I am very pleased to announce that “The Academy Unbound: Linked Data as Revolution,” by Philip Evan Schreur is the winner of the 2013 Edward Swanson Memorial Best of LRTS Award. Phil is a member of the LRTS editorial board, and the award jury selected his article because of his exceptional understanding of linked data and how it works. It is my article of choice when I need to provide someone with an overview of linked data and its potential benefits. Phil will be presented with his award during the ALCTS Awards Ceremony during the 2013 American Library Association Annual Conference in Chicago. His article is a good example of how LRTS can work, from paper solicitation, through the peer-review process, and culminating in the final published paper.

Publications are a natural outgrowth of one’s work and experiences. They provide us with an opportunity to share our research and ideas to benefit the profession. We work in a collaborative profession where information is readily shared and exchanged. However, writing and publishing do not come easily to some individuals. During the “Publish with ALCTS!” e-forum, people provided reasons why they have not published, including lack of time, no requirement to publish for one’s position, lack of confidence their topic will interest others, an inability to organize one’s ideas into a paper, and the desire for a mentor to guide them through the peer-review process. ALCTS’ publishing program has been revitalized under the capable leadership of ALCTS Past-President Dina Giambi and provides a number of options for publishing. See their website for more information (www.ala.org/alcts/mgrps/cmtes/ats-pb). In addition, the LRTS editorial board and I are pursuing initiatives to encourage submissions. The process of writing and publishing can indeed be daunting, and the LRTS homepage (www.ala.org/alcts/resources/lrts) provides a wealth of information for potential authors, including a FAQ that addresses how to turn an idea into a paper, how to prepare a paper, how to submit a manuscript, and what happens once a paper has been submitted. If you have an idea for a paper, I encourage you to contact me or any member of the LRTS editorial board (see www.ala.org/alcts/mgrps/cmtes/ats-lrts). The board comprises a diverse group of individuals who represent the various sections and interests of ALCTS. We are available to provide feedback and mentoring.

In closing, I would like to give you a preview of the contents of this issue of LRTS:

- Thomas McMurdо and Birdie MacLennan detail their work on the Vermont Digital Newspaper Project and the National Digital Newspaper Program. The Vermont Digital Newspaper Project is a state partner in the National Digital Newspaper Program (NDNP). The NDNP is a long-term and national effort to build a freely accessible, searchable Internet database of historical US newspapers. McMurdо and MacLennan share their experience with large-scale microfilm-to-digital conversion and preservation efforts.
- Mavis Molto summarizes the results of study she conducted to develop a means for identifying significant subject and function changes in serials with title changes and to provide recommendations on how to recognize
new serial works in cataloging. A sample of serials with title changes were considered, and were classified according to subject and function changes. The FRBR (Functional Requirements for Bibliographic Records) concept of a work and other FRBR guidelines taken into consideration. The sample was divided into thirty-five categories which were assigned a level (high, medium, or low) according to the results that indicated a need for a new work. Tests determined if multiple medium level changes could also be used as a means to identify the need for a new work. The study provides a recommendation to modify RDA rules for major changes to the title proper for serials, and to require a new access point only when a significant subject or function change occurs in one of four high-level subcategories identified in the study.

• Wen-yin Lu and Mary Beth Chambers detail Colorado University Libraries’ experiences with a consortial patron-driven acquisitions plan for e-books. Their paper discusses how the Colorado University system launched a pilot project for shared purchasing and cataloging between five geographically separate and diverse libraries. Their paper addresses factors that affected editing and record customization, how to accommodate local needs, and best practices for their regional unified catalog.
Identifying Significant Changes in Serials with Title Changes in the Recognition of New Works

Mavis Molto

The purpose of the study was to develop a means for identifying significant subject and function changes in serials with title changes and then to recommend ways to recognize new serial works in cataloging. A sample of serials with title changes was used to classify the underlying subject and function changes found into thirty-five subcategories, which were then each assigned a level (high, medium, or low) according to the evidence provided for a new work. The FRBR (Functional Requirements for Bibliographic Records) concept of a work and other FRBR guidelines were used in assigning the levels. It was determined that three high-level subject changes and one high-level function change provided the best evidence of significant change in recognizing a new work. Tests were performed to determine whether multiple medium-level changes could also be used to identify new works. A recommendation was made to modify the RDA (Resource Description and Access) rules for major change in the title proper of a serial to require a new access point only when a significant subject or function change has occurred in one of the four high-level subcategories identified in the study.

A dilemma for serials catalogers over the years has been the issue of how to treat title changes. When the Anglo-American Cataloguing Rules (AACR2) were revised in 2002, the initial goal was to provide rules requiring new records for serials with title changes only if the serial had become a new work. However, the mechanisms developed to recognize new works fell short of this objective. With the new Resource Description and Access (RDA) cataloging rules now replacing AACR2 in many libraries, the problem continues, since RDA employs many of the same procedures as AACR2. However, RDA emphasizes the concept of a work because the rules are based on the FRBR (Functional Requirements for Bibliographic Records) conceptual model in which a work plays a prominent role. The work is one of four key entities that represent different aspects of a user's interest in bibliographic data. A work in RDA is defined, as in FRBR, as "a distinct intellectual or artistic creation."

In AACR2, new works are recognized by creating new entries for the manifestations of the new works, whereas RDA represents new works by new access points, along with entries for the new manifestations. The mechanism for recognizing new works in both AACR2 and RDA consists of determining that a major change has occurred, such as certain changes in the words of the title. The major
changes that are identified, however, do not correlate with the changes that would be recognized if using a definition of a work that explains what a work is and how it can be recognized. Thus there is no assurance that the new entry or access point will represent a new work.

In a previous study, the author developed a preliminary procedure for recognizing new works for serials with title changes, using the FRBR definition of a work and additional FRBR guidelines.6 The study found that only two kinds of changes, namely, subject changes and function changes, provide the evidence needed to recognize a new work. The FRBR requirement that a significant change must occur was not addressed, this being beyond the scope of the study.

There is a need to address the issue of significant change in serials with title changes. The current study, a follow-up to the study noted above, will consider this problem and attempt to develop a means by which significant subject and function changes can be identified. Knowing how to discern significant changes in serials will provide a tool that could improve cataloging rules for serials. No study was found that addressed this issue.

The purpose of the study is to develop a means for identifying significant subject and function changes in serials with title changes and to recommend changes in cataloging rules for recognizing new serial works. The study was limited to serials that had title changes and did not address other kinds of changes in serials (e.g., changes in responsibility) that might also lead to the recognition of a new work. The study is expected to contribute to the theoretical body of knowledge concerning serials with title changes. It also will have a practical application in providing data that can be used to improve cataloging rules, specifically the RDA rules.

Literature Review

The literature review was concerned with three areas relating to the proposed research: (1) how to define a serial work, (2) how cataloging rules determine when a new record or access point should be created for a serial with a title change, and (3) the characteristics of serials with title changes.

Concept of a Work in the Library Catalog

There are various views on how to define a work for the library catalog, as well as differences in how cataloging rules treat this issue. AACR2 does not provide a definition of a work, whereas in RDA the FRBR definition is used. The FRBR conceptual model, on which RDA is based, was developed by a study group of the International Federation of Library Associations and Institutions (IFLA) which published a report titled Functional Requirements for Bibliographic Records. The report includes the following background on the concept of a work:

A work is an abstract entity; there is no single material object one can point to as the work. We recognize the work through individual realizations or expressions of the work, but the work itself exists only in the commonality of content between and among the various expressions of the work. Because the notion of a work is abstract, it is difficult to define precise boundaries for the entity. The concept of what constitutes a work and where the line of demarcation lies between one work and another may in fact be viewed differently from one culture to another.7

The difficulty in coming to a common agreement on what constitutes a work is seen in the different views expressed in a special issue of Cataloging & Classification Quarterly that was devoted to the concept of a work in the modern catalog.8 Smiraglia, editor of the volume, also wrote a subsequent article in which he identifies critical elements of definitions of works by authors from Panizzi (1841) and onward.9 Views on the more specific concept of a serial work have been proposed by some authors, with an overview of some of these views following.

Some have taken a strong stand on the importance of the user's perceptions and needs in creating guidelines for recognizing new serial works. Layne and Antelman both note that neither the librarian nor library users would see a new work in the records created by cataloging rules.10 Antelman suggests that a new work identifier is needed for serials, since neither name nor title are reliable identifiers of a serial work. She proposes the concept of bibliographic families to group records for related serials in the library catalog.11

Yee and Kuhagen voice similar concerns, with Yee suggesting that not only could the title and author change, but the intellectual and artistic content could be changed without the serial becoming a new work.12 She proposes: “As a rule of thumb, consider two items to be the same work if they would be considered interchangeable by most users, or if a user seeking one would actually find the other preferable (as in the case of a later revised edition).”13 Kuhagen suggests that users’ needs in finding and selecting serials would be best supported if serials with changed titles were treated as single works, whereas mergers and splits could be treated as different works.14

Adams and Santamauro take an approach similar to Antelman’s, proposing that instead of identifying works, one should identify superworkexpressions.15 This concept, derived from FRBR principles, draws on the work of Frieda Rosenberg and Diane Hillman.16 Adams and Santamauro suggest that an umbrella record could be created for each
superworkspression, containing all of the bibliographic information pertaining to the resource regardless of format. Manifestation records, specific to particular formats, would stem from the umbrella record, with item records branching off from the manifestation record. The authors propose doing away with the current practice of successive entry cataloging, which requires a new record for every major change in title or format. New umbrella records would be created only when there has been a change in content. The authors acknowledge that it may prove difficult to determine when content has changed sufficiently to identify a new superworkspression.17

History of Serials Cataloging Rules

There has been a move, as cataloging rules have been revised, to require a new record or access point only when a new work has emerged. However, cataloging rules do not always include the guidance that could be provided by a specific definition of a work. A brief overview of the major cataloging conventions used for serials follows.

Hirons provides a succinct description of the three conventions that have been used historically for cataloging serials:

- Earliest entry: all changes are kept on a single record with the description based on the earliest issue and title changes, etc. recorded in notes;
- Latest entry: all changes are kept on a single record with description based on the latest (most recent) issue and earlier titles, etc. given in notes;
- Successive entry: a new record is made for each title or other major change (e.g., main entry); description is based on the latest issue (AACR1) or the earliest issue (AACR2).18

As Jones notes, different works will be identified for the same serial, depending on which of these conventions is applied.19

Both RDA and AACR2 are based on the concept of successive entry.20 There is continuing debate, however, on the merits of successive entry cataloging versus maintaining a single record or access point for serials with title changes. A special concern with successive entry is that excessive numbers of records or access points are often required. The single record approach is proposed by Lim as a way to limit the number of records created, with the suggestion that separate records be created for titles resulting from mergers or splits.21 Hirons and Graham believe that successive entry cataloging fills a need, but propose that new records be created only when there has been a substantial change in the serial.22 The pros and cons of successive versus latest entry cataloging are discussed in a collection of articles, edited by Mary Curran and titled “Mission Accomplished? A Symposium on Latest vs. Successive Entry.”23 The four contributors conclude that a system solution is needed, either via FRBR or a next-generation catalog.

Characteristics of Serials with Title Changes

Cataloging rules, as noted above, employ varying procedures for determining when new records or access points should be created for serials with title changes. Before procedures can be developed, however, it seems that one must understand the changes that occur in serials when a title changes, so the procedures can specify the kinds of changes that would warrant the recognition of a new work. In a previous article, the author identified several studies that investigated the reasons for serial title changes, but found that none of the studies looked at how the information could be used to inform the task of creating or revising cataloging rules. A research study was therefore conducted by the author to identify the characteristics of serials with title changes, with the goal of providing input for improving cataloging rules. It was determined that 50.8 percent of the underlying changes that occur in serials with title changes are for subject or function changes. It was further determined that to identify new works for serials with title changes, using the FRBR concept of a work as a guide, a significant subject or function change must occur. The recognition that significant change must occur correlates with a comment by Adams and Santamauro that a sufficient change in content is needed for a new superworkspression record to be created.24 How to recognize significant change in serials is a topic not addressed in these studies.

Summary of the Literature

In summary, there are differing views on what constitutes a serial work. Cataloging rules likewise differ in how a serial work is viewed, with some cataloging codes providing no definition of a work and no rationale for the access points and entries that are created. Some individuals who have commented on this issue believe that new records and access points for serials with title changes should be created only when there has been sufficient or substantial change in the serial. How to identify substantial change in a serial has not been addressed in the literature.

Method

Conceptual Framework

The purpose of the study was to develop a means for identifying significant subject and function changes in serials with
title changes and then to recommend changes in cataloging rules for recognizing new serial works. The research was descriptive and exploratory. The RDA definitions of a work and of a serial were used. Thus, a serial was defined as “a resource issued in successive parts, usually bearing numbering, that has no predetermined conclusion (e.g., a periodical, a monographic series, a newspaper).” A work, as previously noted, was defined as “a distinct intellectual or artistic creation (i.e., the intellectual or artistic content).” This definition corresponds with the definition used in the FRBR model that forms the conceptual basis for the RDA rules. A subject change was defined as “a change in the serial’s topical content” (e.g., a change from zoology to biology). A function change, in turn, was defined as “a change in the serial’s character or purpose” (e.g., a change from a bulletin to a journal).

The goal of developing a means for identifying significant subject and function changes in serials with title changes was achieved by seeking answers to three questions:

- First, what are the broad subcategories into which subject and function changes in serials with title changes can be divided? It was assumed that the subcategories would provide a broad grouping of the kinds of changes that occur in serials with title changes. The subcategories could then be evaluated in the subsequent step.
- Second, what level of evidence is provided by each subcategory of subject and function change in recognizing a new serial work? It was expected that the assignment of a level to each subcategory would enable one to know how the changes represented by the subcategory would contribute to the recognition of a new work, with higher level changes contributing most. This information would provide a tool that could be used in the next step.
- Third, which of the subcategories, or combinations of subcategories, of subject and function change would provide evidence of a significant change, needed to recognize a new serial work? It was anticipated that the information gathered above could be used to develop various approaches for recognizing new works. An assumption was made that the approaches for identifying new works must be practical and cost effective, due to limited cataloging budgets.

In summary, the research questions were:

- What are the broad subcategories into which subject and function changes in serials with title changes can be divided?
- What level of evidence is provided by each subcategory of subject and function change in recognizing a new serial work?
- Which of the subcategories, or combinations of subcategories, of subject and function change provide evidence of a significant change, needed to recognize a new serial work?

Sample

The sample used in the study was from the author’s previous study of serials with title changes mentioned above. This sample was chosen so the current study could enlarge on the recommendations made in the previous study. The sample was taken from JSTOR—short for Journal Storage (www.jstor.org)—an online database archive of full-text digitized back issues of academic journals, including various kinds of serials, such as bulletins, reviews, annuals, newsletters, yearbooks, and proceedings. Four JSTOR collections were included in the sample: Arts and Sciences I, Arts and Sciences II, Arts and Sciences III, and Life Sciences. These collections covered a variety of disciplines, including the humanities, social sciences, language, literature, and life sciences. Non-English serials were excluded, as were serials consisting of splits or mergers, since the latter were already considered to be different works and did not require further analysis. Serials for which no explanation of the title change was found in the text were also excluded, leaving 120 serials.

In the current study, only the serials in which a subject or function change occurred, relevant to the title change, were considered. This caused twenty-three serials to be excluded, leaving ninety-seven serials in the final sample. The majority of the resulting serials were from the 1900s. A list of the serials is found in appendix A, by the title to which the serial was changed. Due to the nature of the sample, with a focus on academic serials, there may be limitations in generalizing the findings.

Procedure for Identifying Subject and Function Subcategories

The first research question was (A): What are the broad subcategories into which subject and function changes in serials with title changes can be divided? To answer this question, the descriptions of why titles change, identified in the previous study, were used. These descriptions were derived from statements occurring in the text of the serials. For example, the reason for a title change might have been due to a broadening of the subject content (e.g., from zoology to biology), or a change in function (e.g., from a newsletter to a journal). Some descriptions were reworded to create consistency for better grouping of the descriptions. Only the 179 descriptions relating to subject and function changes were examined. The following steps were performed:

1. Identified subject subcategories

...
Created a list of all descriptions pertaining to subject changes in the serials
- Grouped the descriptions into subcategories based on the wording and intent of the descriptions (see appendix B)

2. Identified function subcategories
- Created a list of all descriptions pertaining to function changes in the serials
- Grouped the descriptions into subcategories based on the wording and intent of the descriptions (see appendix C)

In the initial attempt to develop subcategories for the subject and function changes, broad groupings were created, consisting of eight to ten subcategories of subject changes and eight to ten subcategories of function changes. The wording of the descriptions was used as much as possible to create the groupings. The resulting subcategories were later subdivided further so finer distinctions could be made, allowing greater flexibility for the evaluation of the subcategories in the following step.

Some descriptions did not group well with other descriptions. New subcategories were created for some of these unique descriptions, if the descriptions were different enough to warrant separate subcategories. Other unique descriptions were grouped with descriptions that seemed to represent a similar intent. The remaining unique descriptions were placed in a miscellaneous subcategory, along with a few general descriptions that described “new” or “additional” features. If a description referred to more than one type of change, the description was assigned to the subcategory corresponding with the first change mentioned, unless a subsequently described change was more specific.

Procedure for Assigning Levels to the Subcategories

The second research question was (B): What level of evidence is provided by each subcategory of subject and function change in recognizing a new serial work? To answer this question, the subcategories were classified according to the expected value of the changes in identifying a new work. The following steps were performed:

1. Assigned a level to each subject subcategory
   - Developed guidelines for assigning levels to the subject subcategories:
     - High-level: (1) changed overall content of the serial
     - Medium-level: (1) added or deleted certain subjects, (2) changed overall emphasis or focus, (3) increased/decreased emphasis on certain subject(s), or (4) brought title into harmony with the content of the serial
     - Low-level: (1) brought title into harmony with the stated scope of the serial
   - Assigned a level to each subject subcategory, along with a code (e.g., S1.1 for high, S2.1 for medium, S3.1 for low)
   - Entered a code for each description associated with each serial in appendix A (column 3)
2. Assigned a level to each function subcategory
   - Developed guidelines for assigning levels to the function subcategories:
     - High-level: (1) changed overall function of the serial
     - Medium-level: (1) added or deleted certain types of articles, (2) increased/decreased emphasis on certain types of articles, or (3) brought title into harmony with the types of articles published in the serial
     - Low-level: (1) added, deleted, or changed sections or features in the serial
   - Assigned a level to each function subcategory, along with a code (e.g., U1.1 for high, U2.1 for medium, U3.1 for low)
   - Entered a code for each description associated with each serial in appendix A (column 3)
3. Assigned a primary level to each serial
   - Assigned a primary level (high, medium, or low) to each serial, based on the highest level subcategory associated with the serial
   - Recorded a term (high, medium, or low) for the primary level assigned to each serial in appendix A (column 4)

The FRBR guidelines for modified works, requiring a significant degree of change to recognize a new work, provided the basis for assigning the levels to the subcategories. The guidelines, developed by an IFLA Study Group on the Functional Requirements for Bibliographic Records, state: “By contrast, when the modification of a work involves a significant degree of independent intellectual or artistic effort, the result is viewed, for the purpose of this study, as a new work.” Though the guidelines were not intended specifically for serials, the idea that significant effort or change must occur to recognize a new work was assumed to apply to any resource that has undergone change.

The task was to determine the kinds of subject and function changes that would be significant versus those that would not be significant. Five levels were used initially, but this proved to be too specific, so three levels were used, which seemed sufficient to distinguish the subcategories. It was envisioned that the high-level subcategories would represent major changes, the medium-level subcategories would represent moderate changes, and the low-level subcategories would represent minor changes.
Procedure for Recognizing New Works

The third research question was (C): Which of the subcategories, or combinations of subcategories, of subject and function change provide evidence of a significant change, needed to recognize a new serial work? To answer this question, three approaches were developed, using the sampled serials to test each approach. The primary approach consisted of identifying serials with high-level subject or function changes. If a high-level change did not occur, two alternate approaches were tried, involving the identification of serials with medium-level subject or function changes. The steps taken with each approach are described below.

1. Primary approach: Identified high-level subject and function changes
   - Identified all serials in appendix A (column 4) for which a high-level subject or function change occurred
   - Determined the total number of serials for which a high-level change occurred

2. Alternate approach (1): Identified multiple medium-level subject or function changes
   - Identified all serials in appendix A (column 3) that had multiple medium-level subject or function changes and no high-level change
   - Developed tests to determine which serials with multiple medium-level changes were potentially new works

3. Alternate approach (2): Identified successive medium-level subject or function changes
   - Identified all serials in appendix A that had a succeeding title change
   - Identified the serial sets that met the following conditions: (1) neither of the serials in the set had a high-level change or multiple medium-level changes, and (2) each serial in the set had a single medium-level change
   - Developed tests to determine which serials with successive title changes were potentially new works

It was assumed that the identification of high-level changes, in the primary approach above, would provide sufficient evidence for a new work, with no further testing required. However, for the alternate approaches, which used medium-level changes as evidence, a means was needed to determine whether the combined changes could be considered significant. Two tests were developed to evaluate these changes. The first test required three medium-level subject or function changes to occur, in any combination. The second test required two prioritized medium-level subject or function changes to occur. A list was created of medium-level subcategories representing prioritized changes, including four subject subcategories and four function subcategories. An attempt was made in creating the list to identify the subcategories that represented the greatest amount of change. The list was intended as a preliminary list, with modifications anticipated as the procedure was implemented and evaluated. The subcategories were the following:

- S2.2—Broadened content to include other subjects
- S2.5—Changed overall emphasis or focus
- S2.7—Narrowed content
- S2.9—Brought title into harmony with content of serial
- U2.9—Increased emphasis on original, scientific, or conceptual articles
- U2.10—Increased emphasis on the peer review process
- U2.11—Narrowed the article selection policy
- U2.13—Brought title into harmony with types of articles published

Results

The findings from the study are reported here, relevant to the three tasks that were performed: (A) identifying subcategories, (B) assigning levels to the subcategories, and (C) developing procedures for recognizing new serial works.

Identifying Subcategories

The 179 descriptions of subject and function changes associated with the ninety-seven serials in the sample were grouped into thirty-five subcategories. The grouping resulted in the creation of thirteen subcategories pertaining to subject changes and twenty-two subcategories relating to function changes. The subject subcategories are listed in appendix B, along with descriptions of the associated subject changes, and the function subcategories and descriptions are listed in appendix C. There were eighty descriptions of subject changes in the sample and ninety-nine descriptions of function changes.

Assigning Levels to the Subcategories

Each subject and function subcategory identified above was assigned to one of three levels: high, medium, or low. Table 1 lists the subject subcategories assigned to each of the three levels, with table 2 listing the function subcategories assigned to each level. The eighty descriptions of subject changes were assigned as follows: twenty-one descriptions were assigned to a high-level subcategory, fifty-four to a medium-level subcategory, and five to a low-level subcategory. The ninety-nine descriptions of function changes were...
assigned as follows: seventeen descriptions were assigned to a high-level subcategory, forty-five to a medium-level subcategory, and thirty-seven to a low-level subcategory.

A primary level was assigned to each serial, based on the highest level subject or function subcategory associated with the serial. Over a third of the serials (36.1 percent) were classed with a primary level for a high-level change, over half (57.7 percent) with a primary level designating a medium-level change, and less than a tenth (6.2 percent) with a primary level for a low-level change.

Developing Procedures for Recognizing New Serial Works

The findings from the foregoing tasks were used to develop procedures for recognizing new serial works. Three approaches were developed, including a primary approach and two alternate approaches. The serials in the sample were used to test each approach, with the results from the testing described below.

The primary approach for recognizing a new serial work consisted of identifying a high-level subject or function change in the serial. Tables 1 and 2 contain respective displays of the high-level subcategories of subject and function changes found in the study. The descriptions associated with each subcategory are listed in the appendixes, with appendix B providing descriptions of the high-level subject changes and appendix C providing descriptions of the high-level function changes. The ninety-seven serials in the sample had thirty-five changes falling into a high-level subject or function subcategory, not counting three duplicate changes. Two serials (no. 85 and no. 95) had subject changes falling into two different subcategories. Also, one serial (no. 1) had both a high-level subject change and a high-level function change. When excluding the duplicate subject changes, about half of the high-level changes (nineteen) were subject changes, and the other half (seventeen) were function changes. Close to a third (29.2 percent) of the 120 serials in the original sample, from which the current sample was taken, were identified as new works using the foregoing approach.

The first alternate approach that was tried for identifying new works considered the evidence provided by multiple medium-level changes in the serials. Only those serials were examined that were not already identified with a high-level change. Of the sixty-two serials not identified with a high-level change, seventeen had multiple medium-level changes. A total of forty-four medium-level changes occurred in the seventeen serials, including nineteen function changes and twenty-five subject changes. For close to two-thirds of the serials (eleven), two medium-level changes occurred, and for close to one-fourth of the serials (four), three medium-level changes occurred. The remaining two serials had four or six medium-level changes each.

To evaluate this approach, two tests were developed to set limits on the combination of medium-level changes that would qualify a serial as a new work. The results from applying Test 1, requiring three medium-level subject or function changes to occur, are found in table 3. This test resulted in six of the seventeen serials qualifying as new works. The results from applying Test 2, requiring two prioritized medium-level subject of function changes to occur, are reported in table 4. This test resulted in three of the seventeen serials qualifying as new works. More new works were thus identified with the first test. The new works identified with each test were different, except for one serial (no. 112) which qualified under both tests.

The second alternate approach used to identify new works considered the evidence provided by cumulative change in serials that had a succeeding title change. The
sample included nine sets of serials with a succeeding title change, with each set consisting of two title changes. The goal was to identify any set for which new works had not already been identified with the previous approaches. The sets are listed in table 5. Two sets were eliminated due to a high-level change occurring in one or both of the serials in the set. Three additional sets were eliminated because at least one of the serials had multiple medium-level changes. In the one remaining set (set 6), there was a single medium-level change in each of the serials comprising the set.

To evaluate this approach for its value in identifying new works, Test 2, above, requiring two prioritized changes to occur, was used. Test 1, requiring three medium-level changes to occur, could not be used since only two changes occurred in the set. When applying Test 2, both of the changes that occurred qualified as prioritized changes, as follows:

S2.2—Broadened the scope of the Federation and the Journal to cover all waste control problems, including more space given to industrial waste papers in relation to papers on municipal sewage works problems (no. 114)
S2.2—Broadened responsibility of the Federation and the Journal to cover water pollution control (no. 113)

Summary of Results

A summary of the results when applying the three approaches to recognize new works is provided in table 6. The primary approach, using only high-level subject or function changes to recognize a new work, resulted in thirty-five new works being identified in the ninety-seven serials examined. When also using the two alternate approaches, the number of new works potentially identified increased. The first alternate approach, requiring multiple medium-level changes to occur, resulted in either four or seven additional new works being identified, depending on which limiting procedure was used. The second alternate approach, requiring cumulative medium-level changes to occur over a range of title changes, resulted in one additional new work being identified. If using all three approaches, a maximum of forty-two of the ninety-seven serials were potentially identified as new works. When considering the original sample of 120 serials, the percent of serials potentially identified as new works using the primary approach was 29.2 percent (35/120), and when using the two alternate approaches the percent increased to a maximum of 35.0 percent (42/120).

Discussion of Findings

This study was different from previous studies of serials with title changes in that the focus was on subject and function changes, rather than on the full array of changes that might
### Table 3. Medium-Level Changes: Minimum of Three

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Codes</th>
<th>Descriptions of Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>U2.1</td>
<td>Began publishing an authoritative article each month on a problem confronting the Institute</td>
</tr>
<tr>
<td></td>
<td>U2.2</td>
<td>Began publishing opinion translations on issues between East and West</td>
</tr>
<tr>
<td></td>
<td>U2.3</td>
<td>Began including presentations of conference problems and plans</td>
</tr>
<tr>
<td></td>
<td>U2.8</td>
<td>Began including more comprehensive and valuable materials, but still within the realm of a news bulletin</td>
</tr>
<tr>
<td>25</td>
<td>S2.6</td>
<td>Increased emphasis on American archaeology</td>
</tr>
<tr>
<td></td>
<td>U2.6</td>
<td>Began publishing various reports, including annual reports, of the Institute and the School at Athens</td>
</tr>
<tr>
<td></td>
<td>U2.9</td>
<td>Began publishing more scientific papers</td>
</tr>
<tr>
<td>39</td>
<td>S2.4</td>
<td>Changed content to resonate with the far-reaching transformations taking place in the Americas</td>
</tr>
<tr>
<td></td>
<td>S2.5</td>
<td>Began promoting a reexamination of prevailing social science theory and concepts about Latin America and the Caribbean</td>
</tr>
<tr>
<td></td>
<td>S2.6</td>
<td>Increased emphasis on interdisciplinary studies, including comparative, cross-regional perspectives</td>
</tr>
<tr>
<td>59</td>
<td>S2.1</td>
<td>Began covering the cognate sciences</td>
</tr>
<tr>
<td></td>
<td>S2.4</td>
<td>Broadened content to match the enlarged scope that the term Folklore has reached and the enlarged [non-folklorist] readership that is anticipated</td>
</tr>
<tr>
<td></td>
<td>U2.6</td>
<td>Began including special reports on recent research in the cognate sciences [as related to folklore]</td>
</tr>
<tr>
<td>103</td>
<td>S2.4</td>
<td>Changed focus to reflect today's occupational and environmental health problems</td>
</tr>
<tr>
<td></td>
<td>S2.6</td>
<td>Increased emphasis on environmental medicine</td>
</tr>
<tr>
<td></td>
<td>U2.8</td>
<td>Expanded the educational function of the journal to include articles on issues of current importance, as well as methodological papers</td>
</tr>
<tr>
<td>112</td>
<td>S2.2</td>
<td>Expanded coverage to include research on hazardous wastes, groundwater contamination, waste minimization, and environmental risk and health</td>
</tr>
<tr>
<td></td>
<td>U2.4</td>
<td>Added an annual literature review issue</td>
</tr>
<tr>
<td></td>
<td>U2.4</td>
<td>Began including State-of-the-art reviews of scientific and technological issues</td>
</tr>
<tr>
<td></td>
<td>U2.7</td>
<td>Began including four types of papers: (1) RESEARCH PAPERS, (2) RESEARCH NOTES, (3) DISCUSSIONS, and (4) DISCUSSION CLOSURES</td>
</tr>
<tr>
<td></td>
<td>U2.10</td>
<td>Began enhancing the rigor of the manuscript review process</td>
</tr>
</tbody>
</table>

### Table 4. Medium-Level Changes (Prioritized): Minimum of Two

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Codes</th>
<th>Descriptions of Change (Prioritized)</th>
</tr>
</thead>
<tbody>
<tr>
<td>52</td>
<td>S2.2</td>
<td>Broadened content to include art education (providing information, presenting theories and criticisms, announcing opportunities and resources, and promoting discussion relating to art education)</td>
</tr>
<tr>
<td></td>
<td>S2.2</td>
<td>Broadened discussion beyond problems concerning the history of art [a major purpose of journal is discussion]</td>
</tr>
<tr>
<td>66</td>
<td>U2.9</td>
<td>Increased preference for original contributions on treatment and research in all branches of the theory and practice of the conservation of cultural property, as well as contributions in art history and science</td>
</tr>
<tr>
<td></td>
<td>U2.10</td>
<td>Increased emphasis on the peer review process by excluding preprint volumes as published volumes of the journal</td>
</tr>
<tr>
<td>112</td>
<td>S2.2</td>
<td>Expanded coverage to include research on hazardous wastes, groundwater contamination, waste minimization, and environmental risk and health</td>
</tr>
<tr>
<td></td>
<td>U2.10</td>
<td>Began enhancing the rigor of the manuscript review process</td>
</tr>
<tr>
<td></td>
<td>U2.10</td>
<td>Placed manuscript acceptance decisions under the control of a Board of Editorial Review, to enhance the stature of the Journal in all water quality areas</td>
</tr>
</tbody>
</table>
occur when a title changes. Thus no comparison of findings can be made with previous studies. The limitations of the study are discussed below, including comments about potential bias and to what extent the findings can be generalized. Issues involved in using the findings to recognize new serial works are also discussed.

There was potential bias in the way the descriptions were grouped into subcategories, despite relying on common word usage in the grouping, since some descriptions could not be readily grouped based on word usage. By expanding the number of subcategories, the problem was lessened, with fewer descriptions requiring special handling. There was also potential bias in assigning levels to the subcategories. For example, the subcategory “Broadened geographic coverage” might have been classed as a medium-level change rather than a high-level change. Likewise, some subcategories assigned as medium-level subcategories could possibly have been classed as high-level subcategories, for example: “Narrowed content,” “Narrowed the article selection policy,” and “Increased emphasis on original, scientific, or conceptual articles.” The assignment of levels to the subcategories was preliminary and not a final determination of how the various subcategories should be treated.

The findings from the study can be generalized to academic serials, from which the sample was drawn. The findings should also have relevance to other types of serials, though the thirty-five subcategories identified in the study may not be as comprehensive as needed to categorize the full range of changes that might occur in a collection of both academic and nonacademic serials. A study of nonacademic serials is needed to determine whether additional subcategories would be needed for these serials.

Various approaches might have been taken in developing the procedures for recognizing new works. The three approaches chosen seemed logical in light of the data available and the need to be practical. The primary approach, requiring the occurrence of a high-level change in the serial, was the preferred approach. Whether one would also use alternate approaches would depend on how broadly or narrowly the concept of significant change is interpreted. With a narrow interpretation, only the primary approach would be appropriate. With a broader interpretation, the alternate approaches might also be used. These decisions would have to be made by the serials community. The pros and cons of each approach are discussed below.

The primary approach required a high-level subject or function change to occur. Pros and cons of this approach include the following:

- Pros: This would be the most reliable approach for identifying new serial works, since only a major change would qualify a serial as a new work. It was also expected to be the easiest to apply, since one would look for only a few types of changes in the serial, falling within the four high-level subject or func-

### Table 5. Successive Medium-Level Changes

<table>
<thead>
<tr>
<th>Set No.</th>
<th>Sample No.</th>
<th>Subcategory Codes</th>
<th>Primary Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>34</td>
<td>U1.2 U3.8</td>
<td>high</td>
</tr>
<tr>
<td>33</td>
<td>U1.2</td>
<td></td>
<td>high</td>
</tr>
<tr>
<td>2</td>
<td>40</td>
<td>S1.3</td>
<td>high</td>
</tr>
<tr>
<td>39</td>
<td>S2.4 S2.5</td>
<td>medium</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>64</td>
<td>S2.6 S3.1</td>
<td>medium</td>
</tr>
<tr>
<td>63</td>
<td>S2.6 S2.9</td>
<td>medium</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>71</td>
<td>S2.3 S2.6</td>
<td>medium</td>
</tr>
<tr>
<td>70</td>
<td>S2.5</td>
<td></td>
<td>medium</td>
</tr>
<tr>
<td>5</td>
<td>97</td>
<td>U1.2</td>
<td>high</td>
</tr>
<tr>
<td>96</td>
<td>S2.1 S3.1 U3.8</td>
<td></td>
<td>medium</td>
</tr>
<tr>
<td>6</td>
<td>114</td>
<td>S2.2</td>
<td>medium</td>
</tr>
<tr>
<td>113</td>
<td>S2.2</td>
<td></td>
<td>medium</td>
</tr>
<tr>
<td>7</td>
<td>113</td>
<td>S2.2</td>
<td>medium</td>
</tr>
<tr>
<td>112</td>
<td>S2.2 U2.4 U2.7 U2.10</td>
<td></td>
<td>medium</td>
</tr>
<tr>
<td>8</td>
<td>118</td>
<td>U1.2</td>
<td>high</td>
</tr>
<tr>
<td>117</td>
<td>U1.2</td>
<td></td>
<td>high</td>
</tr>
<tr>
<td>9</td>
<td>117</td>
<td>U1.2</td>
<td>high</td>
</tr>
<tr>
<td>116</td>
<td>S3.1 U3.7</td>
<td>low</td>
<td></td>
</tr>
</tbody>
</table>

### Table 6. Approaches for Identifying New Serial Works

<table>
<thead>
<tr>
<th>Approach</th>
<th>Changes Required by the Approach</th>
<th>New Works Identified ((N = 120))^*</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary approach</td>
<td>One high-level change</td>
<td>35</td>
<td>29.2</td>
</tr>
<tr>
<td>Alternate approach (1a)</td>
<td>Three medium-level changes</td>
<td>6 (a)</td>
<td>5.0 (a)</td>
</tr>
<tr>
<td>Alternate approach (1b)</td>
<td>Two medium-level changes (prioritized)</td>
<td>3 (b)</td>
<td>2.5 (b)</td>
</tr>
<tr>
<td>Alternate approach (2)</td>
<td>Two medium-level changes (succeeding, prioritized)</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>42 (a)</td>
<td>35.0 (a)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>39 (b)</td>
<td>32.5 (b)</td>
</tr>
</tbody>
</table>

* “N” represents the number of serials in the original sample from which the current sample was taken.
tion subcategories.

- Cons: The effectiveness of this approach would depend on how accurately the high-level subcategories have been identified.

The first alternate approach required multiple medium-level subject or function changes to occur. Some pros and cons of this approach would be the following:

- Pros: This approach would provide a way to potentially identify more new works than if just the primary approach were used.
- Cons: This approach may yield incorrect results, since a combination of moderate changes may not be sufficient to determine that a significant change has occurred. The limiting procedures may incorrectly determine that substantial change has occurred. The time required to look for the many kinds of medium-level changes in the serials and then apply the limiting procedures would also have to be considered.

The second alternate approach required successive medium-level subject or function changes to occur. Some pros and cons of this approach would be the following:

- Pros: This approach would provide a way to potentially identify more new works than if just the primary approach and the first alternate approach were used. A possible advantage of this approach over the previous alternate approach would be that more change may occur over a span of title changes than one might find in a single title change. In the one example found in the sample, there seemed to be a progression of change from one title change to the next.
- Cons: This approach may yield incorrect results, since the combination of changes may not be sufficient to be considered significant. The limiting procedures may, as above, incorrectly determine that substantial change has occurred. One would also have to consider whether a new work should be identified over a range of title changes, as well as the need to keep track of changes occurring over multiple title changes. Since only one potential new work was identified in the sample, this approach may not be worth considering, though in a larger sample more new works might have been recognized.

In summary, each of the three approaches for identifying new works has advantages and disadvantages. The primary approach, requiring high-level changes to occur, would be the most straightforward to apply and would yield the best results. The two alternate approaches, using medium-level changes, would require time to look for the various kinds of changes in the serials and then to apply the limiting procedures. This may not be practical in a cataloging environment. One would also have to consider how strictly to interpret the concept of significant change in serials and whether the goal should be to limit the number of new works identified or to expand the number. These issues will require discussion by the serials community.

### Recommendations

The purpose of the study was to develop a means for identifying significant subject and function changes in serials with title changes and then to recommend changes in cataloging rules for recognizing new serial works. A previous study recommended that a new work should be recognized only when a significant subject or function change has occurred. The current study enlarges upon this by providing a way to determine when a significant change has occurred.

Since the study showed that high-level subject and function changes provide the best evidence for significant change in serials with title changes, it is recommended that the four high-level subject and function changes identified in the study be used to recognize new works. Whether multiple medium-level changes should also be treated as significant was not conclusively determined in the study. It is recommended that the serials community evaluate the study’s findings concerning both the high-level changes and the medium-level changes to determine whether broadening or narrowing of the assigned levels should be made and whether multiple medium-level changes should be considered as evidence for a significant change. Pending these discussions, a narrow interpretation of significant change is assumed in the recommendations that follow.

The recommendations that follow are specific to cataloging rules based on FRBR concepts, in particular the RDA rules, since the study used FRBR guidelines in the development of the procedures. The recommendations will have most relevance to academic serials, due to limitations in the sample, but the recommendations are broad enough to also have potential application to nonacademic serials. The recommendations are, moreover, specific to serials with title changes and do not cover serials with other types of changes, such as a change in responsibility.

Given the above limitations, it is recommended that the RDA rules for creating new access points for serials with title changes be modified to incorporate the changes described below. In particular, the following rules should be changed: RDA rule 6.1.3.2.2, titled “Major change in the title proper,” along with RDA rule 2.3.2.13, titled “Major and minor changes in the title proper of serials.” The elements that should be incorporated include the following:

- Cons: This approach may yield incorrect results, since a combination of moderate changes may not be sufficient to determine that a significant change has occurred. The limiting procedures may incorrectly determine that substantial change has occurred. The time required to look for the many kinds of medium-level changes in the serials and then apply the limiting procedures would also have to be considered.

- Pros: This approach would provide a way to potentially identify more new works than if just the primary approach were used. The limitations procedures may be insufficient to determine that substantial change has occurred. The time required to look for the many kinds of medium-level changes in the serials and then apply the limiting procedures would also have to be considered.

- Cons: This approach may yield incorrect results, since a combination of moderate changes may not be sufficient to determine that a significant change has occurred. The limiting procedures may incorrectly determine that substantial change has occurred. The time required to look for the many kinds of medium-level changes in the serials and then apply the limiting procedures would also have to be considered.

In summary, each of the three approaches for identifying new works has advantages and disadvantages. The primary approach, requiring high-level changes to occur, would be the most straightforward to apply and would yield the best results. The two alternate approaches, using medium-level changes, would require time to look for the various kinds of changes in the serials and then to apply the limiting procedures. This may not be practical in a cataloging environment. One would also have to consider how strictly to interpret the concept of significant change in serials and whether the goal should be to limit the number of new works identified or to expand the number. These issues will require discussion by the serials community.
1. Determine the reason for the title change by using one of the following sources of information, in the following order:
   - An explanation provided in the first issue of the serial with the new title (or a subsequent issue, if needed)
   - An explanation provided by the publisher, editor, or sponsoring agency of the serial
   - An explanation from another external source explaining why the title changed
   - Words in the title

2. Create a new access point for a work when the reason for the title change meets one of the following conditions:
   - There has been a significant change in the subject content of the serial, as evidenced by a change in one of the following subcategories: (1) changed overall subject content, (2) broadened content to a more inclusive field(s) of study, or (3) broadened geographic coverage (see appendix B for examples).
   - There has been a significant change in the function of the serial, as evidenced by a change in the following subcategory: (1) changed overall function of serial (see appendix C for examples).

**Conclusion and Further Research**

The object of the study was to propose RDA cataloging rule changes for serials with title changes. Preliminary recommendations are made, pending additional research and testing. Some of the areas in which additional study is needed are described here.

The primary area in which additional research should be undertaken is with regard to title changes in nonacademic serials. It would be useful to collect information paralleling what was found for academic serials, including the identification of the subcategories of subject and function changes that occur in nonacademic serials with title changes. These findings could be used to broaden the recommendations in the current study to apply to both academic and nonacademic serials.

There is a further need to seek input from the serials community on the recommended rule changes, especially concerning the dividing point between a medium-level change and a high-level change. The community should also consider whether multiple medium-level changes would provide sufficient evidence for identifying a new work or if only high-level changes should be considered.

The proposed rule changes should be tested in a cataloging environment. Testing would help to determine whether the rule changes are practical for a working environment and where clarification is needed. There is also a need to determine the practicality of seeking input from publishers, editors, and sponsoring agencies when the reason for a title change is not found in the serial itself. It would be helpful to know the time required to contact publishers and others, as well as the success rate in obtaining the needed information.

The recommendations made in the study provide a strong foundation for improving the RDA cataloging rules. The additional research and testing proposed here could be used to refine the recommendations further and ensure that the suggested changes will work well in today's cataloging environment.

**References**

5. RDA, rules 1.6.2 and 6.1.3.2.
7. IFLA Study Group, Functional Requirements for Bibliographic Records, 17.

(continued on page 184)


17. Adams and Santamauro, “Successive Entry, Latest Entry, or None of the Above?” 197.


25. Adams and Santamauro, “Successive Entry, Latest Entry, or None of the Above?” 197.

26. RDA, glossary.

27. Ibid.

28. IFLA Study Group, Functional Requirements for Bibliographic Records, 13, 17.

29. Ibid., 18.

30. RDA, rule 6.1.3.2.2 and rule 2.3.2.13.
Notes on Operations

The Vermont Digital Newspaper Project and the National Digital Newspaper Program

Cooperative Efforts in Long-Term Digital Newspaper Access and Preservation

Thomas McMurdo and Birdie MacLennan

The Vermont Digital Newspaper Project (VTDNP) is a state partner in the National Digital Newspaper Program (NDNP). Developed by the National Endowment for the Humanities (NEH) and the Library of Congress (LC), the NDNP is a long-term, national effort to build a freely accessible, searchable Internet database of historical US newspapers. NEH provides funding to state projects to select and digitize historic newspapers published between 1836 and 1922. LC provides the technical support and framework for preservation digitization. Digitized newspapers are archived by LC and made freely available through the website Chronicling America: Historic American Newspapers. Vermont joined the NDNP in July 2010, when the University of Vermont Libraries were awarded NEH funding to embark collaboratively with state partners—including the Vermont Department of Libraries, the Ilsley Public Library of Middlebury, and the Vermont Historical Society—on the Vermont Digital Newspaper Project. Institutional partnerships and the engagement of committed individuals serve as a foundation to the VTDNP and provide an avenue to expand statewide infrastructures to accommodate large-scale microfilm-to-digital conversion and preservation efforts. Through collaboration and outreach, project partners select and digitize historical newspapers from microfilm and promote Chronicling America, a tool for discovery of these primary historical resources.

The National Digital Newspaper Program (NDNP) was launched in spring 2004 as a partnership between the National Endowment for the Humanities (NEH) and the Library of Congress (LC) with the goal of developing a unique digital resource to provide enhanced access to United States newspapers as primary resource materials for the study of American history and culture. Under the terms of the partnership, NEH awards funding to state projects to select and digitize historically significant newspapers published from 1836 to 1922, primarily by converting them from microfilm. The digitized titles are aggregated and permanently maintained by LC where they are freely and universally accessible on the Internet in a searchable database, Chronicling America: Historic American Newspapers (http://chroniclingamerica.loc.gov). The period from 1836 to 1922 was chosen to complement other digital newspaper resources that cover earlier periods of US history. Many newspapers published after 1923 are not in the public domain and therefore are not under consideration as candidates for inclusion.
in the NDNP.\(^2\) The NEH aims, over a twenty-year period, to have every state and US territory represented in Chronicling America.\(^3\)

Vermont joined a growing roster of states participating in the NDNP in July 2010 when NEH awarded the University of Vermont Libraries a two-year grant to embark collaboratively with partnering institutions\(^4\)—including the Vermont Department of Libraries, the Ilsley Public Library in Middlebury, and the Vermont Historical Society—in the Vermont Digital Newspaper Project (VTDNP). The project’s plan, consistent with NDNP guidelines,\(^5\) includes selecting, digitizing, and making available to LC approximately 100,000 pages of Vermont newspapers, published between 1836 and 1922, from the microfilm collections of the Vermont Department of Libraries and the University of Vermont. The project builds on work of the NEH-funded Vermont Newspaper Project which (http://library.uvm.edu/vtnp/vtnp.html), from 1997 to 2001, under the auspices of the United States Newspaper Program (USNP), identified, cataloged, and selectively microfilmed approximately 1,000 historical Vermont newspaper titles from 108 state repositories—including libraries, historical societies, museums, and court houses—to contribute nearly 3,000 unique local holdings records to the Cooperative Online Serials Program (CONSER) database in the Online Computer Library Center (OCLC).

This paper offers an overview of the USNP and the NDNP through the literature, and considers the issues, challenges, and benefits associated with developing support and infrastructure for a statewide preservation digital newspaper program. Methods for microfilm-to-digital conversion are explored and charted, specifically in relation to the technical requirements and production framework of the NDNP two-year grant cycle.\(^6\) The processes and procedures outlined in this article serve to inform colleagues at institutions that are considering ways to build collaborative, large-scale projects—notably around microfilm-to-digital conversion—as a means of giving new life and access to historical documents in the humanities, and preserving these documents in digital form for generations to come.

**Literature review**

The National Digital Newspaper Program (NDNP) builds on the work of the United States Newspaper Program (USNP),\(^7\) a cooperative national effort funded by NEH with technical assistance from LC. Over nearly three decades, from 1982 to 2010, NEH and LC worked with projects in all fifty states and US territories to locate, catalog, and selectively preserve on microfilm American newspapers from 1690 to the present.\(^8\) The USNP revealed the extent and variety of newspaper holdings in the United States and resulted in the creation of a national database of newspaper titles and holdings on OCLC.\(^9\) These records are central to identifying the selection of titles to be digitized under the NDNP. The widespread engagement and diverse collaborative partnerships of the NDNP over nearly three decades has resulted in a substantial body of literature.

Connell’s USNP Bibliography of Newspaper and Periodical (1983 to 1998) includes more than 200 citations that chronicle the diverse perspectives and experiences of USNP engagement at both the state and national levels.\(^10\) Robert Harriman, LC’s technical advisor to the USNP, provides background and context for the start-up of the USNP, including the focus on gaining bibliographic control of existing newspapers collections, the unique experiences of USNP participants working in the field to locate, catalog and inventory previously uncataloged newspaper collections, and the preservation challenges in working with fragile or disintegrating collections. He also discusses the adaptation of cataloging standards for newspaper bibliographic and holdings records in the CONSER/OCLC serials database.\(^11\) In a subsequent article, Harriman reviews the structure of cooperative relationships that formed the basis of the USNP and provided a framework for the expansion of the CONSER/USNP database to encompass newspapers using a “master record convention” permitting catalogers to create a single bibliographic record for the newspaper as published (i.e., newsprint) and to attach local data records reflecting institutional holdings for each format (i.e., print or microfilm) for which associated issues are held.\(^12\) The article also discusses efforts to inventory and evaluate existing microfilm for completeness and quality while recognizing the limitations of the USNP. For example, the structure and format of the local data (or holdings) record “prohibited the entry of any meaningful descriptive information . . . publication details about the microfilm producer and descriptive information necessary to determine film characteristics are not recorded.”\(^13\) Input of coded information to denote whether film is positive or negative, service copy or master, etc. has been optional, rather than required. Thus, “we are lacking information about the existence of preservation master negative film produced prior to [the USNP].”\(^14\)

Nonetheless, Harriman realized that “the [USNP] is being asked to serve both as a model for cooperative preservation programs and as a laboratory to test methods and procedures crucial to the success of such programs . . . the expected result . . . should be a solid foundation of bibliographic information about newspapers on which to build.”\(^15\)

Indeed, some twenty years later, in describing the start-up phase of the NDNP, Mark Sweeney acknowledges the distributed cataloging and
preservation microfilm work of the USNP and summarizes its accomplishments: “About $55 million in grants to institutions representing all fifty states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands resulted in the bibliographic description of over 140,000 newspaper titles and close to one million local holdings records. In addition, over sixty-five million newspaper pages were preserved on microfilm.”16 Sweeney goes on to describe the NDNP initiative, modeled on a cooperative, phased development approach (as was the USNP), in the creation of Chronicling America, “a freely available national digital resource,” which provides two different data sets to support use of newspapers: (1) a newspaper directory with descriptive records about American newspapers (from 1690 to the present) and where holdings are located, and (2) a growing collection of keyword searchable, digitally converted public domain newspaper pages selected and contributed by participating state projects.17

By the time funded activity under the USNP was completed in 2010, newspaper digitization initiatives in the US were a decade in the making. The Utah Digital Newspapers (UDN) Program emerged in 2001 when the University of Utah’s Marriott Library was awarded a Library Services and Technology (LSTA) grant “to research and demonstrate a newspaper digitization project.”18 By the end of 2002, the Marriott Library had digitized 30,000 pages from thirty years of three weekly Utah newspapers and launched the Utah Digital Newspapers website (http://digitalnewspapers.org). The success of this first grant led to subsequent funding from both the LSTA and the Institute for Museum and Library Services (IMLS), and the formulation of partnerships with other state sites, including Brigham Young University and Utah State University, for the cooperative development of a distributed, aggregated, statewide digital newspaper collection, universally accessible through the Internet. Arlitsch, Yapp, and Edge provide background and a detailed overview of early newspaper digitization efforts and the start-up history of the UDN Program.19 A subsequent article by Arlitsch and Herbert discusses equipment and procedural considerations for newspaper digitization from microfilm and paper—including an overview of Optical Character Recognition (OCR) technologies and assessment models in producing searchable full-text from digital images.20 Between 2002 and 2005, Utah’s pioneering efforts in newspaper digitization resulted in the availability of approximately 400,000 pages of searchable newspaper content served on the web to a global audience. In two successive articles published in 2008, Herbert and Estlund further discuss UDN progress and subsequent funding, including engagement with the NDNP, as well as ongoing considerations for scanning, article-level zoning, and OCR software.21

In 2005, one year after the NEH announcement of the formation of the NDNP, the Marriott Library at the University of Utah was awarded NEH funding, along with five other state institutions in California, Florida, Kentucky, New York, and Virginia, to launch the start-up of the NDNP.22

In May 2006, Utah hosted the annual conference of the Newspapers Section of the International Federation of Library Associations (IFLA), along with the annual meeting of the NDNP by LC and NEH.23 The proceedings of the conference, under the editorship of Hartmut Walravens, provide an international scope into newspaper digitization initiatives.24 NDNP perspectives figure prominently. Helen Aguëra of NEH, along with Mark Sweeney, Ray Murray, and George Schlukbier of LC, presented “The U.S. National Digital Newspaper Program—Thinking Ahead, Designing Now,” a four-part segment that documents respectively: (1) program development, (2) preservation planning, (3) technical specifications, and (4) repository development.25 Newspaper digitization outlooks from NDNP start-up participants in Utah, California and Kentucky are also included in the conference proceedings.26

As of 2012, there are thirty-two state projects participating in the NDNP, along with a cumulative body of literature that includes diverse perspectives on newspaper digitization, and user experiences that document the significance of universally accessible digitally archived newspapers on research and education. LC has made available a website of “Presentations and Publications,” including works by NDNP developers and implementers at NEH and LC.27 The NDNP “Extras” site showcases content in Chronicling America and provides examples of educational tutorials, search techniques, and teaching resources produced by state projects, as well as how some states are reusing digitized historic newspapers and associated metadata records in unique ways.28

Several state projects have published articles about newspaper digitization experiences. Terry’s 2009 article, “The Digitization of Historic Newspapers on Microfilm: The Kentucky Experience,”29 is an instructive, step-by-step description of the film-to-digital process at the University of Kentucky, home to Kentucky’s NDNP Project. Newspapers published between 1836 and 1922, the NDNP timeframe, are notoriously irregular, often changing names, publication days, and ownership without warning. Combine the ravages of time and idiosyncrasies of “prestandard” filming practices on vulnerable acetate negatives with publishing irregularities, and the problems associated with digitization are compounded. Terry’s article offers some practical ways to address these inconsistencies, emphasizing a clear and thorough process for collating the reels. Collation requires a
frame-by-frame inspection of every reel, recording issue dates, titles, and page order. Terry walks readers through this process.

The University of Kentucky has been a leader in providing instruction for prospective and existing NDNP state projects. Their Meta | Morphosis Film-to-Digital Institute, offered from 2006 to 2009, included two days of intensive instruction for film-to-digital conversion, giving new and potential NDNP participants the opportunity to see a full scale state program in action, and to discuss issues with experienced staff. As of this writing, Kentucky is retooling the Meta | Morphosis Institute for the online environment, developing a series of interactive tutorials and podcasts. The University of Kentucky has also produced an online video, featuring their in-house operations for newspaper digitization.

Robinson's 2010 article, “The Evolution of Newspaper Digitization at the Washington State Library” recounts the Library's two-year pilot project, from 2005 to 2007, to complete newspaper digitization in-house for approximately 11,000 pages of historical newspapers. Robinson's article provides insight into the issues and challenges facing institutions attempting to complete large-scale digitization projects in-house. Relatively few NDNP state projects choose to do in-house digitization. This is due to high start-up costs for equipment, the need for extra staff, and scanning expertise. Digitization vendors can often do the work faster than homegrown projects, and with virtually no upfront expense. Conversely, the advantages to doing digitization in-house are the ability to maintain control of digitization each step of the way, building expertise within one's organization, and, significantly, retaining purchased scanning equipment.

In 2007, the Washington State Library staff opted to outsource the scanning, metadata and OCR production as a means to increase efficiency and output. Robinson makes it plain that the experiences gleaned from the pilot enhanced the expertise and understanding of newspaper digitization processes at the Washington State Library and positioned them for an NEH award in 2008 to launch their participation in the NDNP.

The planning overview and preparation for developing an NDNP initiative in Illinois is described in Scott's 2008 article, “The Illinois Digital Newspaper Project.” Scott places the history of Illinois and the Illinois press in the context of the 1860–1922 timeframe of the 2009 NDNP grant cycle, and outlines a “plan of action.” The article is useful as a checklist for prospective projects, and provides readers with historical context for the significance of newspapers in documenting local experience of regional, national and international events.

NDNP guidelines and resources for digitization are available from LC. Technical Guidelines for Applicants provide a full overview of all requirements and deliverables for NDNP participants. It is “must reading” for those involved in, or considering embarking on, an NDNP project. Everything from selection guidelines, scanning and OCR specifications, and requirements for metadata, file structure and naming conventions is included, along with a comprehensive listing of associated resources.

Methodologies: the Vermont Experience

Preservation reformatting of newspapers on microfilm has been an active concern in Vermont for over fifty years. The Vermont Public Records Division (Public Records) filmed newspapers in conjunction with the Vermont Civil War Centennial Committee in the early 1960s. Public Records undertook a massive newspaper microfilming enterprise in the late 1970s that extended into the early 2000s. In 2008, Public Records was absorbed by the Vermont State Records and Archives (VSARA). The Vermont Department of Libraries, as the central state newspaper repository, in partnership with the VSARA, now holds a collection of several million pages of newspapers on master negative microfilm. Approximately 550,000 of these pages fit within the NDNP publication timeline of 1836–1922.

Vermont was the fifteenth and final state to join the United States Newspaper Program (USNP), doing so in 1997 as the Vermont Newspaper Project (VTNP), a collaborative endeavor between the University of Vermont and the Vermont Department of Libraries. VTNP staff conducted a statewide survey to identify existing state newspapers, and subsequently traveled throughout Vermont's fourteen counties to inventory, catalog and consolidate holdings for collections of newspapers, both in print and on microfilm. VTNP staff cataloged, according to CONSER standards, approximately 1,000 unique titles with nearly 3,000 holdings (or “ldr”—local data records) in 108 Vermont repositories. Catalog records and associated holdings data for each repository were added to the CONSER database on OCLC and also maintained in a local database. The VTNP initially produced a printed Union List of Vermont Newspapers that was distributed to all participating repository institutions. The database (http://vtnp.uvm.edu) was developed into an Ex Libris Voyager interface, and made freely available on the Internet.

The VTNP database, or “catalog,” as it is also designated, provides the framework for identifying titles for digitization. By generating reports from the catalog’s bibliographic and holdings data, it was possible to learn what newspapers were published from 1836 to 1922, the period under consideration by the NDNP. The holdings records reveal what issues survived and in what format(s) they were...
preserved (i.e., print and/or microfilm). The bibliographic data helps contextualize newspapers by indicating title changes, frequency, geographic locations, period of publication, and other newspapers that were competing within the given timeframe. Since NDNP state projects are limited to digitizing 100,000 pages per two-year grant cycle, this information is essential to developing title lists and page counts and to making informed selection decisions.

With NEH support, the USNP provided funds for microfilming newspapers. Some important collections and runs of issues were discovered during USNP canvassing that substantially contributed to the available microfilmed record of newspapers.

The USNP–Vermont Newspaper Project produced approximately 170,000 pages of film. While the VTNP uncovered a variety of newly identified titles, with runs of varying length that had not previously been filmed during the decades of preservation microfilming that preceded the advent of the USNP in Vermont, much of the filming effort focused on short runs or individual issues of titles that fill gaps in existing microfilm holdings. The VTNP also filmed several titles that were published after 1922 and are therefore outside the scope of the NDNP. As the Vermont Digital Newspaper Project (VTDNP) planning efforts began in 2009, we identified approximately 500 titles in the VTNP database on microfilm that were published between 1836 and 1922. While these titles formed the genesis of content from which to build a digital project, it would turn out that a relatively small proportion of titles to be selected for digitization under the VTDNP would come from USNP-produced microfilm. The establishment of partnerships and cooperative working agreements to build a statewide infrastructure in support of newspaper digitization would prove to be a critical element in developing the grant proposal, and essential to successful outcomes for Vermont engagement with the NDNP.

**Project Genesis and Organization**

From the moment that Vermont newspaper titles were made available online through OCLC’s WorldCat and through the VTNP online catalog, Vermont newspaper enthusiasts from around the country began to inquire if the full-text to these titles could also be found online. Before the advent of the NDNP, these users were referred to their local repository for retrieval of microfilm. The primary impetus for Vermont engagement with the NDNP began with Chris Kirby, Adult Services and Technology Librarian at the Ilsley Public Library in Middlebury. In the summer of 2009, Kirby researched NDNP requirements for film-to-digital conversion and prepared a draft grant proposal giving a procedural compass to the project. The initial draft proposal provided a framework for representatives from diverse state institutions to come together in the fall of 2009 to begin discussions to lay the groundwork for building statewide support and infrastructure to launch an NDNP initiative. Included in the discussions was an assessment of Vermont cultural organizations with digitization experiences that might lend support to a statewide newspaper digitization effort, including the University of Vermont’s Center for Digital Initiatives (CDI; http://cdi.uvm.edu), the digital collections of Middlebury College (http://middarchive.middlebury.edu), and the Online Digital Archive of the Vermont Folklife Center (www.vermontfolklifecenter.org/archive).

Formed in the context of these ongoing digitization efforts, the proposed Vermont Digital Newspaper Project would be the largest digital project to emerge in Vermont and, as such, was envisioned to foster collaboration with colleagues from around the state in a shared set of goals to further hone digitization skills in-state, while addressing public demand for universal access to a searchable, full-text Vermont newspaper archive for citizens, historians and researchers. The USNP–VTNP experience had provided a framework for cooperative working relationships between state institutions and formed the basis for renewed partnerships in developing the Vermont NDNP initiative. As discussions advanced in the fall of 2009, a cohesive planning group was formed with representatives from the University of Vermont, the Vermont Department of Libraries, the Ilsley Public Library in Middlebury, and the Vermont Historical Society, to further define staffing and budget needs for completing the grant proposal. The University of Vermont emerged as the lead/application institution and host site. The Vermont Department of Libraries, as the central newspaper repository for the state, engaged staff support for research and development, as well as a collaborative commitment to enable access to preservation microfilm for the project. The Ilsley Public Library engaged staff support for ongoing research, development, and outreach in the public library sector. The Vermont Historical Society offered support in an advisory and outreach capacity. When the project was awarded funding in July 2010, the planning group evolved into an implementation group, and ultimately, into a cooperative, inter-institutional, six-member project management group.

The first six months of operation focused on organization of infrastructure. The University of Vermont established communication protocols using Basecamp (http://basecamp.com) browser-based project management software for online collaboration. Basecamp has proved to be an effective platform that includes messaging, file-sharing, “to-do” lists, calendar functions, and other useful features for diverse partners collaborating in...
disparate geographical locations. Other start-up activities included: the formation of a search committee to hire a project librarian to oversee production and manage the day-to-day activities of the project; the establishment of work space, including the procurement of equipment for microfilm inspection (densitometer, microscope, light table) and for digital workflows (two Dell optiplex workstations, ScanPro2000 microfilm reader/printer, ten 1 TB hard drives and shipping cases). The project director also initiated a Request for Proposals (RFP) to solicit bids for NDNP-compliant digitization services, including OCR creation, and provision of related metadata.

With the organizational structure in place in January 2011, Tom McMurdo was hired as project librarian. His prior experience with the NDNP’s California Digital Newspaper Collec-
tion (http://cdnc.ucr.edu/cdnc) and the USNP’s California Newspaper Project (http://cnp.ucr.edu) translated well to the startup of digitization activities for the VTDNP.

Newspaper Selection Factors

The VTDNP title selection process consisted of three main factors. The first was the formation of an Advisory Committee of scholars, historians, journalists, teachers, librarians, and archivists. NDNP grant application guidelines stipulate the articulation of a plan to involve an advisory board in the selection process. The second was to refine the long and unwieldy alphabetical lists of approximately 500 titles published between 1836 and 1922 that the project planning group had identified and to confirm the availability of corresponding master microfilm negatives. Finally, once the titles on master negatives were ascertained and compiled into coherent title families arranged by county, the Advisory Committee would be engaged to review the list of titles and to rank them based on NDNP selection criteria. Titles for digitization would be selected based on compiled ranking results.

A provisional Advisory Committee was formed in the planning stages of the grant proposal. Once the VTDNP was funded, Advisory Committee members confirmed their commitment to the project and their engagement in the title selection process. Lorraine Lanius, on behalf of the Project Planning Group, led efforts to compile an Advisory Committee Briefing Book to provide general background information about the NDNP and the VTDNP to guide Advisory Committee members in the selection of newspapers to be digitized and to suggest other areas of engagement for committee members. Reference to a timeline of historical events in Vermont was also provided. An Advisory Committee “project” space was established on Basecamp in the fall of 2010 where the Project Management Group (previously the Planning Group) and Advisory Committee members could exchange correspondence and post documents.

During the planning phase of the VTDNP, an alphabetical list of more than 500 titles published between 1836 and 1922 available in microfilm format was generated from the VTNP database. The title list was subsequently sorted geographically by each of Vermont’s fourteen counties and further culled to identify significant titles with long runs in each of the counties. However, newspapers are serials and in the nineteenth and early twentieth century they often changed name, absorbed competing titles, and were themselves absorbed, or split into daily and weekly editions, often without warning or apparent reason. It soon became apparent that the alphabetical lists would be better classified as title families—composed of directly successive titles making up a newspaper “family.” By consulting geographical title lists developed by the Project Planning Group and bibliographic records in the VTNP catalog, with their corresponding preceding and succeeding titles (as identified in MARC record fields 780 and 785), the project librarian grouped logical title families together and, with further research, developed a unique list of fifty-seven title families, representing newspapers from Vermont’s fourteen counties.

The VTDNP endeavored to create a system whereby the advisors could rank titles in a manner consistent with the selection criteria outlined by the NDNP. With an estimate of approximately 550,000 pages of newspapers on master microfilm negatives identified within the scope of the grant, and a high level of public interest in project outcomes, it was important to have a clear, transparent process in place for selection of the 100,000 pages to be digitized. A clearly defined, quantifiable selection process was essential to anticipating public concerns. To accomplish this, the VTDNP developed a title ranking form modeled on a form produced by the Pennsylvania NDNP project in their selection process and distributed the form to the advisory committee with their briefing handbook.

The ranking form provides information in two sections: the “Title” area provides title and place of publication information, dates of publication and dates of available master negatives, and an estimated page count for those negatives. The “Ranking Criteria” section enables advisers to rank each title based on a scale of 1 through 5 (5 being the highest), as applied to three NDNP criteria: Research Value, Geographic Coverage, and Temporal Coverage. This ranking system yields a score between 3 and 15. Advisers can augment this ranking by adding a point if the title is a complete run, an orphan title, or expands the diversity of selections. “Complete run,” means that the negatives available are a full collection of the title and do not have significant gaps. “Orphan title” means
that the title has no direct descendent still in publication. “Diversity” means titles that may be of particular value to researchers because they are from either a significant minority community, or contain diverse or distinctive social or political perspectives. In Vermont, this includes abolitionist or antislavery newspapers, ethnic newspapers in Italian and French, and Democratic Party papers, in contrast to the dominant Whig and Republican titles in the mid- to late nineteenth century.

In April 2011, the University of Vermont hosted a day-long meeting where project planners and advisers met in person. Skype’s online conferencing capability was used to establish interactive connections with Advisory Committee members who could not be physically present. During this meeting, advisers familiarized themselves with project background and goals, as well as the selection process and ranking terminology, and came to a procedural understanding for ranking titles using the same rubric. The meeting also offered the occasion for lively group discussion of individual titles. The strength of the VTDNP Advisory Committee is that its members bring to the table a blend of diverse newspaper experiences and perspectives with strong regional and statewide knowledge of Vermont history. Meeting attendees came away with valuable insights into the newspaper publishing history in Vermont and appreciation for titles under consideration for digitization.

Due to the strict production timetable for deliverables defined by the grant cycle, the Project Management Group proposed three titles to the Advisory Committee to launch digitization: the Vermont Farmer, Rutland Herald, and Burlington Free Press. The Vermont Farmer was chosen as a start-up sample reel for its size and format on a compact reel and as a title that offers perspectives into agricultural practices and methods in northeast Vermont during the 1870s.45 The publisher was well known as an innovative plant breeder and horticulturist. The title is not solely an agricultural journal, as it also contains local news, obituaries, and advertisements, and is rightfully called a “newspaper.” The Burlington Free Press and Rutland Herald are well-known as the two longest-running and historically significant titles in the state. These titles were universally approved by the Advisory Committee.

With production underway for the three titles, Advisory Committee members selected and ranked additional titles over the course of the next month. Advisers with stronger regional knowledge tended to rank newspapers with which they were most familiar. Those with broad knowledge of historical Vermont newspapers tempered this regionalism by ranking titles that encompass a variety of geographical areas and times within the grant period. Overall, the Advisory Committee provided a well-balanced selection of newspapers. The project librarian subsequently compiled rankings. In June 2011, the Advisory Committee agreed on a list of twelve title families comprising thirty-seven unique bibliographic titles from ten of Vermont’s fourteen counties (see appendix).

### Digitization: Planning and Execution

**Planning**

The NDNP requires that state projects work with existing master negative microfilm collections as source material because they yield the highest quality digital images of newspapers. It is important to start with the
best available microfilm negative to achieve NDNP standards, which are intended as “best practices” for digital preservation. This requirement puts the charge on NDNP state projects to locate preservation microfilm negatives. Unlike public-use films, or service copies, of which there may be many, there is generally only one master negative, that is, the film that went through the camera at the time of filming. Subsequent generations of film of a given reel are derived from the negative. Availability and condition of master negatives for newspapers is often contingent on preservation archiving policies in a given state, and may vary.

Newspaper pages are to be scanned in 8-bit grayscale, as opposed to bi-tonal pure black or white, at 300–400 dpi. This 300–400 dpi is relative to bi-tonal pure black or white, at 300–400 dpi. This 300–400 dpi scan, enlarged to the size of the original newspaper would contain 300–400 dots per inch. For each newspaper page, the NDNP requires delivery of an uncompressed TIFF 6.0, and a JPEG2000 and PDF derived from the original TIFF. Also required is “structural metadata to relate pages to title, date, and edition, to sequence pages within issue or section and to identify associated image and OCR files.”

Submitted XML files at the reel, issue, and page level fit a delineated hierarchical structure that enables users to access newspapers by title, date, issue, and page. Attention to detail in the gathering of this data leads to accurate results for those searching newspapers.

OCR files with word-bounding boxes and columns at the page level are required for NDNP work. OCR files are XML-encoded representations of the text as interpreted by OCR software, such as ABBYY FineReader. This software interprets the scanned TIFF images to generate files of text. OCR text is the basis of keyword searching. When a user enters a keyword into a Chronicling America search, the results are derived from the OCR files. OCR text is located, word by word, to areas on the image, so that a keyword can be highlighted on the page. The quality of image scans directly impacts the accuracy of OCR interpretation, and therefore has a direct effect on the usability of the resource. A common problem with OCR interpretation of poorly scanned pages is letter “blocking.” A newspaper page that has shortcomings in the scan may cause certain letters to “block.” This is similar to when too much ink is applied on a hand pressed page, and all of the white space inside the formation of letters is filled in. In poor scans, the characters on a page may be eye-readable, but the OCR interpreter may not be able to discern the difference between an “a,” “c,” “e,” or “o,” for example. A human reading a page that has a relatively poor scan of the words “Ethan Allen” may be able to easily tell the letters, but a computer may very easily read the words as “Ethon Allon,” or a similar variant. A researcher looking for Ethan Allen would not receive a “hit” for this occurrence of the search terms. This is a primary factor in why it is important to use master negatives when scanning newspapers: the closer one can get to the original, the higher fidelity one will achieve in scanned images.

LC recognizes that many non-NDNP digitization projects will not fully implement the NDNP specifications, but it is fundamental to image quality to use master negatives for scanning. Some newspaper digitization projects, in both commercial and public sectors, do not always use master negatives, instead using at-hand positive service copies as the source material. Scanning from public-use positive reels yields mixed results. Such film often has scratch marks, tape repairs, and other kinds of damage from public use that decreases the quality of scans made from those reels. Any damage to the film will naturally be visible in the scans. While most libraries do an admirable job of maintaining their microfilm collections for public use, service microfilm is naturally subjected to conditions that are unfavorable for preservation. A large percentage of film still in use is acetate. Acetate is an early generation plastic used into the 1980s, when polyester-based film stock came into widespread use. Acetate microfilm is best stored in constant temperatures, ideally around 35 degrees Fahrenheit, with relative humidity below 30 percent. Acetate film stored in ideal conditions from the onset can go decades with little or no degradation. Polyester film is more resistant to unfavorable storage conditions, and its life is extended from proper storage as well. Properly stored polyester film has an estimated lifespan of more than 500 years.

Ideal storage conditions are plainly impossible to achieve for film in public use areas. Increases in either temperature or relative humidity can dramatically shorten the life of acetate microfilm by bringing on vinegar syndrome. Fluctuations in these storage factors can also accelerate vinegar syndrome. Vinegar syndrome is so named for the strong vinegar odor that the chemical breakdown of acetate film base produces as it ages. This smell intensifies as vinegar syndrome progresses. Beyond the smell, the separation of the film layer base with the gelatin is where the real problem lies. As vinegar syndrome advances and this separation intensifies, it can make film reels unreadable.

For a relatively small number of reels, it would make sense to simply duplicate these reels on modern polyester stock to create a duplicate master negative, but the scope of microfilming preservation efforts in the mid- to late twentieth century is staggering. Millions of pages of newspapers were microfilmed from the 1950s to the 1990s in the US. The vast majority of these film masters are acetate, but duplicating such large collections on
new polyester negatives is cost prohibitive. Today, there is little room in most library budgets for such an undertaking. Indeed, in the last ten to fifteen years many public microfilming operations have closed, and the master negatives dispersed, often ending up in the hands of commercial companies.57

Most of this twentieth century film is commonly referred to as "prestandards" film. That is, the film was produced according to local practices, and not with an overarching set of standards in mind.58 Without such standards, the organization and quality of this film can vary widely. Nevertheless, the vast majority of such films can be used to successfully create images that meet NDNP specifications. Much of this prestandards film has not been stored under ideal conditions and has varying degrees of vinegar syndrome. This aging resource is ripe for digital preservation.

The Vermont Digital Newspaper Project Planning Group initially projected the use of master negatives produced under the USNP Preservation Microfilming Guidelines for the Vermont Newspaper Project.59 These master negative microfilms are on polyester stock and stored in archival conditions, so there was an expectation that high-quality, easy to use film would be readily available.

As the VTDNP prepared to move forward with title selection, it became clear that the longest runs for the most historically significant titles were filmed in Vermont before the USNP effort on “prestandards” microfilm. Through the VTDNP partnership with the Vermont Department of Libraries (VTLIB), notably through Paul Donovan, Law and Documents Librarian at VTLIB, an agreement was arranged between the Vermont State Archives and Records Administration (VSARA) and the VTDNP, to permit borrowing master negatives on an as-needed basis for the duration of the project.

VTLIB stores the master negatives generated by the Vermont Public Records Division microfilm program in the vault of the VSARA. Through this cooperative arrangement, Archivist Scott Reilly provided the VTDNP with a list, a 400-plus page document, which provides a reel-by-reel inventory of the master negatives held in the vault. Comparing this list of available masters with title lists generated during the VTDNP planning phase showed all of the titles that fit in the grant period of 1836–1922. Synthesizing the available reels with the title lists yielded an inventory of approximately 850,000 estimated pages of newspapers in significant runs. This abundance of film ensured that the VTDNP would have an ample supply of titles from which to select for the grant period.

### Execution

In January 2011, the project director issued an RFP to solicit bids for NDNP compliant digitization services, including OCR creation, and provision of related metadata. The RFP stipulated that vendors convert a sample test reel according to NDNP specifications. A sample reel of the *Vermont Farmer* was duplicated and distributed to vendors who expressed interest in offering proposals. The VTDNP received four competitive proposals, with complete digital conversions. The digital conversions enabled us to evaluate the quality of each vendor's work by comparing sample output for page images, XML and OCR files side by side. Vendor selection criteria outlined in the RFP was used to evaluate proposals. Evaluative areas included: experience with similar digitization projects; quality and completeness of the proposal and sample conversion images and metadata; organizational capacity and commitment to serve a long-term, high-volume, deadline-driven digitization project; availability of skilled and reliable project personnel to carry out work and communicate progress; and, of course, overall cost. After close evaluation of each bid, iArchives of Lindon, Utah was selected as VTDNP's digitization vendor.

iArchives is an experienced newspaper digitization partner, evidenced by their work with several other NDNP state projects. A list of iArchives NDNP partners is included on their website (www.iarchives.com/demo-loc.shtml). Shortly after the digitization contract was signed, two representatives from iArchives came to Vermont for a series of meetings that established procedural workflows, production timetables, and scheduling for ongoing communication. Their familiarity with NDNP specifications enabled production to begin immediately. However, VTDNP personnel had to provide them with content to get underway.

NDNP metadata, that is, data about the newspaper pages, issues, and reels of film, must be generated from a thorough review of each reel of film. Since archival masters and printing masters should not be fed through a microfilm viewer, it is necessary to match a positive, public-use set to the masters for the purpose of review. “Thorough review” for the NDNP involves inspecting every frame on every reel to create an exact metadata record of what is on each reel. Due to the high volume of pages, or frames, to be scanned, thousands of pages per monthly batch of deliverables, this process is very labor-intensive and requires a great deal of lead time and planning.

The initial selection of three titles enabled the VTDNP to launch digitization workflows with iArchives with little delay. Master negatives were sent to a film duplication vendor, Archival Microfilming Services of Connecticut, to create duplicate negatives for digitization. Upon completion of the duplication, production began. The frame by frame review for the first 10,000 page batch was completed single-handedly by the project librarian and
shipped to iArchives on May 17, 2011. It became quickly apparent that frame by frame inventory of film for a production schedule of 8,000 to 10,000 pages per month conducted by one person, as it was for the first batch, would not be sustainable. The grant proposal’s staffing plan provided for a half-time, NEH-funded digital support specialist. While a search effort to fill that position was in progress, it had not been completed as production was starting. To bolster production start-up, the project director allocated three cataloging/metadata specialists (combined 0.3 FTE) from UVM’s Resource Description and Analysis Services unit to contribute to frame by frame inspection and metadata collation. This support was vital to launching production. The hiring of the digital support specialist (0.5 FTE) in July 2011 brought the project to a full staffing complement, well-positioned to meet production goals of approximately 10,000 pages per month over the remaining year of the grant.

Nineteenth century newspapers, with all of their oddities, mixed with the sometimes idiosyncratic nature of prestandards microfilm, make for many diverse and unusual reels of microfilm. The frame by frame inventory of these reels demands attention to detail and requires a learning curve to understand what information is important to record, and what is of lesser importance. The decisions made during the inventory can profoundly affect the end user experience. In this process, information about each reel is recorded, including reel dates, titles on a reel and their corresponding LCCN (Library of Congress Control Number, or field 010 in catalog records), issue dates, supplements, pages in each issue, duplicate images or issues, the number of targets, incorrect dates, other printing errors, and volume and issue numbers for each issue. Many irregularities exist, such as undated supplements filmed in sequence with dated issues, temporary title changes, issues of completely unrelated titles filmed with another title, partially filmed issues, or damaged issues. Each person completing the frame-by-frame film inventory must make case by case decisions about these frames on the film.

These inventory files are the basis of the XML files that are associated with the scanned newspaper images. To understand their function in file structure and information retrieval, it is helpful to think of XML files as pointing toward a given title, issue, or page in an issue. If mistakes are made in the frame by frame inventory, the XML files generated from that data will not point to the correct titles, issues, or pages. This frame by frame inventory has a critical role in the usefulness of the images created.

The VTDNP delivers raw metadata to iArchives along with a duplicate negative for each reel. iArchives scans the duplicate negative reels to generate TIFFs. From those TIFFs, they create a PDF and a JPEG2000 file. These PDF and JPEG2000 derivative files are compressed versions of the TIFF. Since they are compressed, they are much easier to deliver to online users. TIFFs are simply too large and resource-intensive to be delivered in a timely manner. The functionality of JPEG2000 is excellent. While they are compressed files, they are “lossless,” and the clarity they deliver to end users is adequate. The PDF files give end users a choice of formats in which to view or save an image.

iArchives also generates the XML data associated with the image files using the raw metadata generated by the VTDNP production team. The Metadata Object Description schema, or MODS, is used as the NDNP standard for descriptive metadata. iArchives converts the raw VTDNP metadata into MODS, inside the Metadata Encoding and Transmission Standard, or METS, wrapper. The newspaper metadata files and the images are hierarchically indexed in this highest level file. Within each batch file, there are reel files. Within each reel file, there are issue files, and in each issue file, there are page files. For each of these levels, there are corresponding XML “pointer” files to the appropriate image or group of images.

iArchives also generates OCR files for each page. These OCR files correspond to zones on a page image, with a computer-generated set of words that match the page. The OCR files are the basis for keyword searches of the newspapers on Chronicling America. A keyword search of Chronicling America yields pages with the search term(s) highlighted. Terms are derived from the OCR files which match the terms to the page images and the location of the words on the pages. OCR output is continually improving with successive generations of software, but still has its limits. Nineteenth century, hand-pressed, small-type newspapers, sometimes with damage from a hundred-plus years of storage, filmed without clear standards on degrading acetate film, and then finally digitized, are often a challenge for human eyes, as well as for OCR. Still, OCR provides a powerful window into the vast newspaper collections on Chronicling America.

The project librarian ships reels, raw metadata, and a 1 TB drive in a protective case to iArchives. iArchives loads the images and data files on the drive in a single batch, and returns the drive to Vermont. The project librarian employs a quality-review process to ensure that NDNP specifications are met by checking for image quality, irregularities, and correct bibliographic data. Software tools used for quality assurance include the Oxygen XML editor, ThumbsPlus, and the NDNP’s Digital Validation View (DVV). Each of these tools is described below.

The Oxygen XML editor (www.oxygenxml.com/) is used to check the XML files. Oxygen displays the XML files in a color coded, line by line format. The color-coding serves as a
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Signatures are then written into the batch. The presence of these digital signature files provides a ready way to quickly see that a batch has been validated. Verification is a similar process that checks the data structures, but it does not write files to the batch. Whenever data are moved, either virtually or physically, verification is used to ensure that no damage or errors occurred in transfer.

Following validation, the batch is shipped to LC on the 1 TB hard drive. LC verifies the batch and performs their quality control processes before ingesting the batch into Chronicling America. The process is not always straightforward. There are sometimes spot problem pages, which can then be enlarged in the software for full sized viewing and closer inspection.

LC provides the most essential tool, the NDNP or DVV, which is used to examine the OCR files and to check that the image headers are correct. The DVV orders the information in a manner that allows one to check OCR zoning and for correct bibliographic information. The critical function of the DVV is to validate and verify the digital signatures of the files in a batch. Validation checks to ensure that the batch data meets the structure of NDNP technical specifications, though not the specific information within that structure. Digital signatures are then written into the batch. The presence of these digital signature files provides a ready way to quickly see that a batch has been validated. Verification is a similar process that checks the data structures, but it does not write files to the batch. Whenever data are moved, either virtually or physically, verification is used to ensure that no damage or errors occurred in transfer.

Following validation, the batch is shipped to LC on the 1 TB hard drive. LC verifies the batch and performs their quality control processes before ingesting the batch into Chronicling America. The process is not always straightforward. There are sometimes
As the volume of content continues to grow, it will be interesting to see how this is reflected in usage patterns.

Outcomes

The VTDNP received NEH and LC authorization to produce nearly 130,000 unique pages of digital newspaper content during its first two-year grant. This 30 percent production increase was accorded without additional funding due to a no-cost two-month extension to the grant based on changes in the NEH calendar cycle, and the fact that our digitization vendor, iArchives, was delivering quality work at a significantly lower price (0.51/page) than was provided in our initial budget (0.95/page). Salary savings also factored in since the lengthy period that passed before hiring the project librarian (six months) and the digital support specialist (one year) gave us a slow start to production, but also permitted us to re-assess and streamline workflows to maximize production.

The decision to target monthly goals at 10,000 pages deviated from our study of American history and culture, these outreach initiatives spark discussion and exchange of ideas that channel broader public perspectives and end user concerns into the VTDNP, which then feed into project development.

The outreach component provides an ongoing avenue of communication between project partners, community members, and the general public. Besides raising awareness of the project and promoting the value and use of digitized newspapers on Chronicling America as primary resources for the study of American history and culture, the outreach component also provides an ongoing avenue of communication between project partners, community members, and the general public. Besides raising awareness of the project and promoting the value and use of digitized newspapers on Chronicling America as primary resources for the study of American history and culture, these outreach initiatives spark discussion and exchange of ideas that channel broader public perspectives and end user concerns into the VTDNP, which then feed into project development.

Table 2. Chronicling America Report from the Library of Congress: State-Specific Statistics for Vermont

<table>
<thead>
<tr>
<th>Month</th>
<th>Total Newspaper Pages Served</th>
<th>Uvm Newspaper Pages Serves</th>
<th>Vermont Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Page Views</td>
</tr>
<tr>
<td>Jul 2011</td>
<td>855,701</td>
<td>2,254</td>
<td>4,926</td>
</tr>
<tr>
<td>Aug 2011</td>
<td>884,767</td>
<td>6,093</td>
<td>5,757</td>
</tr>
<tr>
<td>Sep 2011</td>
<td>1,010,576</td>
<td>8,024</td>
<td>11,074</td>
</tr>
<tr>
<td>Oct 2011</td>
<td>1,014,330</td>
<td>6,115</td>
<td>6,682</td>
</tr>
<tr>
<td>Nov 2011</td>
<td>1,096,050</td>
<td>12,453</td>
<td>8,996</td>
</tr>
<tr>
<td>Dec 2011</td>
<td>957,618</td>
<td>14,771</td>
<td>12,517</td>
</tr>
<tr>
<td>Jan 2012</td>
<td>1,186,596</td>
<td>15,047</td>
<td>15,973</td>
</tr>
<tr>
<td>Feb 2012</td>
<td>1,212,515</td>
<td>19,656</td>
<td>20,551</td>
</tr>
<tr>
<td>Mar 2012</td>
<td>1,241,476</td>
<td>21,707</td>
<td>22,928</td>
</tr>
<tr>
<td>Apr 2012</td>
<td>1,145,272</td>
<td>21,354</td>
<td>25,073</td>
</tr>
<tr>
<td>May 2012</td>
<td>881,118</td>
<td>12,553</td>
<td>17,522</td>
</tr>
<tr>
<td>Jun 2012</td>
<td>1,085,718</td>
<td>12,312</td>
<td>16,691</td>
</tr>
<tr>
<td>TOTAL</td>
<td>12,561,757</td>
<td>152,339</td>
<td>171,720</td>
</tr>
</tbody>
</table>

As the volume of content continues to grow, it will be interesting to see how this is reflected in usage patterns.
original work plan to produce smaller monthly batches spread over a longer period. With a project librarian, a half-time digital support specialist, and three cataloging/metadata specialists contributing a combined ten- to twelve hours per week to frame by frame inspection and metadata collation, production advanced at an efficient, high-volume rate. As the production team became familiar with the work, capacity for output was increased to levels that met, or exceeded, production goals each month.

With collaboration and encouragement from an engaged group of partner institutions, a committed Project Management Group, a dedicated production team, and knowledgeable advisers making informed selection decisions based on available titles and the historical value of those titles, the VTDNP produced just under 130,000 pages of digitized newspaper content for Chronicling America at the close of its Phase 1 grant in August 2012. The project has received positive community feedback while the fruits of its labor, Vermont historical newspapers on Chronicling America, have seen steady rise in use as content contributed by the VTDNP in its first year has grown.63

The University of Vermont was recently awarded an NEH continuation grant to re-embark with its state partners on Phase 2 of the VTDNP. In addition to digitizing newspapers in geographical areas of Vermont that we were not able to include in this first phase, Phase 2 proposes to digitize important historical newspapers in French and Italian, from Vermont’s immigrant population communities, as well as some significant abolitionist and anti-slavery newspapers that were published in Vermont before the outbreak of the Civil War.64 We look forward to a new round of title selections, to learning more about Vermont history and culture through our strong, historical newspaper collections, and to delivering more great content to the LC for Chronicling America. The lessons learned from Phase 1 will surely inform our progress and outcomes for Phase 2.

References and Notes


3. Ibid.


6. The VTDNP was originally awarded funding from NEH for a two-year grant cycle, from July 1, 2010 to June 30, 2012. Due to changes in the NEH calendar, the project was notified in February 2011 of a no-cost, two-month extension for the project through August 31, 2012.


13. Ibid., 95.


17. Ibid., 188–89.


47. Ibid.


59. Ibid.


64. Vermont has the distinction of being among the first states to outlaw slavery in its state constitution in 1791. A strong abolitionist movement was in place well before the outbreak of the Civil War.
## Appendix. Vermont Digital Newspaper Project

### Phase 1. Title List (2010–2012)

<table>
<thead>
<tr>
<th>Title</th>
<th>Publisher</th>
<th>Location</th>
<th>Reel Count</th>
<th>Years Digitized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vermont farmer (Newport, Vt.)</td>
<td>Newport, Vt.</td>
<td>2</td>
<td>1870–1877</td>
<td></td>
</tr>
<tr>
<td>Rutland herald (Rutland, Vt. : 1823)</td>
<td>Rutland, Vt.</td>
<td>4</td>
<td>1836–47</td>
<td></td>
</tr>
<tr>
<td>Rutland County herald (Rutland, Vt. : 1848)</td>
<td>Rutland, Vt.</td>
<td>1</td>
<td>1848–50</td>
<td></td>
</tr>
<tr>
<td>Rutland herald (Rutland, Vt. : 1850)</td>
<td>Rutland, Vt.</td>
<td>1</td>
<td>1850–52</td>
<td></td>
</tr>
<tr>
<td>Rutland County herald (Rutland, Vt. : 1852)</td>
<td>Rutland, Vt.</td>
<td>1</td>
<td>1852–54</td>
<td></td>
</tr>
<tr>
<td>Burlington free press (Burlington, Vt. : 1827)</td>
<td>Burlington, Vt.</td>
<td>8</td>
<td>1836–65</td>
<td></td>
</tr>
<tr>
<td>Burlington weekly free press</td>
<td>Burlington, Vt.</td>
<td>30</td>
<td>1866–1920</td>
<td></td>
</tr>
<tr>
<td>The Rutland daily globe</td>
<td>Rutland, Vt.</td>
<td>4</td>
<td>1873–77</td>
<td></td>
</tr>
<tr>
<td>The Rutland weekly globe</td>
<td>Rutland, Vt.</td>
<td>1</td>
<td>1873–76</td>
<td></td>
</tr>
<tr>
<td>Windham County Democrat</td>
<td>Brattleboro, Vt.</td>
<td>1</td>
<td>1837–53</td>
<td></td>
</tr>
<tr>
<td>The Vermont transcript</td>
<td>St. Albans, Vt.</td>
<td>1</td>
<td>1864–68</td>
<td></td>
</tr>
<tr>
<td>Vermont daily transcript</td>
<td>St. Albans, Vt.</td>
<td>1</td>
<td>1868–69</td>
<td></td>
</tr>
<tr>
<td>Vermont phoenix (Brattleboro, Vt. : 1834)</td>
<td>Brattleboro, Vt.</td>
<td>3</td>
<td>1836–49</td>
<td></td>
</tr>
<tr>
<td>Vermont phoenix (Brattleboro, Vt. : 1855)</td>
<td>Brattleboro, Vt.</td>
<td>18</td>
<td>1855–22</td>
<td></td>
</tr>
<tr>
<td>State journal (Montpelier, Vt. : Oct. 1831)</td>
<td>Montpelier, Vt.</td>
<td>10</td>
<td>1836</td>
<td></td>
</tr>
<tr>
<td>Vermont watchman &amp; State journal</td>
<td>Montpelier, Vt.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vermont watchman (Montpelier, Vt. : 1853)</td>
<td>Montpelier, Vt.</td>
<td>8</td>
<td>1853–1910</td>
<td></td>
</tr>
<tr>
<td>The People's press, and anti-masonic Democrat</td>
<td>Middlebury, Vt.</td>
<td>1</td>
<td>1837–38</td>
<td></td>
</tr>
<tr>
<td>The People's press, and Addison County Democrat</td>
<td>Middlebury, Vt.</td>
<td>0</td>
<td>1838–41</td>
<td></td>
</tr>
<tr>
<td>The Middlebury people's press</td>
<td>Middlebury, Vt.</td>
<td>0</td>
<td>1841–43</td>
<td></td>
</tr>
<tr>
<td>The Northern galaxy, and Middlebury people's press</td>
<td>Middlebury, Vt.</td>
<td>0</td>
<td>1843–44</td>
<td></td>
</tr>
<tr>
<td>The Northern galaxy</td>
<td>Middlebury, Vt.</td>
<td>1</td>
<td>1844–48</td>
<td></td>
</tr>
<tr>
<td>The Middlebury galaxy</td>
<td>Middlebury, Vt.</td>
<td>1</td>
<td>1848–50</td>
<td></td>
</tr>
<tr>
<td>Middlebury register (Middlebury, Vt. : 1850)</td>
<td>Middlebury, Vt.</td>
<td>5</td>
<td>1850–82</td>
<td></td>
</tr>
<tr>
<td>Middlebury register and Addison County journal (Middlebury, Vt. : 1853)</td>
<td>Middlebury, Vt.</td>
<td>1</td>
<td>1853–85</td>
<td></td>
</tr>
<tr>
<td>Spirit of the age (Woodstock, Vt. : 1840)</td>
<td>Woodstock, Vt.</td>
<td>2</td>
<td>1840–44</td>
<td></td>
</tr>
<tr>
<td>The Woodstock age</td>
<td>Woodstock, Vt.</td>
<td>1</td>
<td>1844–45</td>
<td></td>
</tr>
<tr>
<td>Spirit of the age (Woodstock, Vt. : 1845)</td>
<td>Woodstock, Vt.</td>
<td>7</td>
<td>1845–1913</td>
<td></td>
</tr>
<tr>
<td>Bennington banner (Bennington, Vt. : 1838)</td>
<td>Bennington, Vt.</td>
<td>3</td>
<td>1888–94</td>
<td></td>
</tr>
<tr>
<td>Bennington semi-weekly banner</td>
<td>Bennington, Vt.</td>
<td>0</td>
<td>1896, 1897, 1899</td>
<td></td>
</tr>
<tr>
<td>Bennington daily banner</td>
<td>Bennington, Vt.</td>
<td>1</td>
<td>1877</td>
<td></td>
</tr>
<tr>
<td>Daily banner (Bennington, Vt.)</td>
<td>Bennington, Vt.</td>
<td>0</td>
<td>1891</td>
<td></td>
</tr>
<tr>
<td>Bennington banner and reformer</td>
<td>Bennington, Vt.</td>
<td>1</td>
<td>1903</td>
<td></td>
</tr>
<tr>
<td>The Bennington evening banner</td>
<td>Bennington, Vt.</td>
<td>8</td>
<td>1903–4</td>
<td></td>
</tr>
<tr>
<td>Caledonian (Saint Johnsbury, Vt.)</td>
<td>St. Johnsbury, Vt.</td>
<td>8</td>
<td>1837–67</td>
<td></td>
</tr>
<tr>
<td>St. Johnsbury caledonian (Saint Johnsbury, Vt. : 1867)</td>
<td>St. Johnsbury, Vt.</td>
<td>5</td>
<td>1867–84</td>
<td></td>
</tr>
</tbody>
</table>
Notes on Operations

PDA Consortium Style

The CU MyiLibrary Cataloging Experience

Wen-ying Lu and Mary Beth Chambers

In April 2010, the University of Colorado Boulder (CUB) Libraries implemented a patron-driven acquisitions (PDA) e-book program through Ingram Content Group’s on the MyiLibrary platform. CUB’s PDA program expanded to include all campuses within the University of Colorado (CU) system, launching a collaborative pilot project for shared purchasing and shared cataloging of e-books among five geographically separate and diverse CU libraries in December 2011. The PDA program affects the catalogs, cataloging departments, and cataloging workflows of each library. This paper describes the CU PDA program with a focus on how MARC records are prepared and distributed to the CU libraries, both before and after titles are purchased. It covers factors that impact editing and customization of the records such as the quality of vendor-supplied data, local needs, and best practices for Prospector, a regional unified catalog in which all CU system libraries participate. In addition, the authors share their strategies for detecting and correcting cataloging errors that occur and their methods for handling PDA titles duplicated in other e-book packages available at CU libraries.

The University of Colorado (CU) system represents a diverse group of institutions composed of three universities operating on four distinct campuses with five separately administered libraries. The libraries are located at the University of Colorado Boulder (CUB), University of Colorado Colorado Springs (UCCS), University of Colorado Denver (UCD), University of Colorado Anschutz Medical Campus (a component of UCD), and the University of Colorado School of Law (a component of CUB located on the CUB campus). CUB is the CU system’s flagship institution. The diversity of the campuses and programs served by the CU libraries is reflected in their respective budgets and in the operational structures they developed to meet the needs of their patrons with the resources available to them. Currently each library uses Innovative Interfaces’s integrated library system (ILS), and all five participate in Prospector, a unified catalog of over forty academic, public and special libraries in Colorado and Wyoming, sponsored by the Colorado Alliance of Research Libraries. However, while CUB uses Ingram Academic, formerly Coutts Information Services, as its major vendor for monographic purchases, a variety of other vendors supply print and electronic monographs to the CU system libraries, including unique vendor arrangements for each library. Furthermore, the cataloging or metadata units of the CU system

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libraries vary widely in terms of staff size and specialization. For example, CUB Libraries has a relatively large metadata services department with highly specialized experts. At the other end of the spectrum is UCCS with only one professional cataloger who handles materials in all formats.

In April 2010, CUB implemented a patron-driven acquisitions (PDA) e-book program through the Ingram on the MyiLibrary platform. Borrowing from Candace Dahl, the authors use the term PDA to refer to “the automated practice of allowing patrons to select books for their library, most often through the process of clicking on records that have been added to their library’s catalogue.”

CUB’s PDA program expanded to include all campuses within the CU system in December 2011. Within most CU libraries, one cataloger at each library is responsible for loading MyiLibrary e-book records locally; at the Law Library, instead of a cataloger, one technical services/library technology specialist loads the records. Cataloging of purchased MyiLibrary e-books falls among the job responsibilities of three individual copy catalogers at CUB.

CU system libraries participate in many cooperative arrangements with vendors and publishers to bring electronic resources to their patrons in more economically feasible ways. However, the MyiLibrary e-book project is the first one that actively engaged catalogers and metadata experts throughout the CU system.

This paper focuses on the cataloging aspects of the CU MyiLibrary e-book PDA program. It describes how the program affects the participating libraries’ catalogs, cataloging workflows and cataloging departments. It discusses the workflow used to share MARC records for PDA titles among the libraries, both before and after titles are purchased. It also touches on the factors that impact editing and customization of the records, such as record quality, local needs, and best practices for Prospector, the regional unified catalog. In addition, the paper conveys strategies used by CU catalogers for detecting and resolving errors and for handling records for titles duplicated in other e-book packages or other PDA platforms available at some CU system libraries. Some of the information in this paper was originally presented at the ALCTS Catalog Management Interest Group meeting held during the 2012 American Library Association Annual Conference and at the 2012 Charleston Conference.

**Literature Review**

Although PDA, also known as demand-driven acquisitions (DDA), has its roots in the print world, it is experiencing renewed significance in today’s environment in which electronic resources predominate. The e-book marketplace is burgeoning while budget constraints and fiscal accountability requirements compel libraries to consider “just-in-time” over “just-in-case” monographic purchases. Furthermore, e-books are ideal for serving students in online programs, which has been a motivating factor for the CU system libraries for adding e-book packages to their collections. For example, the Kraemer Family Library at UCCS provides support for online nursing and health sciences courses including a Doctor of Nursing Practice (DNP) program that is completely online. The recent rise in PDA popularity is closely connected to the growing e-book publishing industry and is reflected in an expanding body of literature on the topic and in the number of programs devoted to it at various library conferences over the past several years, such as the Charleston Conference, the Acquisitions Institute at Timberline, and the Electronic Resources and Libraries (ER&L) annual conference.

Two monographs published in 2011 scan the PDA spectrum. In *Patron-Driven Acquisitions: Current Successes and Future Directions*, editors Nixon, Freeman, and Ward present numerous articles authored by librarians at various academic institutions in the United States that discuss PDA for print books and e-books. Among the articles is a literature review by Nixon, Freeman, and Ward charting historical and evolutionary forces that generated the PDA movement from print books through e-books. The work also includes articles on case studies related to workflows and materials usage, methods for acquiring print books based on interlibrary loan requests, methods for acquiring e-books based on a variety of patron selection techniques, and innovative systems used to support patron-driven acquisitions programs. The articles in this volume originally appeared in a 2010 special issue of the journal, *Collection Management.*

In *Patron-Driven Acquisitions: History and Best Practices*, David A. Swords, Vice President of Sales and Marketing at EBL, has assembled numerous articles by a variety of contributors, including librarians, publishers, and vendors, focused primarily on e-book PDA. For academic librarians who are weighing the feasibility of initiating a PDA program at their institutions, Dahl, in her 2012 article, provides an overview that addresses the issues surrounding selection control, collection building, and the evolving definition of a library’s purpose in terms of preservation of materials versus access to them.

In general, the literature covering PDA reviewed here is focused largely on the rationales behind it and the collection development strategies that support it. To date, little has been written about procedures for cataloging e-books that are available through a PDA model, although several authors have discussed the matter in broad terms. For example, addressing some of the challenges that arise for catalogers with the surge of e-book collections, University of Houston librarians,
Wu and Mitchell note in their 2012 article that PDA is not typically discussed as a cataloging issue. Nevertheless, it presents unique circumstances for catalogers since records for materials not actually owned by the library are loaded into the catalog, there may be records that need to be removed or suppressed for titles not purchased within a given timeframe, and records may need to be updated or corrected when titles are purchased.

In another 2012 article, Herrera describes the overall processes used at the University of Mississippi Libraries to load PDA MARC records to the local catalog and to update the records for purchased titles. In their 2012 article, De Fino and Lo discuss the impact of PDA on collection development and technical services librarians; they also provide a general description of a PDA cataloging workflow at Rutgers University and emphasize that the “success of a patron-driven plan relies on the close collaboration between the cataloger and the selector.”

Articles reporting on processes and procedures related to batch loading of records are relevant to PDA cataloging processes. For example, in 2010, and Zhao and Zhao presented a case study of an e-book MARC project undertaken by the University of Windsor’s Leddy Library and its affiliated consortium, the Ontario Council of University Libraries. It focused on vendor-supplied MARC records and the establishment of a consortial e-book MARC records database. The authors identified specific policies and procedures for e-book cataloging that may prove useful to other academic libraries.

Dinkins’ 2012 article notes challenges encountered at Stetson University when downloading MARC records from their e-book vendor’s site because it was difficult to distinguish PDA records from those of their subscribed titles. Martin and Mundle (2010) discuss methods used at the University of Illinois at Chicago’s University Library to improve the quality of vendor-supplied records for e-books made available through a consortial purchase. They conclude that working with the consortium and the vendor to provide good quality records as a top priority “was the most productive route to quality data in the catalog.”

In 2011, Preston described the processes used by OhioLINK’s Database Management and Standards Committee to put e-book records into the Ohio Link Library Catalog and to distribute them in batch loadable MARC record sets to OhioLINK member libraries. She explained how the catalog projects are organized and how they evolved to accommodate available data, members’ needs, and evolving cataloging standards.

Catalogers who are responsible for batch loading PDA records to their local or consortium catalogs may find and share helpful information by subscribing to batch@listserv.vt.edu, the email discussion list devoted to batch loading issues in libraries hosted by Virginia Polytechnic Institute and State University (Virginia Tech).

PDA programs, particularly e-book PDA programs, are likely to become more prevalent among libraries and library consortia. For example, in July 2011, the Orbis Cascade Alliance, a consortium serving libraries in the northwestern United States, launched a PDA program in partnership with EBL and YBP. In May 2012 the Colorado Alliance of Research Libraries launched a consortial PDA program with YBP Library Services, Ebook Library (EBL), and ebrary similar to the one launched by the Orbis Cascade Alliance. Both PDA projects, which the consortiums call Demand Driven Acquisitions (DDA) programs, were described by Kelley in a June 2012 article posted on The Digital Shift weblog.

As these types of programs gain more ground, the body of literature devoted to them is likely to increase accordingly.

In describing the unique cataloging practices, processes, and workflows used to manage MARC records for a PDA pilot program shared by the individual institutions within the University of Colorado system, this paper attempts to augment the available literature aimed specifically at bibliographic control of PDA e-book titles. Because library catalogs serve as e-book discovery gateways for library patrons, it is important for catalogers and metadata experts to insert themselves into the PDA projects undertaken by their institutions.

**CU System Libraries E-book PDA Timeline**

In April 2010, CUB Libraries implemented an e-book PDA pilot program through Ingram’s Academic division, previously known as Coutts Information Services, using the MyiLibrary e-book platform. The PDA program covered five subject areas: religious studies, business, chemistry, women’s studies, and ethnic studies. The plan included recently published titles from scholarly presses and some backlist titles from the previous three years. CUB subject specialists selected titles from a list provided by Ingram for the initial launch of the pilot project. Afterward, CUB worked with Ingram Academic to develop a selection profile. With a few intentional exceptions, titles that CUB owned in print were excluded from the PDA program. Ingram supplied MARC records for all of the e-books included in the plan. The first batch of “discovery” records contained 985 titles. A “discovery” record represents a title not yet owned by the library that is available for patrons to discover and thereby generate a library purchase for that title.

CUB, Ingram, and the other CU system libraries entered into an agreement that enabled all CU system libraries to access CUB’s purchased PDA titles in July 2010, and CUB initiated monthly distributions of MARC record sets to the other four libraries.
for PDA purchased titles. The first set contained twenty vendor-supplied (Ingram) records. In October 2010, after deeming the pilot project a success, CUB developed selection profiles for all subject areas relevant to CUB, and commenced weekly downloading of vendor-supplied discovery records to CUB's local catalog.

CUB's MyiLibrary PDA program broadened in scope so that all CU system libraries could fully participate in the plan in November 2011. The CU MyiLibrary PDA e-book program was launched, and collaborative shared purchasing and shared cataloging of PDA e-books began. In addition to managing the acquisitions processes for the program, CUB also assumed responsibility for obtaining MARC records for MyiLibrary titles and distributing them to the other CU libraries, thereby becoming the cataloging agent for the project. CUB delivered a backfile of 3,129 MyiLibrary vendor-supplied discovery records to the other CU system libraries for titles available for "discovery" by all patrons at all CU system libraries by December 2011. In late 2011, CUB also began weekly distribution to the other CU libraries of discovery records for new titles added to the PDA e-book plan.

OCLC and Ingram launched a short-term e-book loan option in August 2011. Through this program, e-books on the MyiLibrary platform are available for nine-day loans, for a fee, to libraries that utilize OCLC's WorldCat Resource Sharing services. To ease the workload for interlibrary loan staff in determining whether CUB owns a particular e-book, the CUB Libraries implemented a retrospective cataloging project to set holdings on OCLC records for all of the purchased MyiLibrary e-books, and in the process, to replace existing vendor records in the local catalog with their corresponding OCLC WorldCat records. Having CUB's MyiLibrary e-books holdings visible in WorldCat prevents interlibrary loan staff from generating unnecessary short-term loans for e-books the library already owns. The catalogers could have simply replaced the vendor control numbers in the MARC 001 fields in the local bibliographic records with their appropriate OCLC record numbers and set holdings in WorldCat using OCLC Connexion's batch updating feature. However, as a member of the Program for Cooperative Cataloging (PCC), CUB decided, in the interest of global cooperation, to catalog the purchased titles directly in OCLC. As a result, any enhancements made to the records by CUB's catalogers, such as the addition of tables of contents or summaries, are available to all OCLC members and WorldCat users. Record quality was not a factor in the decision to replace vendor records with OCLC records since Ingram provides good quality records. In the spirit of cooperation, CUB shares the OCLC records with the other CU system libraries, giving them a convenient option to replace vendor records in their own catalogs with updated OCLC records and to set their institutions' holdings on the WorldCat records as well. By January 2012, CUB shared 164 OCLC records for PDA purchased titles with the CU system libraries.

After the official start of the CU system PDA pilot, subject coverage of CUB's profile expanded to include additional areas of interest to the other CU system libraries, including criminal justice, nursing, public health, and sports medicine to support programs and courses offered by their institutions in these areas. This expansion added 322 records to the backlist for 2011 imprints not covered in CUB's profile. To indicate which part of the profile or subject area generated their holdings on the CU system change. Because Ingram was willing to customize the MyiLibrary PDA discovery records per CUB's requests as described in the next section, CUB is able to automate additional editing of the records to bring them in line with CUB's cataloging standards and those agreed upon by the CU system libraries for the program. This reduces the time CUB catalogers spend on editing PDA records and allows CUB to deliver them to the other libraries shortly after CUB receives them. CUB's OCLC cataloging of purchased MyiLibrary titles is a little more complex, yet CUB has been able to streamline the process and deliver OCLC records for purchased titles to the other CU libraries on a monthly basis. Once the other libraries receive records from CUB, each will use various methods to prepare
CUB. A flowchart of the process is presented in figure 1.

Cataloging Challenges and Solutions

Vendor-Supplied Discovery Records

Ingram collaborated with CUB to identify ways in which the vendor could customize its MARC records to help streamline the MyiLibrary PDA program for CUB and the CU system libraries. As a result, vendor records now arrive on the Ingram’s server with the following MARC field customizations.

006 CUB’s default setting for the additional material characteristics is used, namely, code m (computer file/electronic resource) in position 00 (form of material) and code d (document) in position 09 (type of computer file). Code o (online) is used for position 06 (form of item). The inclusion of this code complies with OCLC requirements for WorldCat record validation, which changed in November 2012.

007 CUB’s default setting for the physical description fixed field is used, namely, code e (electronic resource) in position 00 (category of material). Code r (remote) is used for position 01 (specific material designation). The pipe character | (no attempt to code) is used for positions 03–13.

008 Position 23 (form of item) is set to code o (online).

020 Ingram standardizes the qualifier for the International Standard Book Number (ISBN), such as, “Cloth/HB,” “Paperback,” and “Electronic Book,” and places all ISBNs in the MARC 020 subfield z. This allows CUB to place all ISBNs

them for their local catalogs, such as tools available in MarcEdit, a freely available MARC record text editing application developed by Terry Reese, and the editing features available in their local ILS systems.

The current, overall cataloging process is as follows:

- CUB obtains Ingram’s vendor-supplied MARC records for PDA titles available on the MyiLibrary platform, edits them in MarcEdit, loads them to the CUB catalog and then immediately distributes them to the other CU system libraries by posting the file of records on Basecamp, a web-based project management tool used by all CU system libraries.
- CUB replaces discovery records for purchased e-books with OCLC records, retaining the vendor’s accession numbers in the MARC 035 field (system control number) of the OCLC record. CUB exports the OCLC records to the CUB catalog and sets holdings on them in WorldCat via OCLC Connexion before distributing them to the other CU system libraries via Basecamp.
- The other CU system libraries edit records supplied by CUB to accommodate local practices, load them to their local catalogs, and set holdings on all OCLC WorldCat records supplied by CUB. A flowchart of the process is presented in figure 1.
with the qualifier “Electronic Book” into the correct subfield, a using a “regular expression,” a formula created to match and replace characters or a text string. Regular expression capability, a sophisticated find and replace mechanism, is built into many text editors, word processors and programming languages.

Ingram omits the genre/form term in the MARC 655 field containing “Electronic books” because CUB does not use this field to identify e-books in its local ILS.

Ingram provides a uniform resource locator (URL) in the electronic location and access field in subfield u, the uniform resource identifier (URI), in each PDA e-book record. The URI points to a landing page on the MyiLibrary platform rather than the book itself. The landing page provides information about the book that allows patrons to determine whether they want to read it. Access to the book is based on Internet Protocol (IP) authentication. Linking to the landing page does not count as a purchase trigger for the book. Ingram also adds a public note to each MARC 856 field in subfield z that reads, “Connect to online resource” which is how the link to the e-book is labeled in CUB’s public catalog.

Ingram places the appropriate CU system library’s profile code in the local MARC field 950 in each PDA e-book record. This is a local processing information field. Data in this field are useful for collection development and profile assessments purposes.

Ingram adds the note “MyiLibrary PDA” to each record using the MARC field 956, another local processing information field. This identifies records as unpurchased PDA titles and serves as a “hook” to gather PDA discovery records into a single list or file when needed.

Figure 2 presents a sample MARC record from Ingram with MARC fields customized for CUB.

Overall, the quality of the vendor-supplied discovery records for MyiLibrary titles is good. Each bibliographic record has the full description for the work based on current e-book cataloging standards and Library of Congress (LC) classification and subject headings. In rare cases, the general material designation (GMD) “electronic resource” is missing from the title field (MARC 245 subfield h). With Resource Description and Access (RDA) implementation, scanning for missing GMDs will be supplanted by scanning for the MARC fields 336 (content type), 337 (media type) and 338 (carrier type). Other RDA changes, such as the addition of the MARC 264 field (production, publication,
distribution, manufacture, and copyright notice), will not affect record loading. However, local libraries must work with their ILS vendors to assure that their systems will accommodate RDA and use it to its full potential in today's digital environment.

In some instances the MARC 245 field did not match the book's title because the vendor derived the discovery record from a prepublication record that contained a title that changed after the book was published. Occasionally the vendor-supplied profile code, the local MARC 950 field, was missing. To detect missing data in these areas, CUB catalogers scan the records in MarcEdit using the program's "Extract Selected Records" tool.

Some of the vendor-supplied records for PDA discovery titles come with MARC 019 fields that contain OCLC numbers for the e-books' corresponding print records from which the discovery records were derived. Although this is an incorrect use of the MARC 019 field, which is an OCLC defined MARC field intended for obsolete OCLC numbers, CUB catalogers were initially inclined to retain them as a reference point. CUB has used the information to check e-book record quality by comparing the OCLC print records to the corresponding e-book records. However, CUB's catalogers soon realized that some of the other CU libraries index their MARC 019 fields the same way as MARC 001 fields, and the misuse of them in MyiLibrary discovery records had the potential to cause problems in their local systems. For example, they could turn up as duplicate OCLC numbers in the libraries' system-generated reports if a library owned the print version of the title.

Another problem related to the MARC 019 field occurred when CUB began loading titles and URLs for MyiLibrary PDA purchased titles into the knowledge base of the electronic resources management (ERM) system of CUB's ILS. The ERM is an efficient management system used to gather pricing information and licensing terms for individual electronic resources. It can also generate usage statistics for a resource. Furthermore, if access to a resource, such as the MyiLibrary collection, becomes unavailable for any reason, a global notification/alert can be inserted into the resource record that will display automatically on each individual record in the public catalog that is linked to the resource record.

The ERM is designed to attach individual titles within a collection, such as MyiLibrary purchased titles, to one unified resource record. When a resource record for a collection is created, discrete holdings/check-in records for every title in that collection can be attached to it through an automated process. The holdings/check-in record contains the URL for accessing the title on the vendor's platform while the URL in its corresponding bibliographic record in CUB's catalog is suppressed through changing the MARC tag 856 containing the URL to the local MARC 956 tag, which is suppressed from public display. The other CU system libraries do not use an ERM system. Their access to the purchased e-books is through the links in the MARC 856 fields.

To create a holdings/check-in record that links to its appropriate bibliographic record, the holdings/check-in record must match on a single, unique identifier found in the bibliographic record. The unique identifier for CUB's ERM is the data in the MARC 001 field, which contains the OCLC number for the MyiLibrary PDA purchased title. Based on the manner in which the ERM system's matching algorithm interacts with CUB's ILS, the ERM could fail to generate the holdings/check-in record if a MARC 001 and a MARC 019 field appear on the bibliographic record. Consequently, CUB catalogers are now deleting all MARC 019 fields from the PDA discovery records and the OCLC records used for the PDA purchased titles.

Another challenge CUB's catalogers encounter with the vendor-supplied records is incorrect subfield coding of ISBNs in the MARC 020, International Standard Book Number, field. This is not limited to MyiLibrary e-book records. Miscoded ISBNs are also found in other vendor-supplied records and in OCLC records. Print ISBNs and vendor ISBN-look-alike control numbers, prefixed with 661 or 978661 are often found in the MARC 020 subfield a instead of subfield z, canceled/invalid ISBN, where they belong. This has the potential to cause problems in local and shared systems that use the ISBN in the MARC 020 subfield a as an overlay match point because it could cause an e-book record to be merged with a print record or vice versa.

During the initial stage of the project, CUB catalogers used a regular expression in MarcEdit to globally change the MARC 020 subfield a to subfield z in vendor-supplied PDA records if the first letter of an ISBN qualifier did not start with e or E. However, this regular expression could not correct ISBNs that lacked qualifiers, and many invalid and ISBN-look-alikes created by the vendor remained improperly coded in the MARC 020 subfield a on MyiLibrary records. CUB appealed to Ingram to deliver PDA records with correctly coded ISBNs. Although Ingram's internal system used to create MARC records was not designed to sort ISBNs in this manner, they standardized the ISBN qualifiers on their records. In addition, Ingram agreed to place all ISBNs in the MARC 020 subfield z.

CUB catalogers were then able to modify their MarcEdit regular expression so that it changed subfield z to subfield a when the ISBN qualifier starts with e or E. Once the regular expression was applied, all e-ISBNs
appeared correctly in subfield a and all print ISBNs remained correctly coded in subfield z. ISBNs lacking qualifiers remained in the MARC 020 subfield z in compliance with the Provider-Neutral E-Monograph MARC Record Guide that instructs catalogers to place ISBNs in the MARC 020 subfield z if it is unclear which format the ISBN represents. Starting October 2012, Ingram began distributing legitimate ISBNs, making this process unnecessary.

Several fields in Ingram’s records must be edited to comply with best cataloging practices for Prospector to prevent confusion or mismatching of institutional holdings in that system. For example, the MARC 001 field contains Ingram Academic’s accession number prefixed with “cis” (Coutts Information Services, reflecting the company’s former name). Since there are records from a different vendor in Prospector that also contain the MARC 001 “cis” prefix, CUB changes the Ingram prefix to MiLcis to create a unique MARC 001 for the MyILibrary e-book records. Although the MyILibrary PDA discovery records are suppressed from view in Prospector, it is still a good practice to follow Prospector’s guidelines in the event that the CU system libraries decide to display their MyILibrary PDA discovery holdings in Prospector in the future.

The LC style call numbers found on the discovery records in the MARC 050, Library of Congress Call Number field, are not always complete, but for efficiency’s sake, CUB retains them during the editing process. The presence of call numbers helps with duplicate record detection processes in local catalogs, and LC classification numbers can be useful for collection analysis when needed. Classification numbers are also helpful to reference librarians and library patrons who want to search their library’s catalog for all available titles in a given classification.

Specific Cataloging Workflow for Discovery Titles

The steps that CUB catalogers take to obtain and process PDA “discovery” records and distribute them to the other CU system libraries are provided below:

1. CUB downloads MARC records from Ingram’s FTP server:
   - Each week, Ingram notifies CUB that a file of new PDA discovery records is available. Once notified, CUB downloads the file and opens it in the MarcEdit program. Ingram also informs CUB when the record for a title is no longer accessible because the author or publisher withdrew access rights.

2. CUB edits the vendor’s records using MarcEdit.

3. CUB loads the records into the CUB library catalog:
   - The bibliographic records are loaded into CUB’s local catalog with item records attached. Participating Prospector libraries are encouraged to attach item records to the bibliographic records in their local catalogs to display their institutional holdings information clearly in the consortial catalog. The CU libraries agreed to include item records in the event that they display the discovery records in Prospector in the future.

4. CUB checks for duplicate records:
   - Using the duplicate call number report feature in the local ILS, CUB scans for duplicate records based on the call number field.

5. CUB globally updates local fixed field data for the records:
   - After CUB loads the records into the local catalog, locally defined fixed field information is globally updated to indicate that the records are batch loaded e-book records. To reflect the fact that these records are for titles not yet purchased, the cataloging date is changed from the system supplied record load date to blank. CUB uses the cataloging date as a variable in creating a monthly list of bibliographic records to send to Backstage Library Works (Backstage), the company that provides CUB with authority control services, the process of standardizing names, subjects, and series entries on bibliographic records. CUB does not send records for unpurchased titles for authority control. Keeping the cataloging date blank ensures that the discovery records are not sent to Backstage. CUB also adds a suppression code to the PDA discovery records to prevent them from displaying in Prospector, which is the currently agreed upon practice among CU system libraries participating in the MyILibrary PDA e-book program.

6. CUB distributes the edited MARC records to the CU system libraries.
   - CUB posts its edited MARC records for pickup by the other CU system libraries in Basecamp. CUB delivers the MARC records files in the .mrc format, a machine readable file format suitable for batch loading of the records into their local ILS systems. Libraries can download the files directly into their catalogs or they can open them in MarcEdit for additional record editing if necessary to accommodate local
cataloging practices.

**OCLC Records for Purchased E-books**

PDA e-book purchases are triggered on the MyiLibrary platform based on an agreed-upon number of uses by library patrons within the CU system. When a PDA e-book is purchased, CUB's acquisitions staff will create and attach order records to the vendor records for the PDA titles in the local ILS and notify CUB's catalogers of the purchases. The catalogers then initiate cataloging procedures to replace PDA records with OCLC records that reflect the purchased status of the corresponding e-books.

After several experiments and trials, CUB's OCLC cataloging procedures for PDA purchased titles are now well-established. Nevertheless, developing cataloging efficiencies for the process posed a few challenges. The following examples demonstrate how some of those processes have evolved.

As with vendor records, ISBNs are often incorrectly coded in the MARC 020 fields in OCLC records. CUB's goal is to have OCLC records in the local catalog and in Prospector that contain accurately coded e-book ISBNs on e-book records. Records for purchased MyiLibrary titles are coded to display in Prospector, and the likelihood is high that CUB's records will serve as the master bibliographic records in the Prospector system. To that end, the initial plan called for CUB's copy catalogers to correct, as needed, the subfield coding of every ISBN on all OCLC records for MyiLibrary e-books before exporting them to the local catalog. In this scenario, catalogers ensured that print ISBNs were correctly coded in MARC 020 subfield z. CUB's copy catalogers pointed out that this would be time consuming, and qualifiers are sometimes inaccurate. Verifying each ISBN found on an OCLC record would tremendously slow down the MyiLibrary copy cataloging process for purchased e-books. Therefore CUB decided that catalogers would export records with ISBNs as is, and use the global update feature in the ILS to place ISBNs in MARC 020 subfield z, canceled/invalid ISBN, if they do not have a qualifier starting with e or E.

It is not uncommon for the URLs, the links to the e-books, to change over time. Below are examples of URL syntax variations that may occur for a single e-book title:

A. http://lib.myilibrary.com?id=281874
B. http://www.myilibrary.com?id=281874
D. http://lib.myilibrary.com/Open.aspx?id=281874&src=1

The URL currently used by the CU libraries to access MyiLibrary purchased e-books is exemplified in (a) above. However, URLs found in OCLC WorldCat records may contain the domain name www.myilibrary.com shown in example (b) above. MyiLibrary continues to support the older, legacy links represented in example (b) by redirecting them to the current pages on their website to access the e-books associated with them. The syntax style shown in example (c) that contains the open.aspx string is a current and acceptable alternative to the one used by the CU libraries. The URL shown in (d) with the extension “&src” may appear in the browser's address bar when a user, in this case a cataloger, accesses content within the e-book, which catalogers will do to verify or obtain cataloging metadata. The syntax style used by CU libraries, example (a), is the ideal syntax since it does not rely on “open.aspx,” a Microsoft file extension that could, in rare cases, cause the link to fail. For instance, it might fail on computers using outdated web browsers.

Keeping the URL format syntactically consistent makes future local global updating easier if needed. When CUB copy catalogers verify a URL by determining if it actually points to the e-book being cataloged, the URL returned in the browser's address box may differ from the one originally entered as indicated above. In their general e-book cataloging procedures, CUB's copy catalogers are instructed to copy and paste the URL that appears in their browsers into the record after they have verified it. Initially, at the point of cataloging, they did not take steps to assure that all URLs for MyiLibrary e-books were syntactically the same. To do so could cause a time-consuming break from their regular cataloging routine. Instead, CUB catalogers used the global update feature to accomplish this after the records were loaded into the local catalog. However, after several weeks of experimentation, the copy catalogers realized that they can quickly and easily supply syntactically consistent URLs in the local catalog record through the use of a local macro, which has become CUB's standard procedure. Since records are output from CUB's ILS for distribution to the other CU libraries, they are guaranteed to receive records with syntactically consistent e-book URLs regardless of which process was used to standardize them.

As part of the record editing process, CUB catalogers add a “cost-recovery script” to URLs in the 856 fields for all purchased MyiLibrary e-book records, which is used internally to gather e-book usage data. CUB mandates the capture of usage statistics on all e-resources purchased with grant-funded research dollars. CUB Libraries decided to add the cost-recovery script to all paid e-resources for internal use studies. Consequently, catalogers must add the script. It is an addition to the original URL and enables the institution to gather statistics when the survey is turned on.
The script must be removed before the records are distributed to the other CU libraries. In June 2012, CUB began providing title access for purchased MyiLibrary e-books through the URL links embedded in the check-in/holdings records generated from its ERM system. Since the system allows this script to be globally added and stored in the ERM knowledge base, it seemed as though CUB’s copy catalogers could be spared the chore of adding it to the URLs on the bibliographic records. However, the copy catalogers pointed out that eliminating the script from MyiLibrary purchase records would be an exception to the uniform cataloging procedures they put in place to handle all e-book copy cataloging. Making an exception for one group of titles could cause confusion and produce errors in their cataloging. Therefore, they continue to add the script to MyiLibrary records using an ILS macro developed for cataloging all e-books at CUB. Before the MyiLibrary e-book records were distributed to the other CU libraries, they are output to a file that is then opened in MarcEdit, and the cost-recovery script is globally deleted from all records.

To accommodate the other CU libraries’ need for an overlay match point when they replace discovery records in their local catalogs with the shared OCLC records for the purchased titles, CUB catalogers devised a method for transferring the vendor’s control number found in the MARC 001 field on the discovery records to the MARC 035, System Control Number field, of the OCLC records used to catalog purchased titles.

The instructions CUB’s catalogers follow when cataloging purchased PDA titles follow:

1. Copy the Ingram accession numbers with the MiLcis prefix in the MARC 001 field from the PDA discovery records and paste them into a text editor.
2. Catalog purchased titles on OCLC. If an e-book record is not available in OCLC, provide original cataloging for the title by deriving a record from the print record for the print version of the title.
3. Export the OCLC records and overlay the PDA discovery records in the local catalog.
4. The local bibliographic record number is used as the matching point during the record export-overlay process. The loader program used in the export process protects the profile code in the local MARC 950 field in the discovery records and they are thereby retained on the incoming OCLC records.
5. Set the cataloging date to the date of the record export, retain the original item record for each title, and set the record display in the Prospector system.
6. Send records to Backstage with verified and/or corrected headings, the existing records are replaced or overlaid, and the updated records are exported from the catalog to a file.
7. Open the monthly output file in MarcEdit and delete CUB’s local data from records: cost-recovery script is globally deleted.
Figure 3 presents a sample MARC record for a PDA purchased title and figure 4 shows the public displays of the record in CUB’s and UCCS’ catalogs.

### Missing Record Detection

The Acquisition Department at CUB plays a major role in detecting missing MyiLibrary bibliographic records. For example, CUB received invoices for two PDA purchased titles for which Ingram had not generated a MARC record. The invoices appeared to have been generated in error. When informed of this by the Acquisition Department, Ingram produced usage statistics to prove that CU’s patrons had indeed generated the purchases, which CUB was able to confirm by checking usage data available on the MyiLibrary platform. It turned out to be a timing issue. Although the CU profile had targeted the titles, apparently CU patrons “discovered” them directly on the MyiLibrary platform just as soon as they became available and before Ingram’s catalogers had a chance to create bibliographic records for them for distribution. Their shift to the purchased status moved them out of discovery mode and, apparently, out of Ingram’s record production queue for CU’s e-book PDA. CUB’s acquisition staff is required to have PDA bibliographic records in CUB’s ILS since their practice is to add order records to the vendor’s discovery records when invoices are received for purchased titles. Ingram supplied the missing records with profile codes included to identify them as CU MyiLibrary titles. Ingram also redesigned its workflow to prevent this situation from recurring.

CUB prepares a quarterly spreadsheet of all MyiLibrary titles available in CUB’s catalog to assist the other CU system libraries in identifying missing titles in their own catalogs. By comparing

- the MARC 856, cataloger’s initials, CUB local cataloging processing fields, and system-generated fields during the output process.
- Distribute the revised MARC records to the other CU system libraries via Basecamp in .mrc file type.
- At the beginning of each month, initiate the ERM process for generating holdings/check-in records containing the URLs for accessing the e-books.

The other CU system libraries will do the following after retrieving a file of MARC records for purchased PDA e-books from Basecamp:

1. Edit the records to accommodate local cataloging practices.
2. Overlay the vendor PDA records with corresponding OCLC records.
3. Use OCLC’s batch features to set holdings in OCLC, a required step for OCLC member compliance.
CUB's spreadsheet with spreadsheets from their local systems, the libraries can detect missing records that CUB can supply. Missing records have typically occurred when CUB had not distributed them, which sometimes happened during the very early stages of the project. This also occurred because a local library missed downloading a given set of records that CUB had supplied.

**Duplicate Titles Detection**

CUB uses several methods to exclude titles that it already holds, in print or e-book format, from arriving as part of the MyiLibrary PDA e-book plan. CUB established selection profiles with Ingram that govern the majority of its monographic purchases. In addition to allowing CUB to specify call numbers, subjects, publishers, and non-subject parameters (languages, book types, price limits, preferred format), the profiles determine whether CUB will receive a book on approval, as a firm order, or as a patron select (PDA) e-book. Ingram is instructed that when CUB owns a print version of a title, it is not a candidate for an e-book purchase or discovery as a PDA title. Furthermore, CUB's Ingram profile blocks titles from the MyiLibrary program that CUB receives in publisher packages, e.g., Springer-Verlag, Institute of Electrical and Electronics Engineers (IEEE), Oxford Scholarship Online, the Organisation for Economic Co-operation and Development (OECD), Cato, World Bank, and United Nations.

In addition to the profile, Ingram tracks all of CUB's book purchases and will not send books, unless specifically requested, that CUB already owns in print or e-book formats. To accomplish this, CUB sends Ingram weekly lists, generated from CUB's ILS, of all monographs added to CUB's catalog in a given week. This allows Ingram to identify titles that CUB purchased from vendors other than Ingram, thereby preventing Ingram from duplicating them. This process also allows Ingram to avoid duplicating titles that CUB has access to through records provided by the Serials Solutions 360 MARC Update service and other providers.

Potentially, the monographic holdings of the entire group of CU system libraries could go to Ingram for e-book duplication control of MyiLibrary PDA e-books. This is not done because it would interfere with CUB's overall Ingram plan by preventing CUB from receiving an e-book or a print book from Ingram if another CU library already owns it. Such a process would also block PDA availability to all campuses for any title if just one other library already owns it. In the spirit of cooperation, the other CU system libraries have agreed to rely on CUB's plan with Ingram and to accept the fact that some title duplications will inevitably occur in their local catalogs as a result of their participation in the shared MyiLibrary program.

Ingram selects PDA discovery titles based on CUB's profiles and excludes titles based on CUB's holdings. However, some titles still inadvertently turn up as PDA discovery titles. This is most likely to happen when e-books are available to CUB in other packages or from other sources. A lag time at CUB in cataloging titles available to them through other sources might prevent them from appearing on CUB's weekly lists in time to prevent Ingram from delivering them as MyiLibrary PDA titles. Additionally, CUB selectors will occasionally place a firm order for an e-book title even if it is already available as a PDA discovery title, for example, to fulfill a faculty request.
member's course reserve request. The selectors place these orders directly online with Ingram through OASIS, Ingram Academic’s customer interface for orders and tracking, and the duplication may not be caught until the invoice for the firm order arrives at CUB. Once the duplication is detected, CUB notifies Ingram and the PDA title is deactivated.

Once Ingram delivers a new MARC record set for PDA discovery titles, CUB catalogers use tools to catch duplicate titles both before and after the records are loaded into the catalog. Before loading, catalogers use the “Extract Selected Records” function in MarcEdit to browse the publishers in the MARC 260 subfield b, Name of publisher, distributor, etc. This allows them to catch any PDA title that is already available in a publisher’s package at CUB, such as Springer and IEEE. Since Ingram has been informed of CUB’s publishers’ packages, this type of duplication rarely occurs. When duplicate titles are found among PDA discovery records before they are loaded into the catalog, Ingram is informed to deactivate the titles, and the duplicate records are not loaded into the catalog.

After PDA discovery records are loaded into the CUB catalog, CUB’s Acquisitions staff are instrumental in catching PDA titles duplicated in the approval/firm orders. If they find a PDA discovery record that duplicates an existing record on approval/firm order, they inform Ingram to deactivate the title from CU’s MyiLibrary PDA program. Catalogers are then informed through Basecamp to delete the record from the catalog and to inform the other CU system libraries about the duplication. All CU system libraries have access to MyiLibrary e-books purchased by CUB as approval/firm orders, and CUB shares its MARC records for these titles after they are cataloged.

Records for duplicate PDA discovery titles found at CUB are not included in the weekly MARC files CUB posts on Basecamp for downloading by the other CU system libraries. Once the other CU libraries load the PDA e-book files, they may see duplicate title occurrences in their local catalogs. For the most part, finding duplicates at the other CU system libraries is a catch-as-catch-can process. Sometimes the catalogers detect them in their ILS’s duplicate call numbers report when they download new records. This works only if the duplicates have the same call numbers. Sometimes acquisition staff or selectors uncover them in the process of ordering new books. Duplicates occur when the same e-book is available through another source at a given CU system library. If the duplicate title is one already owned by the CU system libraries as a whole (for example, a Springer e-book or IEEE e-book) the library that detects it will post the information on Basecamp, and CUB will notify Ingram to deactivate the PDA title. PDA duplicate records for titles in this category are suppressed or are deleted from all CUB libraries’ catalogs. Since Ingram is now aware of which publisher packages CUB owns, this situation rarely happens. When PDA discovery titles are found duplicated in subscribed e-book packages, the duplicate PDA discovery records are retained, and the titles remain candidates for discovery purchases.

Two CU system libraries, UCSC and UCD, are participating in another recently launched demand-driven acquisitions pilot sponsored by the Colorado Alliance of Research Libraries in conjunction with Yankee Book Publishers (YBP). Many of the same e-book titles are offered in both the MyiLibrary program and the YBP program. How these duplicates are handled is up to the individual libraries to decide and the workflow continues to evolve. Currently UCSC suppresses records for YBP discovery titles that are found duplicated in the MyiLibrary plan while UCD does not.

### Impact on the Cataloging Departments

Since the MyiLibrary shared PDA project evolved from CUB’s original e-book PDA plan with Ingram, it makes sense for CUB to maintain its position as the program’s central contact with Ingram for acquisitions, profiling and invoicing operations, and MARC record distribution. As the cataloging agency for all CU libraries, CUB has worked with Ingram and its cataloging staff, as described above, to produce and provide high quality and customized MARC records for discovery purposes. Although this means more work for CUB, the shared PDA project affects the cataloging departments of all of the CU libraries that add MyiLibrary records to their catalogs.

CUB’s cataloging procedures for PDA purchased titles were revised several times to help expedite the record editing and loading processes for the other CU libraries and to accommodate best practices for the Prospector unified catalog. The influx of new procedures generated processing errors that required record reviews and follow-up to assure that CUB catalogers are using the most current procedures. In addition, catalogers at the other CU libraries had to develop local procedures and workflows for processing the records CUB provides.

With CUB providing the OCLC records for purchased MyiLibrary e-books to all of the other CU system libraries, it would seem that downloading them at the other institutions would be a straightforward process. However, local practices make a difference in how each library handles the incoming records. With OCLC records, the provider-neutral standard comes into play whereby a single record represents all online manifestations of a given e-book title. When an e-book is available to a library from more than one provider and OCLC is the cataloging source for those providers’ records
(e.g., through OCLC WorldCat Collections sets), the library must adopt the provider-neutral standard locally or have duplicate OCLC records in its catalog (one for each supplier of the e-book). Both methods are used among the CU system libraries. Those who have adopted the provider-neutral approach, as CUB has, must ensure that the process used to ingest OCLC e-book records into their local systems will preserve all necessary provider information, particularly the URL for the e-book on the providers’ platforms. Those who opt for multiple OCLC records must design loaders that will insert duplicate OCLC records rather than overlay existing OCLC records with the incoming records.

Timing is another wrinkle in the provider-neutral environment. With OCLC continuously merging records in WorldCat from the preprovider-neutral days, there may be OCLC numbers for merged records in the current MARC 019 field of the OCLC record that are MARC 001 fields in local catalogs, depending on when OCLC records were loaded into a local catalog. This situation could cause duplicate e-book records to occur in the local libraries’ catalogs as well as in shared unified catalogs such as Prospector. There currently is no systematic process for handling these types of duplicate OCLC records in CU system libraries’ catalogs that result from OCLC cataloging of MyiLibrary purchased e-books. CUB hopes that in the future, OCLC, Ingram and MyiLibrary could partner to provide record sets for MyiLibrary titles through OCLC’s WorldShare Metadata program to help libraries improve cataloging efficiency.

CU system’s MyiLibrary e-book PDA program is based on CUB’s monographic holdings and CUB’s original profile. As a result, duplicate titles from non-MyiLibrary sources are likely to appear in the catalogs of the other CU libraries since they do not participate in the title de-duplication process established between CUB and Ingram. This is particularly true for UCCS and UCD since, like CUB, they have collections that are broad in their scope of subject coverage. In addition, UCCS and UCD are participating in the YBP and Colorado Alliance of Research Libraries shared DDA e-book pilot project through EBL and ebrary. As indicated earlier, this program has the potential to duplicate MyiLibrary titles. Each individual library must determine how it will handle records for duplicate titles that they acquire from a variety of sources.

The collaboration and communication among the CU libraries puts “extra eyes” on the project that help in spotting cataloging errors and in detecting MyiLibrary title duplications that might occasionally occur despite safeguards in place to prevent them. The project is also promoting communication among the CU system libraries that is beneficial to all of them in general. As the catalogers work together to streamline record sharing procedures with CUB, they also share their knowledge and expertise of MarcEdit, ILS loaders, OCLC batch loading features, and best practices for the regional unified Prospector catalog.

A problem related to the display of diacritics serves as a good example of the benefits of cooperation. Initially, diacritics found on records provided by CUB did not always display correctly in the other libraries’ catalogs. This problem is associated with character encoding formats used in local systems, MARC-5 versus Unicode. CUB was able to provide coding that the other libraries could add to their loader programs to make diacritics display properly in MyiLibrary records and also in all other locally batch loaded records.

**Conclusion**

With four of the five CU libraries downloading MyiLibrary records, it has been a positive experience for the catalogers in general. They shared their ideas and their expertise, and together they developed guidelines that facilitated local cataloging operations while accommodating the Prospector unified catalog. Having one library serve as the central agency within the consortium is efficient and reduces workloads for most participants. As the flagship university within the CU system, CUB is well positioned to negotiate with the vendor for services that benefit the entire consortium.

The authors recommend the following best practices when working with vendors to procure MARC records:

- Establish an agreed-upon standard or requirement for the vendor-supplied MARC records, preferably before the contract is signed.
- Maintain contact with the appropriate vendor representatives, e.g.,
  - representative in charge of setting up collection profiles;
  - cataloger responsible for creating and/or making MARC records available; and
  - representative responsible for the e-book platform and title access.
- Comply with consortial best practices:
  - meet local cataloging needs;
  - provide a means for assessing the collection;
  - provide a means for monitoring the budget; and
  - help streamline local workflow.
- Notify the appropriate representative as soon as possible when duplicate records are detected.
- Appreciate the vendor’s efforts to accommodate the library’s needs.

The high-quality bibliographic records provided by Ingram, including special customization to meet the needs
of the CU system, make the cataloging process more efficient for CUB. Good vendor records reduce editing time for CUB’s catalogers, allowing them to quickly load and distribute records. CUB catalogers apply the same high cataloging standards to the records for the MyiLibrary PDA titles as they do to all their batch cataloging projects. When CUB distributes MyiLibrary discovery records to the other CU libraries, they receive records that can be downloaded with no additional editing except what is necessary to accommodate local practices, including those related to RDA implementation.

With good records in multiple catalogs, the e-books are more likely to be “discovered” and purchased, creating a win–win situation for all stakeholders. The libraries’ patrons have catalog access to e-books soon after they become available, the vendor is more likely to sell books, and the libraries enrich their collections.

State funding for higher education in Colorado has steadily decreased over the past five years as full-time enrollment has increased. In these harsh economic times, the CU system libraries’ longstanding tradition of cooperation in providing electronic resources to their patrons serves them well. The CU system MyiLibrary e-book program is but one example of how the libraries have continued, collectively, to leverage their dollars. The MyiLibrary project extends beyond the leveraging of dollars. It also demonstrates how individual libraries can come together to share knowledge and expertise of library systems and tools to produce better metadata in local and shared systems. In particular, it demonstrates the benefits of bringing catalogers and metadata experts to the table with collection development and acquisitions librarians to plan and implement a PDA program. The CU Libraries have yet to determine the program’s impact on their patrons and their collection development processes, yet anecdotal evidence based on the number of title purchases generated and feedback from reference librarians suggests that the CU MyiLibrary cataloging project is succeeding. To confirm the program’s success, the libraries will need to conduct formal cost-benefit studies in the future.

References


Whether your library is starting to think about piloting a patron-driven acquisitions (PDA) program or is in the midst of a pilot or permanent program, you will profit from studying Suzanne Ward’s no-nonsense, comprehensive guide. This slender volume distills the information, both contextual and pragmatic, you will need in order to plan for, institute, assess, and manage print- and e-book-based PDA programs. Academic libraries are in the spotlight throughout, but many of the principles will apply to other types of libraries, too.

Ward is well qualified to author a practical guide to managing PDA programs, as she helped edit Patron-Driven Acquisitions: Current Successes and Future Directions, while also contributing to the book’s introduction, literature review, and conclusion. One other book-length treatment of the subject exists: Patron-Driven Acquisitions: History and Best Practices, edited by David Swords, a vice president at e-book aggregator EBL. For an exhaustive study of PDA, the reader should consult these publications. In contrast, the present guide, in accordance with the scope of ALCTS Acquisitions Guides, is intended to offer a concise review of the history and literature of PDA and a step-by-step approach to the topic.

The book focuses on two basic types of PDA programs: a print-based interlibrary loan (ILL) “buy-not-borrow” program, and an e-book PDA program. “Starting a PDA Program” describes clearly and simply all the steps to take, the questions to answer, and the issues to consider when setting up an ILL-based program. Methodical sections on administering the program follow. They include not only the bigger-picture topics such as assessment, getting input from users, helping librarian selectors understand and buy into the program, managing cross-unit cooperation, and budgeting, but also more quotidian topics such as deciding who makes purchase decisions, who places orders, and at what point books are to be cataloged.

“PDA and E-books” begins with an overview of the four most common types of e-book PDA programs, and then offers a full guide for setting one up. Libraries with approval and slip plans will especially appreciate the paragraphs on the relationship between an e-book PDA program and an established print book approval plan; likewise, ILL librarians will welcome the segment on how a PDA program affects their work. This chapter—the longest of the book—is even more thorough than the one for the ILL-based plan, for it also provides three detailed sidebar summaries of factors to consider: selecting an e-book aggregator, evaluating an e-book pilot project, and managing ongoing assessment of the program. Together, these sections cover nearly fifty crucial points every planning team will want to ponder.

Five other chapters round out the guide, starting with a clear definition of PDA, and a simple overview of the book in chapter one. “Traditional Collection Development and Interlibrary Loan” leads into the rest of the volume by providing a condensed yet very readable literature-based history of the evolution of collection development, beginning with its roots as a nearly exclusively librarian-centered activity carried out with little input from the user. It then moves on to the gradual and unsettling revelation in recent decades that large portions of our carefully formed “just in case” collections remain unused. The resulting “buy not borrow” option within ILL is represented as the first step in the evolution toward collection development by the user rather than for the user.

In “Cons,” Ward takes up the four main disadvantages of PDA, yet she counters each point with persuasive arguments that might well be used to convince doubters of the value of a PDA program. The final chapter gives a nod to emerging trends in scholarship, publishing, libraries, and technology, then changes direction to pose a question of great interest to many librarians: In years to come, what role might librarians have in building library collections? The author ends the book with a rousing call to librarians to publish and share their innovations in and experiences with user-centered collection building.

Sprinkled throughout the guide are bits of advice of the type one always appreciates from an experienced mentor, for example, “It would be wise not to focus too much energy on all of the differences between vendors . . . . If all vendors’ products and services seem about equal, then focus on the patron experience” (33–34). Or, with regard to assessment, remember to determine at the outset what elements to track and how to track them, and be certain that the data, once gathered, can indeed be queried and manipulated.

A six-page selected bibliography supports Ward’s approach to her topic,
which is to ground her writing in the published literature on the subject. As a result, the reader may ultimately experience this small book as the happy blending of a thoughtful and adeptly written literature review of PDA with a pragmatic guide to implementing such a program.—Beatrice Caraway (bcaraway@trinity.edu), Trinity University, San Antonio, Texas

References


Intended for a broad audience of librarians at many different kinds of institutions, Building and Managing E-Book Collections provides a strong starting place to get an e-book collection program underway. The manual is divided into three parts: Part I: E-Books in Context; Part II: E-Books in Detail; and Part III: E-Books in Practice. Beginning with a history of e-books and perspectives from both publishers and libraries on the market for e-books, Building and Managing E-Book Collections continues with an overview of collection management from selection to assessment, and concludes with six examples of successful implementations at a wide range of institutions.

Academic libraries—health science libraries in particular—are especially well represented by contributors. True to the manual’s intent to appeal to a broad audience, however, the how-to chapters address concerns that would be faced by any library. In addition, editor Richard Kaplan has assembled case studies from professionals with experience in public libraries, school libraries, and publishing.

Part I: E-Books in Context sets the stage. Although e-books are no longer newcomers to library collections, their business models, workflows, and service models are in flux. The relationship between libraries, publishers, and patrons in the ecology of e-books remains unsettled. Nadia J. Lalla in chapter 3, “E-Book Publishing—The View from the Library,” offers a framework through which all of the chapters that followed may be considered:

As soon as the decision is made to purchase books in digital format for a library, a myriad of decisions must be made. Should e-books be purchased via a single exclusive publisher or a third-party vendor? What format will the e-book have? On which e-book platform will it appear? How should libraries acquire e-books? The answers to these questions can unexpectedly shape a library’s collections and its future decisions regarding the funding of those collections. (23)

In a period of ongoing transition, collection management decisions must be made with a long view.

Part II: E-Books in Detail tackles pragmatic questions regarding the specific collection management activities of selecting, licensing, budgeting, cataloging, and assessing e-book collections. In addition, an entire chapter focuses on best practices for e-book collection management in public libraries. As a whole, this section presents the meat of the manual, that is, the chapters that will be most thumbed through over time. One topic that may deserve its own chapter in the second section is the long-term preservation of e-books acquired in perpetuity, as opposed to those acquired by lease, since e-books present unique digital preservation concerns. Additionally, if the order of the chapters roughly suggests a sequence of activities for managing e-book collections—selection, license negotiation, budgeting, cataloging, assessment—it would be preferable to consider first rather than last. Overall, however, the how-to chapters in this section frame and address many crucial questions: To what extent are the activities required for managing e-books comparable to the activities required for managing other e-resources? How can institutions determine which user access model (e.g. patron-driven acquisition or pay-per-view) best meets their needs? How can institutions choose among the array of e-reader devices? What are common characteristics of e-book subscription packages? How can libraries re-allocate funds to support e-book collection development? How do acquisition models for e-books constrain cataloging decisions? In a tough budgetary climate, how can libraries effectively assess purchasing decisions? This section addresses these questions and many others.

Part III: E-Books in Practice presents six case studies ranging from eliminating paper books in a school library to circulating e-readers and changing staff roles to fit the purpose of managing e-book collections. While this section offers some of the most compelling chapters because they situate e-books so firmly within communities of users, this section provides too many success stories. For an individual or institution working to build an e-book collection from the ground up, reflective accounts or rigorous assessments of failed efforts may in fact afford richer lessons learned than do unmitigated success stories. “E-Books in a High School Library—Cushing Academy” contributed by Tom Corbett stands
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Demystifying FRAD: Functional Requirements for Authority Data.

The back cover of *Demystifying FRAD: Functional Requirements for Authority Data* describes the volume as the “first book of its kind,” a phrase that proves to be a very apt descriptor. Besides *Functional Requirements for Authority Data* (FRAD) published by the International Federation of Library Associations (IFLA) in 2009, only a few articles have been published on this topic. Now that *RDA: Resource Description and Access* is being adopted, understanding the underlying conceptual model behind authority data in conjunction with the new cataloging code is crucial for librarians who handle authority work. Jin, a librarian who specializes in and publishes about authority work, achieves her objective of offering a “basic [and accessible] explanation” (1) of the FRAD model.

The book tackles the topic in a logical manner, building the reader's knowledge from the ground up. As the vocabulary of FRAD is similar to that of Functional Requirements for Bibliographic Records (FRBR), Jin rightly situates the discussion in this book within the larger concept of entity-relationship models, entities and attributes, and user tasks shared by both FRBR and FRAD. Jin lays foundational groundwork in the introduction to put readers on the same page with regard to identifying acronyms, the purpose of FRAD, and the context in which FRAD was created. She offers a precise yet succinct history of the development of FRBR and FRAD, and how RDA relates to these conceptual models. This background may not be new information for all readers, but the concise timeline approach and contextualization are helpful for understanding how and why the creation of FRAD was necessary.

The meat of the book consists of describing the entities, attributes, and relationships in FRAD. For each entity, Jin provides a thorough definition adapted from the aforementioned 2009 IFLA Study Group report on FRAD, and expanded for further clarity. Attributes are comprehensively explained, enhanced by examples and rationales for the importance of each attribute. For example, the entity “person” has “gender” as one of its attributes. Jin points out that assigning the value for the attribute “gender” is “especially important when two people have the same name in romanized form” (18). Rationales such as these not only establish a universal understanding for each attribute, but also take the guesswork out of determining why a librarian should take the time to assign a value for an attribute.

While the brief lesson on entity-relationship models and diagrams is informative, the diagrams included for practically every possible entity and attribute relationship are the most helpful. As Jin works through the eleven entities and their possible combinations to each other as well as various attributes, each combination is clearly displayed and explicated for the reader. These entity-relationship diagrams for each relationship and the coordinating descriptive paragraph provide practical, applicable scenarios for various entity and attribute combinations.

In the final section of the book, Jin maps the FRAD entities and attributes to RDA. While this section is the shortest, it is perhaps the most applicable as it allows the reader to see a visual demonstration of the end result of how the FRAD model informs the cataloging code. Jin is careful to point out when FRAD entities and attributes have not been mapped to RDA; this tends to occur when an entity falls into the subject chapters of RDA, which have not yet been written. Over twenty brief RDA authority records are included in this section, covering a multitude of possible entity and attribute combinations. No MARC mapping is provided, but the appendix features a FRAD-to-RDA mapping that is very helpful to locate the coordinating RDA rules for FRAD entities and attributes.

*Demystifying FRAD* serves as an excellent, all-in-one resource for understanding the FRAD model and its relationship to authority work under RDA. Its greatest applicability is as a “ready-reference” guide, a resource that a librarian can pull off the shelf when encountering questions about a specific situation. With very few exceptions, the book is logically organized and can be parsed for specific information via the extensive index. Librarians looking for an accessible
out as an exception. Corbett acknowledged that in one respect thoughtfully made decisions did not yield the hoped-for results. Library staff of Cushing Academy believed that a bold move to largely replace paper books with e-books would enable their library to better perform both roles of the school library: support of research and support of reading. Despite thoughtful requirements analysis and selection of vendors for both patron-driven acquisition of research content and federated search across e-books, journals, and encyclopedias, use of e-books in support of the library’s research role disappointed. Far from being disheartening, the difference between expectations and results underscores the ongoing nature of building e-book collections through continual assessment, skills acquisition, and planning.

For those beginning to work with e-books, Building and Managing E-Book Collections frames the essential questions and provides valuable guidance for determining which solutions will suit an institution’s particular context. With this guidance, libraries can aim to make collection management decisions with a long view during a continuing period of flux.—Chelcie Rowell (chelcie@live.unc.edu), University of North Carolina, Chapel Hill, North Carolina

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exploration or elevator speech for their work might be interested in the manifesto included in the introduction, calling authority work "essential for effective retrieval of resources" and explaining that "because of the Internet, authority control has become even more important since users are now able to search across numerous databases." (3). Shortcomings of the book include some sections of repetitive prose that would have benefited from being presented in new and fresh ways. Also, the importance of FRAD for the "organization of information in the future" (1) is never thoroughly explained, except for RDA’s reliance on the model for authority work.

Learning about and gaining a better grasp on the underlying conceptual structure for authorities under RDA has enhanced my understanding of changes between the Anglo-American Cataloguing Rules and the new code.4 This resource will be an asset for comprehending and completing authority work under RDA.—Elyssa M. Sanner (esanner@nmu.edu), Northern Michigan University, Marquette, Michigan

References


With unique perspectives and specializations developed through working with modern European books in an independent research library and modern American books at a large public university, Galbraith and Smith’s Rare Books Librarianship provides a broad overview of the fundamental skills and knowledge necessary for the successful professional. The work offers twelve chapters, each containing footnotes, suggested further reading, and in some instances, images, diagrams, and links to recommended websites. A brief biographical summary of each author as well as an ample index are provided.

The book opens with a brief overview of the history of rare book libraries involving the origin of book production, growth of book collecting, and types of rare book libraries. Chapter two, divided into two parts, describes the importance of rare books not only as texts but also as historical artifacts. Part one addresses the types of rare book bibliographies, particularly the components and terminology of a descriptive bibliography; part two discusses materials produced in the modern era (defined by the authors as 1800s to present), including types of collections, and the late nineteenth-century movement called “fine printing” (37) or the book as an art object. The following chapter covers the importance of researching the provenance of items in a rare book collection and the significance of appraisal values in evaluating and justifying the importance of a collection. Chapter four provides an overview of the concepts involved in rare book conservation and preservation including best practices for handling, storing, stabilizing, and treating fragile materials in the collection. The succeeding chapter describes the importance of rare book digitization as not only a way of improving research access but also as a way of decreasing prospective handling of materials and thus preserving them for posterity. Chapter six discusses basic planning and preventive measures involving theft, damage, and potential disasters. The subsequent chapter defines the elements of rare book collection development, and examples of general policies and acquisition strategies are provided. Chapter eight discusses the vital role of timely accessioning and cataloging of materials, which not only provides judicious access for researchers, but also inspires the confidence of current and prospective donors. The ninth chapter provides a brief overview of the essentials of copyright law when managing rare book collections. The succeeding chapter describes the best practices for providing outreach to local communities, publicizing to online communities, establishing fellowships to attract researchers, and marketing the collection through exhibits and exhibit loans. The penultimate chapter discusses the importance of continuing education and provides a plethora of recommended professional development resources. The book closes with a selected list of print and electronic reference resources that will aid the rare book professional.

Intended as an update of Roderick Cave’s Rare Book Librarianship, the co-authors deliver an effective overview of the myriad aspects of managing rare book collections. Particularly noteworthy is the coverage of the textual and artifactual nature of rare books. Readers will find informative the presentation of terminology, early and noteworthy printers, and important points in the development of modern


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printing. In addition, the discussion of best practices for preservation and collection maintenance provides excellent fundamentals concerning the anatomy of a book, correct ways of handling fragile materials, variety of protective structures for housing rare books, and common conservation treatments. Furthermore, practitioners will deem beneficial the suggested strategies for marketing and outreach to local communities and beyond. Commentaries regarding rare book digitization effectively describe the important role of digital technologies, planning and execution of digital projects, challenges brought by evolving digitization standards, and that the "continued conservation of the artifact itself is of the utmost importance" (81). Additional notable items include the suggested materials for further reading within each chapter, as well as the significant but less comprehensive list of resources offered in the final chapter.

Some readers may find the limited coverage of copyright issues, security measures, and disaster preparations disappointing. Perhaps these topics could have benefited from additional contributions from experts in the field, or the inclusion of appendices offering templates and examples of documentation. Nevertheless, special collections librarians and practitioners overseeing rare book collections of varying sizes within an academic, public, or special library setting may find this work useful. The novice and those who supervise professionals that manage rare book collections will benefit most.—Anders Selhorst (abselhorst@gtcc.edu), Guilford Technical Community College, Jamestown, North Carolina

Reference

1. Roderick Cave, Rare Book Librarianship (London: Clive Bingley, 1982).


Teper and Alstrom developed this publication after their professional experiences led them to recognize a void in the relevant literature. The authors, who each direct conservation departments in academic libraries, had become frustrated with the lack of research available to support their individual efforts to design conservation laboratories. In an attempt to fill this information need, they compiled and edited a series of chapters by conservators and preservation administrators who offer their insights and experiences related to the design of new conservation laboratories and renovations of existing spaces. Although the contributors are experts in the field, the editors recognize in their introduction that the design of conservation laboratories is often highly subjective, and therefore the opinions presented can vary even within the small selection of chapters chosen for this publication.

Some chapters are broad in scope, discussing administrative issues related to project management, budgets, and scheduling, while other chapters focus on more specific technical features related to conservation laboratories, such as water purification and quarantine areas. Important distinctions are made in the differences between a space intended to serve as a bindery and one that is to be a conservation laboratory, or even more specifically, book conservation labs versus paper conservation labs, and the varying needs of each. In addition to the lab spaces themselves, there is discussion of office space and dedicated areas for eating and drinking.

The chapter authors include a variety of interesting details, even for individuals who may have some experience with preservation and conservation functions within the library. For example, Alstrom suggests the use of treatment sinks that are clear on three sides, to facilitate effective and safe teamwork when washing materials. He also recommends the placement of freezers outside of the lab to allow access for other library staff members who may discover wet or moldy materials beyond the hours that the lab is open. This recommendation that raises some security concerns, since it can be challenging to ensure that the freezer is available to all staff members who might need it, while not to individuals who could compromise the protection of the materials. Nonetheless, this recommendation illustrates the need to think creatively and contemplate a wide range of considerations when planning the location of laboratory resources.

The text of several chapters is supplemented and enhanced by photographs, diagrams, and tables. The visual aspects of the book help clarify many of the descriptions provided in the chapters, and the illustrations can serve as helpful guidelines for the would-be laboratory designer. There are some typographical errors throughout the book, both in the text and the illustrations (e.g., figure 2.1.21), but most are not obtrusive enough to be particularly jarring.

The most pervasive themes throughout the chapters are the need for flexibility, accessibility, organization, and security in laboratory design, and the importance of planning for future growth. Design considerations are not limited to the health and well-being, so to speak, of the prospective collection materials that are likely to pass through these spaces. In addition to ensuring that the laboratory is equipped to properly handle and care for a wide variety of collections, other design elements focus on how laboratory design can affect and should account for the physical needs of staff members. This includes varying light levels to accommodate individuals of different ages and potentially varying visual abilities, as well as ergonomic

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In addition to compiling and editing the text, Teper and Alstrom each contribute one of the eleven chapters in the book, and Teper contributes four of the seven appendixes. Alongside Teper’s four appendixes, the other three are written by conservation professionals who also contribute chapters to the body of the work. Overall, the appendixes range from general glossaries of conservation and lighting terminology to highly specialized procedures and equipment specifications.

Although the content of the book is thorough and effective in its exploration of the topic, it is also rather specific in scope. This high level of specificity means that it functions much better as a reference for those individuals with a targeted interest in the subject matter, rather than as a broad-based general-interest book. That being said, it should not be presumed that understanding the content requires a substantial background or training in conservation. In addition to its usefulness as a resource for those who do have conservation training, the clarity of writing, lack of jargon, and the visual components make the book accessible to a much broader audience. In this way, anyone tasked with a conservation laboratory construction or renovation project, regardless of their previous experience in this area, will benefit from consulting Teper and Alstrom’s work.—Jennifer K. Sheehan (jenniferksheehan@yahoo.com), University of North Texas, Denton, Texas