a series of numbers at the head of the title, a reference to a bibliographic resource that was not placed in the standard 510 field, and availability of the text in another format. The other 49 notes (in field 583) are used by a single library to indicate local process information.

Since DCRB is a descriptive code, it does not address the use of subject headings and does not prescribe rules for the choice or construction of added entries. Those two parts of the bibliographic record are governed by the rules in Part II of AACR2 and by the subject analysis practice followed by individual institutions. For title added entries, DCRB does include instructions in appendix A for creating access for variations that occur in the title-page title or titles that appear in other locations in the item.<sup>48</sup> The DCRB Core standard, however, addresses the components of the entire bibliographic record, including all points of access.

As noted earlier, the DCRB Core standard, along with all of the core standards, encourages cataloger's judgment in assessing the item in hand and in the choice of access points for subject headings and added entries. For subject headings, the directive is to “assign a complement of headings that provides access to the primary/essential subject and/or form of the work (as opposed to secondary or tertiary aspects) at the appropriate level of specificity.”<sup>49</sup> Such headings should be terms in a standard thesaurus or subject heading system. The DCRB Core records in this study use a total of 364 subject headings (6XX fields), of which 350 are coded with the second indicator “0” to signify that the heading is from the standard *Library of Congress Subject Headings* (LCSH).<sup>50</sup> Most are topical or geographical headings that follow the practice prescribed by *Subject Cataloging Manual: Subject Headings*.<sup>51</sup> Some of the headings, however, are personal name subject headings, the forms of which are determined by the rules in AACR2, Part II. Many of the 6XX fields contain broad topical headings that provide access to the primary subjects of the books and are not further subdivided, although, appropriate to the age of the materials, the form subdivision “Early works to 1800” is used 136 times in the records. Most of the geographic name headings are subdivided by “\$x History,” with further chronological subdivisions to bring out the time periods with which the books deal.

The fourteen 6XX fields with terms not taken from LCSH were assigned by libraries whose records other

libraries updated or enhanced to DCRB Core records. When catalogers enhance bibliographic records in WorldCat, they follow standard practice by retaining subject fields that are governed by other subject heading systems. Thirty-two records contain no subject headings. All except 1 are records for literary works, which often do not need subject headings.

While the DCRB Core standard is consistent with the other core standards with regard to subject headings and added entries, it encourages one additional point of access in the 655 field (genre/form term) “if local policy calls for use of such terms, as appropriate to the piece. These should be taken from one of the official Rare Books and Manuscripts Section (RBMS) thesauri . . . ; in addition, terms from any other authorized thesaurus (e.g., the Art and Architecture Thesaurus) may be used as appropriate.”<sup>52</sup> Catalogers at 7 libraries used ninety 655 fields in the DCRB Core records. The fields include genre terms such as “Advertisements” or “Pamphlets.” Many online systems provide indexing to the 655 field in the keyword index and occasionally in a separate index.

The added entries in core records are governed by two sections in the DCRB Core standard: the varying form of title (246 field) and 7XX field added entries. The standard directs the cataloger to “assign a complement of title variants that covers variations deemed important and coded as appropriate. The importance of title variant access information is intended to reflect individual cataloger’s judgment and/or local institutional policy.”<sup>53</sup> In the 224 DCRB Core records, title added entries occur 151 times.

Similar to the instruction concerning subject access fields, the core standard directs the cataloger to “assign a complement of added entries that covers the primary relationships associated with the manifestation of which the item is a part. The inclusion and importance of added entries are intended to reflect individual cataloger’s judgment and/or local institutional policy.”<sup>54</sup> No 7XX fields appear in 124 of the DCRB Core records; the other 100 records contain a total of 183 added entries. They provide access to persons or corporate bodies that fall into three categories: those who have responsibility for the intellectual content of the resource (114 headings), those who were involved in the manufacture of the book (48 headings), and those who previously owned the item (21 headings). Six bibliographic records provide notes identifying dedicatees, translators, the writer of an introduction, and an engraver, but the catalogers, exercising their judgment, did not follow those notes with 700 fields to provide access to those persons.

One final point of access used by 5 of the 13 libraries in their DCRB Core records is the 752 field, defined as the hierarchical place name. Even though

the 752 field is an unusual field in general cataloging, it is commonly used in rare book cataloging to designate the place of publication of the item. An example is “England \$d London.” While the DCRB Core standard is silent on the use of the hierarchical place name field, the 752 field can be placed in the category of 7XX fields and is therefore governed by the instruction for catalogers to use judgment when assigning such headings. Some online catalogs may index the 752 field in either keyword or separate indexes. The DCRB Core records contain 45 instances of the 752 field.

Throughout DCRB, the rules give a number of options for providing greater detail in the bibliographic description or in the notes. In addition, DCRB also gives a few options that allow for shortening a record. While the DCRB Core standard does not specify the application of individual options in particular fields, it generally recommends the use of the options for shortening a record.<sup>55</sup> Evidence of the application of those options (see table 7) occurs 132 times in 113 of the 224 DCRB Core records in this study. All of them pertain to the abridgment of either the title statement (245 field) or the publisher statement (260 \$b). In all cases except one (in which the cataloger supplied bracketed information), the presence of the mark of omission (. . .) highlights the location of abridged words or phrases.

Three DCRB rules provide optional instructions for shortening the record in the title area. Rule 1B7 governs instances in which a title can be abridged. Seven of the DCRB Core records exemplify application of the option by abridging the title proper. Six libraries followed the rule 1D4 option in 17 records by omitting less important words in the other title information. Twenty-nine records of 7 libraries invoke the 1G14 option of omitting title-page data such as notes, appendices, or accompanying matter when that data would be transcribed after the statement of responsibility.

The other two locations in the DCRB Core records exhibiting abridgment occur in the publisher statement in field 260. Rule 4C2 allows omitting insignificant phrases or addresses accompanying the name of the publisher on the title page. Eight libraries used the mark of omission in field 260 following the name of the publisher in 78 of the DCRB Core records. Finally, the 4C6 option to replace the names of multiple publishers after the first with a bracketed phrase such as “[and seven others]” occurs in 1 DCRB Core record. Several other options to shorten DCRB records involve the physical description area. No evidence for the application

**Table 7.** DCRB options applied in 113 DCRB Core records to shorten record

DCRB rule	Definition of option	No. of uses	No. of libraries
1B7	Abride lengthy title proper	7	4
1D4	Omit phrases in lengthy other title information	17	6
1G14	Omit other phrases appearing on title page	29	7
4C2	Abride some phrases in publisher statement	78	8
4C6, Par. 1	Omit names of multiple publishers	1	1

of those options was readily discernible in the DCRB Core records. The DCRB options for shortening a record are independent of the level of the description and may be applied in full-level records as easily as in core-level records. What is noteworthy, however, is that the catalogers who created the DCRB Core records invoked those options in a little more than half of the total number of the core records.

Options to provide more detail are given in DCRB, and the application of such options is expected in full-level DCRB records. Ninety-five DCRB Core records (42.4 percent), however, also exhibit evidence of the use of several of the options to provide fuller detail. Table 8 presents the number of instances of the use of each option that gives more detailed information and the number of libraries that applied the option. The options providing greater detail are in the rules governing punctuation in the publication, etc. area and in the physical description area. The option in 0E allows the cataloger to include the original punctuation in the title-page transcription in addition to the prescribed punctuation, even if the result is double punctuation. Thirty-four of the DCRB Core records created by 3 libraries use both the original and prescribed punctuation.

In the publication, etc. area, 1 core record follows the option in 4C6 by giving in a note the name of the printer from the colophon, as that information is not included in the 260 field. Twenty-six of the DCRB Core records of 7 libraries do not abridge the publisher statement, as instructed in 4C2, when the address of the publisher is given on the title page. In these 26 cases, the catalogers judged the address to be of significance in identifying the resources they were cataloging. While 4D2 instructs the cataloger to change publication dates appearing on the title page as roman numerals to arabic numerals in the transcription of the date in the 260 field, an option in the rule allows for the use of both the roman numerals as they appear on the piece and the equivalent date in arabic numerals in brackets. Three libraries created 49 DCRB Core records that use this option in recording the date of publication. Rule 4D7 governs the transcription of a range of dates of publication for a resource that has more than one volume. The option indicates that the date of each volume can be given in a note. Three DCRB Core records of 2 libraries follow the option.

Several options for expanding the level of detail in the physical description area have been applied in the DCRB Core records. Rule 5B7 instructs the cataloger to give fuller information about the pagination, foliation, blank pages, or other important characteristics in the statement of extent (300 field \$a) or in a note if desired. Five libraries created 17 DCRB Core records applying the option with more precise state-

ments in the 300 field and 5 records including the more detailed information in note fields. For multiple volumes not paged continuously, rule 5B20 provides the option of giving the pagination of each volume either in parentheses in the 300 field following the number of volumes or in a note. In 5 DCRB Core records, 1 library gives the full pagination of multiple volumes in a note field. Rule 5C1 provides the option of adding the graphic process used to create an illustration, either in the 300 field \$b or in a note. Two core records each created by a different library expand the illustration statement in field 300 with the graphic technique. Three libraries place similar statements about graphic process in note fields in 6 records.

The discussion above shows that catalogers employing the DCRB Core standard have often included greater detail in their cataloging records than is required by the standard. That they have done so indicates not only that they have interpreted the standard in the flexible way that it was intended, but also that they have fulfilled a responsibility to their users to describe editions in enough detail to distinguish them from other editions and to provide adequate access to the resources they are cataloging.

### Comparison with Other Records

In the shared cataloging environment in the ideal, the opportunity to employ the DCRB Core standard occurs only when an original cataloging record needs to be created or when a minimal-level record is enhanced to a higher level. While a library might edit a full-level record down to core-level, such editing is unlikely. That a library using a DCRB Core record subsequent to its creation would augment the record with more note fields or access points is more likely. Subsequent use of a record, however, also may indicate another library's acceptance of the core record as is. As noted above for OCLC records, evidence of other libraries' use of the master records must be sought in individual online catalogs. For the RLIN DCRB Core records, comparisons can be made among all the records in the same cluster with the core records. A search in January

**Table 8.** DCRB options applied in 95 DCRB records to provide more detail

DCRB rule	Definition of option	No. of uses	No. of libraries
0E	Original and prescribed punctuation	34	3
4C6, Par. 2	Give in note publisher statements not in 260	1	1
4D2	Include date in original form, e.g., roman numerals	49	4
4D7	Give date of each volume of multiple volumes	3	2
5B7	Expand or correct pagination or foliation	22	5
5B20	Give full pagination of multiple volumes	5	1
5C1	Add graphic process in illustration statement	8	4
Not 4C2	Phrases in publisher statement not abridged	26	7

2005 revealed that 18 of the DCRB Core records had been used by other libraries. Six of those records were used with no additions or changes, indicating that the records were acceptable as found in the utilities. The subsequent users of the other 12 records changed or enhanced them in several ways: by adding more detailed notes, by deleting notes, by adding two new access fields (655 and 752), by adding local notes, and by changing call numbers. None of the records added new subject heading fields. Three of the online-catalog records had extensive additions, but the encoding level was not changed to reflect full-level cataloging. Two other records in the individual online catalogs revealed that the encoding level had been changed from core level (4) to full level ("blank"), but the content of the records was not substantially different from the existing record in the utility. One had added a few notes; the other had deleted a few notes. While the subsequent-use examples are few, they do indicate some acceptance of the core records but more dissatisfaction with the incompleteness of the records, leading to their augmentation in local catalogs.

The lack of full- and core-level records for the same bibliographic resource hinders significant comparison of the use of the two standards. In the ideal bibliographic universe, only 1 record (WorldCat) or cluster of records (RLIN) exists for each resource in the 2 databases. In reality, sometimes several exist. In the case of the DCRB Core records, however, none of the independently created DCRB records are represented at both levels in the same bibliographic database, and only one DCRB Core record in one database is represented by a full-level DCRB record in the other database. Ninety-one core-level records are unique to both databases, making even a single instance of duplicate representation less likely. The occurrence provided a welcome opportunity for comparison. In that one case, the 2 versions of the description agree with each other, contain a signature note, and have in common one subject heading. The full-level record, however, contains 2 more notes, an alternate form of title derived from data in one of the notes, 2 citation notes, 2 more subject headings, and 2 genre headings. The correct identification of the bibliographic resource is possible with either record, but the full-level record provides additional information and could be found by a user in more ways than the core-level record.

## Conclusions

This study of 224 DCRB Core records created by 13 libraries in the WorldCat and RLIN databases finds that few libraries have made use of the DCRB Core standard. The foregoing discussion analyzes the content of the records, but reasons for the catalogers' use of the DCRB Core standard are less than clear. The scant number of records created,

with only 4 libraries creating more than 13 records, limits the analysis of why catalogers used the standard:

- RLG Library 1 updated all 60 of its DCRB Core records in January and February 2000. All are BIBCO records and appear to be records created much earlier that were edited with the elements of the DCRB Core standard. Their dates of creation (the "add" date in RLIN) range from 1978 to 1996. One might speculate that those 60 records were an experiment in using the DCRB Core standard.
- RLG Library 5 was responsible for 53 records from May 2001 through April 2003. All are records for French political pamphlets and were contributed as BIBCO records. They have fuller notes and more added entries than some of the other core-level records, but they do not have standard classification numbers. Because full-level BIBCO records require a classification number, the records could be contributed as BIBCO records only if they were coded as DCRB Core level.
- OCLC Library 2 added or enhanced 24 records from September 1999 through October 2002 and enhanced 1 record in May 2003. All are BIBCO records and contain standard classification numbers in a wide range of classes. No reason for why they were created at the core-level can be discerned.
- OCLC Library 4 created or enhanced 44 records from May 2001 through March 2004. With few exceptions they are all classified, but only 8 are BIBCO records. A search in the library's online catalog revealed that some of the remaining 32 records contain added entries for the same donor (added entries that are not part of the master record in WorldCat). Other original records in the same collection are coded as full-level DCRB Core records. A comparison of the full- and core-level records in that collection reveals that both contain a full complement of notes and access points and no difference can be discerned between them.
- The other 9 libraries' contributions of 43 records were widely scattered from February 1999 to January 2004.

The core-standard rationale of faster cataloging can be supported for those records that contain few or no notes and a few broad subject headings. Many of the records, as shown in the discussion above, however, contain fuller information in the description and access points than the standard. The threefold rationale for the creation of the DCRB Core standard in the 1998 report of the DCRB Core Task Group, noted at the beginning of this study, included the creation of an alternative to the minimum-level standards that are

detailed in appendix D of DCRB, another cataloging option for addressing large backlogs, and a mechanism to increase the number of dependable records in the national databases. The standard certainly accomplished the first goal of introducing an alternative to minimum-level records. The current revision of DCRB that is under way, *DCRM(B): Descriptive Cataloging of Rare Materials (Books)*, includes an appendix describing and defining the core-level standard.<sup>56</sup> From the analysis given above, no reason can be found to contradict the third goal of increasing the number of dependable records. The DCRB Core records in this study do provide sufficient descriptive elements to ensure correct identification of the resources for users in search of them. The majority are BIBCO records that bring with them the requirement of authorized headings.

The second rationale, providing another option for addressing backlogs, does not seem to have found a place in large-scale cataloging procedures of special collections. Only occasional use of the core standard can be confirmed in the bibliographic utilities. The analysis above has shown that many of the catalogers who have applied the standard have invoked its flexibility by augmenting their records with greater detail than required. In using their judgment to include more data in their records, they have ensured correct identification of the resources for both their users and other catalogers. The evidence of little increased use over time, moreover, points to strong reluctance to apply the standard.

One question in the author's 2002 survey about catalogers' perceptions of the DCRB Core standard sought the reasons that practitioners had decided not to use the standard. The three primary reasons given by the 31 respondents who had not adopted the standard were that the standard is inferior (61.3 percent), the description is not accurate enough (48.4 percent), and the core records have too few access points (48.4 percent).<sup>57</sup> The current study's findings of very few DCRB Core records in the WorldCat and RLIN lend support to the survey respondents' opinion of the standard's inferiority. Although the analysis of the records in the current study did not discover evidence that would make the accuracy of the description suspect, the instances of fuller descriptive elements and additional access points in some of the records can lead to a two-pronged conclusion. The catalogers applied the standard with its intended flexibility and reliance on cataloger's judgment to include more than required, but they may have done so because they perceived an insufficiency in what was mandatory. The need for greater productivity to increase access to special collections materials has not taken a winning position over catalogers' apparent preference to continue to provide fuller and more complete cataloging records. Although the DCRB Core standard has a firm place in the array of standards and tools available to facilitate the creation of greater access to special collections, it has found only slight acceptance among practitioners.

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  49. Program for Cooperative Cataloging, BIBCO, "BIBCO Core Record Standard for Rare Books (DCRB)," note 55.
  50. Library of Congress, *Library of Congress Subject Headings*, 27th ed. (Washington, D.C.: Library of Congress, 2004).
  51. Cataloging Policy and Support Office, *Subject Cataloging Manual: Subject Headings*, 5th ed. (Washington, D.C.:

- Library of Congress, 1996). Replacement pages regularly update the instructions in this manual.
52. Program for Cooperative Cataloging, BIBCO, "BIBCO Core Record Standard for Rare Books (DCRB)," note 57.
53. *Ibid.*, note 30.
54. *Ibid.*, note 58.
55. *Ibid.*, note 26.
56. "Appendix C: Core-Level Records," *DCRM(B): Descriptive Cataloging of Rare Materials (Books)*, draft (delta version), 131–36. Accessed May 8, 2005, [www.folger.edu/bsc/dcrb/dermbdelta20041215cleancopy.doc](http://www.folger.edu/bsc/dcrb/dermbdelta20041215cleancopy.doc). DCRM(B), currently being prepared by the Bibliographic Standards Committee, Rare Books and Manuscripts Section, Association of College and Research Libraries, ALA, will be published by the Library of Congress and has a projected publication date of 2006.
57. Lundy, "Use and Perception of the DCRB Core Standard," 23.

### Appendix: MARC Elements of the DCRB Core Standard

Mandatory elements, shared with the Books Core:

Leader	All positions
Directory	All positions
008	All positions, except
	18–21 Illustrations
	24–27 Nature of contents
	29 Conference publication
	30 Festschrift
	31 Index
040	Cataloging source
042	Authentication code (if cataloged by a BIBCO library)
245	Title statement
260 \$c	Publication, distribution, etc. (imprint)—date
300 \$a & \$c	Physical description—extent and dimensions
500	Source of title proper if not from the chief source

Shared mandatory-if-applicable elements:

010	Library of Congress Control Number (LCCN)
020	International Standard Book Number (ISBN)
1XX	Main entry
240	Uniform title
246	Varying form of title

Edition statement

260 \$a & \$b	Publication, distribution, etc.—place, publisher
300	Physical description—subfields other than a and c
4XX	Series statement
5XX	Notes supporting identification of the item
501	With note
502	Dissertation note
505	Formatted contents note
533	Reproduction note
6XX	Subject access fields
7XX	Added entries
8XX	Series added entries

Additional DCRB Core elements, all of which are mandatory if applicable except the first (which is required) and the last (which is encouraged):

040 \$e	Cataloging source, description conventions—"dcrb"
050, 082, etc.	Call numbers are not required
500	Note about transposition of elements in the transcription of title statement (245 field)
510	Citation/reference note
655	Index term-genre/form

# Use of General Preservation Assessments

## Outputs

**Karen E. K. Brown**

*This study describes the extent to which institutions implement preservation recommendations resulting from a general needs assessment, including the time to implementation and the extent of program development. Most recommendations are preventive, with less emphasis on repair or reformatting activities. Data indicate that the majority of institutions accomplish recommended preservation actions with no neglected subject areas. Institutions with the highest rates of success spent more staff time preparing for the site visit, and had a longer site visit, compared to the population as a whole. Preparation of a preservation plan does not correlate to an enhanced capacity to implement preservation recommendations.*

The purpose of undertaking a general preservation assessment is to define need and initiate a planning process to: (1) enable an institution to reduce risks to the collection, and (2) better allocate resources for preservation over time. The popularity and persistence of several major funding initiatives, including the New York State Department of Cultural Education's Discretionary Grant Program, the Preservation Assistance Grants offered by the National Endowment for the Humanities, and the Conservation Assessment Program funded by the Institute of Museum and Library Services, suggest that general preservation assessments are valuable for guiding cultural institutions in planning for care of their collections.

In the literature are several cases in which a study of preservation issues has resulted in the improvement or establishment of a preservation program.<sup>1</sup> However, most of the literature emphasizes the survey process itself, with little research conducted to identify actual outcomes associated with these assessments. Few studies clearly define those activities undertaken as a direct result of the general assessment or demonstrate its impact over time. Funding agents have not published information about the outcomes of general surveys, despite the collection of facts about activity and effect through program reporting mechanisms.<sup>2</sup>

In fall 2003, 306 institutions in the United States identified as possibly having undertaken a general preservation assessment received questionnaires inquiring about their involvement with the process (see appendix). Most of these institutions received public funding to support a preservation project; others were identified with support and assistance from the Northeast Document Conservation Center, which receives public funding to assist institutions with preservation surveys, training, and education. One hundred twenty-five questionnaires were returned (40.9 percent), representing institutions in 29 states, including 102 located in the northeast (primarily Massachusetts and New

York), 11 in the west and midwest, and 12 in the southern United States. The data were analyzed using SPSS Version 11.5 (statistics software for Windows). Findings, previously reported by this author, were based on the first part of the collected data that characterized the assessment process and appraised key elements.<sup>3</sup> The results provide a foundation that define preservation reviews that have been undertaken since the late 1980s by a range of United States institutions, primarily colleges and universities and public libraries.

This paper continues the report of findings by describing the preservation actions, or outputs, realized from the general needs assessment process. The research addressed the following questions:

- How long after the assessment are institutions able to implement recommended actions?
- Do institutions draft a preservation plan?
- What actions, in what subject areas, are most often recommended?
- What is the success rate of implementing recommended actions items?
- Are institutions successful at obtaining their goals?
- What is the extent of preservation program development over time?

In addition, this paper will try to characterize those attributes of the general assessment methodology that are indicators of success by profiling those cases with the highest rate for implementing recommended actions.

## Literature Review

Methodologies, including both self-survey tools and those undertaken by outside experts, are designed to examine a broad range of issues that may impact the life expectancy of cultural collections.<sup>4</sup> An assessment of major topics (such as administrative support for preservation, the condition of the building and facility, and environmental monitoring and control) can help institutions develop a series of reasonable objectives to help minimize risk, manage expenditures, and prioritize preservation actions.

To what degree have institutions successfully implemented assessment recommendations? This is a persistent problem:

Once needs assessment surveys have been completed, the next step for institutions is to implement preservation actions that will meet identified needs. Many institutions, however, have difficulty doing this. Granting agencies report that applications for preservation implementation projects are often confused, revealing a lack of understanding of the

priorities identified in survey reports and an inability to develop a long-range preservation plan that relates to the institution's overall strategic plan.<sup>5</sup>

Ogden's 1997 publication, *Preservation Planning: Guidelines for Writing a Long-range Plan*, is one of the few tools specifically designed to assist institutions in drafting a preservation plan based on the findings of a general assessment.<sup>6</sup> Appendix 2 of Ogden's book, "Considerations for Prioritizing" helps institutions consider the impact and urgency of each recommended action in the survey report with the goal of prioritizing them under categories of high, medium, or low priority, using a grid developed by Darling and Webster in the early 1980s.<sup>7</sup> These actions are further organized according to impact and feasibility (i.e., the effect of the action and whether the institution has the staff, space, and funding for implementation). Final decisions are organized into a multiyear plan. Morrow suggests that the extent of program development will vary depending on the length of time the institution has engaged in developing a program and, perhaps, the level of commitment that the library administration and its host institution have made to the activity.<sup>8</sup> These suppositions are tested and reported here.

Collecting data that are consistent across institutional types and that demonstrate the impact of any new initiative or, perhaps even the extent to which any single program has achieved its intended goals, can be difficult. For example, although a large number of preservation processes, outputs, or outcomes may be reported to funding agents or other umbrella organizations, the data about them may not be comparable without standards for gathering them or for measuring how practices may have changed over time. Benchmark schemes developed for studying levels of performance for collections preservation and other activities in cultural institutions in the United Kingdom and Australia address this deficiency.<sup>9</sup> These tools may prove useful in changing practices and aggregating data to assist preservation strategies on a national level. The North American model of the general preservation assessment does not readily allow for this, as methodologies typically emphasize the individuality of the review, paying less attention to summative data and more to specific actions that are required to reduce risk.<sup>10</sup>

To review the results reported in the first phase of this research, most of the institutions that participated in this study were small (19 or fewer staff) or medium (20 to 69 staff) in size and received funding to hire an outside expert to conduct their review. Each institution defined its total institutional staff size as an indicator of the size of the parent organization, scope of the collection, and scale of the general assessment. This indicator was chosen, as opposed to other options, such as size of the collection, because comparing different types of collections is difficult. Kenney and Stan

report, “ARL libraries are well along in establishing separate preservation programs. More than two-thirds of them staff such programs with at least a half-time preservation administrator, and more than half report having a full-time preservation administrator.”<sup>11</sup> Large academic institutions (200 or more staff) would therefore not be likely to conduct a general assessment if their programs were already established. In the Kenney and Stam analysis, the University Library Group averaged 104 total full-time equivalent (FTE) staff; non-ARL Land Grant libraries averaged 84.5 staff; and the Oberlin Group averaged 42.9 staff. For the purposes of this paper, 100 staff was taken as the upper limit for a large institution. NEH does not define the small and medium size institutions that it serves through its Preservation Assistance Grants program, but does require a minimum of 1 FTE paid or unpaid staff member.<sup>12</sup>

The majority of respondents reported less than 0.5 FTE of staff time devoted to preservation; a larger staff did not correlate to significantly more time spent on preservation activities. The time invested by the host institution in preparation for the assessment, and in reviewing the findings of the subsequent report, was less than 2 full weeks in staff time per institution. The results are a good indicator how much staff time is expected to be devoted to the process. Most assessments were broad in scope and favored the study of preventive activities. The three most cited goals were to develop a preservation plan, improve storage practices, and improve the environment. The time for most site visits, 1 or 2 days, was considered adequate in the majority of cases. Report content was consistent across the population studied, and most often included a list of preservation actions by priority, observations from the site visit ordered by preservation topic, and an executive summary. However, a review of follow-up services suggested that collaborative analysis and strategic planning with the assessor was seldom undertaken and worth further investigation.

## Findings

### Implementation of Recommendations

The Getty Conservation Institute and the National Institute for Conservation suggest one “method of ordering information [in the report] is to identify which projects can be done by current staff and within present resources, which might be accomplished by reallocating institutional funds, and which will require additional resources,” and further, that it “is especially useful to identify problems that can be solved quickly, so that the institution has an immediate opportunity to make an improvement.”<sup>13</sup>

Respondents therefore were asked to estimate how long after the conclusion of the assessment (e.g., report delivery) they began to implement recommendations. Of

125 responses, most reported implementation before the end of 3 months (64 institutions, or 51.2 percent); the most frequently reported time to implementation was within 2 weeks (27 institutions, 21.6 percent). Only 7 institutions (5.6 percent) took as long as 2 years for implementation, and 8 institutions (6.4 percent) reported no implementation to date (7 of these were surveyed since 2000). Note that those that reported not knowing how much time elapsed before implementation (10 institutions) had been surveyed before 1999. The data are summarized in table 1.

The high percentage of respondents who were able to implement findings within 6 months (77.6 percent) suggest that report content was, by and large, appropriate to the host institution, and that the information to achieve preservation actions was suitably provided by the assessor. These actions may have included low-cost actions that require limited staff time to implement but can make a significant difference in terms of collections protection, such as cleaning shelves, locking unmonitored exits, or removing bulbs in overly lit storage areas. Immediate implementation also is an excellent indicator that staff has read the report and that recommendations are in line with institutional expectations.

### Preservation Planning

Respondents were asked whether they had drafted a preservation plan based on the information provided by the assessment, and whether goals and objectives had since been updated (table 2). The majority of institutions (81, or 64.8 percent) had not drafted a written plan. Only 37 (29.6 percent) reported that a plan had been prepared, although 71 institutions (56.8 percent) reported that their preservation goals and objectives had been updated since the assessment was conducted. This suggests that some respondents may have had a preservation plan prior to their review.

The idea that formalizing a preservation plan may take several years is supported by comparing the assessment year with plan preparation (table 3). For the period between 1985 and 1999, 18 out of a 49 institutions had drafted a plan (36.7 percent), whereas only 18 of 69 institutions (26.1

**Table 1.** Time to implementation

Time to Implementation	Freq.	%
< 2 weeks	27	21.6
2–4 weeks	16	12.8
1–3 months	21	16.8
3–6 months	14	11.2
6 months–1 year	19	15.2
1–2 years	4	3.2
> 2 years	3	2.4
Do not know	10	8.0
No implementation	8	6.4
No answer	3	2.4
Total	125	100.0

percent) assessed between 2000 and 2003 had one. A further analysis of those who reported on plan preparation and updating goals indicates that 38 institutions had no plan, and no update (table 4). Of these 38, 25 were surveyed between 2000 and 2003.

A further sort of the data regarding preparation of a written preservation plan reveals that of the 97 institutions that reported developing a preservation plan as one of their goals, 32 were successful drafting a written plan (33.0 percent), and 60 were unsuccessful (61.9 percent); 5 did not know or did not answer (5.2 percent) (see table 2). Despite plan preparation as the leading objective of the population studied (77.6 percent), drafting a preservation plan was not an outcome accomplished by most institutions that had a general preservation assessment. Those reporting plan preparation as a goal were only marginally more likely than others to draft a preservation plan.

### Assessment Recommendations

The questionnaire listed 38 recommendations that represent a range of actions, outputs, or services that might be suggested in a report of findings. These recommendations have been assigned to 6 subject categories: (1) the administration (e.g., mission, collecting policies, intellectual control, staffing and training needs, budgets); (2) the building and facilities; (3) environmental factors (monitoring and control of temperature, relative humidity, light, pollutants); (4) protection against loss (pest management, emergency preparedness and prevention, and security); (5) condition, storage and handling of collections in various formats (including exhibition); and (6) remedial treatment (reformatting, repair, conservation, and library binding). A summary of the number of institutions to which each recommendation was made, and its associated category, is presented in table 5.

Three-quarters of the institutions received recommendations to improve storage systems, improve or install environmental controls, and improve the care of specific collection formats (i.e., photographs, rare books, and magnetic media). More than half received recommendations that they improve or increase the use of proper storage enclosures (74.4 percent), improve or install environmental monitors (73.6 percent), provide staff with preservation training (72.0 percent), write an emergency prevention and response plan (68.8 percent), improve collection handling (68.8 percent), obtain funding for preservation (61.6 percent), improve or

**Table 2.** Preservation planning

	Yes		No		Do not know/ no answer		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Preservation plan drafted	37	29.6	81	64.8	7	5.6	125	100.0
Goals and objectives updated	71	56.8	47	37.6	7	5.6	125	100.0
Plan as goal	97	77.6	28	22.4	0	0.0	125	100.0
Plan as goal (n = 97) and output	32	33.0	60	61.9	5	5.2	97	100.0

**Table 3.** Year of assessment by written preservation plan drafted

Year of assessment	Written preservation plan drafted							
	Yes		No		Do not know		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1985–1989	2	1.6	6	4.8	0	0	8	6.4
1990–1994	5	4	8	6.4	1	0.8	14	11.2
1995–1999	11	8.8	14	11.2	2	1.6	27	21.6
<b>Subtotal</b>	<b>18</b>						<b>49</b>	
2000	6	4.8	15	12	0	0	21	16.8
2001	7	5.6	13	10.4	0	0	20	16.0
2002	3	2.4	19	15.2	0	0	22	17.6
2003	2	1.6	3	2.4	1	0.8	6	4.8
<b>Subtotal</b>	<b>18</b>						<b>69</b>	
Missing	1	0.8	3	2.4	3	2.4	7	5.6
<b>Total</b>	<b>37</b>	<b>29.6</b>	<b>81</b>	<b>64.8</b>	<b>7</b>	<b>5.6</b>	<b>125</b>	<b>100.0</b>

**Table 4.** No plan or update of goals

Year of assessment	No plan or update	
	Freq.	%
1985–1989	2	5.3
1990–1994	2	5.3
1995–1999	7	18.4
2000	4	10.5
2001	8	21.1
2002	11	28.9
2003	2	5.3
Missing	2	5.3
<b>Total</b>	<b>38</b>	<b>100.0</b>

install security features (60.8 percent), improve or install proper lighting (58.4 percent), and increase storage space (51.2 percent). No repair or reformatting activities are recommended to the majority of institutions, and none of the most frequent recommendations fall into the category of improving the building or facility.

Table 5 includes the recommendation response by institutional type. Those apart from academic institutions or public libraries (11 museums, 8 historical societies, 6 archives, 2 independent research libraries, and 11 “other”) have been combined as into one category labeled “Other” to assist analysis. The data indicate that 88.4 percent of public libraries were advised to improve storage systems; 84.1 percent of academic institutions were advised to improve

the care of specific formats, and 83.7 percent were advised to improve or install environmental monitors. In addition, specific activities worth noting are those that have a much higher, or lower, number of recommendations compared to other types of institutions. Academic institutions were

more likely to have received recommendations to form a preservation committee (30.2 percent), relocate to a better facility (39.5 percent), and improve in-house repair operations (52.3 percent), but were significantly less likely to have microfilm reformatting recommended as a needed action

**Table 5.** Analysis of recommendations

Action	No. of institutions receiving recommendations (n=125)		Academic (n=43)		Public libraries (n=44)		Other (n=38)	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
<b>Administration</b>								
Form pres. committee	21	16.8	13	30.2	5	11.4	3	7.9
Include preservation in mission	37	29.6	18	41.9	11	25.0	8	21.1
Conduct further assessments	60	48.0	23	53.5	18	40.9	19	50.0
Have collections appraised	32	25.6	13	30.2	13	29.5	6	15.8
Obtain funding for preservation	77	61.6	28	65.1	26	59.1	23	60.5
Reallocate resources	48	38.4	13	30.2	22	50.0	13	34.2
Hire additional staff	41	32.8	18	41.9	9	20.5	14	36.8
Train staff in preservation	90	72.0	32	74.4	32	72.7	26	68.4
Assign preservation job responsibilities	41	32.8	19	44.2	11	25.0	11	28.9
<b>Building/facility</b>								
Improve structural design	59	47.2	19	44.2	22	50.0	18	47.4
Improve structural integrity	51	40.8	17	39.5	15	34.1	19	50.0
Construct better facility	45	36.0	19	44.2	17	38.6	9	23.7
Relocate to a better facility	36	28.8	17	39.5	10	22.7	9	23.7
Install/improve plumbing	20	16.0	10	23.3	6	13.6	4	10.5
Improve physical access	50	40.0	15	34.9	17	38.6	18	47.4
<b>Prevention from loss</b>								
Write an emergency plan	86	68.8	32	74.4	32	72.7	22	57.9
Improve/install security	76	60.8	25	58.1	28	63.6	23	60.5
Improve/install fire alarms	43	34.4	18	41.9	12	27.3	13	34.2
Improve/install sprinklers	43	34.4	20	46.5	11	25.0	12	31.6
Improve pest management	59	36.0	23	53.5	15	34.1	21	55.3
<b>Environment</b>								
Improve/install lighting	73	58.4	27	62.8	26	59.1	20	52.6
Improve/install environment controls	99	79.2	35	81.4	35	79.5	29	76.3
Improve/install environment monitors	92	73.6	36	83.7	27	61.4	29	76.3
Improve/install air filtration	56	44.8	24	55.8	15	34.1	17	44.7
<b>Condition, storage &amp; handling</b>								
Improve collection handling	86	68.8	29	65.9	36	83.7	21	55.3
Improve storage systems	100	80.0	33	75.0	38	88.4	29	76.3
Increase storage space	64	51.2	24	54.5	20	46.5	20	52.6
Improve/increase use of enclosures	93	74.4	30	68.2	35	81.4	28	73.7
Improve care of specific formats	98	78.4	37	84.1	35	81.4	26	68.4
Improve exhibition practice	41	32.8	13	29.5	14	32.6	14	36.8
<b>Remedial care</b>								
Improve commercial binding	28	22.4	10	22.7	9	20.9	9	23.7
Improve in-house repair	50	40.0	23	52.3	14	32.6	13	34.2
Increase outside conservation services	41	32.8	15	34.1	13	30.2	13	34.2
Reformat/microfilm	43	34.4	9	20.5	19	44.2	15	39.5
Reformat/photographic	15	12.0	4	9.1	6	14.0	5	13.2
Reformat/photocopy	54	43.2	16	36.4	21	48.8	17	44.7
Reformat/digital	32	25.6	14	31.8	10	23.3	8	21.1
Reformat/other	9	7.2	3	7.0	4	9.1	2	5.3

(20.5 percent). Public libraries were the least likely type of institution to receive recommendations to hire additional staff (20.5 percent).

### Successful Outputs

This investigation attempts to discover the number of institutions for which an action was both recommended and accomplished. In order to distinguish only those preservation actions that were a direct result of the assessment process, participants were asked to indicate if an action was recommended, and, if they answered “yes,” to indicate whether or not the activity was accomplished or partly accomplished. One assumes that not all activities

need to be fully realized in order to be considered part of a successful preservation program. Only where the answer was “yes” (an action had been recommended) was information about accomplishment tabulated. “Yes” answers were always tabulated, even if data were not provided about whether it was accomplished or not. If the participant answered “no” or “do not know” about whether a listed action was recommended, all responses regarding its accomplishment was tabulated as “no answer” to avoid skewing the results. The findings are summarized in table 6, sorted starting with the highest percentage of accomplishment for a given action.

The data suggest that, with few exceptions, preservation action items are accomplished by the majority of

**Table 6.** Accomplished/recommended actions

Action recommended	Total reporting		Academic libraries		Public libraries		Other	
	No. acc./Rec.	%	No. acc./Rec.	%	No. acc./Rec.	%	No. acc./Rec.	%
Collection handling improved	75/86	87.2	27/29	93.1	30/36	83.3	18/21	85.7
Improved/increased proper enclosures	77/93	82.8	27/30	90.0	28/35	80.0	22/28	78.6
Reformat/photocopy	43/54	79.6	11/16	68.8	18/21	85.7	14/17	82.3
Improved exhibition practices	32/41	78.1	9/13	69.2	13/14	92.9	10/14	71.4
Preservation assigned to job responsibilities	32/41	78.1	13/19	68.4	9/11	81.8	10/11	90.9
Improved storage systems	78/100	78.0	25/33	75.8	31/38	81.6	22/29	75.9
Improved pest management	45/59	76.3	20/23	87.0	14/15	93.3	11/21	52.4
Improved physical access	38/50	76.0	14/15	93.3	12/17	70.6	12/18	66.7
Improved in-house repair	38/50	76.0	18/23	78.3	11/14	78.6	9/13	69.2
Provided staff with preservation training	74/90	75.6	28/32	87.5	21/32	65.6	19/26	73.1
Improved care specific formats	74/98	75.5	28/37	75.7	25/35	71.4	21/26	80.8
Reformat/digitization	24/32	75.0	12/14	85.7	7/10	70.0	5/8	62.5
Conducted further assessments	44/60	73.3	19/23	82.6	13/18	72.2	12/19	63.2
Increased conservation services	30/41	73.2	11/15	73.3	10/13	76.9	9/13	69.2
Preservation in mission	27/37	73.0	16/18	88.9	6/11	54.6	5/8	62.5
Improved/installed fire alarms	30/43	69.8	13/18	72.2	9/12	75.0	8/13	61.5
Improved commercial binding	19/28	67.9	8/10	80.0	7/9	77.8	4/9	44.4
Installed/improved plumbing	13/20	65.0	6/10	60.0	5/6	83.3	2/4	50.0
Obtained outside funding	50/77	65.0	12/28	42.9	17/26	65.4	21/23	91.3
Increased storage space	41/64	64.1	13/24	54.2	15/20	75.0	13/20	65.0
Emergency plan written	55/86	64.0	24/32	75.0	18/32	56.3	13/22	59.1
Reallocated existing resources	30/48	62.5	9/13	69.2	12/22	54.5	9/13	69.2
Improved/installed physical security	46/76	60.5	16/25	64.0	15/28	53.6	15/23	65.2
Improved/installed environmental monitors	55/92	59.8	24/36	66.7	13/27	48.2	18/29	62.1
Relocated to a better facility	21/36	58.3	9/17	52.9	5/10	50.0	7/9	77.8
Improved/installed environmental controls	57/99	57.6	20/35	57.1	18/35	51.4	19/29	65.5
Improved structural integrity of facility	29/51	56.9	12/17	70.6	7/15	46.7	10/19	52.6
Improved/installed lighting	41/73	56.2	14/27	51.9	15/26	57.7	12/20	60.0
Improved/installed sprinklers	24/43	55.8	10/20	50.0	8/11	72.7	6/12	50.0
Reformat/other	5/9	55.6	1/3	33.3	4/4	100.0	0/0	0.0
Improved structural design of facility	32/59	54.2	12/19	63.2	12/22	54.5	8/18	44.4
Improved/installed air filtration	30/56	53.6	12/24	50.0	8/15	53.3	10/17	58.8
Reformat/microfilm	23/43	53.5	5/9	55.6	10/19	52.6	8/15	53.3
Formed a preservation committee	11/21	52.4	8/13	61.5	1/5	20.0	2/3	66.7
Had collection appraised	16/32	50.0	7/13	53.9	8/13	61.5	1/6	16.7
Reformat/photographic	7/15	46.7	2/4	50.0	3/6	50.0	2/5	20.0
Constructed a better facility	20/45	44.4	7/19	36.8	9/17	52.9	4/9	44.7
Hired additional staff	16/41	39.0	8/18	44.4	2/9	22.2	6/14	42.9
<b>TOTAL</b>	<b>1,396/2,089</b>	<b>66.8</b>	<b>530/774</b>	<b>68.7</b>	<b>469/709</b>	<b>66.2</b>	<b>397/606</b>	<b>65.5</b>

institutions for which they are recommended. The activities accomplished by the highest percentage of those to which they were recommended were to improve handling of collections, improve or increase the use of proper storage enclosures, reformat holdings as photocopies, improve exhibition practices, assign preservation responsibilities as part of staff job descriptions, and improve storage systems. These were accomplished by 75 percent or more of the population studied. Over all, 66.8 percent of recommended actions were accomplished by the institutions to which they were recommended, averaging 11.2 actions per institution overall.

The action least likely to be implemented by those institutions to which it was recommended was to hire additional staff to assist with preservation activities. Only 16 of the 41 institutions (39.0 percent) that received recommendations to hire staff accomplished this. The questionnaire requested that institutions report on hindrances that prevented the implementation of preservation actions (see table 7). Second only to decreased institutional funding was reduced staffing levels organizationwide. The findings are therefore consistent. Otherwise, even those activities least successfully accomplished, such as constructing a better facility or reformatting holdings to a photographic film format, still approach a 50 percent success rate.

A review of actions accomplished according to institutional type indicates that academic institutions were most successful improving physical access to the facility, including preservation in their mission, and providing staff with preservation training. Public libraries were best at improving exhibition practices, improving or installing plumbing, and improving or installing sprinkler systems. "Other" institutions excelled at obtaining outside funding, assigning preservation responsibilities as part of job descriptions, and relocating to a better facility for storage and use of the collection. Compared to their peers, "other" institutions were less likely to improve pest management, have their collections appraised, and reformat their holdings to a photographic film format (not including microfilm). Public libraries had difficulty hiring additional staff and forming a preservation committee. Finally, the frequency with which recommended actions were accomplished is almost the same for the 3 types of institutions studied, and is comparable to the average overall: 66.8 percent of recommended actions were accomplished by all respondents, 68.7 percent by academic institutions, 66.2 percent for public libraries, and 65.5 percent by "others."

### Goals and Achievements

The results were sorted to discover if the institutions surveyed successfully accomplished the goals of their assessment (table 8). The principal interest for this population

was to prepare a preservation plan (see table 2). The second most often cited goal was to improve storage practices (by 95, or 76.0 percent of the population), and the third was to improve the environment (82, 65.6 percent). The actions, listed under each goal, are those listed in the questionnaire most related to that subject area. The data regarding implementation of these actions are reported only for those cases where the related goal was cited.

The majority of institutions with the goal of improving storage practices were successful improving storage systems, improving or increasing their use of proper enclosures, and improving collection handling. The rate of accomplishment ranged from 24.2 percent for improving exhibition practices, to 67.4 percent for improving storage systems. Just fewer than half the respondents were successful at improving storage practices (49.7 percent). Of those institutions interested in improving the environment as a goal of the assessment, 52.4 percent succeeded in improving or installing environmental controls and half improved or installed environmental monitors. The average rate of accomplishment for the recommendations in this category is 39.9 percent. The data

**Table 7.** Hindrances to Implementation

Hindrance	Freq.	%
Decreased institutional funding	71	56.8
Reduced staffing levels organization wide	58	46.4
Need for further preservation training	34	27.2
Other	34	27.2
Shift in organizational priorities	28	22.4
Reduced staffing levels in preservation	19	15.2
Change in administration	18	14.4
Need for further information about best practices	16	12.8
Change in organizational structure	9	7.2
None	6	4.8
Disaster resulting in significant loss	1	0.8
Transfer of collection to other institution	0	0
Change in mission	0	0

**Table 8.** Goals and achievements

	Freq.	%
<b>GOAL: Improve storage practices (n=95)</b>		
Improve collection handling	56	58.9
Improve storage systems	64	67.4
Increase storage space	36	37.9
Improve/increase use of enclosures	61	64.2
Improve care of specific formats	57	45.6
Improve exhibition practice	23	24.2
Average rate of accomplishment:	49.7	
<b>GOAL: Improve the environment (n=82)</b>		
Improve/install lighting	27	32.9
Improve/install environmental controls	43	52.4
Improve/install environmental monitors	41	50.0
Improve/install air filtration	20	24.4
Average rate of accomplishment	39.9	

indicate a relatively high rate of achievement in meeting the most frequently stated goals.

### Program Development

Administrative and staff support for preservation is critical to program success and development. The California Preservation Clearinghouse addresses the larger planning process of which preservation needs assessment is a part by suggesting that institutions should determine what kinds of resources they have to devote to establishing a preservation program before the needs assessment is undertaken.<sup>14</sup> Morrow says that “the single most important indicator of success in . . . implementing comprehensive preservation programs is leadership from the library administration,” and that if “the administration supports the development of the preservation program, then even without the resources needed to launch a multifaceted, well-endowed program, the library can still implement the most important elements and make significant progress in preserving its collections.”<sup>15</sup> Those responding to this study were asked to report whether support for preservation had increased, decreased, or stayed the same because of their general needs assessment (table 9). Of the 125 respondents, 65 (52.0 percent) report increased preservation support as a result of the general assessment, and 47 (37.6 percent) report that it had stayed the same. Ten institutions reported decreased preservation support.

The data were sorted by subject category and by year of assessment in order to gauge the degree of program comprehensiveness over time (table 10). Despite data indicating limited preparation of preservation plans, the findings here suggest that the implementation of activities based on the assessment are well-distributed among the six subject categories; none are neglected. Note that the average total number of actions accomplished per institution, year-to-year, increased over time, with the most accomplishments per institution for those surveyed during the earliest time period

under review (15.4), and the fewest accomplishments per institution in 2003 (6.6). These data suggest that many of the institutions that have undergone general assessments have succeeded in developing sustainable programs, supporting suggestions in the literature that the implementation of actions, activities, or services should result in “a continuous process of definition, planning, and priority-setting keyed to the needs of a particular library and its users.”<sup>16</sup>

Respondents were asked to consider what might have hindered their ability to implement preservation actions (table 7). Decreased institutional funding, reduced staffing levels in the organization overall, and the need for further preservation training were the three top items that were reported as having interfered with program success. Many respondents took the opportunity to submit written comments under the item “other” for this question. To summarize, 6 institutions reported building design problems, or had renovation or construction projects underway that hindered progress; 5 institutions specifically stated problems with staff or administrative support; and 3 had no preservation plan or only recently received their assessment report. Most of those that commented (17 of 34 institutions) reported a lack of resources; i.e., staffing, time, space, and funding. This lack of resources is a problem that the general assessment should assist institutions to address. However, as reported in the author’s earlier paper characterizing the assessment process, only 23 institutions (18.4 percent) reported that increasing staffing for preservation was one of

**Table 9.** Support of administration after assessment

Support	Freq.	%
Increased	65	52.0
Decreased	10	8.0
Stayed the same	47	37.6
Do not know	2	1.6
No answer/missing	1	0.8
<b>Total</b>	<b>125</b>	<b>100.0</b>

**Table 10.** Program development: Subject category by year of assessment

Year of assessment	No. of institutions surveyed (n=125)		Total action accomplished or partly accomplished				Building/facility		Loss prevention		Environment		Condition, storage, and handling		Remedial	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1985–89	8	6.4	123	15.4	25	20.3	17	13.8	16	13.0	18	14.7	29	23.6	18	14.6
1990–94	14	11.2	183	13.1	41	22.4	21	11.5	29	15.9	27	14.7	43	23.5	22	12.0
1995–99	27	21.6	362	13.4	78	21.6	37	10.2	55	15.2	46	12.7	95	26.2	51	14.1
2000	21	16.8	213	10.1	38	17.9	22	10.3	29	13.6	19	8.9	68	31.9	37	17.4
2001	21	16.8	205	9.8	48	23.4	20	9.8	25	12.2	27	13.2	62	30.2	23	11.2
2002	23	18.4	217	9.4	47	21.7	26	12.0	30	13.8	30	13.8	55	25.3	29	13.4
2003	7	5.6	46	6.6	11	23.9	5	10.9	6	13.0	8	17.4	11	23.9	5	10.9
No answer	4	3.2	47	11.8	6	12.8	5	10.6	10	21.3	8	17.0	14	29.8	4	8.5
<b>Total</b>	<b>125</b>	<b>100</b>	<b>1,396</b>	<b>11.2</b>	<b>294</b>	<b>21.1</b>	<b>153</b>	<b>11.0</b>	<b>200</b>	<b>14.3</b>	<b>183</b>	<b>13.1</b>	<b>377</b>	<b>27.0</b>	<b>189</b>	<b>13.5</b>

their goals for the study, and only 36 (28.8 percent) reported the goal of increasing their budget for preservation.<sup>17</sup>

### Indicators of Success

The data were sorted to discover if any trends could be detected among those institutions that had been most successful in implementing preservation actions subsequent to their general assessment. The 20 institutions with the highest number of accomplished actions, and no neglected subject categories, were segregated for examination. This example group, representing 16.0 percent of respondents, had an average of 23.7 actions implemented per institution, compared to 11.2 for the population as a whole. Characteristics of the example group are summarized in table 11, and characteristics of the assessment process are presented in table 12.

The institutions with the highest success rate include these characteristics:

- Those with a greater number of staff are more successful than those with a smaller number of staff at accomplishing preservation action items. Of those having more than 40 staff, 45 percent are represented in the example group, versus 30.4 percent for the population. Fewer public libraries are represented in the example as compared to the population under review.
- In the example group, 35.0 percent devote 1.0 or greater FTE to preservation activities, versus 22.4 percent for all respondents.

- A slightly higher number of institutions spent more than 20 hours preparing for their site visit in the example group (75.0 percent) than the population (61.7 percent). Significantly, fewer institutions in the example reported spending fewer than 20 hours at preparation (5.0 percent), compared to the population (37.6 percent).

Several factors may influence an institution's ability to implement preservation recommendations:

- A longer site visit correlates positively to the success of the assessment, with 55.0 percent of the example group reporting 2 to 5 days for the review, versus 38.4 percent of all respondents.
- A slightly greater number of report components (a mean of 4.75 for the example, and 4.48 for the population), as well as follow-up services (2.75 for the example group, and 2.42 for all respondents) may assist in the implementation of findings.
- An assessment that results in increased administrative and staff support for preservation may result in an enhanced capability to implement recommendations. Overall, 65.0 percent of the example group reported an increase in support as a result of their assessment, compared to 52.0 percent of all responding institutions.
- Updating preservation goals and objectives after the assessment positively influences an institution's ability to implement findings. Data indicate that 80 percent of the example group report updating their goals, compared to 56.8 percent of all respondents. The percent of

**Table 11.** Characteristics of the institutions—example group (n=20)

Institution type	Example %	Population %	No. of staff	Example %	Population %	Year of assessment	Example %	Population %
Academic	40.0	34.4	> 100	10.0	14.4	1985–89	15.0	6.4
Public Library	20.0	35.2	70–100	10.0	4.8	1990–94	15.0	11.2
Other	40.0	30.4	40–69	25.0	11.2	1995–99	35.0	21.6
			20–39	35.0	20.0	2000	5.0	16.8
			10–19	10.0	27.2	2001	5.0	16.8
			5–9	0.0	9.6	2002	20.0	18.4
			<5	10.0	12.0	2003	5.0	5.6
			No Answer	0.0	0.8	No Answer	0.0	3.2
Mean No. Goals	5.95	5.49						

Staff time for preservation (FTE)	Time to prepare/hours		Time after site visit/hours	
	Example %	Population %	Example %	Population %
>5	5.0	2.4	<20	5.0
4.0-5.0	5.0	2.4	20–40	40.0
3.0-3.9	5.0	4.0	41–100	15.0
2.0-2.9	0.0	3.2	>100	20.0
1.0-1.9	20.0	10.4	Do Not Know	0.0
0.5-0.9	15.0	24.8	No Answer	0.0
<0.5	50.0	51.2		
No Answer	0.0	1.6		

institutions in the example that reported preparation of a preservation plan was almost the same as the population. This suggests that preservation becomes programmatic despite limited formal planning.

### Conclusion

This study of outputs that are a direct result of a general preservation needs assessment verifies that, with few exceptions, preservation actions are accomplished by the majority of institutions for which recommendations are made. Most institutions are able to implement findings within 6 months of their review, with the highest reported start time within 2 weeks following the conclusion of the assessment. This suggests that the format of the report and the findings are appropriate for the majority of institutions, and that the information provided supports achievement of preservation actions. An analysis of an example group of the most successful institutions indicates the importance of the process, having a slightly higher reported mean for report components and follow-up services than the population as a whole.

Most institutions were not successful in preparing a preservation plan (only 29.6 percent prepared a written draft). Of those citing this as one of their goals, 33.0 percent were successful in plan preparation, slightly more than all other respondents were. Those institutions that cited improving storage practices and improving the environment

as goals of their assessment had a higher rate of achieving these goals based on their ability to implement related recommendations. A review of staffing and budget issues should be a major goal of the assessment; these are major hindrances to an ability to implement recommendations and to program success.

Most recommendations were for preventive activities and were well-distributed by subject. Over all, 66.8 percent of recommended actions were accomplished by the institutions to which they were recommended, averaging 11.2 actions per institution. Those surveyed during the earliest period being studied had the highest average rate of accomplishment of preservation actions per institution, suggesting that programs are continuous and that time is required to implement some activities.

Preparation of a preservation plan does not correlate to an enhanced capacity to implement preservation action items based on a review of those institutions with the highest success rate. However, data indicate that 80 percent of the example group with the highest success rate for implementation updated their goals, compared to 56.8 percent of all respondents. The percent of institutions in the example and the population that reported preparation of a preservation plan was almost identical.

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**Table 12.** Characteristics of assessment process—example group (n=20)

Time for site visit	Example %	Population %	Time to implementation	Example %	Population %
<1 day	5.0	8.8	< 2 weeks	30.0	21.6
1 day	40.0	48.0	2–4 weeks	10.0	12.8
2 days	30.0	29.6	1–3 months	10.0	16.8
3–5 days	25.0	8.8	3–6 months	15.0	11.2
Other	0.0	1.6	6 months–1 year	25.0	15.2
Missing	0.0	3.2	1–2 years	0.0	3.2
			2 + years	0.0	2.4
<b>Adequate time for site visit</b>	<b>Example %</b>	<b>Population %</b>	Do not know/missing	10.0	12.4
Yes	90.0	78.4	No implementation	0.0	6.4
Too much	0.0	0.8			
Too little	0.0	10.4			
Do not know/no answer	10.0	9.6			
				<b>Example</b>	<b>Population</b>
			Avg. no. of actions implemented	23.7	11.2
	<b>Example</b>	<b>Population</b>	<b>Preservation plan</b>	<b>Example %</b>	<b>Population %</b>
Report components/mean	4.75	4.48	Yes	30.0	29.6
Assessor follow-up services/mean	2.75	2.42	No	70.0	64.8
Hindrances/mean	2.25	2.33	Do Not Know	0.0	3.2
			No Answer	0.0	2.4
<b>Administrative and staff support</b>	<b>Example %</b>	<b>Population %</b>	<b>Goals updated</b>	<b>Example %</b>	<b>Population %</b>
Increased	65.0	52.0	Yes	80.0	56.8
Decreased	10.0	8.0	No	20.0	37.6
Stayed the same	25.0	37.6	Do Not Know	0.0	3.2
Do not know/no answer	0.0	2.4	No Answer	0.0	2.4

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## Appendix: Questionnaire on Use of General Preservation Assessments

Please answer each question to the best of your ability. You may choose not to answer any question(s) you do not wish to. Please leave these questions blank.

I PREFER NOT TO PARTICIPATE IN THIS STUDY

MY INSTITUTION HAS NOT HAD A GENERAL PRESERVATION ASSESSMENT

If you checked either of the boxes above please return the questionnaire now. Thank you.

### PART I: THE GENERAL PRESERVATION ASSESSMENT PROCESS

1. Which of the following most closely defines your institution? Check one

- |   |   |
|---|---|
| <input type="checkbox"/> College or university        | <input type="checkbox"/> Museum                   |
| <input type="checkbox"/> Public library               | <input type="checkbox"/> Historical society       |
| <input type="checkbox"/> Independent research library | <input type="checkbox"/> Other (please describe): |
| <input type="checkbox"/> Archives                     |   |

2. What is the total number of your institutional staff?

- > 100       10 – 19  
 70 – 100       5 – 9  
 40 – 69       < 5  
 20 – 39

3. How much staff time is devoted to preservation activities?

- More than 5.0 FTE       1.0 – 1.9 FTE  
 4.0 – 5.0 FTE       0.5 – 0.9 FTE  
 3.0 – 3.9 FTE       Less than 0.5 FTE  
 2.0 – 2.9 FTE

4. When was your most recent assessment conducted?

- 1985 to 1989       2001  
 1990 to 1994       2002  
 1995 to 1999       2003  
 2000

5. Did you receive grant funding to pay for the assessment?

- Yes       No       Do not know

6. How much time do you estimate was spent in advance of the site visit preparing for the review? Include committee time, application/contract preparation, etc.

- Less than 20 hours       More than 100 hours  
 20 to 40 hours       Do not know  
 41 to 100 hours

7. Your major goals for undertaking an assessment were to: Check all that apply

- Increase staff awareness of preservation       Improve security  
 Increase administrative support       Improve pest management  
 Develop a preservation plan       Advance repair activity  
 Increase staffing for preservation       Advance reformatting activity  
 Increase the budget for preservation       Improve exhibition practices  
 Improve the facility       Do not know  
 Improve storage practices       Other (please describe):  
 Improve the environment

8. Did your institution complete a “pre-survey questionnaire” to help familiarize your assessor with the institution in advance of the site visit?

- Yes       No       Do not know

9. The expert who conducted your general preservation assessment was a/n: Check one

- Outside assessor       Student  
 Staff member       Do not know  
 Volunteer       Other (please describe):

10. Did your assessor use a guide or tool to direct the assessment?

- Yes       No       Do not know

11. The site visit lasted:

- Less than 1 day       3 to 5 days  
 1 day       Other (please describe):  
 2 days

12. Do you feel there was adequate time to conduct the site review?

- Yes       Too much  
 Too little       Do not know

13. The assessment considered: Check all that apply

- Organizational context
- Collections management
- Access and use
- Bibliographic control
- Emergency management
- Training needs
- Security
- General condition of the collection
- Condition of special collection
- Environmental factors

14. Which of the following was included in your assessment report? Check all that apply

- Executive summary
- Background information on preservation topics
- Observations from the site visit organized by preservation topic
- List of recommended preservation actions organized by priority
- Information to achieve the required preservation actions
- Appendices with further resources
- No report was issued
- Do not know
- Other (please describe):

15. After the site visit your assessor: Check all that apply

- Discussed recommendations before submitting a report
- Delivered an oral report of findings
- Inquired if there were corrections, concerns, etc.
- Requested your evaluation of the assessment
- Responded to requests for further information
- Discussed implementation strategies
- Provided no follow-up services
- Do not know
- Other (please describe):

16. How much time did the staff spend after the site visit reviewing the findings generated from the assessment?

- Less than 20 hours
- 21 to 40 hours
- 41 to 100 hours
- More than 100 hours
- Do not know

17. How long after the conclusion of assessment (i.e., report delivery) did you begin to implement findings? Check one

- Less than 2 weeks
- 2 to 4 weeks
- 1 to 3 months
- 3 to 6 months
- 6 months to 1 year
- 1 to 2 years
- More than 2 years
- Do not know
- No findings were implemented

18. Did you draft a written preservation plan based on the information provided by the assessment?

- Yes
- No
- Do not know

19. Have you updated your preservation goals and objectives since your assessment was conducted?

- Yes
- No
- Do not know

20. Since your assessment administrative and staff support of preservation has: Check one

- Increased
- Decreased
- Stayed the same
- Do not know

**PART II: OUTCOMES**

21. The following are recommendations that might be reported based on findings of a general preservation assessment. Please indicate if they were recommended to you and, if yes, whether or not they were accomplished.

Recommendation	RECOMMENDED AS PART OF ASSESSMENT Check One			RECOMMENDED & ACCOMPLISHED SUBSEQUENT TO ASSESSMENT Check One		
	Yes	No	Do not know	Accomplished	Partially Accomplished	Not accomplished
Form a preservation committee						
Change the organizational mission to include preservation						

Recommendation	RECOMMENDED AS PART OF ASSESSMENT Check One			RECOMMENDED & ACCOMPLISHED SUBSEQUENT TO ASSESSMENT Check One		
	Yes	No	Do not know	Accomplished	Partially Accomplished	Not accomplished
Conduct further assessments of the building or collections						
Have collection materials appraised						
Obtain outside funding for preservation activities						
Reallocate existing resources for conservation/preservation activities						
Hire additional staff to assist with preservation activities						
Provide staff w. preservation training						
Assign preservation responsibilities as part of staff job descriptions						
Improve structural design of facility where collection is stored/used						
Improve structural integrity of facility where collection is stored/used						
Construct a better facility for storage and/or use of the collection						
Relocate to a better facility for storage and/or use of the collection						
Write an emergency prevention and response plan						
Improve or install:						
Plumbing						
Physical access						
Physical security						
Lighting						
Environmental controls						
Environmental monitors						
Air filtration						
Physical security						
Fire alarms						
Sprinkler system						
Pest management						
Improve handling of collections						
Improve storage systems (shelving, cabinets, etc.)						

Recommendation	RECOMMENDED AS PART OF ASSESSMENT Check One			RECOMMENDED & ACCOMPLISHED SUBSEQUENT TO ASSESSMENT Check One		
	Yes	No	Do not know	Accomplished	Partially Accomplished	Not accomplished
Increase storage space						
Improve or increase use of proper storage enclosures						
Improve care of specific collection formats (i.e., photographs, rare books, magnetic media, etc.)						
Improve quality and appropriateness of commercial library binding						
Improve quality and appropriateness of in-house repair methods/materials						
Increase contracting of outside conservation services						
Improve exhibition practices						
<b>Reformat holdings:</b>						
To microfilm						
To other photographic film format(s)						
As photocopies						
By digitization						
Other						

22. Which of the following may have hindered your institution's ability to implement preservation recommendations.

Check all that apply

- |   |   |
|---|---|
| <input type="checkbox"/> Change in administration   | <input type="checkbox"/> Reduced staffing levels in preservation units            |
| <input type="checkbox"/> Change in institutional mission  | <input type="checkbox"/> Decreased institutional funding                          |
| <input type="checkbox"/> Change in organizational structure                                       | <input type="checkbox"/> Disaster resulting in significant loss of the collection |
| <input type="checkbox"/> Shift in organizational priorities                                       | <input type="checkbox"/> Transfer of collection to other institution              |
| <input type="checkbox"/> Reduced staffing levels organization-wide                                | <input type="checkbox"/> None   |
| <input type="checkbox"/> Need for further information about best practices on preservation topics | <input type="checkbox"/> Other (please describe):                                 |
| <input type="checkbox"/> Need for further preservation training                                   |   |

23. Please provide any comments you might have about ways that might improve the general preservation assessment in the space below.

Thank you for your input and assistance with this project. Please respond by November 30, 2003, using the self-addressed, stamped envelope provided or mail to:

Karen Brown, Preservation Librarian  
 University at Albany Libraries LE310  
 1400 Washington Avenue  
 Albany, NY 12222

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# Book Reviews

Edward Swanson

***Information Retrieval Design: Principles and Options for Information Description, Organization, Display and Access in Information Retrieval Databases, Digital Libraries, Catalogs, and Indexes.*** By James D. Anderson and José Pérez-Carballo. St. Petersburg, Fla.: Ometeca Institute, 2005. 617p. \$60 softbound (ISBN 0-9763547-0-5).

Anderson and Pérez-Carballo have provided an engaging and thorough discussion of information retrieval (IR) system design concepts that will prove useful to information science and library science professionals. The authors approach this endeavor with significant practical and research experience in this field, experience that is evident throughout their incisive discussions of IR design concepts and theory, much of which they've applied to the text itself as an example of how those concepts might be applied to a book and its accompanying index.

IR databases as defined in this book range from databases presented online and through CD-ROMs, indexing and abstracting services, print, library catalogs (online and card), bibliographies, and indexes (including those in the backs of books). The design concepts presented throughout the book are addressed as they apply to each of these types of IR databases. One of the strengths of this book is the selection of IR database examples that are then followed and built upon throughout the book, with each chapter's design concept applied to that example.

The book is in two parts. The first part contains an introductory chapter that is an excellent description of the issues addressed by the book. It includes a lengthy section highlighting and defining many of the most important terms and concepts addressed throughout, followed by a discussion of the difficulties that the information community has experienced in attempting to determine a standard for indexes and filing, and finally the types of documents that would be described in an IR database.

The second part contains twenty chapters, each of which addresses an IR design concept or issue and decisions that must be made regarding that issue. The discussions in the first few chapters addressing the subject scope of the database, the documentary scope, and the documentary domain (the territory from which documents are obtained for the database) are particularly incisive. Discussions regarding display media, documentary units (degree of analysis), and indexable matter are also quite useful for the IR database designer.

Of particular interest to library professionals or educators are lengthy and thorough discussions of analysis and indexing methods, exhaustivity and specificity, and syntax

and vocabulary management. The three chapters addressing these concepts form a substantial core of the book and provide many insightful perceptions that will prove helpful to the practitioner. Chapter eight, addressing analysis and indexing methods, provides a thorough examination of human indexing methods, emphasizing that human indexers rarely agree on what is important about a text or what to call it, and cites the large literature on indexer inconsistency. The authors follow with a detailed description of automatic indexing methods, focusing primarily on language texts.

Chapters nine and ten address exhaustivity and specificity, respectively. The discussions of exhaustivity, the level of detail applied to the descriptions of topics, and specificity, "the degree of correspondence between an index term or descriptor and the topic or feature to which it refers" (185), will seem familiar to the library professional. Included in these discussions is an analysis of precision and recall, the definitions of which are useful measures for evaluating the quality and usefulness of an IR database. Precision is defined as the number of relevant documents retrieved divided by the number of all documents retrieved; recall is defined as the number of relevant documents retrieved divided by the number of relevant documents in the database.

Syntax, discussed in chapter twelve, is a common concept for the cataloger as applied to Library of Congress Subject Headings. However, the extensive discussion of syntax supplied here as applied in many types of IR databases will prove illuminating and useful. Syntax, as defined in this book, "refers to patterns or rules for putting words together to create texts for messages in a language" (205). The discussion includes comparisons of precoordinate and postcoordinate syntax, such as Library of Congress Subject Headings, Medical Subject Headings, and others familiar to library professionals. Lesser-known syntax include string syntax, such as rotated term syntax, faceted syntax, and others. While not commonly applied in library catalogs, discussions of alternative methods of building indexes and index entries will be of interest to librarians.

Chapter thirteen, addressing vocabulary management, forms another substantial portion of the book. It describes a variety of problems relating to vocabulary as a part of any IR database and follows with an analysis of the research on vocabulary management issues. It then presents a series of solutions to those problems, exploring each of those solutions in depth. These solutions range from providing syndetic structure to indexing thesauri and searching thesauri (for the end-user). Final chapters address the use of surrogates

(such as catalog records), displays, and the search interface, among other issues.

Overall, this book provides a thorough examination of the issues surrounding the design and creation of IR databases, whether they be an online catalog, a full-text indexing and abstracting service, or an index in the back of a book. It is a substantial contribution to the literature of both library and information science, and would be an excellent choice as a textbook for either of those fields.—*Rebecca L. Mugridge (rlm31@psu.edu), Pennsylvania State University, University Park*

***No Innocent Deposits: Forming Archives by Rethinking Appraisal.*** By Richard J. Cox. Lanham, Md.; Oxford: Scarecrow, 2004. 303p. \$49.50 softbound (ISBN 0-8108-4896-1).

Richard J. Cox forthrightly alerts the reader that “this is not a primer on archival appraisal, but it is a set of chapters reflecting my own wrestling with the challenges and contradictions (and there are both) of the archival function of appraisal” (12). He also disclaims any coverage of the practical aspects of doing appraisal, leaving it “to others to try the write the basic, how-to manuals on appraisal” and a “workable set of principles for archival appraisal” (12). We are left with the redundant and repetitive ruminations of a prolific writer demonstrating a vain exercise in publishing his collected writings on one topic. Arranged by order of their writing, the chapters reflect the evolution of Cox’s thinking about appraisal over a seven-year period. Of the ten chapters, five appeared in print as journal articles between 1997 and 2002, and three are conference presentations from 2002.

The major themes running throughout the book focus on appraisal as the crucial practice for avoiding the collecting mentality of most everyone in and out of the profession, and the need for archivists and records managers to engage in appraisal before records leave the office of origin. Cox argues that archives do not just happen, but that they are willfully created by archivists during the appraisal process and through collecting documentary evidence, by the creators of records, and by other individuals and institutions.

Cox knows what he does not like and dismisses authors with whom he disagrees. He comes off as full of himself, quoting his own work as authority for current claims. He worked as an archivist for sixteen years, 1972–1988, and then began teaching. As a non-practicing archivist for the last seventeen years, Cox has no hands-on experience with changes in the profession. When he rails against archivists soliciting and accepting donated collections as not proactive appraisal, one wonders if he understands the politics involved in donor relations at the higher levels of administration. In his perfect world, archivists should encourage organizations to establish and maintain their own archives rather than donating them to an existing repository, but Cox

does not address how to do this kind of advocacy or acknowledge the practical aspects that some organizations just do not care about their history.

Among the redundancies, Cox posits that the general public does not really know what archives are (true), refers continually to archivists’ and the public’s opposite reactions to Nicholson Baker’s diatribe against microfilming and discarding old newspapers in *Double Fold* (and his own rebuttal book), and denigrates the memorialized collecting of memory and artifacts following the September 11 attacks on the World Trade Center as more akin to scrapbooking and time capsule creation than archival appraisal.<sup>1</sup>

Despite these faults, Cox does provide provocative ideas for the profession to consider in rethinking appraisal. One only wishes that he had taken the time to sort out his ideas, write the book from scratch rather than cobble together his timeline of thoughts, and give us some forward-thinking notions of what new directions archivists should take appraisal. While Barbara L. Craig introduces appraisal and gives sound explanations of theory and practical advice, and Frank Boles provides a review of diverse theories and offers a guide to the process, addressing several issues including reappraisal, Richard Cox aims to get archivists thinking about appraisal and “reconsider what it is that they are doing or at least to ask if their efforts are working” (193).<sup>2</sup> As a provocateur, Cox is at his best in prodding archival professionals, whether they agree or disagree with him, to think rather than continuing to do the same work by rote or because that’s the way it’s always been done.

This book received the 2005 Waldo Gifford Leland Award from the Society of American Archivists. The award encourages and rewards writing of superior excellence and usefulness in the field of archival history, theory, or practice. As such, *No Innocent Deposits* deserves a place on libraries’ bookshelves, especially those lacking the journals from which these chapters emerged. Cox likes to shake the archival tree, and in this book he certainly will garner attention when the apples land on archivists’ heads. Some will accept the fruit as an enlightening gift, some will take a bite and spit out the sour piece, and others will leave the apples to rot on the ground. Whatever the outcome, Cox will have succeeded in raising the profession’s awareness of the need to rethink appraisal.—*Susan Hamburger (sxh36@psu.edu), Pennsylvania State University, University Park.*

## References

1. Nicholson Baker, *Double Fold: Libraries and the Assault on Paper* (New York: Random House, 2001); Richard J. Cox, *Vandals in the Stacks? A Response to Nicholson Baker’s Assault on Libraries*, Contributions in Librarianship and Information Science No. 98. (Westport, Conn.: Greenwood, 2002).

2. Barbara L. Craig, *Archival Appraisal: Theory and Practice* (Munich: K. G. Saur, 2004); Frank Boles, *Selecting and Appraising Archives and Manuscripts*, Archival Fundamentals Series II (Chicago: Society of American Archivists, 2005).

***Internet and Personal Computing Fads.*** By Mary Ann Bell, Mary Ann Berry, and James L. Van Roekel. New York: Haworth, 2004. 210p. \$15.95 softbound (ISBN 0-7890-1772-5); \$39.95 hardbound (ISBN 0-7890-1771-7).

I have seldom had a more difficult book to review. If every book has its reader, I struggled mightily to define the intended audience for this one. To deal with the format first, the authors provide a one- to two-page encyclopedia-type article for slightly more than one hundred terms. They do not provide a succinct dictionary definition but rather introduce each term through an extended, chatty discussion. Most often, the authors provide at least one anecdote or amusing fact about the topic. Where appropriate, they give the history and possible future developments in the area under discussion. Each entry then concludes with a brief bibliography, from both print and online sources, of two to five references. As could be expected with a 2004 publication date, the most recent entries appeared in 2003. Quite a few are from much older resources, although this is often appropriate for the many historical topics in the volume. The authors provide very few cross-references, though the twelve-page index provides access to terms embedded in the individual articles.

The “grabber” title does not help very much in clarifying the book’s purpose. The authors describe much more than fads, including a broad range of computer and Internet terms. While some are indeed fads (“Nanny Cams” or recent developments such as “Wearable Computing Devices”), the authors also include history (“ENIAC,” “History of Computer Hardware,” and “Gopher”) and general concepts, such as “Mac versus PC,” “Technophobia,” and “Copyright.” The authors do not explain how and why they selected the terms that they did. I could have easily picked a completely different set of one hundred terms for another volume with the same title.

The authors do not help very much in the introduction, where they state that this book “could be useful in high school and academic libraries, public libraries, and for general use by readers wanting to become more familiar with fads, trends, and events relating to computers and the Internet and the language used to describe them” (xiii). As far as libraries, my question would be: “Useful for what?” With the randomness of the entries, I doubt that the volume would have much use as a reference work, though the encyclopedic format suggests this possibility. To get a quick definition, I would instead use an Internet source, such as the Netdictionary ([www.netdictionary.com](http://www.netdictionary.com)), or one of the many print dictionaries in this area. Another problem for reference use is that many of the entries are already dated. In fact, some of the best entries are the historical ones,

although their subject matter certainly does not usually fall into the category of fads. For many of the same reasons, I see little possibility of scholarly use and do not expect to find this title high in the citation counts.

In my quest for the book’s essence, the Library of Congress cataloging turned out to be quite helpful. The cataloger did not consider it as a “dictionary” of any sort and put “Fads” way down the list as the fourth subject heading. Instead, the cataloger chose three general subject headings (Information society, Internet—Social aspects, and Microcomputers) to describe its contents. The classification was also social science both in the Library of Congress Classification (HM) and the Dewey Decimal Classification (303) rather than computer science.

One final piece of evidence was the price. At \$15.95 for the softcover edition, Haworth is targeting the general reader directly, as the quote above stated, as titles for the library market are normally much more expensive.

As Sherlock Holmes solving the mystery, I finally concluded that what we have here is an excellent bathroom book—that is, an entertaining book meant to be read a few self-contained pages at a time. (Amazingly, I was not able to find a definition of bathroom book, but see Amazon.com for numerous examples.) The authors have compiled more than one hundred entertaining short essays that range from the very specific (“Emoticons”) to the very general (“Privacy”) and everything in-between. Each entry or essay stands alone so that entries can be read nonsequentially, as the alphabetical order provides no intrinsic value. The focus on amusing facts rather than succinct definitions then makes sense as a way to engage the reader to come back for one more entry or two the next time nature calls.

Even within this limited context, the authors could have been a bit more careful. The entries on “Computer Simulation” and “Virtual Reality” cover the same concept with no cross-reference between them. I also have a hard time understanding why bots would be configured for tasks such as “irradiating [computer] viruses” (13). I hope that the intended term was “eradicate,” as I certainly do not want to encounter a radioactive computer virus on my desktop.

I hope that I have not been too harsh. I liked the book and enjoyed reading it on my recent vacation. I do not believe, however, that it is a serious scholarly work. Go ahead and buy it for recreational reading. It costs less than many trashy novels and may provide even more entertainment with a bit of serious knowledge thrown in.—*Robert P. Holley (aa3805@wayne.edu), Wayne State University, Detroit, Mich.*

***Digital Libraries: Policy, Planning and Practice.*** Eds. Judith Andrews and Derek Law. Burlington, Vt.: Ashgate, 2004. 263p. \$89.95 hardbound (ISBN 0-7546-3448-5).

*Digital Libraries* consists of contributions from a variety of digital library researchers and practitioners, with

representation from both the United States and the United Kingdom. The focus of the book, however, is somewhat unclear, and the quality uneven. Perhaps the biggest drawback to this volume is its lack of timeliness; the rapid development of digital library technology over the last few years is poorly represented here, due to the time required to publish a print volume. The contributions reflect a wide variety of interpretations of the term “digital library,” and the brief introductory chapter by the editors does little to frame the discussion toward one definition or as a celebration of the differences. The two remaining introductory chapters, by William Mischo and Stephen Pinfield, focus on the history of digital libraries in the United States and the United Kingdom, providing useful background information to help the reader understand the initiative presented in the rest of the book.

Part 1 is titled “Policy and Planning,” and includes five chapters devoted to issues affecting digital libraries as a whole. The highlight of Part 1 is the chapter by Mike Lesk on “How to Pay for Digital Libraries.” Lesk analyzes a variety of cost models for digital libraries, considering each with respect to both organizational and user needs. This chapter takes a big-picture view of the cost problem, at all times keeping in mind the rationale for digital library initiatives, rather than just their mechanisms. The chapter by Derek Law similarly addresses the place of digital libraries in the larger information landscape, discussing “Content and Services Issues for Digital Libraries.” Law provides a welcome reminder that writings on digital libraries too frequently focus on technology as an end unto itself, rather than “e-collection building and online services” (53). This chapter considers a sample of digital library collections and initiatives in terms of a typology developed by Dan Greenstein under the auspices of the Digital Library Federation, consisting of local digitization projects, data creation projects, third-party data resources, and Internet gateways.

The remaining chapters in Part 1 focus on further specific aspects of digital libraries. Steven Harnad’s chapter presents a spirited, if activist, view of the progression in scholarly communication toward an open-access model that seems a bit out of place next to the other contents of the volume. Susan Lazinger writes about “Issues of Policy and Practice in Digital Preservation,” discussing selection, stakeholders, methods, and cost of digital preservation, although the text in this chapter interchangeably describes preservation of digital data and digitization as a means of preservation for analog materials. The final chapter in Part 1 covers “Evaluating Electronic Information Services” and is supplied by Pete Dalton and colleagues from the eVAL-UEd project. A wide range of evaluation methodologies are discussed, providing a broad yet shallow introduction to the topic.

Part 2, “Implementation and Practice,” presents five diverse case studies in the development of large-scale digital libraries. Alan Dawson discusses the development of the Glasgow Digital Library in terms of sixteen research areas identified in the digital library literature. Each of these areas is examined for issues and problems, solutions, and lessons learned in Glasgow. Assessments of the practical importance of the issue and relative time spent on it are also included for each. This chapter in particular suffers from the time lag between writing and publishing—the technology described is strikingly out of date. The contribution by Chris Dodd and Judith Andrews, “The Development of UCEEL: A Digital Library for the University of Central England,” describes a digital library implementation using and customizing an off-the-shelf system. Edward Fox and colleagues present an overview of the “Networked Digital Library of Theses and Dissertations (NDLTD)” project. This chapter presents a clear, concise overview of a high-profile, long-standing project harvesting metadata and re-exposing the aggregated collection to service providers that add value to the pooled metadata. The NDLTD chapter is one of the few to explicitly address the library perspective, along with the following entry, “The Variations and Variations2 Digital Music Library Projects at Indiana University,” written collaboratively by Jon Dunn and three colleagues. This chapter outlines the development of digital music initiatives at Indiana University from a ground-breaking system delivering streaming audio in the mid-1990s to a multifaceted digital music library system almost ten years later. Part 2 concludes with “Beyond Bricks and Mortar: Building a Digital Library Program at the Library of Congress” from Diane Nester Kresh. This chapter provides an appropriate wrap-up to this section of the book, tracing the history of digital library initiatives at the Library of Congress, including the American Memory set of projects and the National Digital Library program. Issues of content, services, and delivery in the digital domain as vital to the notion of a library are examined. The section on lessons learned is particularly insightful, despite an error referring to metadata harvesting via the OAIS (Open Archival Information System Reference Model), rather than the OAI (Open Archives Initiative Protocol for Metadata Harvesting).

Part 3, titled “The Way Ahead,” strangely contains only a single chapter, describing a single issue. Mel Collier asks “After the Digital Library Decade: Where Are the Next Frontiers for Library Innovation?” Yet this chapter only settles on one frontier, labeled here as “e-learning.” While digital libraries pose tremendous potential for transforming instruction, this volume misses an opportunity to synthesize the extensive and relevant information presented in the bulk of the text into concrete lessons for the future.—*Jen Riley (jenrile@indiana.edu), Indiana University–Bloomington*

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