

Library Resources & Technical Services

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**TalkLeft, Boing Boing,
and Scappleface**

*Paul Moeller and
Nathan Rupp*

**Analog People for
Digital Dreams**

Janet Swan Hill

**Impact of Full Text on
Print Journal Use**

Steve Black

**Students As
Cataloging Assistants**

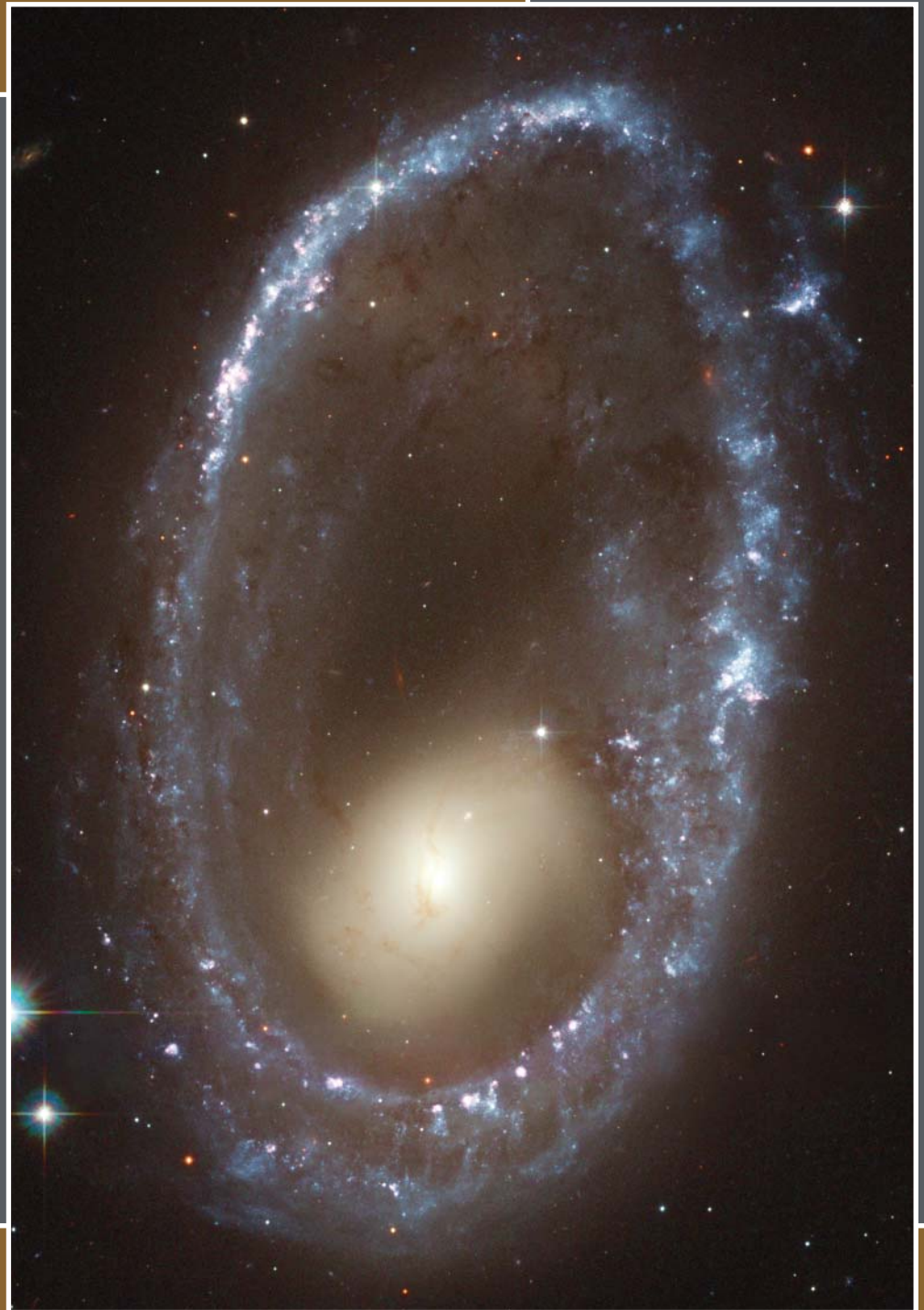
Timothy H. Gatti

**Challenges for the Future
of Library and Archival
Preservation**

Thomas H. Teper

**Production Benchmarks
for Catalogers**

Michael D. Charbonneau



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Volume 49, No. 1

Editorial	3
<i>Peggy Johnson</i>	
Letters to the Editor	4
ARTICLES	
TalkLeft, Boing Boing, and Scrappleface	7
The Phenomenon of Weblogs and Their Impact on Library Technical Services <i>Paul Moeller and Nathan Rupp</i>	
Analog People for Digital Dreams	14
Staffing and Educational Considerations for Cataloging and Metadata Professionals <i>Janet Swan Hill</i>	
Impact of Full Text on Print Journal Use at a Liberal Arts College	19
<i>Steve Black</i>	
Utilization of Students As Cataloging Assistants at Carnegie Category I Institution Libraries	27
<i>Timothy H. Gatti</i>	
Current and Emerging Challenges for the Future of Library and Archival Preservation	32
<i>Thomas H. Teper</i>	
Production Benchmarks for Catalogers in Academic Libraries	40
Are We There Yet? <i>Michael D. Charbonneau</i>	
NOTES ON OPERATIONS	
Cataloging the Special Collections of Allegheny College	49
<i>Barry Gray</i>	
FEATURES	
Book Reviews	57
<i>Edward Swanson, Editor</i>	
Index to Advertisers	68

About the cover: t/k

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Editorial

Peggy Johnson

Every fall, the American Library Association (ALA) sponsors Banned Books Week (BBW) to focus attention on challenges to the freedom to choose what to read and the freedom to express one's opinion (even if that opinion might be considered unorthodox or unpopular). BBW stresses the importance of ensuring the availability of those unorthodox or unpopular viewpoints to all who wish to read them. It also highlights activities that have sought to limit these two freedoms: freedom of expression and freedom of access. Last September, as part of the messages relating to BBW, ALA announced that Judy Blume, who received the National Book Foundation 2004 for Distinguished Contribution to American Letters, is the second most censored author of the past fifteen years. Lists of the most frequently challenged books of 2003, most frequently challenged authors of 2003, and the ten most challenged authors since 1990 can be found at www.ala.org/ala/oif/banned-booksweek/challengedbanned/challengedbanned.htm.

The role that libraries and librarians have played in censorship is fascinating. Early American library leaders were confident and proud of their responsibility as moral censors. Authur E. Bostwick explained the positive role of librarians as censors in his 1908 ALA presidential address, when he stated that librarians have a responsibility to censor anything that is not Good, True, and Beautiful.¹ Apparently, they all knew it when they saw it. Even as late as 1940, Leon Carnovsky advocated censorship of local prejudice and opinion and wrote about librarians exercising "the authority of reason as the censor."²

Today's librarians tend to shudder when they see the role of librarians paired with that of censor, yet many of us could be considered to be exercising censorship, albeit unintentionally, when we fail to select materials representing a pluralistic society or when we shy away from materials because they are unfamiliar in content or format or challenging to identify, acquire, describe, or preserve. The graying nature of the library profession also puts us a risk—we may be ignoring materials simply because they appeal to a different generation. Censorship should not be confused with spending limited funds wisely or selecting materials consistent with the library's mission and goals. Librarians must make informed (we hope) choices between the collection and what Ross Atkinson has called the "anti-collection."³ Librarians are always constrained by their budgets, professional values, and legislation that excludes some materials.

Nevertheless, we should be cautious about the type of censorship that backs away from the unusual or unfamiliar. *LRTS* recently published a paper encouraging librarians to consider zines as possible additions to collections.⁴ This issue contains an examination of blogs and their place in libraries by Paul Moeller and Nathan Rupp. Both papers seek to demystify format and content with which we may not be familiar and comfortable. I'd like to encourage you to explore these genre and think about others that may present challenges, but that can enrich our collections.

continued on page 6

Letters to the Editor

June 14, 2004

I have corresponded with Pat Riva on this matter and would also like to register this letter with you regarding the recent publication of the article by Pat Riva in *LRTS* 48, no. 2 (Apr. 2004), "Mapping MARC 21 Linking Entry Fields to FRBR and Tillett's Taxonomy of Bibliographic Relationships."

I particularly like Ms. Riva's focus in her concluding remarks on ways to improve the MARC format itself, and ways to apply to FRBR implementations. Let's hope the system vendors pay attention! I'm very glad to see her article and just wish it could have included some additional information to package it all in one place rather than sending people to several other articles. For example, I wish she had included some of the later work I did on the taxonomy, as found in "Bibliographic Relationships," in *Relationships in the Organization of Knowledge*, ed. Carol A. Bean and Rebecca Green, 19–35 (Boston: Kluwer, 2001). In that update, I tie in FRBR and mention Smiraglia's categories (as she has done). I was sorry not to see it mentioned in the bibliography.

Also, unfortunately, Ms. Riva ignored dissertations, which in my case (1987), included the subcategories for Derivative as: variations (versions); editions; translations; "other slight modifications"; adaptations or arrangements; change of genre; and new works based on the style or thematic content of other works. (So as you can see, I don't agree with how Smiraglia looked at these as he slipped over into some of the other categories). My subcategories for Descriptive were description, criticism, evaluation, review, and included things like casebooks, annotated editions, commentaries, and so on. I also noted in the Kluwer update that the "Descriptive relationships" could be viewed in FRBR as subject relationships (nice to see Riva reaffirm that), and I've been mentioning that in all the FRBR presentations that I do. In the Kluwer chapter, I moved on to be more explicit about "content relationships" and to use more of the FRBR language (having gone through the creation of FRBR in the 1990s). So seeing Riva's article also reaffirm these points was heartening.

I must say that reading "Neither of these taxonomies makes reference to specific MARC fields" actually hit me quite hard, as that was precisely the second part of my dissertation—the empirical research, that I spent several years working on. In particular, appendix B on the MARC fields is where I examined these fields and my findings are in chapter IV of the dissertation, covering the MARC file available at the time: books; serial; map; visual; and music records. When that part of my research was conducted, I used records in the Library of Congress system that existed in June/July 1986, and some of the MARC fields Riva examined were not yet applied beyond serials and some not even in the serials file. In fact, as noted in the MARC bib format section on "Content Designator History," the record linking technique was not fully developed until 1982. So some of the current fields are missing in my appendix B, as LC had not used them yet in their records (for example, 765, 767, 777, 786, 787). It's good to see Riva's analysis with this later information. I also have a section of the dissertation on the 500 fields that bury a lot of linking information, but I noted things that could be good predictors of relationship types. There are clearly other fields that carry relationship information and provide linking. I asked Ms. Riva if she stopped with the MARC 21 linking entry fields due to lack of time, as I wished she had gone on to include some of the non-7XX information.

It surprised me that the *LRTS* editorial board reviewers of her article didn't know about my other works to help inform Ms. Riva as she was writing.

I'd love to see more of this research. It's naturally one of my favorite topics! Thanks to Pat Riva for bringing it to the attention of so many people through this publication.—*Barbara B Tillett (btill@loc.gov) is Chief, Cataloging Policy and Support Office, Library of Congress.*

Sept. 14, 2004

I am flattered that my contribution has been of sufficient interest to merit such a lengthy response from Dr. Tillett. In response to the many issues raised, I would first like to repeat that the whole focus of my study was to examine the MARC21 linking entry fields (7xx) as these have the potential to be easily used by library systems to draw related records together, yet have frequently not been implemented to their full potential. I agree that many other fields in bibliographic records contain relationship information, but no other group of fields presented as promising a subject for study. Some, such as series added entries, are already generally well implemented; others, such as any field including free-text notes, would be extremely difficult for automated systems to use in the foreseeable future.

Literature reviews presented in articles are not intended to be exhaustive bibliographies of everything related to an area. Rather, an author attempts to select the most significant sources, those which would most repay the attention of the interested reader and provide a springboard for their own further research, while carefully documenting all sources used explicitly. Dr. Tillett's publications and presentations in this area are too extensive to cite in full in my article. I selected as most pertinent to my topic three articles from Tillett's four-article series in *LRTS* (35, no. 2; 35, no. 4; 36, no. 1, and 36, no. 2) clearly described as presenting the findings of her 1987 Ph.D. dissertation and admirably fulfilling their stated purpose given as "This series of *LRTS* articles extracts the principle findings of those studies" (*LRTS* 35, no. 2, p.155). In fact, nothing of importance is omitted by the published version, making that series an excellent and peer-reviewed source of information. In "Bibliographic Relationships," in *Relationships in the Organization of Knowledge*, ed. Carol A. Bean and Rebecca Green, 19–35 (Boston: Kluwer, 2001), Dr. Tillett prepared an admirable summary of existing research on bibliographic relationships that fit the scope and purpose of that publication well. Such summaries are generally not the place to expound on new research, and this one is no exception. FRBR and Tillett's previous work are clearly summarized, but as expected, new material is limited to the graphic on page 23 (reprinted also in *Technicalities* 25, no. 5 [Oct. 2003], and which had kindly been provided to the Format Variation Working Group) and the introduction (on page 22) of the term "content relation-

ship" to group three of the relationship classes (equivalence, derivative, and descriptive). I do not see any discussion of the FRBR relationship tables from FRBR chapter 5, nor anything that duplicates the mappings in my tables. The definition of the taxonomic classes given on pages 19 to 20 is identical to that in *LRTS* 35, no. 2, p. 156—which was the source of my appendix B, and it is in turn identical to its original appearance on pages 24 to 25 of the dissertation.

While Smiraglia's work is cited in "Bibliographic Relationships," his actual seven categories are not given. Thus her letter is probably the first appearance in print of the details of Tillett's objection to the inclusion by Smiraglia of the subclass "amplification" as a subcategory of the derivative relationship. This seems to be because Smiraglia includes "criticisms, concordances and commentaries that include the original text" in the amplification category, while Tillett has listed "criticism" in the examples of the descriptive relationship. The full reasoning behind these different points of view would merit a much fuller explanation, in the peer-reviewed literature, than the only treatment I can find in "Bibliographic Relationships":

Some authors have included descriptive or referential relationships and even accompanying relationships as derivative relationships (Smiraglia, 1992; Leazar, 1993; Smiraglia & Leazar, 1999). There may be a subtle line of demarcation between a variation of a work and when a work describes or refers to an earlier work, such as a criticism or commentary (descriptive or referential relationship), or is intended to be a companion or tool to facilitate use of another work, such as a concordance (accompanying or companion relationship). Then again, such subtleties may not be important for these content relationships, and it may be more useful to categorize derivative and descriptive together (25).

Such a contribution could also productively include more information on how the descriptive relationship is like a subject relationship, as the final summary of relationships on pages 30 to 31 of "Bibliographic Relationships" does not group them together at all. I posited this hypothesis on page 137 in passing, when considering why the descriptive relationship had not turned up in my mappings of the FRBR tables detailing relationships between group 1 entities, but did not explore it as it was clearly a digression.

Tillett's empirical study (chapter IV of the dissertation, which is reported on in full in *LRTS* 36, no. 2), provided much valuable data on the frequency of bibliographic relationships in records and the characteristics of those records. On page 132 of my article, I only discussed those findings that pertain to the completeness of the taxonomy Tillett created. It

is a strength of Dr. Tillett's research that the taxonomic classes were first derived from the analytical study of cataloguing codes, and only then was the empirical study conducted by using specific MARC fields, subfields, indicators and coded values as operational surrogates for the different linking devices identified in the cataloguing rules. This is the meaning of my remark that the taxonomy does not make reference to specific MARC fields. As the taxonomy was not defined by using the MARC tags, the findings of the empirical study can provide independent validation of the taxonomic classes.

I agree that it would be useful to have a comprehensive

review article to draw together all materials on the topic of bibliographic relationships. Perhaps a *LRTS* reader will be interested in taking up this challenge?

In closing, I thank Barbara Tillett for her encouraging remarks and second the hope that ongoing work in this area will lead to improved automated systems.—*Pat Riva (pat.riva@mcgill.ca) is Romance Languages Cataloguer/Bibliographic Database Specialist, Library Technical Services, McGill University, Montreal, Quebec, Canada.*

Editorial continued from page 3

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Archival Products
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p/u Oct 04 LRTS p296
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TalkLeft, Boing Boing, and Scrappleface

The Phenomenon of Weblogs and Their Impact on Library Technical Services

Paul Moeller and Nathan Rupp

In this paper, we discuss weblogs (blogs), their impact on society, whether they should be considered for inclusion in library collections, and their bibliographic nature. We describe using several top blog lists to help select a blog appropriate for cataloging and inclusion in our libraries' political science collections. Lastly, we compare our record with two other blogs that have been cataloged already and whose records are included in a national bibliographic utility.

Although “TalkLeft,” “Boing Boing,” and “Scrappleface” sound like they could be characters from a children’s television show, they are not. They are three examples of what have come to be known as weblogs, or, more simply, blogs. Since their introduction in the late 1990s, blogs have come to play an important part in how many members of society publish and gather information. Like DVDs, general Internet resources, CD-ROMs, interactive multimedia, and a host of other formats before them, blogs are another type of information resource librarians have had to begin to consider. This paper will define blogs, describe their impact on society, discuss how they might fit into a library’s collection development plan, and discuss how they might be cataloged.

Definition

Blogs are Web sites with frequently updated series of essays about topics of importance to the author. Anyone posting a blog can update it as many times as he or she wants, using hypertext links to point to the actual Web sites being discussed. When blogs were first introduced, they were mainly a collection of links to other sites that the author felt were important. As software such as that found at blogger.com has become available, nearly anyone—even those with no experience in creating Web pages—is able to create a blog, and the content of blogs has come to resemble a person’s diary instead of a collection of essays with links.¹ Just as in a real diary, these entries are, for the most part, organized by date and are often short snippets of the blog creator’s thoughts. Unlike diaries, blogs usually have a subject focus, such as politics, music, religion, or book arts.

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Types

Amateurs and hobbyists are not the only ones creating blogs. After all, if the only blogs out there were ones in which the creators talked about their day and linked to sites that were of interest to them, one would have to question the importance of blogs. Blogs also are being used by the mainstream media, in politics, in business, and in many other fields.

Mainstream media outlets such as the *New York Times* have begun to maintain blogs, which often link to stories in other newspapers—a practice usually an anathema to the news industry. Other media outlets, from the Boulder, Colorado, *Daily Camera* to CNN, have begun employing blogs as a means of further connecting with their audience. The *Daily Camera*, a local newspaper, has blogs tracking Boulder's music and nightlife scenes as well as a blog hosted by the editor of the paper. As part of its coverage of the 2004 Democratic National Convention, CNN.com offered CNN's Convention Blog, featuring contributions from CNN correspondents, anchors, analysts, and guests. According to the *New York Times*, the Democratic Party gave press credentials to about a dozen bloggers for its convention, and the Republican Party planned to issue between ten and twenty for its meeting.²

The influence of blogs in the political realm already has been noteworthy. In early 2004, blogs were written in support of both the Howard Dean and John Kerry presidential primary campaigns. Blogs have even been used to bring down politicians. For example, the controversy over Trent Lott's remarks about Strom Thurmond's past segregationist positions was largely ignored by the mainstream media; only when bloggers continued to write about the issue was it picked up by the larger media outlets, forcing Lott to eventually resign his position as Senate majority leader.³

Corporations also are beginning to use blogs extensively to enable employees to communicate with one another, to provide a connection between a corporation and its customers, for market intelligence, and to keep track of employees. DaimlerChrysler uses blogs to enable managers to communicate with one another and discuss problems. American Airlines is considering blogs as a way of empowering employees—many of whom do not have access to corporate e-mail—and giving them more access to management. Robert Scoble maintains a blog in which he writes about his employer, Microsoft. He provides information about Microsoft products and gets feedback from Microsoft customers about those products. IBM and Dr. Pepper are using blogs “to market products and monitor brands and as an internal knowledge-management tool.”⁴ Verizon also uses blogs to keep up with news about its competitors. Lastly, 10e20, a small Web design company in New York, has required that its employees blog their progress twice a day. Blogging their progress has enabled employees at 10e20 to share information with one another and caused

them to be more accountable; these are two factors that have caused the blogging of their progress to result in their projects being turned in early.⁵

Libraries and Blogs

Among the most basic services of any library are collecting information, providing tools with which to access that information, and assisting library patrons in the use of those tools. In thinking about the place blogs have in libraries, one should consider each of these areas of service. Should blogs be collected in the first place? How should libraries provide access to blogs? How can librarians assist library patrons in using blogs? In looking at the literature on blogs, one finds little information on their collection and cataloging. Articles on blogs tend to fall into three categories: general introductions to what blogs are; explanations of how they may be utilized by libraries to communicate with patrons; or lists of suggested library-related blogs that may help librarians and library staff remain current with developments in the field. The lack of articles on cataloging blogs or adding them to a library's collection is most likely due to the lack of activity in this area by libraries. The remainder of this paper will focus on questions concerning the collection and cataloging of blogs.

Collection Development

Clearly, blogs are no longer being used just as a medium for recording an individual's random musings. Blogs also can be sources of information that a large number of patrons may find useful. As noted above, one purpose of blogs, as in the case of the Microsoft blog, is to provide detailed information about specific corporations. The collection development policy for Cornell University's management library states that “The Library includes an extensive collection of corporate reports, domestic and international, including annual reports, 10-Ks and corporate proxies.”⁶ In addition, that policy lists “corporations (corporate reports; corporate information)” as one of the subjects in which the library collects.⁷ Blogs that provide information about specific corporations may fall into these categories and should be considered for selection and cataloging.

As we also have noted, blogs have become a news source that rivals other, more established media outlets such as the *New York Times*. Academic libraries collect news sources to support both instruction and research and to provide a variety of materials for patrons to use in developing perspectives on current events around the world. News sources offer critical external analysis of events that otherwise might only be revealed by a corporation's annual report or a briefing given by a government spokesperson.

Blogs, sometimes updated several times a day, offer excellent currency and a wide variety of viewpoints on the events of the day. They could be included in a library's collection to supplement the opinions and information found in newspapers, journals, and other news sources.

In addition to acting as sources of corporate information and news, blogs can be used to support such academic disciplines as religion. The collection development policy for religion at the University of Colorado at Boulder states that:

Materials supporting the study of the history and phenomenology of religions and religious experience will be broadly collected. Emphasis is placed on materials that reflect the Department's interest in Asian and Native American religions, and expressions of religion in popular culture. Textbooks and popular works are selectively acquired. . . . The majority of materials are books and subscriptions to essential journals. Relevant *electronic resources*, microfilms, indexes, and abstracts are considered for acquisition. Theses and dissertations are collected selectively. Limited audio/visual materials are purchased.⁸ [authors' italics]

Blogs would seem to meet a number of these criteria. Although information contained in blogs may not be scholarly, blogs do provide access to a wide variety of opinions about topics related to religion and act as a modern expression of a subject area. In addition, most libraries, including Colorado's, realize that pertinent information appropriate for a library's collection is no longer contained in just print materials; electronic resources are viable candidates for collection as well.

One could argue that libraries should not collect blogs because they are ephemeral—their content is always changing, due to the nature of the Web. However, libraries have been collecting, cataloging, and providing access to networked resources for over a decade. With the implementation of the MARC 856 (electronic location and access) field and introduction of the concept of integrating resources, libraries have brought access to networked resources into the mainstream. More recently, librarians have struggled to deal with the constantly shifting nature of electronic journals as they move from one publisher to the next, one server to another, and so on; yet they have begun to develop methods for handling these resources. Librarians can build on these experiences when evaluating the possibility of collecting and cataloging blogs.

Stating that libraries should collect blogs is not enough. According to a recent *Wall Street Journal* article, nearly three million blogs are available online.⁹ Many of these are not appropriate for inclusion in a library's collection. Librarians need to determine which blogs are appropriate and which are not. Just as a librarian might use bibliographic tools,

such as Thomson ISI's *Journal Citation Reports*, to evaluate a resource, similar tools are available for determining which blogs are most popular or most influential, and thus may be appropriate for a library's collection.¹⁰ These tools will be addressed in more detail later in this paper.

Cataloging

Once blogs have been identified as candidates for inclusion in a library's collection, they need to be made accessible to library patrons just like any other resource. A library could create a list of favorite blogs on its Web site, but a more advantageous method would be to catalog the blogs and include them in the library's OPAC. Libraries have a history of using catalog data to generate other access tools, not just the library OPAC. Catalog data describing blogs could be used to provide access to them via an HTML-based list as well as the OPAC. Several issues should be considered when cataloging blogs; these include what kind of bibliographic entity they are and, in turn, how they should be cataloged.

Grossman and Hamilton describe a blog as "a website where you [can] post daily scribbblings, journal-style, about whatever you like."¹¹ Two phrases in this quote that can help determine the bibliographic nature of blogs are the words "daily" and "journal-style." Most blogs function like a diary, with successively dated entries, suggesting they should be cataloged as serials. *AACR2* defines a serial as "a continuing resource issued in a succession of discrete parts, usually bearing numbering, that has no predetermined conclusion."¹² The *CONSER Cataloging Manual* expands on this definition a bit further:

With electronic journals, the need for the issue has diminished and the parts may consist of separately numbered articles. What is important is that the issues or parts remain intact or discrete. This is the primary distinction between serials and integrating resources and is an important determination in the way in which they are cataloged. . . . *AACR2* uses the term numbering to refer to numbers, dates, or combinations of both that identify the individual issues or parts of a serial. . . . While both serials and multipart are successively issued, the factor that distinguishes them is whether they are continuing or finite. Because the multipart has an intended conclusion, even if not for some time, it is a monograph. Having "no predetermined conclusion" means that there is no stated or obvious finiteness, such as a limited scope.¹³

Most blogs have parts that are intact or discrete. Slashdot, Instapundit, AndrewSullivan.com, and Boing Boing, four of the most popular and influential blogs (see figure 1) all have

dated, distinct entries.¹⁴ Most blogs archive past entries and organize them chronologically. Most blogs do not appear to have any predetermined conclusion. Considering these characteristics of blogs, they can be logically cataloged as serials, rather than as integrating resources. Consider the following Web sites: Microsoft's home page and Scobleizer, the blog about Microsoft written by the Microsoft employee mentioned earlier.¹⁵ In looking at the AACR2 and CONSER definitions above, one can quickly determine that Microsoft's page is *not* a serial; although it has no predetermined conclusion, it does not have discretely numbered parts. On the other hand, Scobleizer meets all three criteria.

In discussing whether or not libraries should catalog blogs, an important distinction should be made. Even though libraries are cataloging such Web sites as the *New York Times* and CNN.com, they are not *archiving* those Web sites (large projects like the Internet Archive excepted).¹⁶ For example, if one were to connect from a library catalog record to the *Times's* Web site, that person would see only that day's iteration of the site, not iterations from previous days. This situation also arises in the licensing and cataloging of electronic journals; unless explicitly stated in a license, an e-journal provider may not necessarily provide access to back issues after the library cancels its contract. Blogs are similar; even though many *are* archived, nothing guarantees a blog's content from one day will be available the next. Many libraries also maintain access to only the current issues of some newspapers, newsletters, and similar publications. A library may consider blogs to be in the "current issues only category" of their collection and provide access to the blogs without attempting to archive them.

If blogs should be cataloged primarily as serials, then examining the specific pieces of a MARC record required for those blogs is necessary. Blogs should be cataloged in much the same way as any other electronic serial would be. The record would include a title proper, title added entries, publication information, publication history, access to pertinent authors, and any notes helpful in describing and providing access to the blog. Because blogs are only available online, the catalog record also would require the general material designator "electronic resource" after the title proper, a mode of access note (538), electronic location and access (856), and the relevant format and fixed fields (006, 007, 008). Among the MARC tags that warrant special attention in cataloging blogs are the 245/246 (title statement/varying form of title) fields. Blogs frequently do not have "traditional" titles. Is it Boing Boing or BoingBoing? Slashdot or Slash Dot? Instapundit or Insta Pundit? The 245/246 combination enables catalogers to record the title as it is found on the blog Web site *and* to record additional titles that library searchers may use to find the resource.

Another aspect of cataloging blogs that warrants spe-

www.AndrewSullivan.com
 Asymmetrical Information (www.janegalt.net)
 Boing Boing (www.boingboing.net)
 BuzzMachine (www.buzzmachine.com)
 Daily Kos (www.dailykos.com)
 Drudge Report (www.drudgereport.com)
 Eschaton (atrios.blogspot.com)
 fark (www.fark.com)
 Instapundit.com (instapundit.com)
 kottke.org (www.kottke.org)
 Lileks (lileks.com/bleats)
 Matthew Yglesias (www.matthewyglesias.com)
 Metafilter (www.metafilter.com)
 Right Wing News (www.rightwingnews.com)
 Samizdata.net (www.samizdata.net/blog)
 Scrappleface (www.scrappleface.com)
 Scripting News (www.scripting.com)
 Slashdot (slashdot.org)
 TalkLeft (talkleft.com)
 USS Clueless (denbeste.nu)
 VodkaPundit (www.vodkapundit.com)
 Where Is Raed (dear_raed.blogspot.com)

URLs current as of July 27, 2004

Figure 1. Top twenty-two blogs listed in at least five of the six top hundred lists

cial attention is the choice of main entry. Many blogs fall under the provision for title main entry, and some may require a corporate body main entry. Others, however, are written and published by one person and therefore should have an author main entry. The provision of author main entry is far from the norm in the cataloging of mainstream serial titles. The *CONSER Cataloging Manual* places the following restrictions on the use of author main entry for serials: "A person is considered eligible to be the main entry only when no corporate body is responsible for issuing the serial and when the person is so closely related to the serial that the serial is unlikely to continue without that person."¹⁷ Single author-driven blogs such as BuzzMachine and Sirotablog likely would not continue to exist without the contributions of Jeff Jarvis and David Sirotta respectively.¹⁸ These titles are two of the many that would require author main entry in cataloging.

A (Small) Cataloging Project

As part of our investigation into how blogs fit into library collections, we developed a small project in which we applied many of the concepts and ideas that we have discussed. We developed this project in summer 2004, just as the 2004 United States presidential election season was gaining momentum. To that end, we selected a number of blogs that could serve as resources for information concerning the election. We felt that they could provide additional

viewpoints besides those presented in mainstream media outlets, including newspapers such as the *New York Times*, which libraries already collect.

As we have stated, one type of content included in blogs is political commentary; several blogs serve this purpose. That presented us with a large number of blogs from which to select; fortunately, several lists of influential blogs helped us narrow our selection. These lists included BlogStreet, Daypop, Technorati, and Truth Laid Bear.¹⁹ Both BlogStreet and Daypop have two lists, one of which lists blogs based on the number of other blogs linking to them and another that lists blogs based on *which* other blogs link to them. In this second case, if a highly ranked blog like Slashdot, Boing Boing, ScottWater, or Instapundit links to a fifth blog, that fifth blog will be ranked higher than another one linked from blogs that are ranked lower than Slashdot, Boing Boing, ScottWater, or Instapundit.²⁰ All six lists, including the two each from BlogStreet and DayPop, listed one hundred top blogs. Of all of the blogs listed, twenty-two were listed in at least five of the six top one hundred blog lists (see figure 1).

In testing these twenty-two top blogs against the definitions of serials and integrating resources stated above, we determined that seventeen should be classified as serials and five as integrating resources. Just three of the twenty-two blogs have been cataloged in WorldCat—two serials and one integrating resource. One of the serials had been incorrectly cataloged as an integrating resource and another had been cataloged two different ways—as both an integrating resource and as a serial. The integrating resource was cataloged correctly. This is detailed in table 1.

In considering the top blogs, we learned that just seven dealt with politics. These included Asymmetrical Information, Daily Kos, Eschaton, Matthew Yglesias, Right Wing News, TalkLeft, and Vodkapundit.²¹ In our search of OCLC's WorldCat database, we learned that *none* of these blogs had been cataloged. All seven of these blogs could be considered serials: all were issued periodically, all had some

kind of dating/numbering scheme, and none appeared to have a predetermined end.

To show how rules for cataloging serials and integrating resources could be correctly applied to blogs, we set about cataloging one of the political science blogs we had identified and compared our record (see figure 2) to two records for blogs already in OCLC—one for a serial (see figure 3) and another for an integrating resource (see figure 4).

In looking at these two records, one can easily identify the MARC fields that characterize them as serials. Those fields include the MARC 310 (current publication frequency) and the MARC 362 (dates of publication and/or sequential designation) fields. However, these two records have a few differences. On close inspection, both Vodkapundit and Scripting News appear to be written and published by individuals, but only our record for Vodkapundit records the name of the blog's creator in the MARC 100 Personal Name Main Entry field. Similarly, although both Vodkapundit and Scripting News are serials, only Scripting News has been assigned an ISSN (MARC 022), an abbreviated title (MARC 210), and a key title (MARC 222) by the ISSN Center. A number of blog creators have requested that their blogs be assigned ISSNs (International Standard Serials Number); if Vodkapundit had been assigned an ISSN, our catalog record would have included it and the associated abbreviated and key titles.²² Lastly, while we have identified Vodkapundit as being about United States politics and cataloged it as such, the cataloger of Scripting News has not assigned any subject headings to the record for that title.

In contrasting the record for the Drudge Report with

Table 1. Cataloging of selected top blogs in WorldCat

Description	No.
"Top blogs"	22
"Top blogs" cataloged in WorldCat	3
Serial "top blogs"	17
Serial "top blogs" cataloged as monographs/ integrating resources in WorldCat	1
Serial "top blogs" cataloged as both serials and monographs/integrating resources in WorldCat	1
Monograph/integrating resource "top blogs"	5
Monograph/integrating resource "top blogs" cataloged as serials in WorldCat	0
Monograph/integrating resource "top blogs" cataloged as monograph/integrating resources in WorldCat	1

100 1	\$a Green, Stephen.
245 10	\$a Vodkapundit and the weblog of tomorrow \$h [electronic resource].
246 3	\$a Vodkapundit
246 3	\$a Vodka pundit and the weblog of tomorrow
246 3	\$a Vodka pundit and the web log of tomorrow
246 3	\$a Vodkapundit and the web log of tomorrow
260	\$a [S.l.] : \$b Steven Green
310	\$a Daily
362 1	\$a Began in 2002?
500	\$a Description based on: Jan. 10, 2002; title from blog home page (viewed Aug. 10, 2004).
500	\$a Latest issue consulted: 10 Aug. 2004.
500	\$a From HTML header: "All the news that's fit to drink."
538	\$a Mode of access: World Wide Web.
650_0	\$a Political science \$z United States \$v Periodicals.
856 40	\$u http://vodkapundit.com/

Figure 2. MARC record for Vodkapundit, cataloged as a serial

the other two, one notices that it has been cataloged as an integrating resource rather than a serial.²³ The Web site for the Drudge Report does not have any dated entries; since it does not, it should not be considered a serial, and so the catalog record for this site is accurate. Like our record for Vodkapundit, subject headings have been assigned for this resource. Although Matt Drudge has frequently been in the news as the author of the Drudge Report, nothing clearly indicates that he is solely responsible for the authorship and publication of the blog, so the cataloger of the Drudge Report was correct in not including his name in the MARC 100 Author Main Entry field. From these

```
022 0_   $a 1533-8185
.
.
.
210 0_   $a Scr. News
222 _0   $a Scripting news
245 00   $a Scripting news $h [electronic resource].
260      $a [Burlingame, Calif.] : $b UserLand Software
310      $a Daily
362 1_   $a Began in 2000.
500      $a Description based on: Feb. 13, 2001; title
         from caption.
538      $a Mode of access: World Wide Web.
856 40   $u http://www.scripting.com/
```

Figure 3. MARC record for Scripting News (OCLC #45901436), cataloged as a serial

```
245 00   $a Drudge report $h [electronic resource]
260      $a Hollywood, Calif. : $b Drudge Report, $c
         199-?-]-
538      $a Mode of access: Remote access through
         World Wide Web.
500      $a Title from opening screen (viewed December
         31, 1998.)
520      $a Provides links to web sites of international
         news services, journalists/columnists, and people
         in the news. Includes search engines for AP,
         UPI, and Reuters news services.
650 _0   $a News agencies.
650 _0   $a Journalists.
650 _0   $a News agencies $z United States.
610 20   $a Associated Press.
610 20   $a Reuters ltd.
610 20   $a United Press International.
856 40   $u http://www.drudgereport.com/
```

Figure 4. MARC record for Drudge Report (OCLC #40782004), cataloged as an integrating resource

three records, one can see the various components of a MARC record that are important in describing a blog—the 100 field if a single author/publisher is present, the seriality (310/362) fields if the blog is a serial, 6XX subject fields, and 856 electronic access field.

Conclusion

In this paper, we have shown that blogs have become information resources, referred to and used by a large number of people. Because of this, libraries should begin considering blogs for inclusion in their collections. We also have shown how selection criteria can be applied to blogs just as they can be to any other resource and have described some tools for use in determining what blogs might be most appropriate for inclusion in library's collections. Lastly, we have shown how cataloging rules should be applied to the cataloging of blogs. As one can see from the small number of blogs that have been cataloged, blogs have not yet begun to be selected consistently for inclusion in libraries' collections. One also can see from the variation in the application of rules in cataloging blogs that the cataloging treatment of blogs has yet to be normalized. We have shown that special care should be taken in determining whether blogs should be cataloged as serials or as integrating resources; the appropriate rules should be applied depending on the form of the blog. Finally, we have shown that, unlike in most serials, a single individual frequently acts as both author and publisher and that this information should be recorded in the catalog record. These findings should help librarians as they begin to increasingly consider blogs for inclusion in their collections and create catalog records to provide their patrons with access to them. While "TalkLeft," "Boing Boing," and "Scrappleface" may indeed someday be characters in a children's television show, they are also examples of information resources that can be important additions to a library's collection.

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Analog People for Digital Dreams

Staffing and Educational Considerations for Cataloging and Metadata Professionals

Janet Swan Hill

As libraries attempt to incorporate increasing amounts of electronic resources into their catalogs, utilizing a growing variety of metadata standards, library and information science programs are grappling with how to educate catalogers to meet these challenges. In this paper, an employer considers the characteristics and skills that catalogers will need and how they might acquire them.

Eighteen years ago, I delivered a paper at an American Library Association (ALA) conference decrying the shortage of catalogers.¹ Shortly afterward, an ALA Cataloging and Classification Section task force that was formed in response to the paper found that the collective library and information science (LIS) curriculum was giving cataloging short shrift.² Soon the shortage of catalogers became widely recognized as a problem, and catalogers joined children's librarians on the profession's endangered species list.³ Why this should have come as news is something to ponder, since as early as 1929, Spaulding, reporting in his pamphlet, *Two Days at A.L.A. Headquarters*, noted that "The greatest number of calls [for librarians] last year were for catalogers, that being the field in which there seems to be a shortage of people."⁴ To say that the cataloging curriculum has not been much enriched since 1986 is to be exceedingly gentle, and libraries are having as much trouble recruiting catalogers, and even more trouble recruiting cataloging managers, than ever before.⁵

This paper seeks to provide a practitioner's perspective on staffing and to outline what catalogers need to have in the way of education and skills to function in a world in which the organization of information includes not just the creation of the same kind of cataloging data we have been supplying for decades, but now also includes the creation, application, integration, and harvesting of various kinds of metadata. This is an intriguing task, in part because the scope and mechanisms of providing bibliographic access are changing so rapidly that they practically vibrate. It is a piquant task, because although the specific context in which practitioners have been trying to influence cataloging education has changed, the message itself remains virtually the same at its core. It is a sobering task, since nearly two decades worth of agitation concerning cataloging education have failed to work miracles.⁶ Thus, no matter how much any cataloger or cataloging manager may welcome discussion of cataloging education for the new century, and no matter what the impetus of this discussion, previous experience has led to a realization that we cannot

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have what we want—so we need to think instead about what might be possible.

Some Realities Facing Those in the Field

Some of the realities that face catalogers and employers of catalogers today include the following:

- Hiring catalogers is extremely difficult. Even though the past few decades have seen a reduction in the absolute number of professional cataloger positions that exist in United States libraries, library schools are still not graduating enough people who want to catalog to fill existing positions, and the wave of expected retirements from the profession has barely begun.⁷
- The kind and amount of education that catalogers receive in LIS programs is usually not sufficient for them to enter a library that has a complex cataloging operation and hit the ground running. In addition to needing local training in library-specific routines, new cataloging librarians normally also need additional education about many general cataloging issues (such as authority work, uniform titles, nonbook formats, and even classification). They also need practice—the kind of practice that will eventually enable them to deal with difficult situations, exercise judgment, prioritize, weigh the desires of one group of users against those of another, and extrapolate what they already know to help them cope with new situations.
- Cataloging is becoming more complex. The number of materials types that libraries deal with expands constantly, as do the ways in which information can be accessed. The speed with which changes are made in our systems, our codes, our capabilities, and our rules is dazzling, but the amount of attention given to cataloging in LIS programs has not increased to meet these greater complexities. Given the realities of running an academic program, we should not hold our breath waiting for it to happen.⁸
- Most libraries are not huge. Most cannot afford to hire one or more catalogers for every special type of material, each language group, or each subject. When another layer of complexity is added, another format is born, or another standard is implemented, responsibility for handling it will fall to the catalogers who are already in the library, already handling a variety of other things. Fifteen years ago, the University of Colorado Libraries in Boulder had one cataloger who did all the microform cataloging. A different cataloger did all the audiovisual cataloging. Such a degree of specialization is simply not practical any more. There are too many formats, too much demand, not enough time, and not enough people. Every cataloger has to

be willing and able to handle anything, should the need arise. Of course we have catalogers who serve as local experts in certain types of work, but we cannot afford to have anyone whose skills are too narrowly focused, who cannot handle a variety of materials and subjects, and who cannot pitch in and help with whatever is the priority of the day—or of the hour.

- Most libraries are not now metadata factories, nor are they likely to become them in the near future. Most libraries have either done no digitization, or, like the University of Colorado Libraries in Boulder, they have done a few projects and may be seeing the glimmerings of a coherent digitization program in their future, but they are likely to continue at a fairly small scale for some time. Such libraries will need those personnel who already have other responsibilities to add digitization projects or metadata creation to their portfolios.
- Many libraries with a sizeable cataloging operation have made a start toward providing catalog access to electronic resources, but most such libraries have limited this activity to materials they have actually acquired, to materials they have locally digitized, and perhaps also to Web sites selected in response to specific requests. Most have not ventured into the realm of creating digital repositories, soliciting work from elsewhere, or extending their responsibility to providing organization and access to information resources—learning objects, if you will—that have not been consciously acquired by their library, and over which the library has no actual authority.⁹ Most are staffed in a manner that makes such solicitation beyond their means.

If the past is any indicator of the future, libraries looking to decrease personnel will still look to cataloging first. This means that adding staff specifically for metadata cataloging and other such responses to electronic resources is not likely. As the number of physical items acquired drops, library administrators may well take the kind of ill-informed leap of faith that we have seen them take before, and assume that reduction in physical items means that it will be possible to make a concomitant reduction in real, live catalogers. (Previous leaps of faith have included believing that the emergence and growth of OCLC would eliminate the need for catalogers, and that the power of computer searching would eliminate the need for authority control, following which administrative decisions have been made as if those eventualities had already come to pass.)

Taken together, these points suggest that, at least for some time, most libraries will have a limited use for catalogers whose education has been focused narrowly on electronic resources and metadata. Unfortunately, recent discussions with library school students and new

graduates suggest that some students may be receiving the impression that there is a significant market for people with just such a restricted focus. Some of these newly minted librarians may be disappointed or dissatisfied with their education, or may feel misled when they attempt to navigate the actual job market.

In Praise of the Generalist Cataloger

Many people who catalog particular types of materials come to believe that the materials they handle are harder to catalog than any others. Some may even assert that in order to do a halfway adequate job of handling those materials, an undergraduate or even an advanced degree related to the subject or material type is necessary. In nearly thirty-five years as a cataloger or cataloging administrator, including eight years as a cataloger of a special materials format, however, I've yet to see this demonstrated.¹⁰ There is no denying that some knowledge of the relevant field is useful, and that a cataloger does need to know something about the peculiarities of the materials being dealt with, but a good general cataloger who understands the principles, history, and context of cataloging, catalogs, and bibliographic access can learn what is needed. A good general cataloger also has other advantages. Such a cataloger is not so enamored of one subject or one type of material as to be sucked in by its "specialness." He or she is less likely to see the needs of one subset of users as paramount, to discount the needs of others, or to see the characteristics of one type of material or one type of cataloging as the controlling force in all decisions. A generalist cataloger is more likely to see similarities and analogs among material types and to discern similarities and analogs in the rules governing them, and more likely to comprehend the underlying principles, the context, and the whole.

An old adage observes that to the person with a hammer, every problem looks like a nail. Generalist catalogers are more apt to see the possible virtues of alternative construction mechanisms, such as screws, staples, and glue, while the focused specialist may nail everything, regardless of whether nails are the best choice, and regardless of whether the thing being built can be integrated into the edifice as a whole. In other words, the specialist, when assigned to build a bathroom, may create an outhouse (perhaps a very nice outhouse, but an outhouse nevertheless). The generalist is more likely to construct a room that serves the intended purpose, and does not require a trip outside.

As we consider the issue of preparing cataloging and metadata professionals for the challenges of the twenty-first century, we must ask whether these kinds of observations, which served us well in the twentieth century, still hold true when the tasks before us include providing bibliographic control for electronic resources and utilizing various kinds of newfangled metadata. Are the principles, context, pur-

poses, history, and techniques that people learned in order to provide old-fashioned metadata, such as bibliographic descriptions formulated according to the *Anglo American Cataloging Rules*, subject headings from the *Library of Congress Subject Headings* list, and classification numbers from the *Library of Congress Classification* schedules, still essential? I believe that the answer is yes.

Because of this, as an employer of catalogers at the beginning of the twenty-first century, I am not seeking people who have had little more than a general introduction to bibliographic control followed by coursework in metadata and digital libraries but lack any of the more traditional cataloging coursework or practice. At my library, we still need traditional cataloging done. We will need it for some time to come. It is not, however, all we need. Increasingly, we will need cataloging professionals to devise ways to combine various kinds of metadata records with standard cataloging into an integrated, coherent, and usable finding tool for users. In order to design such a satisfactory evolutionary replacement for the time-honored catalog, we will need people who have both an appreciation and an intellectual understanding of the power, capabilities, history, and rationales for what exists now.

What Should Catalogers Learn in Library School?

Catalogers and their employers have been pointedly complaining about the scope, depth, and quality of cataloging education in library schools for decades. As a consequence, those who hire catalogers are often asked what it is that they want catalogers to have learned in the process of obtaining their professional degree. Employers, of course, would like the world, but most understand that they cannot have it. The following personal desiderata list is compiled with the understanding that only so much can be covered in the LIS curriculum.

New catalogers should:

- be able to apply the most commonly needed rules, whether for description, subject analysis, or authority control;
- understand the differences between the codes and formats and schema, and should understand their different roles; for instance, they should understand that there is no such thing as "MARC cataloging," only cataloging that is content designated using the *MARC* format;
- understand that most of the questions that are being asked today are not new, and that many of the old answers are still valid;
- have some understanding of how the content and content designation in catalog records are used to create a

- catalog display and determine a search result;
- have been introduced to, and should have had to consider the analogies and similarities among various format types, including print, nonprint, nontextual, and electronic;
 - understand that recognizing similarities is more important than recognizing differences;
 - have had some exposure to extrapolating principles and rules from one information resource format to another;
 - have had to observe and discuss the different search results that can arise from different cataloging and coding decisions;
 - have had to confront the issue of standardization and consider its pros and cons; and
 - have had some actual practice.

What about Education for Experienced Catalogers?

Can applying and utilizing metadata be picked up effectively by a generalist cataloger? Yes. Good catalogers know more than rules. They know approaches and understand the value of interrelationships and transparent linkages. They know the kinds of things that drive users crazy, prevent easy access, and hide materials and information. If a cataloger has been on the job for any amount of time, he or she has had experience in dealing with new things, learning new rules, understanding new formats, and implementing new systems. Practicing catalogers can learn about metadata if their original education provided an understanding of the purposes of cataloging and its basic principles, as well an understanding of the roles and purposes of the body of codes, standards, and guidelines for content, content designation, and system specifications.

Such a cataloger can learn what needs to be known about metadata as the need arises provided that there are appropriate continuing education mechanisms. The phrase “as the need arises” is important. The need to learn something about metadata (how it is created, derived, manipulated, and used) will probably arise so frequently that the term “continuing education” may no longer be apt. Those in cataloging will need to think instead about continual learning, and individuals and organizations must realize that it is not an addendum or auxiliary facet of cataloging, but an integral part of the job. Libraries and other employers of catalogers must recognize and accept the need to provide the time, resources, encouragement, and rewards that foster and support that view. Catalogers must understand, and must be enabled to follow through on their understanding, that continual learning, inquiry, and experimentation are as much a part of their accomplishments as are titles cataloged, pieces

added, and headings established.

In order for these things to happen, catalogers and employers need the active assistance of all of our profession’s mechanisms. We need continuing education opportunities offered through professional associations, LIS programs, networks and regional service providers, and cooperative programs.

Critical to the success of continual education in cataloging and metadata is the development and expansion of online educational offerings. The combined faculty of library schools is very small, and the proportion that specializes in bibliographic control is even smaller. This is a mirror of the profession as a whole, which means that the number of bibliographic control experts outside library schools is also extremely small. The number of such outside experts with talent at or serious interest in educating others is smaller yet. Online learning experiences may be our best hope for enabling our few experts, whether they be in LIS programs or not, to reach a larger number of people than they might have otherwise, and to have an impact over a wider geographic area. Online learning may enable experts allied with different institutions to combine their efforts, knowledge, and ideas. It may make it possible for people attending a particular school, or living in an area in which there are no educators with this particular expertise, to take advantage of those that do exist, wherever they are.

Online learning is important to consider for another reason. Among things standing in the way of people being able to implement continual learning is the expense of travel and lodging and the difficulties attendant upon being away from home. These logistical considerations are enough by themselves both to discourage people from pursuing learning on their own and to prevent employers from supporting it as they should. Logistics alone thus contribute to gaps continually opening up between what people need to know and what they do know. Online education is difficult to do well, and has costs associated with it that is fair for educators (and their institutions) to recoup from students or their employers, so it may never be inexpensive. With an online course, however, the primary cost is the course alone, so that a learner who does not have to take an airplane, stay in a hotel, eat in restaurants, or be away from home may be better able to take advantage of whatever education is available.

Necessary Noncataloging Skills

Catalogers have always needed to know how to do more than catalog. As the ground underneath us shifts in response to the burgeoning of electronic resources and new and disparate retrieval mechanisms; as libraries reexamine their role *vis a vis* obtaining and making information and ideas available; as libraries contribute to the development of the

digital world, those who define, provide, and manipulate metadata and those who design, test, or contribute to new mechanisms and opportunities for inquiry need many skills other than cataloging. They need an assortment of skills that are not even technical and not even library-specific. Those participating in this revolution will be in desperate need of such general skills as the:

- ability to read precisely;
- ability to write clearly, precisely, and persuasively;
- ability to speak coherently, logically, and persuasively;
- ability to identify and analyze problems;
- ability to prioritize;
- capacity to work cooperatively with people of disparate backgrounds, information, and inclination;
- ability to identify areas where compromise might be possible (or necessary), and identify areas where compromise is inadvisable or impossible;
- capacity to imagine;
- inclination to experiment;
- ability to see when something is not working, let go of it, and move on;
- willingness to be patient with people, things, mechanisms, and oneself; and
- character to carry things through once the initial enthusiasm has worn off.

Many of these are not so much skills as tendencies. None are library-specific. None would be the primary topic of a course, but all could be covered, encouraged, stressed, and even graded in regular coursework. Graduate students may bridle at someone presuming to teach and grade their writing skills. Many of today's students are my daughter's age, and I know from her experience that they went through school with people telling them that ideas were more important than spelling and grammar, and often without being challenged for faulty logic. The reality of the work environment, however, is that clear and persuasive writing and speech, problem analysis, logic, and other such things are essential if we are to guide and survive the coming transitions. We do no one any favors if we ignore the absence of such things in students and potential future leaders.

The following will also serve us well as we move farther into the twenty-first century:

- good general catalogers who know the history of what has come before and know how to apply it to what is happening now and what will happen in the future;
- good general catalogers who are excited about cataloging and who see how the skills they have can be utilized to change the future;
- a culture and availability of continual education as

the world slips and slides under us; and

- people who can and will work with each other, with imagination, open minds, and careful expression.

As an employer of catalogers, I have always wanted these things. In that respect, electronic resources and metadata haven't changed anything.

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Impact of Full Text on Print Journal Use at a Liberal Arts College

Steve Black

The availability of full-text journal articles online affects patrons' use of the library's print journal collection. This case study of a liberal arts college library collection quantifies the change in print journal use from 1996 to 2003. Variables that affect print journal use are discussed, highlighting college student needs and behaviors. Validity and reliability of journal use studies is investigated, and the use of coefficient of variance is described as a tool to measure the reliability of journal use counts. Results show that overall use of the print collection decreased by 52 percent. Use of print journals also available in full text showed a greater decrease in use than journals not available online. Changes in use for each of the academic disciplines represented at the college are reported.

Interactions with students at the reference desk and conversations with faculty suggest that the increased availability of journal articles online in full text causes a decrease in the use of print journals. However, that is not necessarily the case. Some libraries have experienced simultaneous increases in the use of both print and online journals.¹ Journal use may have an analogy to movie viewing. Many feared that videocassette recorders in homes would inevitably force movie theaters out of business, yet people still go to movie theaters.² The convenience of watching movies on videocassette and now DVDs presumably increased overall interest in movies, allowing mutually reinforcing, parallel markets for videos and movie tickets. Online full text might increase overall demand for journals, leaving room in the market for both the print and online formats.

Literature Review

Most evidence in the published literature supports the hypothesis that availability of online, full-text journals reduces demand for print journals. De Groote and Dorsch found a significant decrease in print journal use, regardless of whether journals were available only in print, or both online and in print.³ Morse and Clintworth compared the use of a matched set of biomedical journals available both in print and online and found that users overwhelmingly chose journals in the online format.⁴ Vaughan measured a 47.5 percent drop in chemistry print journal use from 1999 to 2002, finding that use of print editions of journals that had electronic equivalents declined more swiftly than journals available only in print.⁵ Sennyey, Ellern, and Newsome tracked an accelerating decrease in the use of print journals, reporting an overall decrease of 40.6 percent from 1998 to 2000.⁶ While the above-mentioned studies measured use of either specialized science journals or journal use in a large university setting, this case study measured the change in use of print journals in the disciplines represented at one liberal arts college.

The literature reviewed for this study addressed journal use in academic

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libraries, based on studies focusing on variables in journal collections and their use by faculty and students. These variables may be considered in five broad, interrelated categories: student demographics, student motivations, faculty expectations, user preferences, and changes in journal content and format.

Student population demographic variables include changes in number of students enrolled, student age, and whether they live on campus. Demographic variables have been found to correlate with library use. Whitmire found that gender and race significantly correlated with students' amount of library use, but the correlation of academic activities with library use was stronger.⁷ The data from Grimes and Charters' study of economics students indicated that female, black, and on-campus students spent more time in the library than their male, white, and off-campus classmates.⁸ These two studies did not relate demographics specifically with journal use or with user preferences for online or print format. The degree to which changes in demographics affect print journal use remains to be determined.

Students' overall motivation to use library resources, including journals, is strongly influenced by faculty expectations and course assignments. Gammon and O'Connor's comparison of journal use in the 1970s and 1990s cited the impact of changes in curriculum and new interest in subject areas as major factors influencing journal use patterns.⁹ Whitmire found that "the variables having the strongest relationship with undergraduate academic library use involved their academic activities: student-faculty and peer interactions, active learning and engaged writing activities, and being assigned term papers."¹⁰

Joswick and Stierman compared the use of journals by faculty and students, finding that faculty use different journals than students and that faculty seem not to realize that student use differs from faculty use of journals.¹¹ They found that students are much more likely than faculty to cite journals that the library had classified as general fund and that students use highly specialized journals less than faculty do. Nevertheless, faculty assessment of journal titles remains a highly valuable criterion for collection development.¹² Faculty recommendations support what they would like their students to use, even if students tend to seek other materials.

Students and faculty also vary in their preference for using print or online formats of journals. Among the variables affecting choice of journal articles in print or online, the time spent to acquire articles may have the strongest correlation to preference of format. Dilevko and Gottlieb closely examined undergraduates' use of print resources, including journals.¹³ The context of their study was the proper role of the library and print materials in students' academic success in light of perceived overreliance by students on Web sites. By interviewing undergraduates, they found that while some

students took the effort to find the most appropriate articles for their topic regardless of format, 25 percent preferred the convenience of good enough online journal articles.

Motivations and personality characteristics that lead people to take what is acceptable rather than seek the best available, dubbed "satisficing," are described by Schwartz.¹⁴ The most common reasons given by Dilevko and Gottlieb for satisficing were "time pressures, efficiency, ease of access, and around-the-clock availability from any geographic location."¹⁵ Many journal users seek more than merely satisfactory articles. Dilevko and Gottlieb also found that one third of the surveyed students preferred print journals, and that the use of print characterized high-quality academic work.¹⁶

The degree to which scholars still use print journals varies by academic discipline. Talja and Maula identify and define factors that may account for disciplinary differences in the frequency of use of journal articles available online.¹⁷ The factors are based on the amount of information available and how scattered among sources the information is found. Their study is based on the Bates hypothesis, which suggests that topic areas with a high number of relevant materials are best searched by browsing, areas of middling numbers of relevant materials are best searched using databases, and needle-in-a-haystack searches are best done by following citations.¹⁸ However, Bates notes that undergraduates tend not to know when and how to best browse, search databases, or track citations.¹⁹ Students' experiences with professors, collections, and librarians influence their methods of seeking information, which then affects the mix of print and online sources they encounter in their research processes.

The journals in collections and databases that scholars have to choose from vary in many ways. Type of content, numbering, print quality, and so forth have always varied. Availability of journal articles online has added to the variability of journals. Differences may exist, for example, between online journals and journal articles available online in a full-text database. Some journals are online as complete entities. For example, in JSTOR, titles have been scanned and archived cover to cover, from volume one through a moving wall of three to five years before the present. Full-text databases contain articles from journals, but do not necessarily contain the complete content of the covered journals.

Journal articles online in full-text databases are not fully equivalent to print, for reasons explored by Sprague and Chambers.²⁰ Their systematic appraisal of full-text journal articles in databases was built around four criteria: currency, coverage, graphics, and stability. They found that 45 percent of full-text articles were not as current as print, 17 percent of major articles in print were missing in the databases, many graphics were missing from the articles, and 140 of 3,393 titles were dropped from the full text databases over a six-month period.²¹

Volatility in database content is widely recognized, as is the danger in canceling print subscriptions in favor of

aggregated databases containing the full text of journal articles. Brooks states, "it has always been EBSCO's position that full text databases should be viewed as a complement (not a replacement) to the core print and electronic journal collections in libraries."²²

Subscribing to individual online titles avoids some of the problems with full-text databases, but other access problems can occur. Articles may not be available because of service outages or network problems, and the online format may not be adequate for some students' purposes. For instance, color is sometimes absent from illustrations, and low-resolution scans can make printouts difficult to read. A full treatment of variability in full-text journals and online databases lies beyond the scope of this study, but recognizing that online journals are not perfect substitutes is vital.

Problem statement

The purpose of this case study was to measure the change in print journal use from the year before full-text journal articles became available until 2003, both overall and by academic discipline. The study began with the hypothesis that availability of full text correlates with an overall decrease in the use of print journals, that use of print journals available online decreases more than use of those not available online, and that changes in print use vary among academic disciplines. The research questions to be addressed in this case were: (1) What has the overall change in print journal use been since the introduction of full text? (2) Was the change in use different for print journals that are also available online? and (3) What were the differences, if any, among academic disciplines in change of journal use?

Method

Details of this case are presented for purposes of comparison to other libraries. In 1996, a journal use study was conducted at the Neil Hellman Library of The College of Saint Rose in Albany, New York. The college is a Carnegie classification Master's I institution, with approximately 175 full-time faculty, 2,900 undergraduate students, and 1,800 graduate students. The library holds 240,000 volumes and supports a broad range of course work in the liberal arts. We analyzed the results of the 1996 study to quantify the cost effectiveness of our journal collection, taking into account the number of students enrolled in each department.²³ At the time, full-text databases delivered over the Web were still new, and our library was not providing journal content via CD-ROMs or the Web. Since the library had no journals in full text in 1996, that study provided a baseline of print journal use before full text journal articles became available to our patrons.

The College of Saint Rose began offering full-text journal articles in 1998, beginning with EBSCOhost Academic Search and Lexis-Nexis Academic Universe. In 2000, we added more full-text databases, including Project MUSE, PsycARTICLES, and Science Direct. JSTOR and other full-text online content was added from then until the end of 2003. Off-campus access to some databases by password began in 1998, and a proxy server enabled off-campus access to all our databases in 2003. As of January 2004, the library had access to approximately 14,000 periodicals (including newspapers and newsletters) offered through fourteen databases, as well as a small but growing number of full-text journals linked directly from our online catalog to publishers' sites. The library subscribes to the Serials Solutions service to provide our patrons links to the titles of journals covered in whole or part in the full text databases available to them.²⁴

Studies of the use of the print journal collection were repeated in 2000 and 2003, with the same data collection method used in the 1996 study.²⁵ Shelf labels were printed that extended out of the label holders. Any staff reshelving journals put a dot on the label with a black felt-tip pen for each bound volume or loose issue returned to the shelf. Labels were replaced if they became overly crowded with dots. The labels were pulled and dots counted at the end of the calendar year and entered into an Excel spreadsheet. Counts of currently subscribed journals retrieved from our basement storage area were also included. This version of the sweep method was simple, cost-effective, and did not interfere with patrons' use of the journal collection. Nisonger presents an overview of various journal use study methods, along with an extensive bibliography.²⁶

The spreadsheet used to analyze the change in print journal use contained use data for each title for 1996, 2000, and 2003. Prices paid for each title (including any increases between annual invoices) were entered into the spreadsheet. Each title row in the spreadsheet also had the academic discipline fund to which the journal was allocated and the beginning dates of full-text coverage. These six data elements (fund, title, three years of use counts, and full text start date) were used to calculate the variations in use and the effects of full-text availability on use. Other librarians with data on title-level use counts, department allocations, and dates of full text coverage could replicate this method and compare the results reported here with trends in their library.

Validity and Reliability

All journal use studies face challenges with the validity and reliability of the use data. The validity of the sweep method for counting uses is based on the assumption that volumes or issues found on carts and tables have been used and that volumes and issues still on the shelves have not been used. Since an unknown number of patrons with unknown fre-

quency pull items but do not read them and reshelve items they have read, the sweep method is not a perfectly valid way to count use. Trying to measure the variability of use counts from actual use suffers from the so-called reference problem. That is, no omniscient observer exists to indicate the true level of use against which measured use can be compared. A reported attempt to measure patrons' pulling of volumes from shelves with paid observers only yielded data at the call number classification level; it did not report title level data.²⁷ With no reference point, use count validity cannot be accurately measured. This inability to test the internal validity of use counts is true of any use study relying on the sweep method.

External validity concerns the degree to which the results of the study support a hypothesis that can be generalized to other libraries. This test of hypotheses that the availability of full text correlates with an overall decrease in print journal use and that the decrease varies among disciplines would have to be replicated in comparable settings to establish external validity. Variability of student demographics, academic programs, and journal collections (print and online) among academic institutions has not been studied. Therefore this case study does not claim that the reported changes in use, overall or by academic discipline, will be the same as those found in other institutions.

Reliability, in this case the degree to which use counts consistently measure real journal use, also is difficult to measure. Problems come from variability in counting (researcher behavior), variability in use (patron behavior), and variability in what is being counted (magazines and journals). Variability in counting is not amenable to measurement. As with internal validity, no true reference points exist against which counts can be compared, since no omniscient observer is present. The reliability of this study is strengthened by the fact that the personnel directly responsible for managing the use study and the method of recording use remained constant over the study's eight years. Reliability is weakened by the fact that some recording of use was done by student workers (in equal proportion each year); we cannot know if or how often they forgot to mark labels. However, we have no reason to believe that rates of student worker compliance with marking labels as instructed were different in 1996, 2000, and 2003.

A fundamental concern with journal use study reliability is the variation in use of titles from one year to the next. Print serials vary in content, frequency, and title. In an endless stream of variability, they cease, split, arrive late, grow, shrink, change names, and otherwise taunt serials librarians and confuse patrons. In addition, libraries add and cancel titles. To control for the variables of title changes, and

for added, canceled, and ceased titles, this study measured only those titles that were subscribed to throughout the scope of this study (1996 through 2003). Variability in number of articles published and delays in publication may also impact use, but those variables were not measured.

Unlike the other variables, changes in rates of use are subject to measurement. One could use a *t*-test to determine if the average number of uses of one title is statistically significantly different from the average number of uses of all titles, or of titles within the discipline, but those results would have very little practical meaning. A ranking of titles by use would convey essentially the same information, but in a more useable format.

Of greater usefulness is a measure of the degree of variability in use of titles from one year to the next. An appropriate tool to measure that is the coefficient of variation, which is the standard deviation divided by the mean. It measures the spread (variation) in use counts, taking into account the number of uses. To illustrate how the coefficient of variation works, consider the example in table 1 of the local use counts for the *Journal of Educational Psychology* and *Science News*.

Use counts for the *Journal of Educational Psychology* indicate that use remained fairly stable in the three years of the study. The coefficient of variation of 8 percent quantifies the relatively little variation in use from year to year. (The 8 percent is calculated by dividing the standard deviation (26.8) by the average uses (318), and multiplying by 100 percent). In contrast, *Science News* experienced large changes in use from one year to the next, as indicated by the coefficient of variation of 85 percent.

Table 2 displays the distribution of titles among ranges of coefficients of variation. The variability of use from year to year is broadly distributed. A general tendency for the highest rates of variability to be found in titles with lower use counts is evident. In this case, titles averaging more than fifty uses per year have an average coefficient of variation of 40 percent. Titles averaging less than ten uses per year have an average coefficient of variation of 66 percent. The full spreadsheet of title-level data shows that some individual high-use titles have high coefficients of variation and some low-use titles have low coefficients of variation.²⁸ General trends do not predict variation of individual titles.

Table 1. Examples of coefficient of variation

Title	2003 uses	2000 uses	1996 uses	Standard deviation	Average uses	Coefficient of variation (%)
<i>Journal of Educational Psychology</i>	283	348	324	26.8	318	8
<i>Science News</i>	10	51	154	60.6	72	85

Results

All data are for journals to which the library had a subscription throughout the scope of the study, 1996–2003. Journals that ceased, were cancelled, were added, or changed titles between 1996 and 2003 are not included in these statistics. For print journals held in the Neil Hellman Library of The College of Saint Rose, 1996–2003 ($n=649$), total use counts (times reshelved) are shown in figure 1.

During these years, the library subscribed to more than 649 journals. The library had 681 paid print subscriptions in 2003, but only 649 were subscribed to continually since 1996 under the same title. This was down from 1050 print subscriptions in 1996. The library cancelled 290 periodicals and added forty-three periodical print subscriptions in the period 1996 through 2003. The balance of the reduction was from ceased and merged titles.

The change in print use factoring in full text availability appears in table 3. Since many titles have only the most recent issues available in full text, the change in use was calculated separately for titles with more than three years of issues available online. As table 3 shows, the use of print titles available in full text decreased more than the use of titles available only in print. The data reported in table 3 support the hypothesis that the availability of full text correlates with an overall decrease in print journal use.

Table 4 reports the measured differences in print journal use by the academic disciplines at The College of Saint Rose. The disciplines shown in the table are based on the library's direct budget support for library materials. Since the number of titles for each discipline includes only those subscriptions published under one title from 1996 through 2003, the "Titles $n=$ " column in table 4 undercounts the total titles available in the library. "Titles available in full text" is the percentage of the print titles subscribed to by the library from 1996 through 2003 that were available in full text in 2003, based on the listing of titles in our Serials Solutions list. No distinction was made between journals in full-text databases and online journal subscriptions. The data reported in table 4 support the hypothesis that changes in print use occurring with the availability of full text varies among disciplines.

Since overall enrollment at The College of Saint Rose increased approximately 20 percent from 1996 to 2003, lower enrollment is not the cause of decreased print journal use. The college has been successful in its strategy to recruit more freshmen and accept fewer transfer students. An increase in the proportion of students fresh out of high school may cause a decrease in print use if those patrons have a stronger preference for full-text over print journal articles. The college has more students living on campus now than in 1996, but many still commute, some from quite long distances. The affects on journal use of these student demographic variables was not investigated here.

Table 2. Variability in use of titles

Coefficient of variation (%)	No. of titles (N=6428)	Average use count
<=10	21*	63
11–20	56	33
21–30	67	37
31–40	87	56
41–50	101	51
51–60	75	38
61–70	60	25
71–80	65	17
81–90	36	20
>91	65	10

*excludes titles with zero uses in all three years

Table 3. Change in print journal use from 1996 to 2003

Print journal use	% change
All titles ($n=649$)	-52
Titles available in full text ($n=367$)	-59
Titles with full text content from at least 1999 ($n=324$)	-61
Titles not available in full text ($n=282$)	-34

Figure 1. Total use counts for print journals held in the Neil

Hellman Library of The College of Saint Rose, 1996–2003 ($n=649$)

Among variables impacting students' choice to use journals online or in print, an economic motivation stands out in this case. During the entire course of this study, photocopies in the library cost \$.07 (with copycard) or \$.10, while printouts from online databases in the library and campus computer labs were free. Students in the library thus had an economic incentive to favor printing from full text over photocopying from print. Libraries with different printing

Table 4. Change in print journal use by department

*Titles are categorized by the department whose acquisitions budget supports the subscription.

Department	Titles n=	Print titles also available in full text (%)	2003 uses	2000 uses	1996 uses	368 Change in use: all titles (%)	Change in use: titles available in full text (%)
Art	29	41	903	878	1330	-32	-44
Biology	32	38	299	608	1021	-71	-75
Business	31	78	213	358	927	-77	-78
Communications	38	59	244	246	723	-42	-71
Education	105	63	3671	6972	7325	-50	-55
English	89	60	1514	1781	1742	-13	-17
General	36	70	1025	1360	3193	-68	-67
History and Political Science	47	71	412	437	801	-49	-52
Math	8	63	45	348		-84	-83
Music	30	30	427	695	284	-20	-22
Philosophy and Religious Studies	24	54	113	179	535	-76	-76
Psychology	32	50	865	1559	480	-52	-45
Special Education	53	64	3264	7967	1671	-58	-62
Sociology	20	45	266	304	7852	-58	-63
Social Work	5	40	104	112	630	-72	-73

policies may have different patterns of print and online use.

To summarize the results of this case study, the overall change in print use since the introduction of full text is a drop of 52 percent. Overall, the decrease in print use is greater for those titles available online in full text. Titles available in full text dropped 59 percent (61 percent if full text coverage is for at least three years), while use of print journals not available in full text dropped 34 percent. Variation of the impact of full-text availability on print use among disciplines is high. The lowest impact was found in English and music. The highest impact was found in biology, business, mathematics, and philosophy and religious studies.

Implications

Individual students may vary widely in their personal motivations to use journals, but the distribution within the student body of individuals' motivation was not investigated. Librarians' experiences working with students at the reference desk and conducting library instruction sessions suggest that a significant cause of variance in students' motivation to use journals is instructors' assignments and expectations. The hiring or retirement of a single faculty member can significantly change journal use patterns, especially in disciplines where overall use is relatively light. Individual faculty can insist that students use only print, direct them to a specific full-text database, or design new assignments requiring a new use of journals. Since faculty come and go, past use patterns may not predict future use.

The impact on journal use of faculty expectations was

not measured in this study, but some of the relationship of assignments to journal use is revealed in interactions with students at the reference desk and librarians' discussions with faculty. For example, the relatively small decline in print use in English reported in table 4 came as no surprise, as the librarians knew the local English faculty emphasize the use of print journals. Senior faculty in philosophy and religious studies and in biology have been leaders in the use of online courseware and proponents of using journals in the online format; the relatively larger drops in print use in those disciplines were also not a surprise. The print journals for business were among the first to be substantially cut and faculty and students in that discipline have given consistent feedback in support of journal articles being available online. The 77 percent drop in print use of those titles still held thus was not unexpected.

The data here may not reflect the environment at other institutions, nor may it reflect the environment at The College of Saint Rose in the future as new faculty are hired and senior faculty retire. Whether the rates of decrease in print use reported in table 4 reflect experience at other colleges cannot be determined without replicating the study at other institutions. This study strongly suggests that acceptance varies by discipline, but the findings here may not be generalized to other libraries.

Since the impact of full-text availability affects disciplines quite differently, decisions on shifting from print subscriptions to online full text also should vary by discipline. Discipline-specific factors to consider during the shift to journal content offered in the online format include availability from publishers, quality of online versions, and patron accep-

tance. The journals reported in table 4 show a wide range of full-text availability, from a high of 78 percent in business to a low of 30 percent in music. Although some journals are available as online subscriptions or in full text databases to which the library does not subscribe, many are not.

As discussed above, significant differences exist between journals available online and journal articles included in aggregated full text databases. An online subscription to an individual title may be a fine substitute for a print subscription, but full-text articles for that title in a database may not be acceptable. Volatility of content in aggregated full-text databases can make them unreliable substitutes for print subscriptions. The quality of online content can vary and the importance of that quality can vary by discipline. The resolution of a scanned article in PDF may not be significant for a text-only history journal, but may be critical for a medical or art journal.

At The College of Saint Rose, the combination of rising subscription rates and falling use of print journals caused the average cost per use to rise from \$2.17 in 1996 to \$8.82 in 2003.²⁹ Given the drop in print use, the popularity of online journals, and limits on growth in our acquisitions budget, we plan to not renew some journal subscriptions for 2005. The data summarized here will be studied on a title-by-title level. Within each discipline, titles with relatively greater drops in use and rises in subscription rates will be targeted for possible nonrenewal.

The process of selecting titles not to renew for 2005 will take into account change in use, increase in price, faculty input, publisher reputation, and variability in use of individual titles as measured by the coefficient of variation. Wide variations in use of a title from year to year complicate data-based decision making. Our experience with previous rounds of cancellations suggests that too many factors are involved to apply a strict decision formula to identify journals for cancellation, but use, price data, and cost per use trends are very helpful for clarifying choices and making fair, defensible decisions.

Online full-text availability is also a factor to consider, but with caution. Many titles are currently available online through aggregated full-text databases. Cancellation of print titles will be grounded on the assumption that aggregated database coverage of individual titles may not continue indefinitely. Therefore, print journals considered to be core to the educational mission of the college will not be cancelled, even if they are currently online in a subscribed database.

The changes in print journals use reported here probably vary from changes in use at other institutions, but the broad trend toward greater online full-text use, less print use, and rising cost per use of print journals is probably not unique to The College of Saint Rose. If the trend is occurring at other libraries, it is logical for librarians at other institutions to also consider cuts in their print subscriptions.

Librarians facing print journal cuts may consider quantitative and qualitative factors in addition to those already mentioned. Enssle and Wilde included criteria of impact factor, document delivery requests, and faculty rankings in a cancellation project.³⁰ Galbraith listed several criteria that require intimate knowledge of the user population, including "Have faculty left and not been replaced?" and "Has research and teaching emphasis changed?"³¹ Whichever criteria are chosen, they need to be deliberately selected and consistently applied. Metz described how the process of selecting, applying, and communicating criteria facilitates a successful cancellation project.³²

Suggestions for Further Research

No attempt was made in this case study to measure variation in student demographics, student motivations, faculty expectations, or journal content. Further research beyond that cited in the literature review is needed to study how those variables impact journal use. This case study reported the percentage of titles subscribed to by the library in each discipline that are available online, without distinguishing articles in full-text packages from subscriptions to online journals. Research into the availability of the two types of online content by discipline, not tied to one collection, would clarify the extent of online availability. Knowing the percentage of titles available online in each discipline could help librarians find the right balance of print and online journals.

The rates of use of journal articles available online also are not reported here. Careful study of the relationship between print use and online use at the title level could expand understanding of the interaction of print and online use patterns. Does heavy use of a title online always correlate with a drop in print use of that title? If not, are there certain characteristics of the print or online format that influence the correlation of online and print use, such as illustrations, HTML or PDF, currency, embargo periods?

Much more analysis could be done on the reliability of journal use counts on the title level. A study of the coefficient of variation for titles with annual use counts over several years might lead to a hypothesis of when use counts are valid for title-level decision making. An investigation into the causes of high variability of use from year to year would also be helpful. No analysis of variability of use of titles in full-text databases was included in this report. Such an analysis could show whether variation in title use in full-text databases is similar to print. Comparisons of print and online use are fertile ground for further research.

Conclusion

As of 2004, finding the most appropriate balance of print

and online journals remains a challenge. Online journals may offer greater value than print journals.³³ If problems with stability and format can be resolved, the time-saving convenience of full-text journals accessible from remote locations argues strongly for the online format. However, if print cancellations by all libraries accelerate, publishers will be forced to make up the revenue and the prices of aggregated full-text packages will inevitably rise.³⁴ The benefits of ownership of print over access to full text may then become even more important.

The case reported here indicates a general trend in decreased print use as full-text journal articles become available online. However, the changes in print use vary considerably among disciplines, as does the online availability of titles. Use counts for titles from year to year can vary greatly and unpredictably, complicating the application of use data in collection development decision making. This study demonstrates that the availability of journal articles online correlates with an overall decrease in print journal use, but further study is needed to elucidate the details of the relationship of patrons' use of print and online formats.

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continued on page 56

Utilization of Students As Cataloging Assistants at Carnegie Category I Institution Libraries

Timothy H. Gatti

A survey of 261 libraries was undertaken to determine the level of use of and duties performed by student assistants in monographic cataloging operations. Ninety-five of 142 responding libraries (64.1 percent) indicate that they use student assistants for some type of monographic cataloging tasks. These tasks are downloading of bibliographic and authority records, monographic cataloging, classification, subject heading authority control, holdings, database maintenance, and editing of 246 or 505 MARC tags. Some respondents expressed reluctance to use student assistants for higher-level cataloging tasks.

Despite being surrounded by a steady labor supply of thousands of inexpensive and intelligent individuals, the use of student assistants at the State University of New York at Albany (SUNY-Albany) traditionally has been limited to processing of materials (applying call number labels, security strips, property stamps) and other similar lower-level duties (retrieving of materials from the stacks, pulling loose periodicals to be bound). Since 1999, graduate students from the university's School of Information Science and Policy (SISP) have been used for special projects. Two SISP graduate students worked on language-specific projects due to their bilingual or polylingual skills. One project involved the upgrading of brief records for Chinese language materials and the other project involved the processing of gift books in Russian and other Slavic languages. For these two projects, the workflow was fairly simple and linear. A third graduate student worked on the cataloging of new acquisitions that were to become part of the Miriam Snow Mathes Historical Children's Literature collection. Due to the detailed and unique cataloging provided to these materials, the staff member responsible for cataloging these materials worked one on one with the graduate students.

However, changes, both internal (reduction of staff) and external (fewer print materials being purchased, increased emphasis upon electronic resources) over the last several years have led the current administration to examine workflow and the level of staff required to complete the various duties in monographic cataloging. Cornell University librarian Sarah E. Thomas stated, "the world's information resources are abundant, but time is a scare commodity" and that "there is a chronic imbalance between the amount of work to be done and the resources available to do it."¹ These two statements reflect what many academic libraries, both large and small, are encountering.

These circumstances caused SUNY-Albany to consider the utilization of student assistants in monographic cataloging workflow. A survey was constructed in order to gather information about how other institutions were or were not

employing students, with the idea that SUNY-Albany could then take advantage of the knowledge and experiences of other institutions.

Literature Review

Using student assistants in cataloging has been discussed in the current literature, but published papers primarily focus upon their use in projects rather than as part of the standard workflow. Guidarelli and Cary discussed the use of art students to catalog a gift of approximately 12,000 art exhibition catalogs at Virginia Commonwealth University.² Over four years, six different student assistants (both graduate and undergraduate students all involved in the study of the arts) worked on cataloging this collection. Three of the students already had been trained in copy cataloging using Library of Congress records. Under the close supervision of librarians, these students were able to use their previous copy cataloging knowledge and subject knowledge to enhance less-than-full records, including the assignment of call numbers and subject headings. Guidarelli and Cary made the significant points that using students: (1) cost less than half the cost of outsourcing when estimating the cost of copy cataloging per title; and (2) produced more complete records. Genovese discussed the use of students for unique projects at the University of Arizona Law Library, where students have worked on four projects.³ As Guidarelli and Cary also reported, recruitment, training, and supervising these students were critical elements to the success of the projects. Additionally, like the logical connection between art exhibition catalogs and students involved in the study of the arts, the University of Arizona Law Library experience was based around the symbiotic relationship between library and library school student—the library has long-suffering projects completed as the library school student gains valuable (and résumé-enhancing) experience. A third example of the use of student assistants for cataloging projects was documented by Gomez and LaGrange.⁴ This project used a graduate student fluent in Chinese for searching OCLC for copy cataloging and for transliterating descriptive elements of the title for library staff to create original cataloging records.

Two earlier papers based on surveys dealt with mainstream cataloging duties. Da Conturbia's article on foreign language cataloging provided some information related to student assistants in Association of Research Libraries (ARL) cataloging departments, including the percentage of cataloging department staff constituted by student assistants and the average full-time equivalent (FTE) of student assistants correlated to size of holdings.⁵ One limitation of da Conturbia's survey is that no questions were asked regarding the cataloging responsibilities of student assistants, but rather only librarians and support staff were examined. She did include one respondent library's situation where a foreign language

backlog of fewer than one thousand items was worked upon "by having student workers and graduate assistants with language expertise assist catalogers."⁶ The focus of Bénéaud, Bordeianu, and Hanson's survey was mainly upon levels of productivity, but as part of their survey, data regarding staffing levels and responsibilities were collected, including those involving student assistants.⁷ The authors reported that nine of twenty-seven ARL respondents and twenty-five of forty-two non-ARL respondents utilized students in cataloging operations. For more complex cataloging tasks, the number of institutions using students was quite small. Because of the limited number of responses (fifty-two) in the Bénéaud, Bordeianu, and Hanson survey and the date of the survey (fall 1997), a research project surveying a larger group conducted five years later was desirable.

Scope of the Survey

Given the scarce amount of literature on the use of student assistants in cataloging departments and the need for SUNY-Albany to examine its cataloging workflow, data collection and analysis were necessary in order to determine how academic library cataloging departments utilize student labor pools.

In June 2002, a survey (see appendix A) was sent to the 261 institutions classified by the Carnegie Foundation for the Advancement of Teaching's "Carnegie Classification of Institutions of Higher Education" as Category I (both Exclusive and Intensive).⁸ This wide scope of institutions was selected so that input would reflect practices from libraries with holdings ranging from fewer than 10,000 to more than 14,000,000 volumes. Individuals were identified from each library's Web site or the 54th edition (2001/2002) of the *American Library Directory* as being responsible for monographic cataloging operations. For twenty-three libraries, an individual could not be identified, so the survey was sent to an appropriate department or division, with the expectation that it would make its way to the appropriate staff member. Recipients were provided with a stamped return envelope in an attempt to increase the return rate.

Respondents were asked to answer forty-four questions about staffing levels and the use of students in a wide range of monographic cataloging operations (downloading of records, descriptive cataloging, classification, authorities, and other activities). All of the questions were constructed for "yes" or "no" responses, except for questions on staffing levels and free text comments. One hundred forty-two surveys were returned (54.4 percent). While less than desired, according to Losee and Worley, "return rates for self-administered questionnaires tend to be around 50 percent, with fluctuations from 25 percent up to 80 percent being common."⁹ Based upon this, the return rate was deemed acceptable. While some respondents found the yes or no

options for responses limiting, many of the respondents either annotated their responses or provided additional detail in the comments section. The results of the survey (excluding questions 1 through 4, which deal with demographic data, and questions 5 through 9, which deal with sources of student assistance and sources of compensation) are provided in appendix B.

Survey Results

Characteristics of the Departments

Not including student assistants, the level of staffing for the respondent libraries ranged from a low of one to a high of seventy-two employees, with an average of 14.15 and a median of 11.00. Table 1 shows the breakdown of staffing by number and classification of staff. Totals presented for the median, high, and low are drawn from the data and do not reflect a total calculated in this table.

While one might speculate that libraries with larger cataloging staff would have greater numbers of student assistants, another plausible assumption is that libraries with greater levels of staff would have sufficient personnel for their cataloging needs or a great reliance upon outsourcing, therefore minimizing or eliminating the need for student assistants. Based upon the data, libraries with total staff (minus students) equaling 8.99 FTE or less (sixty-nine of 142 libraries) had a median student percentage of 14.29 percent. Libraries with a total staff (minus students) equaling 9.00 FTE or greater (seventy-three of 142 libraries) had a median student percentage of 10.39 percent. This difference in percentage appears to be fairly modest.

How Are Student Assistants Utilized?

Questions 10 through 43 address duties assigned to student assistants. Responses are presented in appendix B. Nine of these thirty-four questions received a “yes” response of 20 percent or greater. Not surprisingly, the duties that had the highest percentages of “yes” responses are those that generally have a linear or short decision-making tree. By shifting these responsibilities to student assistants, libraries presumably have been able to focus non-student staff on more complex and challenging assignments. Additionally, these are also some of the more repetitious duties in the monographic cataloging workflow—a better fit for the usually shorter student schedule.

One question that just missed the 20 percent thresh-

old was question 15—Copy cataloging: Other library copy (AACR2). In this case, twenty-eight of 142 respondents (19.72 percent) answered “yes,” a positive response rate of nearly one half of the institutions that answered “yes” to question 14—Copy cataloging: Library of Congress copy. For question 19—Original cataloging: Complete (descriptive, subject analysis and classification), the “yes” response rate plummeted to only three of 142 (2.11 percent). While responding libraries are less likely to entrust original cataloging to student assistants, a considerable number of libraries do use student assistants as copy catalogers.

Staff Size and Student Assistant Duties

Is there a correlation between staffing sizes and the duties that student assistants are assigned? To answer this question, the author selected those questions that revealed high use of students (by 20 or more percent of the respondents); these are questions 10, 11, 14, 20, 23, 36, 40, 41, 42. Average staff size was determined for those libraries answering “yes” and those answering “no.” Correlating these data shows that libraries with larger cataloging staffs make greater use of student assistants in a variety of tasks than do libraries with smaller cataloging staffs. The size of the libraries’ staffs (excluding students) suggests a correlation with the likelihood that tasks will be assigned to student assistants. The average number of non-student staff in libraries responding “yes” to these questions ranged from 13.79 to 20.55 FTE (4.79 to 11.55 greater than the average staff size of all the responding institutions).

In only two cases were the staffing levels of the “no” respondents greater than those answering “yes.” However, in both cases, the number of “yes” respondents was quite low (two and six out of 142).

Another factor is the availability of an ALA-accredited school of library and information science. Those libraries that were part of a university with such a program (asked in question 5), averaged 12.4 “yes” responses, compared to the 4.4 “yes” responses for libraries that did not have such a program. The response rate for libraries that had access to a neighboring ALA-accredited program also showed a gap, with those having access to students from a program

Table 1. Breakdown of staff by level

Question #	Staff classification	institute	Average per		
			Median	High	Low
1	Number of librarians (MA required)	3.61	3.00	24.00	0
2	Number of professional staff (BA required)	2.93	1.65	22.00	0
3	Number of clerical staff (no degree required)	5.50	2.00	44.00	0
4	Number of student assistants	2.11	1.00	20.00	0
	Total staff	14.15	11.00	77.00	1.00
	Total staff, minus students	12.04	9.00	72.00	1.00

averaging 10.2 “yes” responses and those without access averaging 6.6 “yes” responses.

Another factor to be considered is the hiring practices of the library—do libraries that hire only graduate students or non-work-study undergraduate student assistants have more “yes” responses? As seen in table 3 below, the number of “yes” responses did not vary dramatically. Only three libraries hired solely non-LIS graduate students, and these libraries averaged six “yes” responses. Compared to the eighteen libraries that solely hired undergraduates (with an average of 6.5 “yes” responses), there is not enough difference to think that libraries are basing the responsibilities of their student assistants upon either the educational or financial aid level.

Respondent Comments

Ninety-three of 142 respondents provided additional written comments (question 44). While a number of these comments served to provide clarification to questions 10 through 43, many provided additional information about how the institution did or did not use students. These comments offer some interesting insights. While some positive comments came from libraries that do use student assistants for higher end tasks, most of the comments explained why student assistants were not used. The comments were classified into five categories (comments could fall into multiple categories): no student interest (5); budgetary concerns (6); no need for students (15); training concerns

(26); and turnover concerns (26).

“No student interest” comments included lack of interest in cataloging by library and information science program students, the economic reality of students being able to earn more working off campus, and students desiring library positions, such as working at the circulation desk, where they could study or socialize.

Budgetary concerns, beyond not being able to pay as much as off campus businesses, focused on cataloging operations being low on the totem pole in terms of receiving funding for student assistants, other than those student assistants needed for duties such as the processing of materials.

Institutions responding that they had no need for students noted the various reasons—adequate staffing levels, ability of current staff to keep up with current receipts, use of outsourcing, and the unfortunate decreased acquisitions budget leading to decreased cataloging.

The final two categories of comments, training concerns and turnover concerns, revealed more about collective attitudes toward students. Many of the comments invoked a common theme—the time required to train, supervise, and review student assistant work is perceived as not worth the investment due to students’ inconsistent schedules and the high rate of turnover. While these statements do reflect valid concerns, some comments revealed negative attitudes about student staffing, such as, “it is too time consuming training students when they are unreliable and don’t have a ‘vested’ interest in the project”; “we have problems enough getting

Table 2. Frequency of assigning tasks to student assistants correlated with size of staff (excluding students) (n=142)

Question #	Are student assistants used in:	Yes	No	% yes	Average no. answering “yes”	Average no. answering “no”	Difference
10	Downloading of bibliographic records (for student use)	55	87	38.73	15.79	9.67	6.12
11	Downloading of bibliographic records (for staff use)	60	82	42.25	16.37	8.87	7.5
14	Copy cataloging: Library of Congress copy	55	87	38.73	16.49	9.23	7.26
20	Cataloging Non-English language items	32	110	22.54	20.55	9.57	10.98
23	Cataloging of theses and/or dissertations	32	110	22.54	15.15	11.14	4.01
36	Search/verify names and series headings	36	106	25.35	17.05	10.34	6.71
40	Creation of holdings	74	68	52.11	13.79	10.14	3.65
41	Creation of holdings for multipart records	55	87	38.73	15.29	9.98	5.31
42	Perform local database maintenance	64	78	45.07	15.85	8.91	6.94

Table 3. Source of student assistants (n=142)

Question #	Question	Yes	% answering yes
5	If your institution has an ALA-accredited library and information studies program, do you actively recruit students from the program to work in the department?	13	9.15
6	If there is a neighboring institution that has an ALA-accredited library and information studies program, do you actively recruit students from the program to work in the department?	6	4.23
7	Do you hire non-library and information studies graduate students?	72	50.7
8	Do you hire undergraduate students?	87	61.27
9	If you do hire undergraduate students, do you include students who are paid by a work study program (either federal or state)?	80	56.34

students to reshelve books properly. . . . I don't anticipate they would be successful with cataloging."

Conclusions

As noted in the literature, using student assistants for special projects can be a worthwhile endeavor; however, these projects also tend to be more complex than routine daily cataloging. Libraries need to ask themselves whether they could benefit from having permanent staff take over complex projects while student assistants assume more responsibility for routine cataloging, especially copy cataloging. For instance, if a library performs minimal review of Library of Congress cataloging copy, such as checking for typographical errors or verifying information such as edition, imprint, or other descriptive elements, why not have student assistants work on these items? The amount of training required could be considerably less than that needed to train student assistants working on complex projects. Moreover, many integrated library management systems make understanding bibliographic records easier for those with less training (such as being able to toggle a display from MARC tags to words; for example, from 260 to Imprint), lessening the training requirements even more. Although during intersession breaks and summers, regular staff would have to pick up the slack, the net benefit could be eight months of routine cataloging accomplished by student assistants while professional staff would be available to work on major projects (along with more complex copy cataloging and original cataloging) that truly require their training and experience. This scenario also has the potential to increase staff job satisfaction by freeing staff from repetitive routine work, utilizing their skills where they are truly needed, and giving them the opportunity to serve as teachers and mentors to students.

One of the most striking revelations of this survey is the contrast between expressed negative perceptions of student assistants performing cataloging and the fact that more than 64 percent of the responding libraries utilize student assistants in some manner for monographic cataloging duties. The contrast becomes even greater when focusing upon those libraries where student assistants perform cataloging, with nearly 40 percent of the responding libraries having student assistants performing copy cataloging with Library of Congress copy. At SUNY-Albany, where between 65 and 70 percent of cataloging is English-language Library of Congress copy, shifting this cataloging to student assistants would free up a significant portion of staff time to concentrate on other duties, such as cataloging of electronic resources, upgrading of brief records, increasing maintenance of authorities, and other complex, specialized projects.

It may be beneficial for some to reflect upon the fol-

lowing statement by Fuller—"student assistants are temporary, but not inferior, employees."¹⁰ Rather than focusing on perceived difficulties associated with the utilization of student assistants in monographic cataloging operations (and to a greater extent, all library operations), the focus should be on what these students can contribute to the organization, which can be considerable.

Even with the availability of quality outsourcing for cataloging, additional studies could and should be undertaken to examine the costs and benefits of utilizing student assistants. Simply comparing outsourcing costs to student assistant costs, including not just their pay but also the costs in staff time to train and review the quality of student assistant work, is not sufficient. While the analysis is helpful for determining financial impact, the potential for recruitment into librarianship and especially into cataloging deserves consideration. With the growing concern regarding the graying of librarians and their overall decreasing numbers through retirement, using students (whether they be majors in anthropology or zoology) to assist with cataloging can provide an excellent introduction to the profession.

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Current and Emerging Challenges for the Future of Library and Archival Preservation

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Confronted with increasingly rapid technological developments and the likelihood of continued economic constraints, libraries face numerous challenges in the coming years that are already affecting their operating models. While many functions are well-established, the responsibility of adequately preserving our collections remains a mandate only partially fulfilled. Many of the same developments that increase access complicate preservation efforts by increasing the competition for diminishing resources, expanding the number of options available, and fundamentally questioning established norms such as the notion of permanence. This paper explores the impact of these trends on the library's role as memory institution and poses questions about the near future of preservation in the research library.

The landscape of librarianship changed rapidly within the last thirty years. In retrospect, it transformed at a far more rapid pace than many administrators anticipated. Ferguson's recent essay, "Whose Vision? Whose Values?" provides one example of this rapid metamorphosis.¹ From an environment centered on primarily managing print-bound information and providing access largely through extensive print catalogs, to the management of highly diversified collections of print, multimedia, and electronic resources, collection management (the acquisition, intellectual control, and preservation of collections) faced the monumental task of keeping pace with this change. As a comparatively young component of many libraries' management activities, preservation management faced the task of continuing to develop sound standards and best practices for the care of analog collections and rapidly refocusing itself to incorporate the development of digital technologies. Yet, much about the future of preservation activities remains uncertain. Indeed, one could argue that the next several years hold the promise of the greatest period of change for the preservation community since the late 1970s and early 1980s, when the field's pioneers struggled to gain professional legitimacy and develop a structure for further development. This paper examines eight challenges facing preservation management in the next several years, ranging from the ongoing issue of how best to preserve digital information to the more familiar problems embodied in the permanence and sustainability of both information resources and the profession itself.

Ensuring the Accessibility, Integrity, and Permanence of Digital Materials

Despite great advances in recent years, preserving digital resources is so complex that it will continue to be an issue for the near future. Many projects conducted

over the last five to ten years that focused on the preservation of digital resources are starting to prove their worth. For example, the LOCKSS (Lots of Copies Keep Stuff Safe) model of creating distributed, redundant archives of digital resources is gaining acceptance for the preservation of online resources.² A recent Council on Library and Information Research publication has stated that the primary issue of uncertainty in digital preservation centers on the institution's willingness to manage data rather than on the technical issues associated with its production and long-term storage.³ On a national level, the United States federal government recently awarded grants for the National Digital Information Infrastructure and Preservation Program (NDIIPP)—a \$99 million effort at developing a national program for the preservation of digital information.⁴ Encouraging collaboration between private industry, higher education, and the federal government, this program seeks to develop a means for preserving the nation's digital information resources.

While developing a national digital preservation plan exceeds the capacity of any one university or library, the rapid pace of technological change continues, forcing libraries to respond to campus-level demands that are often beyond their immediate control. In the recent past, these campus-driven initiatives often found libraries ill prepared to do little but respond in a manner that accommodated the larger institution's emerging demands. While this response-driven model often achieved remarkable improvements in access, the hurried relationship with emphasis on immediate accessibility often left libraries unable to complete the planning required to ensure long-term success or sustainability. Perhaps the best example of this is the development of electronic theses and dissertations (ETDs) programs, such as those available at the Networked Digital Library of Theses and Dissertations (NDLTD).⁵ Hailed by academics and librarians alike as a means to free students from the imposed conformity of a traditional thesis-style document, many universities adopted ETDs.⁶ Often, these initiatives originated from campus administration or academic departments; libraries, which traditionally had been responsible for managing theses and dissertations after deposit, followed the institutional lead and developed a workable management tool for providing access to the data. Consequently, many institutions only considered the expense of such a program, the impact on the library's existing services, and the institution's responsibility to preserve the information as an afterthought to the project itself.

Fortunately, institutional understanding about the implications and needs of such projects has developed and libraries increasingly are enjoying a larger role in their planning and implementation. Many actively pursue leadership roles with the intent of developing a better infrastructure for managing such projects in the future. The development of institutional repositories is a prime example of libraries' newfound leadership role in the management of campuswide

information resources. Dovetailing with discussions about scholarly communications and the development of management systems for growing bodies of research stored as digital data, institutional repositories such as the Massachusetts Institute of Technology's DSpace may provide universities with the hardware and management systems necessary to respond to developments in the realm of scholarly communications, records management, and digital preservation.⁷ Yet, institutional repositories largely operate at a level once removed from the library, the traditional memory institutions for both our institutions and our culture.

On a local level, digital technology's use for the enhancement of access and preservation of analog library materials provides an immediate example of the active role that digital technology has taken and will continue to take in preservation. Indeed, in his 1999 volume, *Building a Bridge to the Eighteenth Century*, Postman stated that to be anti-technology is analogous to being anti-food. Both can be either good or bad depending upon their use, but they require a degree of responsibility.⁸ Like food or any other technology, digital technologies hold both promise and peril. In the end, the choices made in their implementation and use make the difference. Overall, digitized materials offer supreme access opportunities. However, despite the progress made in preserving digital information, such imaging is not a preferred method of preserving most print materials, especially more lengthy works. Smith wrote in 1999 that "digitization is not preservation—at least not yet," and this is largely still the case.⁹ It is not yet a long-term preservation medium. Too many unknowns remain to assume that digital imaging provides an improvement in ensuring the longevity of printed information. Media decay, technological obsolescence, and human fallibility continue to render the practice of benign neglect a failure, despite its dubious success with print resources. Moreover, these obstacles argue against the wholesale embrace of digital technology as a preservation option for materials in which an alternate method exists that provides longer-term access.

The one area in which digital technology should rapidly gain acceptance as the preservation option of choice is in the preservation of moving image and recorded sound collections. The reason, however, is not cost or ease of production, but rather media and technological obsolescence—one of the same issues that makes digital technology a questionable long-term preservation option for print resources. Not only do such media die quickly in terms of market availability and the functionality of playback equipment (for example, BETA, videodisk, and the soon-to-be-commercially-defunct VHS), the media themselves are often susceptible to failure. Most magnetic tape lasts about twenty years before suffering from significant deterioration and, despite assurances from the industry, many optical disks, through a combination of deterioration and techno-

logical obsolescence, appear to decay even more quickly.¹⁰ Consequently, since truly preserving these recorded sound and moving image collections requires so much up-front maintenance anyway, digital technology holds the potential of being more manageable than the original collection. However, that does not mean that analog reformatting of recorded image and sound collections has died. Indeed, vendors recommend that customers secure reformatted copies in both digital and analog tape formats, arguing that, while tape may not be permanent, a ballpark life expectancy of several decades exists.¹¹

Perhaps digital preservation's most interesting development is the shift from huge, project-based imaging initiatives to the digitization of materials that one sees everyday, much like the shift in the mid-1980s from massive preservation projects focused on "Great Collections" to the regular reformatting of deteriorated materials as they were found to be damaged. This shift is most evident in the University of Michigan's announcement of the 20,000-volume Digital General Collection, a full-text initiative largely built upon that institution's endorsement of digital imaging as the preservation medium of choice for brittle print monographs.¹² Few research institutions have embraced digital imaging as a preservation tool to this same extent.

Although the technological issues of using digital technology as a preservation tool are becoming increasingly manageable for financially and technologically robust institutions, will institutions reach a point at which the volume of digitally reformatted surrogates needing further preservation will exceed the capacity to preserve *and* access the items at these institutions? In other words, despite the decreasing cost of storage space, is the current ease of production going to make reselecting previously reformatted content for further preservation a necessity? Although one may assert that most technological issues can be solved, does the increasing ease of creation mean that a subsequent round of preservation decision making looms on a not-too-distant horizon?

Preserving Circulating Print Collections

Despite an increasing demand for electronic resources, print collections will continue growing in the near future. Although the pace of this growth will decline as patron demands for electronic formats and inflating costs for all materials force libraries to reduce and refocus acquisition activity, libraries will continue acquiring print collections. As Reilly, president of the Center for Research Libraries, stated in a presentation at the University of Illinois at Urbana-Champaign, this growth will become particularly evident in collections of materials originating in less-developed regions—areas still strongly tied to the printed volume due to lower levels of technical development.¹³ Consequently, larger research libraries, especially those

self-identified as "libraries of record," will find themselves in an ongoing debate between the need to expand and preserve print collections and the need to expand and support a rapidly developing collection of electronic resources.

The growing pains of such a transitional period only represent one challenge faced locally. Libraries increasingly face a larger problem in the ongoing maintenance of print collections; namely, their nature. While they are an excellent long-term vehicle for conveying information, one of the great ironies of print collections is that the vast majority of them are composed of organic materials. In other words, the media that carry the bulk of the information in our collections are subject to a natural process of decay. While some adhesives are now plastic-based, many binders continue employing animal-based adhesives, especially in less technologically advanced countries. Pages and boards continue to be primarily wood products, and most of the papers used in the non-Western world still contain high levels of unpurified wood pulp—the root of the brittle books crisis. When bound in a sewn fashion, the thread in most sewn volumes is composed of natural fibers. All these materials decay. Consequently, research libraries face the same basic questions of selection articulated by Atkinson and Hazen during the early years of library preservation's development.¹⁴ What do we select to preserve and, more importantly, what do we select not to preserve?

In some subject areas, particularly many of the sciences, in which a digital version is increasingly the primary means of access, selection for preservation takes on a completely different tone. As the writings of Crawford demonstrate, many librarians and technologists enthusiastically predicted an eventual disappearance of print collections.¹⁵ Yet, print collections remain and, although serial literature may be an exception, libraries find themselves moving increasingly toward a "both and" rather than an "either or" model. While the complete disappearance of print is not necessarily a realistic scenario, the cost to preserve aging general print collections duplicated in electronic formats will increase and must be considered in relation to their potential research value.

On an item level, preservation programs long focused their efforts on determining which materials warranted exceeding a commonly acceptable level of care. However, in an era when the availability of a digital access mechanism is increasingly seen as superior rather than complimentary to print literature, at what point does an entire portion of a circulating collection cross a threshold into being a different class of materials that either warrants or does not warrant treatment as a whole? Regardless of whether predictions hold true about the eventual electronic availability of large portions of our circulating collections, at what point will a class of print materials, especially those duplicated electronically, become viewed by campus administrators, librarians, and even scholars as something more akin to a legacy or a relic fit for those other memory

institutions—museums? When will the items made more intellectually valuable because of their widespread online availability become so physically obsolete as to warrant the same treatment as surplus computers? Moreover, as libraries continue their ongoing discussions over resource allocation, will collection stewards increasingly view legacy print collections as an albatross—extremely costly to maintain without providing much return?

As the popular success of Baker's *Doublefold* and Basbane's less-noted but more thought-provoking *A Splendor of Letters* demonstrate, a public perception of libraries as stewards of history continues.¹⁶ The public's perceived value of the physical item is growing. The development of Internet-based used and rare bookstores, the popularity of such television programs as *Antiques Roadshow*, and the growth of cottage industries dedicated to genealogy and scrapbooking spread a belief in the value of old items. Indeed, the value of the book as artifact is more widely accepted by the general populace than ever before. Yet, ironically, the value of the book to scholarship simultaneously faces greater challenges in the academy. As electronic resources supplant portions of print collections, libraries face the immediate challenge of defining the purpose and role of legacy collections, print repositories, and copies of last resort. Indeed, the declining redundancy of print collections is likely to alter the relationship between smaller academic libraries and larger research institutions as many smaller institutions become increasingly reliant upon larger research libraries to acquire and preserve print resources that the smaller libraries can no longer justify acquiring based upon local need.¹⁷

Preserving Rare Book Collections

In recent years, rare book and special collection librarians began predicting the exponential growth of rare and semi-rare collections.¹⁸ Under many institutions' current collecting policies, the growth of rare and semi-rare collections is inevitable. However, the nineteenth-century publisher's cloth bindings, twentieth-century manuscripts, pulp fiction, comic books, and ephemeral materials such as 'zines that increasingly find space in rare book libraries are largely produced with inferior materials and processes when compared to the older materials they join. These materials largely are produced with inferior materials and processes compared to the materials they join. No longer falling under the rubric of circulating collections and composed of more inferior materials than many items traditionally viewed as rare books, the aggregated cost of preserving these items undoubtedly will exceed that of their circulating counterparts and well may exceed the cost of preserving the existing rare book collections.

The growth of rare book collections and their preserva-

tion needs are not limited to semi-rare collections. Many institutions face the prospect of providing access to materials that have already been in their holdings for years. A recent Association of Research Libraries (ARL) white paper, "Hidden Collections, Scholarly Barriers," compiled by Jones, highlighted the burgeoning interest in "hidden" collections.¹⁹ While not necessarily consisting of materials that are completely inaccessible, the hidden collections discussed in the document and at a subsequent conference range from materials rendered inaccessible due to erroneous or incomplete retrospective conversions to unprocessed manuscripts and uncataloged rare book collections. Providing access means more than just processing, cataloging, and updating records. The process of making these collections accessible should include some level of preventive care. Processing and preserving (whether it consists of the preventive stabilization of deteriorating monographs or rehousing manuscript materials) these collections requires resources. "Finding" these collections will benefit students and scholars alike. For example, at the time "Hidden Collections, Scholarly Barriers" was published, the University of Illinois at Urbana-Champaign held an 80,000-piece backlog in its Rare Book and Special Collections Library. While retrospective conversion projects and concentrated work eliminate items from such backlogs, increased availability brought about by greater intellectual access necessarily increases these materials' use and, therefore, their damage, presenting an additional challenge for conservators and preservation administrators.

Preserving Audio-Visual Collections

Despite an increasing interest in preserving audio-visual collections, their long-term maintenance remains problematic. Over the last ten years, three conferences focused substantial effort on raising awareness about the preservation needs of the nation's unique audio-visual materials.²⁰ Yet after ten years, the resources allocated for the preservation of audio-visual materials remain remarkably low. One impediment is copyright law. Harper, at the University of Texas at Austin's "Sound Savings: Preserving Audio Collections" conference, noted that the copyright issues surrounding commercially produced audio collections create a significant impediment to preservation by universities and other research institutions.²¹ While United States copyright law does not prohibit copying for preservation purposes, the laws do inhibit the widespread distribution that makes digital applications so appealing. Indeed, interpretations of these same laws can apply to the unique holdings within college and university collections—the oral histories, locally recorded performances and speeches, and athletic events that define many such collections.

Another obstacle to the preservation of audio-visual materials is the combination of technical and media obs-

lence issues that have characterized the development of digital preservation programs. As discussed earlier in this paper, digital technology is rapidly becoming the preservation option of choice for moving image and recorded sound collections. However, many remain skeptical about the permanence and integrity of digital media, creating an environment in which institutions frequently create digital copies to ensure access and analog copies to serve as their preservation master.

In addition to the challenges imposed by obeying copyright law, creating and sustaining a digital access mechanism, and maintaining multiple formats, audio-visual collections present preservation administrators and curators with an added complication—a lack of research into their preservation and maintenance. The closing session “Building for the Future: Shaping an Education and Research Agenda,” at the Association of Research Libraries and the University of Texas at Austin’s “Sound Savings Conference,” focused on this concern.²² Librarians and archivists need functional, actionable models for assessment. Additionally, technical problems remain unsolved. Technicians and professionals need training and education to support reformatting and maintaining audio-visual collections. Research into the preservation of both historic, legacy formats and newer media is needed. The uncertain longevity of many new media leave many concerned about the wisdom of completely abandoning older, analog formats, even if accessibility is improved. Finally, scholarly thought about the need to preserve original items as artifacts remains largely unexplored. These dead media represent a significant portion of the human record, and their preservation often remains important to curators and scholars even if reformatted copies exist.

The Deterioration of Library Facilities

Many libraries, in particular those at the nation’s older universities and colleges, face another significant challenge in the coming years—the aging of their facilities. At best, these institutions have collections housed in facilities constructed or renovated in the recent past—in the last twenty years. However, many library facilities are much older. One of the greatest periods of expansion among the nation’s research collections took place between the 1920s and the 1970s, and libraries were constructed or expanded to hold these growing collections. While many of these facilities have served their collections well, their age is beginning to show. Many of these institutions face an absence of basic infrastructure necessary for collection preservation. Characterized by poor building envelopes, a lack of climate control, and an absence of fire suppression and other life and collection safety equipment, these institutions continue housing collections in at-risk environments. While the decay of organic materials is inevitable, the aging facilities that house them rarely check

and often accelerate this rate of deterioration.

Current economic conditions compound the infrastructure problems these buildings already face. Economic stringency often leads institutions to cut resources dedicated toward the maintenance of facilities in lieu of cutting resources allocated toward personnel and acquisitions. In addition, few public institutions possess meaningful control over decisions about large maintenance, renovation, and construction projects, leaving facilities and collections even more vulnerable to deterioration and disasters.

The deterioration of library facilities leaves our collections at increased risk. Facilities built to withstand the test of time are beginning to show their age. The needs of an aging built environment must compete against the necessity to upgrade and modify these same structures to fulfill needs for which many of them were not designed. The installation of computer workstations, classrooms for bibliographic instruction, ADA-compliant restrooms, cafes, information commons, and additional shelving to hold growing collections require construction and renovation. The predictable hazards that come with work such as plumbing, electrical installation, roofing, and welding must be taken into account in preventing catastrophic losses.

Libraries increasingly feel resistance to expansion on central university campuses. While universities often support libraries as places for research and scholarship, the high cost of construction, the increasing value of central real estate on already crowded campuses, and the perception that centrally located buildings cannot continue as warehouses for little-used collections support the expansion and growth of high-density storage facilities for low-use materials.²³ Equipped with excellent climate control and, in some cases, automated retrieval, the reality of these new facilities is that the least-used materials on many campuses receive housing in the best conditions available. While this does not present a challenge in and of itself to the preservation community, the irony is that continued growth of print collections will require the construction of expensive facilities to warehouse collections viewed as valuable by the public, yet which are less central to current scholarship.

Educating and Training Preservation and Conservation Professionals

The endurance of print collections and the growth of rare book collections highlight a continuing need for the traditional skills and services provided by conservators and preservation administrators. While materials and methods change as new technologies and processes develop, the enduring value of the book as both artifact and as conveyor of information supports the notion that trained collections conservators and technicians will be necessary for maintaining print collections. The growth of rare book collections,

many of which will be composed increasingly of materials inferior to those that preceded them, will require the attention of rare book conservators.

Similarly, the need for preservation administrators will continue, but their responsibilities will change and expand. One key example of this changing responsibility is the long-standing relationship between library binders and research institutions. Combined with costs rising far beyond those of inflation and the growing dependence upon electronic serials, the continued development and availability of digital technologies is making the nineteenth- and twentieth-century model of developing extensive collections of print serials less viable for most institutions. Similarly, the accessibility of full-text articles and online research tools is making current print serials less valuable within the context of current research. While the ongoing development of collections-of-record and print repositories may be slowing, many institutions will pursue the development of robust digital libraries in lieu of maintaining print serial runs. As collecting policies increasingly favor greater numbers of electronic serials over print formats, the emphasis on library binding will shift from serials toward monographs and other products.²⁴ While all serial titles will not be available electronically in the near future, the overall number of serials being bound will continue declining.

Conversely, the proportion of binding dedicated to monographs is likely to climb for two reasons. First, the continued rise in costs and failure of acquisitions budgets to keep pace likely will result in more institutions purchasing paperback monographs, even when hardbound editions exist. Second, the availability of digital technologies, having already made the process of publication easier, will result in greater availability for monographic titles of marginal profitability. Although years behind their predicted dominance over the booksellers' market, the development of print-on-demand services will affect library acquisition operations, with institutions either purchasing texts online and securing printing through a locally contracted bindery or as part of an acquisitions program that permits binding through a vendor of the library's choosing. Increasingly, the preservation administrator's responsibility for managing the binding operations will be tied closely to the acquisitions process.

Preservation administrators' responsibilities in other areas will grow and change in similar ways. With the exception of simple growth in the management of conservation and preventive treatments to adequately care for print collections, the one constant throughout will be an increasing need for technological training. The growth of born-digital and digitally reformatted print collections requires an increasing level of cooperation between preservation officers, systems administrators, and digital library managers. Presuming the continued development of digital reformatting for audio-visual collections, the preserva-

tion of audio-visual collections also requires increasing cooperation between preservation offices, systems offices, and those responsible for managing an institutions' digital assets. Depending upon an institution's need and obligation to maintain such materials, this situation begs for the development of digital reformatting officers as subsidiary to overall preservation managers. In the meantime and far into the future, institutions will need increasingly technologically savvy preservation administrators—individuals who can manage both the preservation of traditional library resources and of digital assets. While many preservation officers gained this knowledge as digital reformatting and preservation efforts developed, tomorrow's preservation officers will require sufficient training to manage the preservation of both print and digital resources.

Sustaining and Developing Resources

In the face of the trends outlined in this paper, one of the greatest obstacles facing preservation programs and the libraries that they serve centers on sustaining, or even developing, the resources necessary to preserve library and archival materials. If the present confluence of rising acquisitions costs and static or declining financial resources is any indication of the future, developing the resources necessary to meet the emerging challenges facing preservation poses a significant obstacle. Presently, the median expenditure on preservation activities among all ARL members reporting preservation expenditures is only \$488,925.²⁵ The ongoing growth of collections and the competing demands on limited resources that all libraries face will make the dollars allocated for preservation and conservation activities less effective at a time when the need to care for the extensive cultural assets housed within libraries will grow. Likewise, this rising need for resources to preserve collections is occurring at a time when federal resources allocated to grant funded activities for the preservation and conservation of library materials is almost static, resulting in decreasing buying power from year to year.

The Ongoing Challenge of Selection

The greatest challenge faced by the preservation community in the coming decades is far less tangible and, perhaps, far more important than many of those outlined previously—it centers on the issue of selection and evaluation. Although the focus and purpose of their examinations of selection varied, the topic of selection for preservation has been addressed by Hazen in 1982, Atkinson in 1986, Child in 1986, many of Smith's publications, and even by Baker and Cox in 2001 and 2002,

respectively.²⁶ Yet, after more than twenty years of examination, the questions remain largely the same. How do we select what we save and what we permit to deteriorate? How do we allocate our resources to do the most good in response to developing needs? What do we save within print and digital repositories? Moreover, what do we save from our collective cultural heritage?

To those questions, I would like to propose another set of questions. If the per volume expenditure on preservation activities in research libraries decreases in the coming decades as new technologies and new operational models demand increasing portions of static or declining resources, how will libraries simultaneously respond to the increasing value ascribed to some of our legacy collections? Conversely, is such interest in legacy collections sustainable into the future? With ongoing development of print collections, the anticipated discovery of hidden collections, and growing collections of rare and semi-rare items (many of which pose significant preservation problems), where will we secure the funding to preserve these records of our material culture? Finally, given the inherent organic nature of the materials with which we, as administrators, collection managers, preservation administrators, and conservators, work, how will we justify the expense of preserving materials that are inevitably bound to decay?

Conclusion

As the gap between the resources available for preservation relative to the number of items requiring preservation continues growing, research libraries formerly afforded the luxury of being collections of record face an additional challenge. Instead of merely deciding which items are worth preserving in lieu of acquiring additional materials, those institutions committed to preserving the assets in which they invest may find themselves increasingly facing the much larger and more politically charged question of determining what subjects or classifications do not warrant the expense of preservation.

This topic is most certainly more complex than just an examination of local economic and political realities or prioritizing resources. Dekkers' *The Way of All Flesh* illustrated the challenge of preserving library materials by presenting the topic in stark human terms:

. . . with every record we break, some music is lost. That's what makes us so angry. It's not the shellac that matters so much; it's the grooves. By damaging the shellac, you also damage its contents. When records break or books fall apart, it confronts us with the reality of the essence of life: the knowledge that with the decay of the body, the

spirit is also lost.²⁷

If what is threatened truly is the spirit of human knowledge, how can we not find the resources to maintain the collections that document our collective legacy despite shrinking budgets, changing modes of access, and burgeoning publishing industries?

In light of this, perhaps the most formidable preservation issue facing research libraries is that of recasting themselves as memory institutions in an environment increasingly concerned with on-the-fly access. Like museums, research libraries maintain links to our collective past, largely through their historic ability to collect comprehensively, and through their ability to provide ongoing, sustainable access. Faced with continued uncertainty over the permanence of digital information, the ongoing challenge of preserving both general and special collections, legal and technical obstacles to preserving audio-visual materials, the deterioration of library facilities and resources, and a continuously growing requisite knowledge base for preservation administrators, demand for the provision of access over durability significantly complicates the ability of preservation programs to serve this role. Yet, the role of the library as memory institution describes a significant portion of the research library's reason for being. Without providing long-term, reliable access to information in all its forms, research libraries differ little from the local chain bookstores.

By its very nature, the preservation and conservation of library and archival materials is a conservative practice. Consequently, as research libraries face the challenges outlined above, they should keep in mind that their ability to meet the expectations of their users as a trusted source must continue taking the longer view into account. While this does not excuse preservation and conservation programs from participating in evolving professional practices, it does imply that providing reliable, permanent access to information in order to fulfill the library's role as a memory institution requires that libraries and their benefactors recognize such challenges and evaluate new methods on the basis of their ability to provide longer-term access to the resources in hand.

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Production Benchmarks for Catalogers in Academic Libraries

Are We There Yet?

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This paper examines existing library and personnel literature to determine whether any strides have been made among academic libraries in determining cataloging productivity benchmarks. The perceived importance of performance evaluations based on quantitative and qualitative standards is explored, as is the intended effect of established cataloging production norms. The pros and cons of cataloging benchmarks are analyzed from four different perspectives: library administration, library human resources, cataloging managers, and cataloging staff. The paper concludes that additional research is needed in order to determine whether established production cataloging benchmarks are feasible and meaningful within academic libraries.

In the library field, we seem to have been generally hesitant to discuss productivity, and even more reluctant to compare libraries or staff in terms of individual or institutional production data. While the library literature has regularly publicized figures for library budget dollars allocated and works circulated per year per capita of user population, little attention is given to reporting library production data linked to cost or staff and attempts to propose the publication of library performance data for purposes of comparison have not been popular propositions.—Judith Jamison Senkevitch, “Analyzing Productivity in the Era of Accountability.”

With increasing frequency, heads of cataloging operations within academic libraries receive surveys in the mail, e-mail messages from colleagues, and read postings on electronic discussion lists that begin:

Within the Technical Services Department here at X University, we have started to grapple with the idea of setting general production benchmarks for cataloging staff. I would appreciate if you would share any standards or benchmarks that you currently have in place or the outcome of debate.

In the current environment of dwindling budgets and increasing focus on individual and institutional accountability within the workplace, renewed discussions about establishing formal cataloging productivity benchmarks are not surprising. And yet, the debate surrounding this topic appears to be just as controversial today as it was three decades ago.

A benchmark is a standard by which something is measured or evalu-

ated. The term “production benchmarks” refers to an established set of criteria developed to measure and compare quantitative and qualitative output. In the manufacturing world, benchmarking helps determine the standards that will be used to create a product, evaluate how effectively the product or the individuals creating the product meet the defined standards, and increase overall productivity. Cataloging production benchmarks are the standards or norms designed to evaluate cataloging output. Cataloging output is defined in terms of quantity (number of items cataloged) and quality (accuracy and uniformity of the intellectual work performed). This paper examines the various issues surrounding the implementation of cataloging production benchmarks in academic libraries from several perspectives.

No one would argue with the idea that managers of cataloging operations are responsible for making sure that their staff are fully trained, have the tools they need to do their jobs, and are organized effectively, and that workflows are smooth. All would agree that a successful manager monitors the situation within a cataloging unit on a daily basis to ensure that the work is getting done and that backlogs do not develop. This cannot be accomplished without managers focusing much of their attention on cataloging productivity. However, when asked to define or set measurable cataloging production benchmarks, many managers are reluctant or unable to do so.

As a profession, we are often accused of spending too much time focusing on the quality of the final cataloged product instead of on than quantity of cataloged records we produce. Catalogers in academic libraries view their primary responsibility as providing error-free bibliographic, authority, and holdings records in order to assist users in the discovery of important intellectual resources. Creating that perfect cataloged record also gives catalogers a great feeling of accomplishment and satisfaction. In today’s world of shared catalogs and cooperative cataloging initiatives, a cataloger that can produce large numbers of records riddled with errors does not win many kudos from colleagues. Many catalogers misinterpret a library’s desire to establish individual production benchmarks as meaning that quantity is more highly prized than quality. This perceived change in values might cause catalogers to feel under appreciated for the important work they perform within the organization. With library administration and human resources departments pushing for measurable performance standards and both cataloging managers and catalogers uncomfortable with formal production standards, the head of a cataloging unit may be in a very difficult position. Preliminary discussions about performance standards between cataloging managers and staff can be met with resistance.

Literature Review

Since the 1970s, libraries have studied the issue of productivity within technical services operations in an effort to improve workflows and lower cataloging cost per title. Morris et al. provide a comprehensive literature review on the subject of staff costs for cataloging.¹ McCain and Shorton propose the need for academic libraries to develop benchmarks or best practices in order to realize more efficiencies within technical services operations and caution that, “it is difficult to find data on how many staff it takes to handle a defined workload and how productivity and staffing compare among similar institutions.”² Senkevitch advocates the need for libraries to use performance measurements to track staff productivity and better manage operational output costs.³

The majority of research on cataloging productivity centers on defining unit costs in order to measure and evaluate a specific library’s overall success within its own organization. In comparison, research on productivity benchmarks for measuring the performance of individual catalogers within an organization is very limited. Graham contends that the “literature of cataloging has historically dealt with matters of quality and seldom with matters of productivity.”⁴ Smith observes that while many articles dealing with cataloging costs exist within library literature, none written between 1973 and 1988 specifically address production standards at the individual cataloger level.⁵ Bénaud, Bordeianu, and Hanson note, “A review of the library literature reveals more articles dealing with the issues that surround cataloging production rather than actual production data.”⁶ The issues the authors identify as most often discussed are “terminology, deprofessionalization, the quantity vs. quality debate, political considerations, and the apples and oranges debate.”⁷ Smith and Bénaud, Bordeianu, and Hanson present survey-based studies that specifically examine quantitative cataloging productivity benchmarks within academic libraries. Both papers conclude that while many academic libraries have established cataloging production benchmarks, the standards vary significantly from library to library.

The fact that the topic of cataloging production benchmarks is not covered sufficiently within library literature is perhaps most evident when exploring archives of cataloging electronic discussion lists. AUTOCAT, a well-known electronic cataloging discussion list, contains more than two hundred e-mails under such threads of discussion as cataloging productivity, cataloging daily output standard, production levels for technical services faculty, minimum production standards for cataloging, cataloging production standards, and quantifiable goals.⁸ Clearly librarians are searching for more information regarding productivity cataloging standards, but are not finding the answers to their questions within the traditional library resources.

Performance Appraisal Systems and Standards

Many articles and books exist on the topic of staff performance appraisals within libraries. Key to the success of this evaluation tool is the usage of quantitative and qualitative measurement standards. Helping managers and staff understand the perceived value of formal performance appraisals based on measurable standards is an important first step in any internal discussion on production benchmarks.

Within the field of personnel management, performance appraisals have been the subject of much discussion and research. Personnel management literature emphasizes that performance appraisals are important because they serve to meet three key purposes within an organization: to provide employees with periodic, formal feedback; to provide management with a mechanism to control employee behavior; and to provide management with a tool to determine employee merit and compensation based on objective measures of worker productivity.⁹ Geisecke writes:

A good appraisal system is an ongoing process that requires a supervisor to evaluate fairly the tasks the employee performs, and how well the person completes those tasks. The supervisor must be certain that the employee understands how to do the work, knows what the expectations are for completion of the task, and is rewarded for meeting those expectations.¹⁰

The basic steps for the successful establishment of formal performance standards for library staff include involving the staff in the process, defining the job's position description, and developing the performance standards. Both library and personnel management literature stress the importance of staff playing an active role in the development of performance standards. Goodson maintains:

Employees are happier when they feel that they have had some input into the standards by which they will be evaluated, and that, in a sense, they are helping set organizational priorities; they feel more like owners of the organization than like mere wage slaves.¹¹

When developing the specific performance standards, managers are told constructing performance objectives that are "specific, measurable, and achievable" is important.¹² In addition, each performance standard must contain "statements that specify or describe work-related behaviors or job outcomes, and that can be evaluated in some objective manner."¹³ Each standard should have its own set of guidelines that consists of specific criteria to be used by the supervisor for objective evaluation. These guidelines

should define clearly the expected behaviors for "meets standard," "exceeds standard," and "needs improvement." The idea behind developing these standard-based guidelines is to ensure fairness by preventing supervisors from rating employees based solely on their impressions of an individual's work or other subjective criteria.¹⁴

Understanding how to develop performance standards, however, is only one piece of a very complicated puzzle. Both supervisors and staff also need to understand why these standards are viewed as important within the larger library framework. Library management, on the other hand, also needs to understand why so much resistance is displayed on the part of cataloging staff.

From the Library Administrator Perspective

For academic libraries, performance appraisal systems often are determined at the university level. Many libraries adapt university-prescribed performance appraisal methods to meet the unique personnel management needs that academic library work presents.¹⁵ Depending on the level of the library employee (for example, clerical, paraprofessional, librarian), university policy also may require that staff performance appraisals be used when making salary decisions. Lubans wrote that, while performance appraisals have the potential for improving the organization, if they are imposed on employees then they could become one of the primary reasons for dissatisfaction in the workplace:

Sometimes we want PA [performance appraisal] to do too much. For example, coupling PA to salary decisions may seem efficient. But invariably, the two processes work against each other. . . . Management often compounds the problem by setting quotas (for example, only 25 percent of staff can be scored at "exceeds expectations" for the salary increment . . .). Supervisors and staff are often forced into a tacit collusion of "turn taking" for so-called "merit" pay.¹⁶

The purpose of merit incentive programs is to motivate staff to increase productivity and, in turn, enable organizations to become more cost effective. Because performance appraisals are based on an impartial, objective measurement of employee productivity, they are a logical tool to use when determining merit. As noted by Lubans, however, linking this type of compensation reward system to performance appraisals can lead to conflict within the workplace. An employee that successfully exceeds the organization's established performance standards expects to receive merit pay. Do increased numbers of staff surpassing productivity quotas indicate that the merit reward system is working (staff are working more in order to obtain merit pay), or does it indicate that the established productivity benchmarks are too

low? The question of whether or not merit pay motivates employees to perform at a higher level continues to be an area of debate within personnel management. Although connecting pay to performance may serve as a motivation in some cases, no research currently supports the theory that the existence of merit pay programs leads to increased employee productivity. More recent personnel management literature suggests that performance appraisal systems can be greatly improved by moving toward a performance management system. Cederblom and Permerl write:

A performance management system would include performance appraisal, as well as other components such as strategic plans, manager accountability, pay, promotion, training/development, and discipline. And, the system would coordinate these components effectively to improve organizational performance.¹⁷

Many academic libraries are moving towards the performance management model with the hope that this approach will meet a variety of needs: (1) helping employees to be better informed about the organization's expectations by linking performance standards to the library's mission statement and goals; (2) putting greater emphasis on accountability in the workplace; and (3) ensuring that a library employee's performance will successfully meet an institution's objectives. Today's academic libraries are being asked to do more with less. Users want access to more electronic resources and more types of automated support for their research. Library management expends a great deal of time strategizing in an effort to meet these new service needs. Instead of focusing only on an individual's goals and performance, performance management enables managers to link performance appraisals to larger organizational goals. This, in turn, can help drive organizational change and ensure the entire organization is working toward a common objective.¹⁸ Turner states, "a good [appraisal] system should be an opportunity for helping a worker, at no matter what level, to gain understanding of, and commitment to, the mission of the organization."¹⁹

From the Library Human Resources Perspective

Performance appraisals also are viewed as an effective personnel management tool. One purpose of staff appraisals is to monitor performance and to identify training needs. Personnel management professionals maintain that appraisals that are not based on measurable performance standards cause problems when corrective action is required. They stress that, in order to avoid grievances, managers are responsible for providing employees with written performance expectations that are fair and clearly defined—both in terms of quality and quantity. Without these measurements, identifying when an employee has fallen below what consti-

tutes the norm for any given position is impossible.

Library human resources personnel often have to respond to concerns expressed by staff about their individual performance appraisals. For example, staff may feel that they were not evaluated objectively by their supervisor or not evaluated in the same way as a co-worker. Standards used for evaluating staff must enable supervisors to compare performance more equitably. This is particularly important when establishing standards for jobs that are the same or similar in tasks. Goodson states, "Experience has shown, however, that performance standards—if designed to reflect accurately the tasks associated with successful performance of a job, and if developed in full consultation with workers involved—can have great advantages as well."²⁰ Therefore, one of the important benefits of defining measurable standards from the human resources perspective is that this will ensure that all performance evaluations will be done fairly, accurately, and in an unbiased fashion. These evaluations in turn then will serve as useful documentation if a grievance is filed or remedial action is needed.

If measurable performance standards serve to protect the employee (by providing fair and unbiased evaluations) and to protect the manager (by supplying documentation when dealing with an employee who is performing poorly or complaining about unfair treatment), then why do both catalogers and managers of cataloging operations resist the establishment of formal production numbers?

From the Cataloging Manager Perspective

In personal conversations with my own cataloging managers, the reasons most often cited for not wanting to establish formal productivity standards for their catalogers were as follows:

- To be fair, managers would need to review each cataloger's total work to determine the number of titles cataloged and quality of work cataloged. They would end up spending 100 percent of their time reviewing and tracking catalogers' work.
- Cataloging operations are not static. Catalogers are often pulled from their regular cataloging responsibilities to participate on special projects dictated by management as a higher priority.
- Managers can tell when a cataloger is not performing at full potential or makes too many errors through a variety of informal ways. A formalized review process is not necessary. Managers would be better served if they spent their already stretched time only reviewing and training individual catalogers that need additional help.
- No blanket benchmark exists that can refer to all catalogers or groups of catalogers. The process becomes one of establishing individual production

benchmarks based on each cataloger's responsibilities and situation.

Goodson expressed cataloging managers' concerns in stating:

Although ideally *all* performance standards would be expressed in terms of job outcomes or products, following the standard management by objective (MBO) format—to [action verb] [task, object of work or result] [by date, or some other measurable criterion]—in many library jobs it is difficult to identify measurable outcomes that can be reasonably evaluated by a supervisor—or at least, by a supervisor who wants to get something else besides evaluations done!²¹

From the Cataloger Perspective

Staff are equally reluctant to have stated production benchmarks on their official performance expectation forms. When discussing this topic with both professional and paraprofessional catalogers within my own operation, reasons typically given were:

- Production benchmarks, or quotas, devalue the intellectual work I perform as a cataloger.
- I am a professional—trust me to do my job.
- Establishing productivity output expectations assumes that cataloging is nothing more than assembly-line work. We're not manufacturing widgets here!
- In order to meet quotas, quantity becomes the primary goal. The quality of my work as a cataloger is no longer important and database integrity no longer matters.
- Different production goals need to be established for different categories of materials based on a variety of factors such as:
 - *Format*: Do serials take longer to catalog than books? Do visual materials take longer to catalog than maps?
 - *Language*: Does cataloging an item in Chinese take longer than cataloging an item in English?
 - *Cataloging copy level*: How many items should a cataloger catalog if the records are Library of Congress copy (DLC) versus non-DLC copy versus original?
- Managers establish unreasonable standards for new cataloging based on formulas that do not represent the reality in the workplace. (For example: 3 books/hr x 8 hrs/day x 5 days/wk x 50 wks/yr = 6,000 books a year.)
- Including unobtainable numbers in our written performance expectation forms sets us up for failure.

- Catalogers do not just sit all day cataloging new materials. We participate in meetings, work on special projects, supervise students, consult with colleagues, answer questions from other library units, handle rush requests, recatalog items, reclass items, catalog added volumes, perform authority work, and more.

Goodson sums up why employees may demonstrate such reluctance to having formal productivity goals:

Deming's . . . contention that evaluating workers only on the number of items they could produce and how fast they could do it was fundamentally demeaning, not to mention dehumanizing. Such a system is only appropriate for robots, not human beings with brains who are capable of observing what is wrong with a process and suggesting ways to improve quality, efficiency, or productivity.²²

Both library administration and human resources personnel remain unconvinced that cataloging productivity standards cannot be defined despite the arguments presented by staff. After all, we know how many new materials are cataloged and added to the collection on a yearly basis and we know how many catalogers are currently employed to perform this function. Aren't there industry standards for cataloging productivity?

Numeric Standards for Cataloging Output

In 1988, Smith conducted a survey that involved academic libraries with holdings in excess of 250,000 volumes.²³ His goal was to determine if these libraries had production benchmarks for catalogers and, if so, what they were. Consider the conditions under which cataloging was performed in the late 1980s—most libraries still maintained card catalogs, they performed their cataloging and card production via bibliographic utilities, and very few had their own online catalogs. He noted that a library literature search for articles written between 1973 and 1988 revealed several articles on cataloging cost studies, but none dealing specifically with cataloging production standards. In summarizing his survey results, Smith wrote, "There are only two absolutely safe statements which can be made in conclusion: (1) only about 50 percent of the libraries surveyed had any standards at all, and (2) those who do have standards display very little concurrence about what those standards should be."²⁴

Nine years later, in a 1997 study of academic library cataloging production standards, Bénéaud, Bordeianu, and Hanson found that within library literature, "few articles tackle the issue of cataloging production standards directly, and virtually none prescribe specific standards for catalogers."²⁵ By charting a few of the production benchmarks submitted by academic libraries responding to the Bénéaud, Bordeianu,

and Hanson survey, some interesting variations are revealed.

Table 1 (from the Bénaud, Bordeianu, and Hanson survey) compares cataloging production standards from several libraries for professional versus paraprofessional catalogers in terms of number of new titles cataloged per hour, per day, or per month. These performance expectations are then further divided by format (monograph versus serial) and type of cataloging copy (original, complex, or simple copy). The chart reveals that, while establishing measurable performance standards in terms of quantity is possible, the authors found no consensus among academic libraries in 1997 as to what those standards should be. Bénaud, Bordeianu, and Hanson concluded in their survey analysis of cataloging production standards that, although “theoretically, the profession should be able to develop production expectations that are relevant to academic libraries,” what their survey results revealed was that quantitative expectations, or industry standards, are still undefined in the cataloging profession.²⁶

Numeric Standards for Cataloging Quality

Graham maintains that within the world of cataloging, “Quality is more difficult to define, and, though it is often assumed and praised in the literature of bibliographic control, it doesn’t seem to be well delineated.”²⁷ Perhaps the more difficult task for catalogers is not defining quality (for example, level of accuracy, lack of typographical errors, understanding relevant cataloging rules, reliability of access points), but rather defining the acceptable percentage of errors and types of errors on any one cataloged record.

The University of California, Berkeley, has developed an outstanding example of cataloging performance standards within their *Berkeley Processing Manual (BPM)*.²⁸ Aurelle, Conkin, and Mendoza have stated percentages of

acceptable error rates for a variety of cataloging activities. For example, original catalogers are expected not to exceed error rates for bibliographic records as follows:

- Two percent in each of the following areas: title; main entry; call number; and control number (ISBN, ISSN).
- Five percent in each of these areas: subject heading; non-subject added entry; physical description.
- Five percent in the holdings, note, and V/C [volume/copy] field areas (when added by cataloger).

Other libraries may utilize a similar approach by defining a measurable performance standard for quality in terms of number of critical errors versus noncritical errors. An example for an original cataloger might be: “No more than 10 percent of the records reviewed should have critical errors, and 80 percent of all records reviewed should be error-free.” A noncritical error might be defined as using incorrect punctuation, missing or wrong diacritic, or a typographical error. A critical error might be defined as an error in access points, incorrect call number assignment, incorrect MARC tagging, or failure to create a name or series authority record when one is needed.

Goodson states that:

Librarianship is only one of many examples of open-ended jobs that in most cases are more “process” than product. Of course you can measure things like “number of books processed in one hour” or the “average number of reference questions answered per week,” but none of these things make any statement about quality, which librarians will usually agree is more important than quantity.²⁹

Table 1. Examples of expected cataloging productivity

	Original Monograph	Complex Monograph Copy	Simple Monograph Copy	Original Serials	Serials Copy
Professional Catalogers	1 per hr 1 per 2 hrs 2 per hr 3 per hr 6 per day 90 per month 100 per month	1 per hr 2 per hr 3–5 per hr 100 per month 120 per month 200 per month	2 per hr 3–4 per hr 5 per hr 225 per month	1 per hr 1 per 2 hrs 50–100 per month	2 per hr 1 per 2 hrs 3–5 per hr 150 per month
Paraprofessional Catalogers	1 per 1.3 hrs 7 per hr 6 per day 100 per month	1–5 per hr 5 per hr 100 per month 200 per month 300 per month	2–5 per hr 3–10 per hr 300–350 per month 225–1,000 per month	1 per hr. 1 per 2 hrs 2 per day	2 per hr 1 per 2 hrs 10 per hr 50–150 per month

Evaluating Catalogers' Work

Clearly, a manager cannot review all of the work produced by his or her catalogers. Random sampling seems to be one approach used by some libraries in evaluating the work of their catalogers. This topic was discussed at the Cataloging Norms Discussion Group meeting held in 1993. Ann Vidor, chair, summarized the discussion of that meeting as follows,

There were differing opinions from the audience as to the best way to do a random sample: let the cataloger choose which books to have revised; have the department head do it without the knowledge of the cataloger by taking some edited OCLC print-outs or workforms, finding the books, and comparing; or do it one day a month for the entire evaluation period.³⁰

The University of California, Berkeley, has developed performance standards for catalogers. The library's document on cataloging standards recognizes that:

The most effective performance indicator for evaluating original cataloging would be a regular post-cataloging quality review check comparing the . . . record with the item cataloged, concentrating both on the mechanical aspects of cataloging as well as the intellectual aspects, and taking fully into account subjective considerations and judgments made at the time of cataloging.³¹

However, the authors further state, "In practice, such reviews may best be undertaken as part of the rigorous self-review characteristically exercised by catalogers performing at this level."³²

Figure 1 represents a sample performance standard developed by the University of California, San Diego, for monograph catalogers dealing with complex copy and original records.³³ It is similar to the example that Goodson gives as a model performance objective for a generic cataloging assistant position: "Works efficiently, is able to complete assigned work on an average of x items per month."³⁴ What is interesting about both of these examples is that no attempt is made to define or evaluate the quality of the work being performed.

Graham suggests that the revision of catalogers' work should be "selective and constructive" and notes that, in order to increase productivity, "We must review some of our cataloging all

of the time (e.g., access points), and all of our cataloging some of the time (e.g., trainees'), but not all of our cataloging all of the time."³⁵

Establishing Cataloging Benchmarks: Easier Said than Done

Six years have elapsed since the Bénaud, Bordeianu, and Hanson survey, and yet the reasons they cited for the complexities surrounding the formation of cataloging production standards in academic libraries appear to hold true:

- Because cataloging output can be measured via cataloging statistics, it is assumed that cataloging results are easily quantifiable.
- The profession has not defined standards by which cataloging output can be uniformly measured and compared among libraries.
- Professional, psychological, and political factors can make production standards difficult to formulate.³⁶

Today's library literature supports the idea that established, formal, agreed-upon cataloging performance standards are an important and necessary instrument for managers to use in order to establish and track individual cataloger productivity. Lubans, however, questions the usefulness of performance standards within libraries and asks the question, "Does the research evidence support the sizable investment and effort of PA [performance appraisals]? A review of the literature reveals much written about PA techniques and strategies, but little about results."³⁷ Managers are further assured in existing library literature that, despite initial staff resistance, allowing catalogers to assist in defining production benchmarks will make them happier and more productive in the workplace. However, no empirical evidence documented in the literature supports the assertion that higher cataloging productivity gains are realized as the result of imposing benchmarks. Likewise, no published studies confirm the often-stated belief that

Product/Service:	Having the materials catalogued.
Functions:	Catalog the materials.
Standard:	Standard for incomplete copy and original monographs: Quantity: 100 titles/month—meets expectations 125 titles/month—exceeds expectations 150 titles/month—outstanding
Timeliness:	Rush/Ref within 24 hours. All felt that they no longer needed revision.
Measurement:	Use hatch marks
Differences:	Only one person catalogs full time. The others felt these numbers were too high for their situation even if prorated for time spent cataloging

Figure 1. Sample cataloging performance standard

production benchmarks established with cataloger input result in happier employees or that happier employees are more productive than less happy employees.

Libraries, like other nonprofit organizations, continue to borrow management techniques used in the for-profit world as a means for evaluating and improving their services. Productivity measurements in an industry setting, however, assume that the manufactured goods being produced are subject to the same specifications and level of quality. Output is measured by hours of labor needed to produce X number of the *same* items. In the manufacturing world, establishing benchmarks for evaluating workflows and improving the use of resources is possible because their output is standardized and quantifiable.

Attempting to apply a similar measurement standard within service organizations, however, does not appear to work. The product catalogers create is highly specialized and cannot be quantified in a manner analogous to mechanized-based measurements. Catalogers and heads of cataloging operations recognize that the amount of time a cataloger spends on one item may differ significantly from the time spent cataloging a subsequent item. Cataloging, although based on prescribed rules and standards, is really an intellectual enterprise that often requires the application of cataloger's judgment. Practitioners know that differing opinions on how to catalog a particular work the right way are not uncommon in the field and can often lead to some rather lively exchanges among catalogers.

September observes, "A major problem of performance appraisal in libraries is the dichotomy between quantity and quality of work."³⁸ Defining what "cataloging quality" means may vary considerably among academic libraries. Who should determine what constitutes an acceptable level of quality for catalogers? Library administration? Public services staff? Cataloging managers? Catalogers? Library users? Or, should all of the above stakeholders determine what the librarywide expectation is for quality? Graham proposes that the profession is now at a point where a cataloger's traditional service orientation (for example, providing high-quality cataloging for the end user), "must become more generalized to encompass the institution's service as well as the individual goals of librarians."³⁹ Knowing what is desired at the organizational level will assist cataloging managers greatly in determining what is an acceptable level of quality expectation for their staff.

As a profession, we need to devote more research in the area of cataloging production benchmarks by:

- Investigating how nonlibrary service organizations measure and evaluate their staff productivity output.
- Conducting time studies among several academic libraries to ascertain whether or not cataloging productivity levels can be determined. These studies

should result in production levels based on variables such as type of material, language of material, cataloging copy level, cataloger experience level, and cataloger classification level (for example, clerical, paraprofessional, librarian).

- Recommending what cataloging benchmarks should be for traditional materials (books, serials) as well as metadata-based cataloging records for digital archives, print-derived e-resources, and e-journals.
- Developing agreed-upon cataloging quality indicators that factor in the cataloger's correct application of cataloging principles, practice, and standards.
- Exploring the possibility of developing a machine-based method that would enable managers to programmatically evaluate some fundamental types of cataloging quality at the local level.

Conclusion

"Productivity' is defined simply as 'getting the most from library resources.' We need to manage our finances and personnel to be sure that we are getting the best and most service possible from available resources."⁴⁰

For supervisors responsible for managing units dedicated to information organization, responding to the fallout of post-metadata criticism of traditional cataloging has been difficult. Many academic library administrators have the mistaken view that cataloging is an area that is based on passé standards and practices that are unnecessarily complex, burdensome, and costly. Today's cataloging managers increasingly are asked to defend their present staffing needs, run their operations more cost-effectively, determine if the quantity of work performed by catalogers justifies the overall cost to the institution, and identify and implement new automated methods designed to increase productivity. One technique often explored as a means for increasing overall productivity and as a means for justifying current staffing levels is to establish local cataloging production benchmarks.

Many academic libraries have instituted productivity standards for their catalogers. These benchmarks are not based on any industry standards, but instead appear to be largely determined by counting existing production numbers within their own operations or by borrowing numbers established by other libraries. Logically, these numbers will vary from library to library since benchmarks are typically based on production statistics reached by a given library's current staffing levels, the amount of cataloging expertise their individual catalogers may possess at any given time, the type of materials that are being cataloged, and the cataloging tools and resources made available to their staff.

Hopefully, additional research in this area will finally provide an answer to the question "Can cataloging bench-

marks be determined within academic libraries?" For cataloging managers currently investigating the possibility of implementing production benchmarks within their own cataloging operations, they may do well to remember the following saying, "Not everything that counts can be counted, and not everything that can be counted counts."⁴¹

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Notes on Operations

Cataloging the Special Collections of Allegheny College

Barry Gray

Scholars have long noted the significance of Allegheny College's special collections to American cultural and educational history. Special collections have value to colleges and universities as publicity devices to draw scholars, students, and funding to the institution. Catalogers have an important role to play in marketing the library and the college through improved bibliographic access to these collections. Rare book and manuscript cataloging presents many challenges to catalogers, especially at smaller institutions. This report traces the evolution of Allegheny College's catalog, from book format in 1823, through card format, and finally to online. It also explores the bibliographic challenges created as the library moved from one format to another.

The recent library science literature has few articles about retrospective conversion, commonly known as "recon." Recon projects were a hot topic for many years as libraries retrospectively converted their card catalogs to machine readable records for access in online catalogs. Despite the absence of attention over the last ten years, recon projects are still necessary for archives and special collections at many institutions in North America.¹ Often the catalog records for these collections presented unique problems and were excluded from comprehensive conversion projects. Sometimes, the records were nonstandard—handwritten cards, or perhaps book catalogs, or simply inventory lists. These collections have value to colleges and universities as publicity devices to draw faculty, students, outside scholars, and even funding to the institution. Catalogers can play an important role in promoting and marketing the library and the college through improved bibliographic access to these collections.

Recon of special collections presents a challenge to catalogers because of the nature of the materials, the format of previous catalogs and finding aids, the lack of copy cataloging records from bibliographic utilities, and difficulty in identifying edition information in the material at hand. Other factors that may complicate the cataloger's job include the archivist's or special collections librarian's concerns for the security of the collection as well as different systems of shelving and organizing material in closed stacks. Even after catalog records have been created, rare book and manuscript records often require additional note fields to describe each item's provenance or establish its identity from bibliographic sources.²

Smaller institutions with such collections often lack the resources to devote to full-time conversion. Outsourcing is usually not an option due to the cost and complexity of the project and the nature of materials. Such projects may languish as more immediate concerns consume

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the catalogers' time. Frustration and fatigue may set in as the projects drag on. Incentives to carry the project through to completion can come from recognition of the importance of the project, the marking of milestones, discovery of rare works thought to be lost, or citation of the library's copy of a book in a scholarly work. This account of the successful completion of one such project may provide encouragement to other catalogers through documenting problems encountered and discoveries made.

Allegheny College and Its Library

Allegheny College in Meadville, Pennsylvania, was founded in 1815 by the Reverend Timothy Alden, Harvard class of 1794. It is the oldest college in continuous existence under the same name west of the Allegheny Mountains. Alden used his connections at Harvard and the American Antiquarian Society to secure books for the college library from the Reverend William Bentley, Judge James Winthrop, and publisher Isaiah Thomas. Their gifts and other smaller donations collected by Alden made Allegheny's library second only to that of Harvard among academic institutions in the country at that time. In 1833 the college became affiliated with the Methodist Church. It is a four-year college with an enrollment of just under two thousand students. Famous alumni include the journalist and historian Ida Tarbell and President William McKinley.

Scholars have long noted the significance of Allegheny College's special collections to American cultural and educational history. The story of how these books came to the fledgling college in the Pennsylvania wilderness in the early nineteenth century has been ably told by others.³ Edwin Wolf, in his 1962 commissioned survey of the "Original Library" (the library's holdings in 1823), stated that it was of

importance because:

(1) it was the most scholarly library in the west, which was the result of its major component parts; (2) the component parts were distinguished in their day: the Bentley collection, strong in the classics, moderately strong in the church fathers and representative in theology and linguistics; the Winthrop collection, amazingly strong in linguistics and in voyages and travels, representative in the classics and, because of the influence of John Winthrop, important in the sciences; and the Thomas collection, a typical early 19th-century selection of books; (3) the early and interesting provenance of many of the volumes throw light upon an earlier New England culture; and (4) there is a present day scholarly interest in individual titles which are of great rarity and/or considerable value.⁴

A significant number of the works in the collection may be unique. Some, such as the original manuscripts, are obviously one of a kind. Others, though published, are not listed as being held by any of the more than 40,000 other libraries that contribute to the OCLC Online Union Catalog (WorldCat), as of this writing. Wolf, in his evaluation of the collection, wrote that an Allegheny copy of a rare Boston almanac, *Clough: The New England Almanac* (Boston, 1701), might be unique.⁵

Evolution of the Catalog The Original Book Catalog

Alden, also the first president of Allegheny College, published a list of the books in the college's library in

1823, a few years after the college was created and before a single building had been built to house it.⁶ Church called the catalog "one of the most remarkable documents in American pioneer education."⁷ Figure 1 presents the title page of the 1823 catalog.

In the catalog, books are listed alphabetically by author. Titles, publication, and physical details are abbreviated. There is no index to titles or subjects. Alden also omitted a number of titles from the catalog for various reasons, especially lack of space and incomplete analysis of the contents of the many bound volumes of pamphlets. Some multivolume works were left out because they were incomplete. The 1823 catalog contained 3,447 titles. There is no evidence of any updates or successors to Alden's catalog during the nineteenth century. Figure 2 shows the entry for a 1572 French edition of Virgil's *Aeneid* (1572) in the 1823 catalog.

The First Card Catalog

Book catalogs like Alden's were hard to keep up to date and provided little or no subject indexing. The library

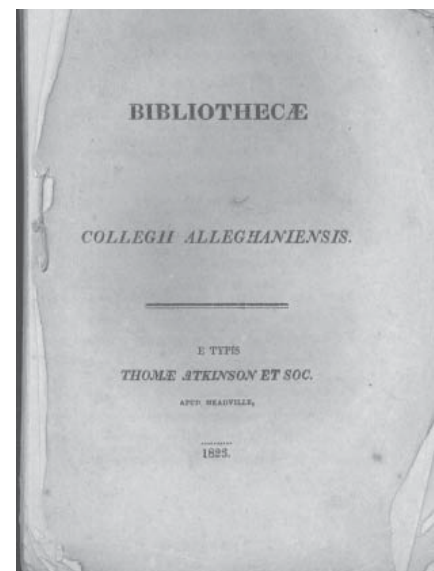


Figure 1. Title page from of 1823 Allegheny College catalog

began creating a card catalog in the early 1900s. Smith, in his centennial history of the college, wrote that “[t]he card index, making the books readily available for the first time, caused the students to utilize the library in a manner that had been the ideal of the generations in the eighties and nineties.”⁸

The cards, a few of which still exist, were originally handwritten. With no copy cataloging available to the cataloger, descriptive information would have been transcribed directly from the book. Added entries also would have required analysis of the piece in hand. The manual labor involved meant that

cataloging was done at a minimal level. The cards included Dewey Decimal classification numbers and a very brief physical description of the book. Only rudimentary subject access and authority control were provided.

Later the cards were typed or ordered from the Library of Congress (LC) when matching cards could be found in their catalog. Even when printed cards were available, however, library staff had to type the call number, notes, and added entries onto the cards. Figure 3 shows the catalog card prepared for *Aeneid*.

Even after the college established a separate library building in 1902,

it had no facilities for special collections. All of the original books from the college’s founding remained on open shelves.⁹ In the 1920s, the library began to remove them from the shelves and place them in basement storage.¹⁰ This may have been done mainly to make room for new books rather than for preservation, however.

Recataloging

The library was enlarged and rebuilt in 1931. An additional librarian was hired as a cataloger to begin the process of recataloging the books in special collections. Rooms were set aside to house the special collections, but two years later, when Church surveyed the collections, he found that “because of the financial problem involved, the shelving and cataloging” were not finished.¹¹ All the books in the original library were moved to storage by 1937.¹² It was not until 1940 that a rare book facility, called the Treasure Room, was added to the library.¹³

The catalog cards for the original library were removed from the main file. The cataloger began to replace the old handwritten cards with more complete descriptions. As each part of the collection was cataloged, the books were shelved alphabetically by author (or main entry) in much the same way that Alden had listed them in his catalog. Use of the Treasure Room increased as the collections became more accessible.

The card catalog in the Treasure Room was split to create separate author files for each collection. This was done to make inventory easier and to prepare for creation of a printed catalog. At this time (1940s), the separate collections in the Treasure Room included the Winthrop and Bentley libraries, the Thomas donation, and the Ex Dono collection, all dating from the times of Alden. The library also hired a trained assistant cataloger specifically to help with special collections.¹⁴

Copy cataloging older material

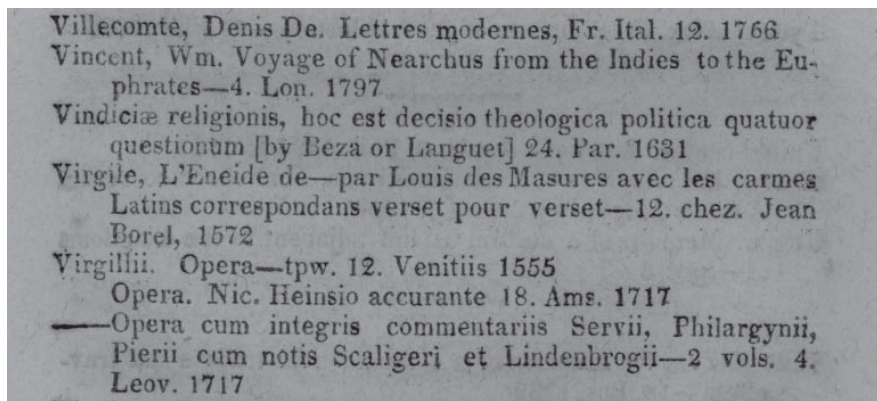


Figure 2: Entry for Virgil's *Aeneid* in the 1823 catalog

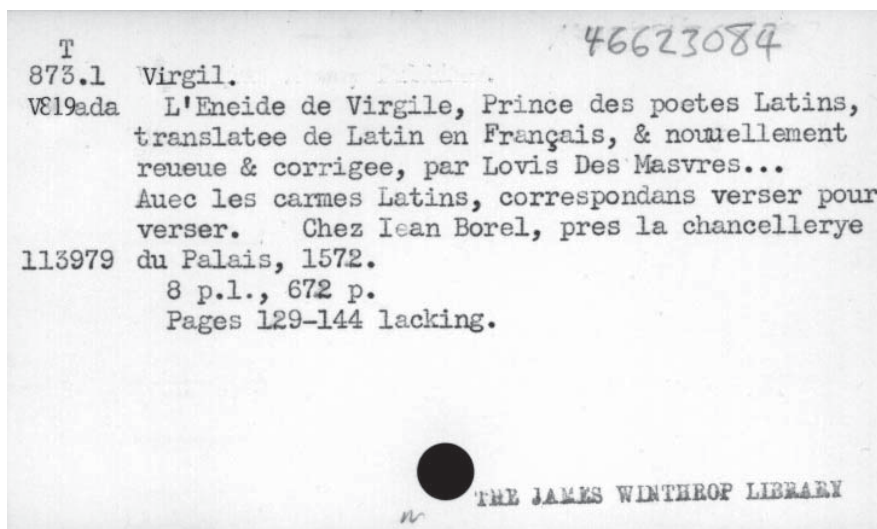


Figure 3: Typed catalog card for Virgil's *Aeneid*

was a costly and time-consuming job. It required travel to other libraries to check their card catalogs or purchase of printed book catalogs of major library collections or the Library of Congress *National Union Catalog*, which also took up a great deal of space. Slips were made in order to look up the books in union catalogs and to see how they had been cataloged by other libraries.¹⁵ The work took much longer than cataloging new books, especially since a duplicate set of cards had to be typed for a separate file in the Treasure Room. The author and subject entries had to be checked to correct errors and make them consistent.¹⁶ This was a laborious process, requiring additional searches in union catalogs and careful typing, as preprinted card sets were not available for most of the rare works in the collection.

In 1955, the library received a grant to research the cataloging of LC's special collections. Information about many of the Asian books in Allegheny's collection was translated by LC's Department of Orientalia. The grant also allowed for searching at other libraries' catalogs for copies of

Allegheny's treasures.

The sheer complexity of cataloging thousands of books, pamphlets, maps, and manuscripts in dozens of languages and several non-Roman scripts, some of which lacked title pages and many of which were not held in other libraries, was daunting to the college's catalogers.¹⁷ By the end of the 1960s, the project was nearing completion, but even after more than thirty years of work, a stubborn residue of the most difficult works, which still had not been fully cataloged, remained. A few of these works defy analysis by Allegheny's catalogers to this day. They are listed in the online catalog with the brief description created for them in the 1950s.

The Online Catalog

A new library building was completed in 1976.¹⁸ It included greatly expanded special collections rooms to allow for growth.¹⁹ The Treasure Room was recreated in the style of the one in the old library (see figure 4).

In 1992, Allegheny College installed an automated library system with an online catalog to replace the

card catalog.²⁰ The library had begun cataloging new books using OCLC in 1974, so all books added since then appeared in the local online catalog. Records for the original collections, as well as any other materials acquired before 1974 and the journal collection, had to be retrospectively converted. The materials in open stacks were converted first. Recon of special collections did not begin until 1995. At this time, an estimated 20,000 items were held in special collections.

The Recon Process

At first, recon was hit or miss. A cart of books in alphabetical order was brought to the cataloging office. The matching shelf card was located using the call number in the book. Some of the books already had Allegheny's holdings attached to WorldCat records. There were security concerns over leaving the books in the office overnight. Measuring how much progress was being made was difficult, and determining if any books were being overlooked was even more difficult, as there was no linear progression through the shelf list. The process was changed so that all books were verified against the author catalog in the special collections rooms first. Then the conversion was done using only the shelf cards. This made the actual cataloging process more efficient, and also identified missing books and books lacking shelf cards.

When a search of WorldCat did not turn up a match, the record was typed into the library's local automated system. This provided access in the college's online catalog ALLECAT, but did not reflect its holdings in WorldCat. Later, near the end of the project, a list of these local records was rechecked in WorldCat. A few were matched to records from other libraries, and Allegheny's holdings were attached. The OCLC control number was also copied to the local



Figure 4: The Treasure Room at Allegheny College

record to indicate the match. The remaining records without matching copies in WorldCat were then copied to a file on the cataloger's computer. From there, they were imported into OCLC's Cataloging MicroEnhancer software. After filling in some missing data in the MARC fixed fields, the records were updated in the union catalog. Altogether, more than one thousand original records were created during the project. Figure 5 shows the ALLECAT record for *Aeneid*.

A rump of the old card catalog, containing only cards for special collections, had been left in the reference area after the initial retrospective conversion project. The complete added entries for many of the rare books had been typed only on the back of the main entry card. These cards had to be checked to see if any local headings had been added. When original cataloging was necessary, the existing added entries were used to supplement subject analysis. The card catalog was eventually moved to the cataloging office to assist in the recon project.

Recon Problems

Bibliographic databases, such as OCLC's WorldCat, provide easier searching for cataloging copy than printed catalogs. The problem for rare book catalogers until recently has been that few records for the older rare books were in WorldCat. Smaller institutions that automated in the 1980s and early 1990s may have given up on converting their rare books because of a lack of copy cataloging records and trained staff time. These institutions might benefit from searching WorldCat again now that other major libraries have undertaken conversion projects for their older or special collections materials.

Several problems hampered the progress of the recon project. These included staffing shortages, lack of a proper inventory before beginning the project, and the great number of items

in foreign languages and non-Roman scripts. On the other hand, catalogers performing recon were greatly aided by the high quality of the catalog cards created during the recataloging effort.

Shelf List

The project was slowed by the lack of a proper shelf list for special collections. The card file created in the 1940s and 1950s was really a classified catalog, as the cards were filed by call number while the books were shelved alphabetically by main entry. Duplicate copies in different collections were all listed on the same card. A student was trained to type cards for the duplicates. This allowed the shelf list to be split into separate files for each collection.

The shelving system made retrieval of the books cumbersome. Ultimately, with the help of the special collections librarian, the books were reshelved by call number, which allowed a complete inventory to be taken. This took about three years to accomplish. In addition to making the books easier to find, it allowed for shifting to provide space where the collections are still

expanding. The inventory failed to locate only about twenty titles out of almost twenty thousand items. A few books thought to have been lost were also discovered.

Uncataloged Items

The inventory also revealed numerous books that had never been cataloged. Over the years, staff working in special collections had placed materials on the shelves, bypassing cataloging. The special collection office also held a sizeable backlog of material that had not been handled.

One of the things that had not been cataloged was an incomplete run of a very early local newspaper, the *Crawford Messenger*. Nicholson Baker accused Allegheny College of discarding its copies of this newspaper from the 1830s in his book *Double Fold*.²¹ The paper had probably been included on printed lists with other newspapers and journals in the days before the library cataloged its serials. Perhaps when its rarity and importance were realized in the 1940s it was moved to the new Treasure Room with the college's other treasures. Because the

Author	Virgil						
Uniform ti	Aeneis. French						
Title	L'Encide de Virgile : prince des poetes Latins / translatee de Latin en François, & nouvellement rueue & corrigeé, Par Lovis Des Masvres tournisien avec les carmes Latins, correspondans verser pour verser						
Pub info	[Paris] : Chez Jean Borel, pres la chancellerye du Palais, 1572						
<table border="1"> <thead> <tr> <th>LOCATION</th> <th>CALL NO.</th> <th>STATUS</th> </tr> </thead> <tbody> <tr> <td>Special Collections</td> <td>873.L V819 ada</td> <td>AVAILABLE</td> </tr> </tbody> </table>		LOCATION	CALL NO.	STATUS	Special Collections	873.L V819 ada	AVAILABLE
LOCATION	CALL NO.	STATUS					
Special Collections	873.L V819 ada	AVAILABLE					
Descript	[16], 672 p. 18 cm						
Note	Bound in vellum T.-p. vignette; head pieces Signatures: a16, a-z16, A-T16 Pages 129-144 lacking James Winthrop Library						
Indexed in	NUC pre-1956, NV 0105098						
Note	Latin text printed in italics, in outside margins						
Add author	Des Masvres, Louis, ca. 1515-1574						
Alt title	Virgil						

Figure 5: Online catalog record for Virgil's *Aeneid*

Crawford Messenger, along with other serials, was not cataloged until the library was automated, its existence was forgotten until the recon project brought it to light again.

Incomplete Items

A major obstacle to cataloging the collection over time was the large number of incomplete items. Many works were damaged from transport and centuries of use. They often lacked covers, spines, title pages, or other front matter normally used for cataloging information. Some were missing pages from the end of the book, which made it nearly impossible to determine the extent of the item.

Previous catalogers had made their best guesses as to the identity of these works based on comparisons with the union catalogs of their day. With the more sophisticated searching capabilities currently available from OCLC, it was possible to match the record using pagination, dimensions, or notes provided by other libraries, but scanning dozens of records to find the best match might be required. In a few cases, Allegheny's item was matched to a different edition on WorldCat than the one recorded in the card catalog.

Classification

Classification generally did not present a problem during the recon project. The library had decided to use the Dewey Decimal classification more than a hundred years ago and had never switched to a different system. For the most part, no attempt has been made to update any Dewey numbers to reflect the current edition. Most of the special collections material was classified in the 100s, 200s, 400s, 800s, and 900s, where fewer changes have been made to the Dewey tables.

The only problem related to call numbers was that different editions of some works had been added to other parts of the library's collection

and assigned identical call numbers because of the failure to check all shelf list drawers when creating the numbers. The online system at Allegheny automatically notified the cataloger whenever a duplicate call number was assigned. The call number was then adjusted on one of the books to reflect the different edition.

Authority Control

Alden's book catalog had no authority control. As a result, the form of the author's name or even the main entry often does not match that in the current catalog. For example, the 1823 catalog lists "Eugene, Memoirs of Prince, by himself – trans. from Fr. by Wm. Madford – 12. NY. 1811."²² This work was written not by Prince Eugene, but by Charles Joseph, Prince de Ligne, after Eugene's death. Alden often provided only a brief title, sometimes preferring to begin the title with what he considered the most significant word. Alden's short titles and lack of subject indexing make it difficult to determine the true nature of some of the books. For example, the entry "Dufief, N.G. *Nature displayed* – 2 vols. 8 Phil. 1806" is for a French grammar.²³

When the card catalog was created, little formal authority control was applied to it. Part of the reason for the recataloging project fifty years later was to establish headings for authors, uniform titles, and subjects. Entries were checked against LC records. A large card file was created to keep track of all authorized headings in Allegheny's catalog.

When a heading had to be changed, all cards bearing the heading were pulled from the catalog. Then the electric erasers and typing correction fluid were employed to wipe out all the old headings on the cards, so the new form could be typed in. Main entry cards also had to be pulled and revised to reflect the new tracings. Finally, the cards were refiled in their new location.²⁴

Authority control of the card cat-

alog was mostly abandoned once the catalog was automated. Because of this, many of the headings assigned to books in special collections had changed by the time their records were added to the online catalog. An authority control vendor was contracted to update all headings in the library database. New records are sent to the vendor for clean up on a regular basis, and the entire database is validated against the vendor's authority file annually.

Although authority control still takes a lot of the cataloger's time, it is much faster now than the manual process of updating cards. Authority control is crucial to cataloging special collections because a large number of the works are classics and in foreign languages, which means that their authors and titles have many variant forms and spellings.

Additional Note Fields

While the online catalog provides far better access than card or book catalogs, it must preserve the descriptive details from earlier forms that indicate the unique features of the library's special collections. Wolf found that the provenance of many of the books was what made Allegheny College's special collections so valuable. They had been given to or bought by generations of New England bookmen, and several had been part of Harvard College's library at one time. He was able to discuss only a few of these in his survey and report about the collections.²⁵

An important adjunct to the overall recon process was to copy the extensive notes from the card catalog into the electronic records. These included the books' provenance (where it is known) and any annotations in the books, missing pages, binding, and so on. A MARC field 510 citation/references note referring to the book's entry in the *National Union Catalog* or other standard bibliography was also included when possible.

Results and Conclusion

Just as had been reported a century earlier after the introduction of the card catalog, use of the rare books increased when special collections records were added to the online catalog. Occasionally during the project, catalogers noticed that when a new record was added to WorldCat by Allegheny College, other libraries soon added their holdings. This suggests that other libraries are conducting similar projects. The high point of the project came when Allegheny was honored by OCLC for adding the forty-seven millionth record in WorldCat.²⁶ The gold record was for one of the books in the original library catalog of 1823. Such recognition is important in raising morale and encouraging the determination to see the project through to completion. The recon project was completed in March 2002.

Alden sent the original 1823 catalog to leading institutions and scholars as a publicity device for the new college. The library still has a letter from Thomas Jefferson thanking Alden for a copy of the catalog, in which he hopes that the college he was founding in Virginia might one day have a collection to rival Allegheny's.

One goal of the recataloging project of fifty years ago had been for the college to issue a separate catalog of its special collections in book form. This is why a duplicate card file was created in the Treasure Room. The short title catalog could then be used, as was Alden's original catalog, to promote the treasures of the college.²⁷

This marketing concept was dormant by the time the recon project was begun ten years ago. Recon was seen as a technical problem of adding electronic records to the online catalog. With online catalogs accessible via the Web, scholars can locate material from their own offices. The increasing use of WorldCat for research will help to lead them to Allegheny's collections

now that records for all materials have been added to OCLC's database.²⁸

But with so much material available on the Web, libraries still need to do more to get their collections noticed. After completion of the recon project, a complete listing of the surviving titles from the original 1823 catalog was produced using the records from the online catalog.²⁹ Distribution of this updated version of Alden's catalog may encourage further research into this unique collection.

Are projects like the one described above worthwhile? No attempt has been made to measure the financial impact of this project on Allegheny College. How do the costs of the project compare to the benefits? This may be a useful avenue to pursue in future research. It could produce results to counter the perception of libraries as money pits on campus.

Cataloging rare books and manuscripts presents many challenges. While planning and preparation are essential, some problems encountered at each library will be unique and others will be more widely shared. Catalogers can be reassured that others have dealt with similar problems and successfully completed complex projects, such as that accomplished at Allegheny College.

Every library must set its own priorities. But catalogers at every library should have a goal of providing access to all the materials in their institution in as convenient and as complete a manner as possible, to the widest possible audience. Otherwise, their libraries' rarities—the resources that make their collections special—will be lost as surely as if the library had discarded them.

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Impact of Full Text on Print Journal Use at a Liberal Arts College continued from page 26

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34. Aileen McHugh, "Director's Musings," *MUSE News* 4, no. 4 (winter 2003/2004): 2.

Book Reviews

Edward Swanson, Editor

Fundamentals of Collection Development and Management.

By Peggy Johnson. Chicago: ALA, 2004. \$60; ALA members, \$54 (ISBN 0-8389-0853-5)

I find much to recommend in Peggy Johnson's *Fundamentals of Collection Development and Management*. In her own words, "[t]his book is intended for those with little experience in collection development and management—students preparing to enter the field of librarianship and experienced librarians with new or expanded responsibilities" though she also hopes that "the combination of history, theory, current thinking, and practical advice also will be of interest to seasoned selectors" (xi).

In the first chapter, she gives a history of collection development and an overview of the issues that will reappear in the eight chapters that follow. The next five chapters progress logically through the traditional steps in collection development (organization, planning and budgeting, developing collections, managing collections, and encouraging use through marketing and outreach) before treating special topics (electronic resources, cooperation, and collection analysis) in three separate chapters. Though electronic resources have their own chapter, one of the strengths of this book is that Johnson does an excellent job of integrating this new category of materials throughout her discussions. She also stresses how electronic resources are causing a radical re-evaluation of the theory and practice of collection development.

Johnson has artfully assimilated an immense wealth of knowledge to create a text that is much more readable and interesting than is usually the case

for introductions to a major area. The writing is crisp and clear. She includes sufficient detail while avoiding numbing lists of facts. I especially like the fact that she often introduces a topic by placing it first within the context of general scholarship on the subject and then within broader library practice before treating the specific collection development aspects. Special touches include an extensive glossary that reduces the need to encumber the text with definitions and a list of "selection aids." Each chapter includes an extensive list of references and suggested readings that include URLs to Internet resources. I found myself checking references more than usual to see where I could find additional information on the topic. All but the first chapter ends with a case study that invites the reader to apply the knowledge learned in the chapter; my students can expect to find one or more of them on their next final examination. A detailed index completes the volume.

My main concern is the focus on large academic research libraries as the norm for collection development. While Johnson does not say so in her preface, it quickly becomes apparent that she writes first about large academic libraries as the standard before discussing public, school, and special libraries as particular cases. She thus often makes general statements that are true for academic libraries but not necessarily so for the other three types. To give an example, "[t]he classed analysis model describes the collection, current collecting levels, and future collecting levels in abbreviated language and numerical codes, most typically according to the Library of Congress Classification scheme" (77).

The statement offhandedly ignores that almost all public and school as well as many special and academic libraries use the Dewey Decimal classification scheme.

A second consequence is the lack of attention to topics of little interest to academic libraries. The section on censorship and intellectual freedom is too short and would have benefited greatly from a discussion of what to do when the censor arrives. As the type of library with the least well defined user community, public library collection development specialists need more information about market research, as she calls the traditional information needs assessment, than three pages. She also does not treat the special issues for smaller, steady-state libraries where adding one book requires removing another and where preservation is not a serious concern. This lack of detail on topics of concern to public and school libraries seriously diminishes the book's usefulness as a text for collection development in library school.

My second, less serious concern is a vacillation between telling it like it is versus telling it like it should be, the practical versus the theoretical. She often provides an honest assessment of the realities of collection development. For example, her statement that "[e]ven the most aggressive selector may run into a brick wall with some departments and some faculty members, who fail to respond to any library initiatives" (190) helps assure new librarians that lack of success in their liaison efforts may not be their fault. On the other hand, her section on skills and competencies implicitly assumes that all library school students have taken a course in collection devel-

opment, though this is an unjustified assumption since collection development is seldom a required course. (In fact, librarians without a collection development course may be the best market for this book.) Similarly, the long section on written collection development policies neglects to prepare the reader for the fact that many libraries of all types do not have useable, current policies. In both these areas, I would have expected Johnson to provide some basic statistics as she does so well for many other collection development topics.

Overall, I recommend this book highly for present and future academic librarians, particularly those in large libraries, who wish to learn the fundamentals of collection development. Experienced collection development librarians could profit from the summary of recent developments and research and also from the extensive bibliographies. Public, school, and special librarians, on the other hand, may find large portions to be irrelevant to their collection development activities and would need supplemental readings on important topics such as intellectual freedom, community analysis, and outreach.—*Robert P. Holley (aa3805@wayne.edu), Wayne State University Library and Information Science Program, Detroit, Mich.*

Protecting Your Library's Digital Resources: The Essential Guide to Planning and Preservation.

By Miriam B. Kahn. Chicago: ALA, 2004. 104p. \$40; ALA members, \$35 (ISBN 0-8389-0873-X)

Most library professionals have been dealing with computers and digital technologies long enough to have run into personal cases of a data disaster: a disk that's mysteriously unreadable; a corrupted file; a file lost because of a system crash or an obsolete file format. As a profession and a society we are increasingly dependent upon computers for both individual daily work and management of institutional data. We entrust

our valuable intellectual resources to digital storage systems, and therefore we must address how this investment can be safeguarded. Understandably, the issue of digital preservation is currently an important area of research within cultural heritage institutions as well as the larger information technology community. Although there is consensus on some aspects of what is needed for digital preservation, it is an area in the early stages of development with many unanswered questions and undecided standards. An authoritative, cohesive digital preservation program is probably still several years in the future. In the meantime, information creators must use what guidance is available to insure the safety of their data, both in day-to-day operations and long-term access.

Protecting Your Library's Digital Resources is an attempt to provide libraries and other cultural heritage institutions with "a practical 'how-to' guide to plan for the future of their data" (vii). To do this Kahn brings together two sides of the data protection issue—disaster recovery and digital preservation—and divides the book into two related sections. Section 1 addresses the issues relating to ensuring short-term safety of resources, and Section 2 looks at factors affecting long-term preservation. The final chapter of the book consists of checklists that can be used to address the issues raised in the two main sections.

Kahn begins chapter 1 by discussing some of the most common causes of data and operations loss, including viruses, systems crashes, and power or telecommunications outages. She uses these situations to emphasize the importance of data back-ups, both of personal and of network files. Despite emphasizing the importance of individual backup of personal files, Kahn does not provide any practical suggestions for encouraging this type of behavior within an organization. She goes on to make the recommendation that whichever backup method is being used, it should be tested to

verify that it works as expected.

Chapters 2 through 5 primarily deal with the creation of a disaster response plan. Kahn discusses the personnel roles needed during recovery and the necessity of setting priorities in the recovery effort. The importance of clear and thorough documentation is addressed, as is the desirability of testing the disaster recovery plan. Although Kahn recognizes that the "total loss of equipment or building" (24) is the least common disaster, many of her suggestions seem to focus on precisely this type of situation. Despite this focus on an unlikely eventuality, these chapters raise some important questions to consider when developing a disaster response plan.

In the smaller second section covering the importance of planning for long-term preservation of digital files, Kahn outlines issues that need to be considered before beginning a digitization project and notes that digitization projects are much more than simply scanning. She points out that it is important to consider the source of funding for maintenance after seed or grant money runs out. Many of the issues raised are important, but this brief treatment provides a bare overview of the factors that contribute to good digital project planning. In pursuing such a project, there are many works that will provide a more systematic and thorough guide for project planning and development.

Kahn goes on to provide an overview of techniques for retaining digital files (copying, reformatting, migration, and emulation). Her treatment of the subject provides a basic introduction to the options and issues involved but leaves one with the sense that there is no correct method to choose (data loss of some sort being inherent in every choice except emulation, which is deemed of questionable legality). The discussion of copyright follows this negative cast, giving one a sense of walking on a field of legal land mines. Although both topics are rife with ambiguity and gray areas, this

overly cautious treatment may leave the reader feeling less capable of dealing with these important issues rather than feeling more informed and thus empowered.

The final chapter of this section provides a brief overview of twenty-three organizations involved in the exploration of topics relating to digital preservation. This is a useful list of sources for additional information on the continuing research and development of standards as well as some current models used to address digital preservation needs. The organizations listed are very heterogeneous, covering a variety of perspectives, practical concerns, and levels of involvement in the investigation of digital preservation issues.

The usefulness of this book is hindered by its lack of a clear audience. Despite the inclusion of library in the title and references to cultural heritage institutions in the text, Kahn often seems to be addressing the concerns of a corporate audience. This focus is most apparent in equations of system down-time with lost revenue, emphasis on massive disaster situations, and the suggestion of high-cost methods of disaster prevention and response (data mirroring, hot recovery site, counseling for staff, and so on). Although many of these suggestions are of clear merit, they are often unrealistic options for most cultural heritage institutions in terms of both financial and personnel resources.

The amount of information stored in digital form is increasing dramatically, paralleled by an equal increase in the potential for data loss through both short-term disaster and long-term negligence. Deliberate strategies to preserve our increasingly digital output are a vital component of any long-range information management plan. This work can help provide some guidance on what types of information and documentation will make data/system recovery easier and issues to consider in planning for the long-term retention of digital files. Above all, it

will convince the reader of the importance of backing up your data—speaking of which, I think I should go back up my computer now.—*Arwen Hutt* (*ahutt@utk.edu*), *University of Tennessee, Knoxville*.

Humanizing Information Technology. By Julian Warner. Lanham, Md.: Scarecrow, 2004. 145p. \$35 paper (ISBN 0-8108-4956-9)

Julian Warner, whose often unique approach to issues involving information science is colored from the palette of the field of economics, presents eight insightful essays providing a humanistic, essentially Marxian perspective on today's information technology. Five of the eight essays have been published elsewhere, but additional material has been added to these in an attempt to promote additional thought and they will surely inspire the debate he invites. Although the Marxian approach as reflected in the essays is distinctive, there are somewhat similar works currently in print—for example, John Seely Brown and Paul Duguid's *The Social Life of Information* (Boston: Harvard Business School, 2000) and Ben Shneiderman's *Leonardo's Laptop* (Cambridge, Mass.: MIT Pr., 2002)—that deal in a very interesting way (and somewhat more accessibly) with the human aspects of information technology. Warner is never an easy read, but the time taken for careful review and examination of these essays will be rewarded with some exceptional insights.

"Humanistic" is an interesting, slightly ambiguous, but little-used adjective intended by Warner to mean, in the context of these essays, something different from the attributes of those medieval scholars who, in bringing back to prominence the literature and philosophy of the classical period, labeled themselves "humanist" to distinguish themselves from the "divines" of their time. What Warner is trying to point up is that, because we comprehend and learn only with the resources

of our own human, "natural" intelligence, advances in technology must necessarily take into account human needs, if those advances are to become truly useful and not merely abstractly admirable.

In the opening chapter, Warner states the basic premise for the work,

. . . an information view of history can be developed that would benefit information science and other communities interested in the informatization of life. For information science, the unreflexiveness of its response to information technology developments can be diminished, and, to other communities, a historically specific but also theoretically informed view of information technologies can be offered (3).

In chapter two, the first of the essays, with the intriguing lead-in to its title, "Organs of the Human Brain, Created by the Human Hand," the concept of "computer as machine" versus "computer as human construction" is broached. Anyone who has ever experienced the exasperation of having a clerk tell you that, in order to get done that which needs doing, the computer requires for you to provide it with some piece of information not then easily to hand will immediately grasp Warner's meaning and point. The machine is nothing without the human instructions that have been programmed into it; its reason for being is its human interface, and if the connection is not successfully made, then the machine is essentially not worthwhile, if not worthless. Warner expands on this premise, deriving his discussion from themes found in the works of Karl Marx, and applies it to information technologies beyond computers to develop a general theory or view of information technology as a construction whose key attribute is its ultimately humanistic (in the sense

described above) nature.

Warner continues his Marxian argument (not to say dialectic) in chapter 3, and he develops a historical perspective of copyright and its evolution as dictated by changes in economic circumstances. In the context of United States history specifically, he identifies the end of the great Western expansion and of seemingly ever-increasing internal markets as the critical points where copyright became essential for American authors, thus bringing about the end of the United States as a (paradoxically-tagged) "copyright haven"—a place where the copyrights of non-resident and foreign authors were not recognized. Warner states, "Significant aspects of the history of copyright in the United States, can, then, be read to suggest that economic and political developments slightly precede and, plausibly, influence information developments" (53). This is not a unique view, of course, and one that is certainly open to some dispute, but Warner articulates the point well.

He continues the historical perspective on information retrieval through several of the subsequent essays. In them he essentially rejects the long-held principle in information retrieval research (which principle doubtless helped to give rise to the giantism traditionally characterizing what were usually seen as the "best" libraries), that it is desirable to retrieve, or at least have available, all the documents on a given subject, in favor of an approach that allows an enhanced ability to explore the universe of documents and to put the reader in a position to be able to make fully informed choices. In today's world of ever-increasing publication volume no longer constrained by the costs, time restraints, and logistical difficulties of the book-publishing process, the ability to discriminate among, and adjudge the quality and reliability of, documents and information resources is clearly becoming much more important than the simple ability to retrieve all, or

great numbers of, the documents on a given subject.

In chapter eight, "W(h)ither Information Services," Warner discusses the past and likely future developments of the information science discipline itself. His conclusions respecting what he describes as a quasi-global crisis in the library and information science field are both provocative and may possibly even be a little disturbing to a profession that is probably more conservative in its outlook than many of its members are likely to believe to be the case, certainly in regard to the roles of librarians and their relationships to their library's patrons. Warner provides a first-rate literature review on the subject and has included an excellent chart visually summarizing what he describes as the various diachronic and synchronic perspectives or points of view on the subject from 1945 through the 1990s.

An extensive bibliography that should prove useful to the researcher—as well as the more casual reader whose interest may be piqued to read further—is provided, but unfortunately the volume suffers from a less-than-adequate index. Apparently computer-derived, it would surely have benefited from a determined application of those principles of the humanistic approach to information technologies advocated in Warner's highly erudite essays. —Vicki L. Gregory (gregory@luna.cas.usf.edu), *School of Library and Information Science, University of South Florida, Tampa*.

Historical Aspects of Cataloging and Classification. Ed. Martin

D. Joachim. Binghamton, N.Y.: Haworth, 2003. 604p. \$99.95 cloth (ISBN 0-7890-1980-9); \$69.95 paper (ISBN 0-7890-1981-7). Published simultaneously as *Cataloging and Classification Quarterly* 35, no. 1/2 and 3/4.

As the editor describes it, this collection "considers the historical aspects of cataloging and classification throughout the world and throughout the centuries" (1). As a result of this extensive charge, a broad variety of topics relating to cataloging and classification are examined at both general and specific levels of focus.

The book itself includes a brief introduction by the editor, twenty-seven articles divided into three major sections (general works on cataloging rules, individual countries or regions, and special formats or topics), and an index. The articles average twenty pages in length, the exception to this being the historical account on the development of law classification schedules, which weighs in at about eighty pages (a significant portion being citations and appendices). About half of the articles contain end-note references, and the other half include bibliographies, both useful for further exploration of the topics covered.

The authorship of this book is very diverse, including contributions from ten countries and all six inhabited continents. The majority of contributors are practicing librarians, primarily from academia but with a fair number from state and national libraries and one contribution from a law librarian. A little fewer than half the authors are library educators, and the rest are either retired, students, or in fields outside librarianship.

The first section is described as dealing with general works on cataloging rules, and is the shortest part of the book, containing only three chapters. The first two articles focus on the historical development of standards

and cooperation at the national and international levels. As may be expected from a historical account, these articles focus largely on the details of how practical factors affect the development and implementation of cataloging standards and systems. The third chapter in this section ties historical description into current discussion regarding the principles underlying cataloging and its rules.

The second section consists of eleven articles relating to specific countries or regions. Many of these articles strongly resemble the first two chapters of the book in style and content, focusing largely on the historical development of cataloging standards and cooperative cataloging arrangements in different regions and countries. Naturally there is a great deal of attention given to issues relating to entry and attribution in the development of cataloging systems. The majority of these chapters describe their respective country's or region's cataloging history as it relates to western practices. This is largely a result of the dominance of western standards in the world community, but is also a function of the intended audience of this book. In this context, this section illuminates many of the challenges that multicultural materials pose, both within the framework of established cataloging systems, and in the creation new systems.

The third and final section of this book covers the widest variety of topics and is the most difficult to generalize. Roughly half of the articles address the special cataloging and classification needs of specific material types, including archival materials, government information, maps, rare books, and serials. The majority of the remaining articles discuss the cataloging and classification issues relating to specific topics, including native Alaskan languages, Pacific and Asian language materials, music, law and monastic materials. The two articles in this section that do not fit into these general categories

are "Posthumously Plagiarizing Oliva Sabuco" and "The History of 'The Work' in the Modern Catalog."

The first of these is somewhat of an anomaly in the context of the book as a whole. It is a presentation of evidence as to the authorship of a sixteenth century text with the objective of changing the current attribution in the Biblioteca Nacional of Madrid and the U.S. National Library of Medicine. Although interesting as an example of the importance of attribution and cataloging work in general, it is not at all related to the history of cataloging or classification.

The second exception in this section, "The History of 'The Work' in the Modern Catalog," is definitely relevant to the topic of the book as a whole. Its difference is in its description of a theoretical aspect of cataloging (otherwise rarely discussed in this book) and its comparatively modern scope. It provides a solid and interesting introduction to the issues and theories that led to the creation of the Functional Requirements for Bibliographic Records (FRBR).

By design this book is not a cohesive history of cataloging and classification, but rather a collection of detailed discussions of specific topics relating to the development of bibliographic control. This characteristic makes it a valuable resource for library schools and a good selection for professionals involved in research relating to cataloging and classification. One caveat is that these essays are generally not on an introductory level. For example, many of the concepts and terms used are not defined or described in the works, as, presumably, the reader is expected to be familiar with them already. Because of this, the majority of the articles are probably more relevant for readers already familiar with cataloging and its history, or for use as an addition to more introductory level readings. Overall this book provides an interesting view of the multiplicity of challenges that catalogers and information professionals

have faced, and continue to face, as they tackle the incredible variety of cultures, languages and materials present throughout the world.—*Arwen Hutt (ahutt@utk.edu), University of Tennessee, Knoxville.*

A History of Online Information Services, 1963–1976. By Charles P. Bourne and Trudi Bellardo Hahn. Cambridge, Mass.: MIT Pr., 2003. 493p. cloth \$45 (ISBN 0-262-02538-8)

The present-day librarian can be excused for rarely, if ever, thinking about the early days of online searching. Many are too busy keeping a wary eye on emerging technologies, vendor pricing schemes, and explosive online growth. But before the Internet boom of the late 1990s there occurred the remarkably similar events of thirty years earlier, the emergence of online bibliographic search systems of the 1960s and early 1970s.

Bourne and Hahn have spent twenty years researching the topic and the results are impressive. The book is organized around five roles: hardware and software developments, early service characteristics, formal evaluations, funding, and the online pioneers themselves. The stated goal is to assemble a cohesive chronology of the design, development, and evaluation of the first online systems. While the authors admit that many pieces of the story will never be known, they have succeeded in assembling an exhaustive retelling of a time when computers were new enough, and mysterious enough, to literally paralyze a new user with fear.

While a debilitating fear may be considered extreme, Bourne and Hahn give enough background details to perhaps justify the response. For example, the early 1960s computers required to run the SAGE system weighed in at 250 tons, occupied an acre of floor space, featured almost 60,000 vacuum tubes, and used up to three million watts of electricity. In 1967, during the installation of a single

remote terminal at the Ames Research Center Technical Library, workmen had to remove part of an exterior wall and use a crane to hoist the machine to its new second floor office. Software of the time also required accommodation. The online system MEDLARS, a precursor to MEDLINE, suffered from lag times of fifteen to forty seconds between entered commands. But for all that, early online experiments were surprisingly sophisticated. Systems using Boolean operators, left and right truncation, cited reference searching, wild cards, and more were all available by the late 1960s.

Demand for services caught many pioneering services by surprise. Like the Internet, the impending success of online searching was not apparent to even the most discerning. One professor, speaking at a conference on the small potential of growth for online services, asked, "After all, how many bibliographies can the world absorb?" (371). But by the mid-1970s, enthusiasm for the service was occasionally intense. Bourne and Hahn tell a story of one trainer's experience while conducting a class in Corvallis, Oregon: "About 25 [participants] jammed into a training room designed for ten people. The earliest to arrive grabbed one of the few terminals and would not let go. With the noise, heat, and congestion, an exasperated and sweaty [trainer] could not make himself heard or understood." Online services at the time were not designed to handle large numbers of simultaneous users. Because of their popularity, the service's lag times were severe during peak operating hours. To compensate, MEDLINE began raising fees to curb demand. User groups reacted angrily, predicting that the number of searches would decrease, which did occur and was precisely the point.

Then, as today, systems with superior usability tended to succeed. DIALOG emerged as a leader because of its intuitive system of commands. That may seem odd to the contemporary Internet surfer until Bourne and

Hahn show you that one competing system, MOLDS, featured thirty-four commands, many of them appearing very similar: "find, extract, define, chain, fetch, and select" (73). If the modern librarian is suspicious that some online services may be harboring anti-user tendencies, there are precedents for that type of behavior. For example, the English online system RIOT featured an automatic cut off that stopped users' searches if they were selecting too few items to be printed from the displayed result sets. "The point of this feature was to economize on computer search time. [They] did not want searchers to use expensive computer resources to browse for serendipitous discover of references" (109). Despite all of this, enthusiasm for online services was high, even though with services like MEDLARS users could expect a turnaround time of several weeks for the final search results to be returned.

Librarians played a key role in the emergent online industry. In order to understand the new medium, online services conducted many studies using interviews, questionnaires, focus groups, and so on. Even LEXIS, the online service with the stated goal of "crack[ing] the librarian barrier" (302) by enabling attorneys to do the searching themselves, found that the majority of users were librarians. This is because searches were expensive and, without the precision brought to bear by experienced information professionals, inefficient. For example, connecting to MEDLINE at one point cost an institution \$45 an hour. Despite this, librarians were loyal allies who trained searchers and used and promoted the online services themselves, even while fearful of the potential for job loss due to the new technology.

There is nothing in the literature today with the breadth and depth of Bourne and Hahn's history of early online services. The value of the work stems from the devotion the authors have for the subject and their evident

empathy for the spirit of the times. Occasionally, however, some punches are pulled unnecessarily. For example, a list of harsh ground rules for searchers using DIALOG is attributed to a government agency who is "mercifully [kept] anonymous" (401). Such omissions are a disservice to scholars, but are luckily not a common occurrence. What is common is a thorough retelling of who did what and why during this exciting time. Readers of this book will certainly come across stories which resonate with direct correlations to the recurring difficulties faced by information professionals today. One significant insight is that librarians, who may perceive themselves as at the mercy of changing technology, benefit substantially from the exponential growth in available information that online services bring.—*Steve McCann (steve_mccann@ncsu.edu), North Carolina State University, Raleigh.*

Organising Knowledge in a Global Society: Principles and Practice in Libraries and Information Centres. By Ross Harvey and Philip Hider. Wagga Wagga: Centre for Information Studies, Charles Sturt University, 2004. (Topics in Australasian Library and Information Studies, no. 23) 375p. cloth Aus\$71.50 (ISBN 1-876938-66-8).

Knowledge Organization and Classification in International Information Retrieval. Ed. Nancy J. Williamson and Clare Beghtol. Binghamton, N.Y.: Haworth Pr., 2003. cloth \$49.95 (ISBN 0-7890-2354-7); paper \$29.95 (ISBN 0-7890-2355-5). Published simultaneously as *Cataloging and Classification Quarterly* 37, no. 1/2.

It is unusual for two books concerned with knowledge organization to appear within a short chronological span, and the fact that they have serves to emphasize the growing importance that the organization of knowledge is assuming in our global intercommuni-

cating society. They are aimed at somewhat different audiences, the collection of essays edited by Williamson and Beghtol appealing to a much wider and more varied readership than the work by Harvey and Hider, which is clearly aimed primarily at students.

Harvey and Hider's work is based on Harvey's earlier book *Organising Knowledge in Australia* (1999), and the Australian element is clearly present in this revised, expanded, and updated version. It is unusual for a work that is primarily intended for an Australasian readership to reach the shelves of libraries in the United Kingdom or the United States, and this provides an interesting angle on the problems of bibliographic control. It should be noted, however, that the Australian context is firmly marked by being enclosed in blocks highlighted in grey so the reader who finds this irrelevant can easily skip these sections. Another useful feature of the book, especially for students who are reviewing for examinations, is the provision of summaries of the content of each section and each chapter at the beginning of each relevant part as well as at appropriate intervals throughout.

The book is divided into five parts, the first providing a general overview of the requirements for bibliographic organization, the users of bibliographic data and their needs, and the systems that have been devised to satisfy those needs, drawing the distinction between bibliographies, catalogues, and indexes. The second part is devoted to bibliographic description dealing mainly with standards such as AACR2 and ISBD and briefly referring to other standards, such as the German Regeln für die alphabetische Katalogisierung (RAK), the Japanese Nippon cataloguing rules, and standards used by sister professions such as *General International Standard for Archival Description (ISAD-G)*, and *Content Standard for Digital Geospatial Metadata (CSGDM)* as well as standards dealing with special classes of material such as the Library of Congress's *Descriptive Cataloging*

of Rare Books. At this stage, it is simply the descriptive standards that are handled, while technical standards such as MARC and Dublin Core are reserved for a later part of the book. In terms of a student audience this is a very sensible distinction, since students seem to have great difficulty in distinguishing the difference in intention and function of, for example, AACR2 and MARC.

Part three deals with subject access, drawing the distinction between natural language systems and the use of a controlled vocabulary, whether in the form of subject headings, the thesaurus, or a classification scheme. The advantages and disadvantages of each approach are helpfully summarized in a table, one of the many distributed throughout the work that enhance its value to students. All the major general classifications are discussed, including lesser used ones, such as Bliss and Colon. A passing glance at national schemes, such as those of Sweden and the Netherlands, also is provided. One or two special schemes, such as the *British Catalogue of Music Classification* and the American Institute of Physics *Physics and Astronomy Classification Scheme*, are briefly dealt with, the former very sensibly being used as an example of a fully faceted scheme (although it has now ceased to be used in actual practice, it remains an excellent example of how things should be done). The advantages and disadvantages of reclassification are also discussed, with examples from the Australian environment, all, interestingly, being moves to the Library of Congress Classification (LCC), either from the Dewey Decimal Classification (DDC) or the Bliss Classification. The use of classification on the Web is also noted, with examples from BUBL Information Service, illustrated by a screen dump and reference to the use of LCC by Cyberstacks, as well as examples using subject headings such as LCSH and MeSH.

Alphabetical subject access

mechanisms follow the section on classifications with understandable emphasis on LCSH. A strange omission in the section on "Making LCSH more useful" is the Faced Application of Subject Terminology (FAST) project, which has received extensive treatment in recent literature. Thesauri are also given reasonable space, again with a summary of the pros and cons of these versus subject headings, and with ERIC selected as an example. A notable omission from any mention in the work is the *Art and Architecture Thesaurus*, probably one of the most generally used sources for vocabulary as well as a valuable retrieval tool in its own right for use in the humanities. The problem of language is not raised in relation to the use of subject headings, thesauri, and free text, and the value of being able to search across material in a range of different languages. Presumably, the assumption is that everyone wishes to search on English terms, and this is patently not the case. The Multilingual Access to Subjects (MACS) Project is just one current attempt to address this problem. PRECIS and COMPASS are also discussed; the latter could perhaps have been omitted since although it is described as being phased out, its use actually ceased in 1995 and it was far from successful as a means of retrieving information. Keywords and automatic indexing are also given due prominence. Subject access on the Web is discussed in a separate chapter, and the special requirements of Web access, whether to catalogs or to other sources of information, via search engines and subject directories or through more traditional means such as classification schemes and subject headings, are given clear treatment, amply illustrated by means of screen dumps. Some attention is given to the work of the OCLC Office of Research.

Bibliographic data and exchange management are the theme of part four, which examines the requirements

for user effectiveness with regard to input, processing and user requirements and output requirements. The opposing requirements of recall and precision are noted. It opens with outlining the available technical standards and highlights the benefit of standardization, including protocols such as Z39.50 and the Open Source Initiative (OSI) and format standards such as MARC, Dublin Core, and Resource Description Framework/Extensible Markup Language (RDF/XML). Having traced what exists, the authors then move on to arrangements for the exchange of bibliographic data. The impact of bibliographic utilities, such as OCLC and RLIN (the latter replaced by the RLG Union Catalog), are given detailed treatment, and there is an extensive case study of the Australian situation. Local systems and OPACs conclude this part of the book.

The final part explores current issues in organizing knowledge and includes a brief section that attempts to identify future trends in bibliographic description, subject access, and the possibilities that stem from the Semantic Web. The work is accompanied by a useful glossary and an extensive bibliography, although there are omissions of standard handbooks, such as Lois Chan's *A Guide to the Library of Congress Classification* (1999) and this reviewer's *Universal Decimal Classification: A Guide to Its Use* (2002) (although the guide to the DDC is listed). It is always easy to see additional themes that might have been noted, but this work is a valuable compendium of information, produced in an easily readable and even more easily quick-referenced style, and fills a much-needed gap, especially in the literature available for students. Its claim to global coverage is perhaps more attributable to the worldwide availability of information on the Web rather than to any specific geographical slant.

The collection of papers edited by Williamson and Beghtol providing a range of insights into *Knowledge*

Organization and Classification in International Information Retrieval is truly international, with contributors from no fewer than six countries and three continents, and in the way it handles multilingual difficulties, those of translating classifications from one language to another, and the related difficulties of mapping different information languages onto one another. Inevitably, being a collection of individual papers rather than a compact work by two authors, it covers a much broader geographical canvas, though it does exclude Australia and in this way contrasts with the previous book. The collection is divided up under four headings: general bibliographic systems; information organization in knowledge resources; linguistics, terminology, and natural language processing; and knowledge of the world and the world of knowledge.

The first section looks at the future of general classification systems, with an introductory think-piece by Jens-Erik Mai on the future of general schemes and giving special attention to the problems of interoperability. This is followed by examinations of how dominant classifications can be adapted to particular contexts and the problems of stretching conceptual structures in classifications across languages and cultures. The final paper in this section uses a case study of the implementation of a multilingual thesaurus based on UDC drawing upon the author's experience in the Central University Library of Bucharest.

The second section moves on to the specific challenges of the Web, looking at the problems that the networked environment presents to traditional retrieval methods and the extra demands it has created for librarianship. Special cases are then examined in the context of global exchange—education, by Michèle Hudon; text mining and data mining, exemplified by two case studies from India; and ways to organize information in nonbibliographic databases, again illustrated by case studies. The

third section deals with the problems of language in information access and management and discusses natural language processing and approaches to using machine translation and automatic indexing. Research into lexical patterns and the impact that different language varieties have on them is surveyed by Bowker, and Howarth concludes the third section looking at metadata schemas and crosswalks, mapping, and terminology gateways. The final section opens with a discussion of the International Flow Framework designed for organizing the information that appears in digital information and digital libraries. The two final papers look at managing knowledge in organizations and the classification of international economic data for bibliographic and statistical purposes.

The work is marred by a few misprints, especially in Mai's contribution, and some oversimplifications with regard to language families in the article by Kwasnik and Rubin (which are discussed more fully in *Update* 3, no. 10 [2004]: 46, a more variable work than that discussed above). However, the modern situation makes the need for knowledge organization even more imperative than ever. This is emphasized in the coverage from the traditional classification scheme, through thesauri, to the classification's more recent descendant, the ontology. The contributors show how these tools have adjusted to the role of providing the individual with access to the information he or she needs without regard for extraneous material, at his or her fingertips, rather than the organization of a collection of material in an order that will be helpful to a large and unpredictable audience—to use the words of Kent: “a new library idea is emerging, a shift from the public space phenomenon . . . to a private space phenomenon” (188).

The collection of papers will appeal to a wide range of interests. Some, especially those dealing with the general classification schemes

(Mai, Olson, Neelameghan) and with problems of interoperability, mapping, and other techniques for accessing a variety of sources, not least those on the Web, fill a gap for students on those recent developments that have not yet reached the textbooks. The articles on the application of linguistic and mathematical techniques (Kent, Mustafa) will appeal to the researcher, while the full bibliographies and notes form an excellent source for both teacher and researcher. The scope goes beyond the approaches to knowledge organization familiar to the library world to include such global abstractions as classification for statistical purposes. There is something for everyone from the student to the advanced scholar of knowledge organization.

These two works serve to emphasize the vital need for knowledge organization in today's networked information world. They will appeal to different audiences, the first being primarily aimed at the student, but providing useful summaries for the working librarian and the teacher, while the second collection of papers addresses a much wider audience and is more varied both in scope and presentation. Both are welcome additions to the literature of our discipline. —I. C. McIlwaine (*i.mcilwaine@ucl.ac.uk*), University College, London

Digitizing Collections: Strategic Issues for the Information Manager. By Lorna M. Hughes. London: Facet Pub., 2004. 327 p. cloth \$75 (ISBN 1-85604-466-1)

The title of Lorna Hughes' *Digitizing Collections: Strategic Issues for the Information Manager* gives a strong indication of the audience that would benefit most from this book. The introduction states "*Digitizing Collections* is intended primarily for librarians, archivists and museum professionals, as well as for students of these subjects . . ." ([xi]). The focus of the book is on examining the breadth of the topic, rather than its depth. It will therefore be of the most use to

managers giving direction to digitization efforts, instead of those designing day-to-day workflows. The examples throughout the book cover the entire cultural heritage sector, including libraries, archives, and museums.

Digitizing Collections is divided into two parts. "Part 1, Strategic Decision Making," is particularly effective in describing the many areas of digitization projects requiring careful planning. Chapter 1, "Why Digitize? The Costs and Benefits of Digitization," does an excellent job framing the discussion of digitization projects in a larger organizational context. Hughes balances a long section on "Advantages of Digitization," covering access, support of preservation activities, collection development, institutional benefits, and research and education with realistic qualifications such as "there are no short-term cost savings to be realized by digitizing collections" (7). Chapters in part one covering "Selecting Materials for Digitization," "Project Management and the Institutional Framework," and "The Importance of Collaboration" are similarly valuable in outlining large-scale issues.

Chapter 3, "Intellectual Property, Copyright, and Other Legal Issues," is not as effective as the rest of part one. Coming from a British publisher, this book appropriately treats its subject with an international scope. Legal issues such as copyright, however, must be understood in a more local context. Despite national differences in intellectual property law, this chapter focuses upon some commonalities between them, including the concepts of the public domain, fair use (or fair dealing), and obtaining permission to use copyrighted materials. Hughes favors obtaining permission over fair use as an approach to legal digitization of materials. The value of fair use as a legitimate, viable, and legal means for digitization is overshadowed and occasionally misrepresented. For example, immediately after intro-

ducing the four factors considered for a fair use claim under United States copyright law, Hughes gives an example that recounts permission for one student to use material being denied by an artist's estate "on the grounds that hers was a 'for profit' enterprise" (63). There are two problems with this example. First, it is not for a copyright holder to determine if a specific use is fair or not under United States copyright law. Second, the student's "profit" was supposedly her grade, which the author fails to question as inappropriate. A copyright holder may deny permission if asked, but if fair use applies, no permission is needed. A final determination would be made by a court in the event a fair use claim has been challenged. Hughes characterizes fair use as "a flimsy concept to hide behind" (63), but in the United States, fair use is used frequently for digitization in libraries, especially for activities such as electronic reserves. A fair use claim forms the backbone of nationally endorsed policies, such as ALA's *Statement on Fair Use and Electronic Reserves*.¹ This chapter appropriately concludes that "protecting and managing copyright, and avoiding infringement, is ultimately more a question of risk management than it is of the law" (76–77), yet it does not acknowledge that many institutions with expert legal advice consider digitization under fair use in some circumstances an acceptable risk.

Part two of the book is titled "Digitizing Collections." Chapter six, "Project Planning and Funding," provides a comprehensive overview of issues to consider when first developing a proposal for a digitization project. This chapter contains useful practical advice on funding models and distribution of costs within project areas. Chapter seven, "Managing a Digitization Project," presents an excellent top-down view of decision making. There is a clear and appropriate message that managers should first

answer “Why?” before attempting to answer “How?,” an approach evident in statements such as: “Articulating the purposes of the project, and the way that the digital imaging processes chosen will create resources that will fulfill these goals, is the best way to plan a digitization project . . .” (165).

The remaining chapters in part two cover digitization of three specific types of materials: rare and fragile materials, audio and moving images, and text and images. These chapters are less effective than the rest of the book. The author attempts to address digitization of these three categories of materials in depth. However, it is not appropriate for the scope and audience of this book to discuss technical details of digital capture, and the result is oversimplification of the issues, often leading to incorrect generalizations. For example, Hughes claims that GIF “is a proprietary file format, covered by a patent” (190). It is not the GIF file format itself that is patented, but rather the compression algorithm it uses, LZW. This compression algorithm can be used with other file formats, including TIFF. In addition, this patent expired in the United States in July 2003 and in many other countries in summer 2004.² Unfortunately, this sort of slight misrepresentation occurs frequently in technical discussions within these three chapters.

The relationship of digitization and preservation activities appears in several places throughout the book. The author makes clear her position on this relationship: “Although there are those who maintain that digitization is gaining recognition as an acceptable preservation format, this is not the opinion of this author” (210). Two distinct issues are relevant to the debate regarding digitization as a preservation medium. The first is whether or not the digitized object (image, audio, video) adequately captures all important information (by some operational definition) present in the original object. The second

issue is whether or not we can ensure today mechanisms for managing digital data into the future with certainty comparable to that we currently possess for analog materials. The basics of the latter are introduced in a section titled “Preservation of Digital Assets.” The former is discussed only in passing within a section outlining a case study on brittle books digitization, never in the context of any other type of material. The relationship between these two concerns and their impact on the digitization as preservation debate is never made clear. A recent Association of Research Libraries report, *Recognizing Digitization as a Preservation Reformatting Method*, attempts to address these very topics.²

Digitizing Collections closes with a chapter devoted once again to big-picture issues, synthesizing the lessons of previous chapters into a cohesive view of digital project planning. As Hughes reminds us, “We shouldn’t digitize just because we can” (285). A manager ought to come away from this book with the tools to effectively determine when an institution *should* choose to digitize.—Jenn Riley (*jenrile@indiana.edu*), *Indiana University Digital Library Program, Bloomington*

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3. K. Arthur et al., *Recognizing Digitization As a Preservation Reformatting Method*, June 2004. Accessed Dec. 6, 2004, www.arl.org/preserv/digit_final.html.

Brief Reviews

Development of Digital Libraries: An American Perspective. Ed. Deanna B. Marcum. Westport, Conn.: Greenwood, 2001. 347p.

\$95 (ISBN 0-313-31478-0)

Development of Digital Libraries comprises a collection of twenty-two papers presented at the Kanazawa Institute of Technology International Roundtable during the years 1994 to 1998. With the most recent of these papers dating to six years ago, and some a full decade old, the value of this volume is clearly not in discussion of current trends. Rather, this volume provides an interesting snapshot of digital library thought from a time when the Web was passing through its infancy and into a period of unrivaled growth and expectation.

A number of themes emerge across these essays; perhaps the most common of these is that of the changing role of the library and librarians. Understandably, some of the papers predict changes that have not yet come to pass and may now appear unlikely. Examples include overstating the promise of digitization to solve shelving space needs and the ability of collection developers to effectively select and maintain links to authoritative items from throughout the Web in anticipation of user needs. Other trends and predictions, however, seem as relevant today as they were when presented: the need for sound digital preservation standards and practices; the inherent instability in the Web’s linking system; and the economic dangers of moving from an unlimited use, print-based model, to recurring, license-based fee structures. That the most enduring of these discussions consist principally of warnings seems to point out that there are still a number of basic problems dating from the inception of the digital library yet to be solved.

Perhaps the most developed and still relevant theme that crosses multiple essays relates to the changing nature of scholarly communication and intellectual property rights. A number of essays mention the promise of the Internet to provide open access to scholarly material and predict the rise

of preprint and institutional repositories. Some of these essays also point out the problems that are faced when attempting to apply print-based copyright law to digital material, where the line between content and process is often blurred.

Following two sections of essays focusing principally on predictions and emerging patterns in the digital library realm, the collection concludes with a number of papers focusing on emerging and successful projects, such as the Internet Public Library, distance learning initiatives, and digital collections of government documents. Although interesting as historical documents, as a whole these papers have little other value today, as they simply describe projects that have either been completed or superseded, or that have progressed well beyond their state at time of presentation.

When taken as a whole, this collection clearly demonstrates the value of the Kanazawa Institute of Technology's series of International Roundtables as a forward-thinking gathering of pioneers in the digital library world. That many of these essays remain at least somewhat relevant is truly an accomplishment. That said, the value of this work is hindered by its overall lack of timeliness and the fact that many of these authors have gone on to reprise and refine their views of the still-developing digital library.—*James M Jackson Sanborn* (james_sanborn@ncsu.edu), *North Carolina State University Libraries, Raleigh*.

The Title-Page: Its Early Development, 1460–1510. By Margaret M. Smith. New Castle, Del.: Oak Knoll Pr., 2000. 160p. \$39.95 (ISBN 1-58456-033-9)

The first work of such specific focus since Alfred W. Pollard's 1891 *Last Words on the History of the Title Page*, Margaret M. Smith's brief monograph sets out to take a new look at its subject from the post-Elisabeth Eisenstein field of book history. In addition to being something of an

update of its centenarian predecessor, Smith's work complements other studies, fitting neatly from a chronological standpoint between Pollard's *An Essay on Colophons* (1905) and works covering later periods, including A. F. Johnson's *German Renaissance Title-borders* (1929) and M. Corbett and R.W. Lightbown's *The Comely Frontispiece* 1979. Unlike especially this last work and the more recent *Chronus und Historia* (1995) by Margery Kintzinger, which take more iconographic approaches, Smith smartly appears to be more concerned with establishing organic genres of title-page design. One should begin reading this book with the very brief final chapter, titled "Conclusions," but truly more of an abstract. Here, Smith most clearly summarizes the current picture of the title-page's evolution, a story of competing styles, false starts, and a finally dominant form. In fact, nonincunabulists may wish to stop reading here, as Smith's work follows in the intellectual tradition of *The Printing Press As an Agent of Change* but lacks its eye-opening freshness. The strength of the earlier chapters comes in textual and graphic presentations, in chronological perspective, of the fruitful results of Smith's quantitative sampling (although, oddly, Smith avoids addressing geographical factors in such strong fashion, leaving open questions of how significant were regional differences in the title-page's early development). While overall this new work doesn't offer much in the way of new insights, it does provide an important and long-neglected evidentiary foundation that supports many commonly held ideas of the title-page's development.—*Darby Orcutt* (darby_orcutt@ncsu.edu), *North Carolina State University Libraries, Raleigh*

Introduction to Technical Services.

By G. Edward Evans, Sheila S. Intner, and Jean Weihs. 7th ed. Greenwood Village, Colo.: Libraries Unlimited, 2002. 543p. paper \$49.50 (ISBN 1-56308-

922-X)

Cataloging and Classification for Library Technicians. By Mary Liu Kao. 2d ed. New York: Haworth, 2001. 146p. cloth \$39.95 (ISBN 0-7890-1062-3); paper \$19.95 (ISBN 0-7890-1063-1)

The first through fifth editions of the classic *Introduction to Technical Services* were titled *Introduction to Technical Services for Library Technicians*. The change in title reflects the changing need for training in technical services, even for the professional librarian. Schools of library (or information) science are minimally training their students in cataloging (and that even is not a required course for most) and might touch on other aspects of technical services generically. But, for the most part, there appears to be a misconception that knowledge of processing, acquiring, and organizing materials is either no longer necessary or can be picked up on the job. As readers of *Library Resources & Technical Services* are well aware, the skills are necessary, and there are rarely staff left who can pass on the knowledge through in-service training. *Introduction to Technical Services* can fill this gap. It can also be used as a textbook for either master's-level library school courses or for library technical assistant courses.

The book is divided into three large sections: general background, acquisitions and serials, and cataloging and processing. Individual chapters present both theoretical discussions of topics and basic applications of fundamental processes. Extensive readings are supplied, as are review questions. This edition also introduces Canadian practice in most chapters, although the discussion is abbreviated. I particularly liked the numerous examples of records, screens shots, forms, and so on sprinkled throughout the text and was even more impressed by the separate index to the examples.

The writing is lively, interesting, and sparked with humor. For example, "acquisitions departments are the ulti-

mate recipients of unsolicited gifts . . . (sometimes accompanied by a variety of molds and insects)" (165). Although there are three authors, and most likely each author worked on separate sections, the book reads as though one person wrote it.

Any book that attempts to cover all of technical services in just 543 pages cannot cover every aspect in depth, but I do wish a few areas had been given more attention. In the acquisitions section for example, there is no discussion of the ethical aspects of commercial transactions. Should the librarian accept gifts from vendors? Should the functions of ordering, receiving, and paying be separated? Electronic resource acquisitions (serial and nonserial) would benefit from more discussion of the need for negotiating licenses (with and without legal counsel). There is very little about the process of requesting bids (for an approval vendor, a new library management system, or outsourcing). And there is no discussion of the possibility that systems maintenance may be a part of technical services. All of these functions may not be the purview of the library technical assistant, but given the direction that many libraries are going (see opening paragraph of this review), they very well could be. Overall, however, this is an excellent summary of the world of technical services. I wouldn't hesitate to give it to any of my staff members (in my previous supervisory life) to fill in the gaps in their knowledge.

On the other hand, *Cataloging and Classification for Library Technicians* is meant to be used as a textbook for

a course in copy cataloging, and I would suggest using it only with close supervision and supplementing it with lectures by a knowledgeable instructor. In only 146 pages, Kao covers much the same ground as Evans, Intner, and Weihs cover in the last 201 pages of their book. There are far fewer theoretical discussions, as is appropriate for the audience.

The second edition differs from the first in that there are many more examples and some of the more egregious errors have been corrected (for example, in the first edition, the Library of Congress Subject Headings are stated as being in the sixteenth edition on page 18 and as being in the seventeenth edition on page 65). A new chapter, "Cataloging on Computers," covers the MARC format (only a definition is given in the first edition) and a brief overview of searching on OCLC. Kao gives a very broad workflow for searching and editing a record.

Like the *Introduction to Technical Services, Cataloging and Classification for Library Technicians* has review questions at the end of each chapter. There is also a glossary at the beginning of each chapter. Some chapters start with this list; some chapters have an introduction first. I found this inconsistency in layout annoying; there didn't appear to be any reason for it.

Kao is best when she sticks to broad strokes; when she strives for detail, she falls into error. In the descriptive cataloging chapter, she discusses each chapter of the second edition of the Anglo-American Cataloguing Rules separately: in discussing chapter twelve (formerly titled "Serials,"

but now "Continuing Resources") she states "If titles of different issues vary, use 'Title varies'" (43). The serials cataloger in me knows this is dead wrong.

Despite its shortcomings, there is no other book devoted exclusively to copy cataloging for support staff, and this edition shows improvement over the first edition. I would, however, have a warning label on the book: "Not to be used without an instructor present."—*Marguerite E. (Maggie) Horn, (maggie.horn@suny.edu), State University of New York, System Administration, Office of Library and Information Services*

Index to Advertisers

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Archival Products	6
Library Technologies	cover 3

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3



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