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Preserving America's Print Resources – Progress, Challenges, and Necessary Measures in North America

<https://doi.org/10.1515/bfp-2017-0043>

Abstract: The author describes the rise of shared print and print archiving programs in the U.S. and Canada and the causes of that development. He appraises the progress of the archiving programs to date, and identifies persistent challenges, such as unreliable data and limited archiving commitments. The author then illustrates new measures being taken by the Center for Research Libraries (CRL) and others to address those challenges, including a ten-year CRL Shared Print Collections Agenda.

Keywords: Shared print programs; Center for Research Libraries; library

Die Erhaltung gedruckter Publikationen – Fortschritte, Herausforderungen und notwendige Maßnahmen in Nordamerika

Zusammenfassung: Der Autor beschreibt den Aufstieg der einrichtungsübergreifenden Programme zur Archivierung und Erhaltung gedruckter Publikationen in den USA und Kanada sowie die Ursachen dieser Entwicklung. Er bewertet die bisherigen Fortschritte der Programme und identifiziert anhaltende Herausforderungen wie unzuverlässige Daten und begrenzte Archivierungsverpflichtungen. Des Weiteren illustriert der Autor neue Maßnahmen des Center for Research Libraries (CRL) und anderen, um diesen Herausforderungen zu begegnen, einschließlich einer zehnjährigen CRL Shared Print Collections Agenda.

Schlüsselwörter: Einrichtungsübergreifende Archivierung von Druckschriften; Center for Research Libraries; Bibliothekssammlungen

1 Shared Print in North America

The present generation of librarians in the United States faces unprecedented challenges in their stewardship of

physical collections. During the print era a vast corpus of literature was built by North American universities and independent research libraries, through an enormous investment of time, expertise, and funds. This corpus is now threatened by loss and deterioration due to handling and inherent vice. At the same time intensifying pressure on libraries to reallocate collection space and resources to other purposes is forcing administrators at many libraries to make consequential decisions on whether or not to continue to maintain and develop local holdings, invest in their conservation, remove them from service, and even deaccession and discard them.

Those circumstances are brought about by a lessening of university emphasis on graduate and postgraduate research, particularly historical research, creating pressure to reallocate library space from storage of older print materials to uses more conducive to pedagogy and undergraduate learning. The new conditions are also driven by the perception that knowledge has migrated to the digital environment, devaluing the importance of print collections.¹

As a result, the last twenty years have seen the rise of cooperative print archiving and sharing initiatives among academic libraries in North America. These initiatives have evolved from single libraries with secure offsite storage facilities, to increasingly complex regional solutions that rely on the participation of many libraries. Many of the early cooperative print efforts sought to form collections mirroring specific publisher digital collections, such as JSTOR Arts and Sciences and scholarly journals published in both print and electronic formats. Such programs were administered by library consortia, including CRL, The Big Ten Academic Alliance, and OhioNet.²

More recent print initiatives have adopted a more distributed approach, whereby participating libraries commit to retaining specific existing local holdings on behalf of other members of the program. The Western Regional Storage Trust (WEST) initiative, established in 2009, is one

¹ On the changes in the nature and function of U.S. academic libraries see Gayton (2008) and Pongracz Sennyey et al. (2009).

² For a survey of early approaches to shared print in the U.S., see Reilly and DesRosiers (2003).

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such shared print program, collecting and housing copies of serials under a variety of conditions in multiple locations. Other shared print programs in North America include the Council of Prairie and Pacific Libraries' (COP-PUL) Shared Print Archive Network in Canada; and Scholar's Trust, a program launched in 2014 that combines three other successful local and regional initiatives.³

The Print Archives Preservation Registry (PAPR), a database maintained by CRL, as of December 2016 listed 41 print archives and shared print programs, which include 154 libraries and 72 registered collection storage facilities. The most comprehensive source of information on shared print collections, the PAPR database provides complete volume-level data on the holdings of the 41 archives, as well as information about conditions in the storage facilities. A new feature, profiles of several of the major shared print programs, provides information on the funding models, governance, and the archiving commitments and practices of programs like the Scholars Trust.⁴

While the shared print initiatives have brought new practices, systems, and tools to bear on the evolving struggle to deal with the shortage of collections space, the initiatives are driven largely by local and regional needs. Absent is a blueprint for a systematic approach to preserving the nation's print heritage.

2 Archiving and sharing print serials: key challenges

In April 2016 CRL convened its annual collections forum *@Risk: Stewardship, Due Diligence, and the Future of Print*, to explore the meaning of due diligence and responsible stewardship in a time when the center of gravity in U.S. research and academic libraries is rapidly shifting from collections to digital resources, and collection storage and management are giving way to other library roles and responsibilities. *@Risk* attendees considered how the historic investment in building and maintaining print serial collections might be protected and better leveraged. The event informed CRL's agenda for its continued support of print archiving and sharing.⁵

³ A wealth of information on the new and emerging shared print projects in North America is available in the archived PowerPoint presentations from the Print Archives Network (PAN) Forum, 2010–2017, accessible at <http://www.crl.edu/node/11042>.

⁴ <http://www.crl.edu/node/11377>.

⁵ For the presentations and other documentation relating to the *@Risk* Forum, see <http://www.crl.edu/node/11968>.

@Risk was a sequel to the June 2015 *Preserving America's Print Resources II Summit (PAPR II)* which brought together representatives of the major print serials archiving and shared print programs and related preservation efforts and services in the United States and Canada.⁶ The purpose of that gathering, supported by CRL and the Andrew W. Mellon Foundation, was to assess the cooperative “safety net” created by North American libraries for print serial collections in the 12 years since the original PAPR conference, held in 2003; and to begin to formulate a common vision for further development and growth of shared print serial collections in North America, with the aim of preventing the loss of critical print journals and government publications.

A brief analysis of the state of shared print was provided as background for discussions at the 2016 Forum. The analysis was based on new data aggregated by CRL since the time of the June 2015 *PAPR II* summit. It was also based on conversations with key funders, librarians, publishers, and others, to further focus and refine our understanding of the problems, and test the feasibility of the solutions, identified in summit discussions.

From our analysis and from the discussions at the *@Risk* forum, it became clear that the integrity of the vast, encyclopedic print serial collections built and long maintained by North American libraries was now in jeopardy. Pressure on libraries to reduce print holdings and reallocate space to other uses was intense and growing, increasing the likelihood that important materials would be lost in the process. From the new data on print archives it was clear that the community faced three key challenges:

1. The immense scale of the serials corpus yet to be archived. The data suggest that the North American print sharing and archiving efforts to date, though substantial, encompassed only a minute portion of the estimated number of journal titles held by U.S. and Canadian research libraries. When one includes the corpus of government publications the percentage was even smaller. The size of the “known universe” of serial titles is difficult to calculate with any precision. Estimates of the number of published print serial titles in OCLC's WorldCat run between five and six million, but this is believed to include newspapers, multivolume monographic series, and ephemeral materials. To calculate a defensible figure for this universe of titles, Amy Wood and Constance Jurczyk of CRL analyzed four available datasets: the titles listed in Pro-

⁶ The agenda, analysis, and final report of the PAPR II summit are online at <http://www.crl.edu/node/11334>.

Quest's Ulrich's serials data, the combined serial titles held by the 13 Big Ten Academic Alliance Libraries, the serials available in digitized form in the HathiTrust Digital Library, and the titles registered in the PAPR database. The analysis determined that of the total of 1,425,786 titles included in those datasets approximately 1,100,000 represented unique titles. Using that frame of reference it appeared that a relatively small number (approximately 112,000) of the universe of existing serial titles had yet been archived to any meaningful extent. The data also suggested that, of the estimated 112,000 titles archived by the shared print programs registered in the PAPR database, the vast majority were archived in only one copy. Fewer than 18 % of the titles registered in PAPR were held in multiple copies, i.e., archived by more than one program. Less than 0.3 % were archived in 5 or 6 copies.⁷

2. *Lack of strategic coordination among the major repositories of print serials.* The archiving programs were disproportionately skewed toward coverage of titles in science, technology and the social sciences, and toward English-language titles published in the United States in the late 20th century.
3. *Inadequacy of available data to support library due diligence and decision-making.* Holdings data disclosed by most programs was not granular enough to reveal gaps in the runs of archived titles. Most holdings were expressed as span dates, and issue-level validation of holdings was rare. CRL had begun to gather and expose information about the terms and conditions under which archived titles were maintained. Yet such data was not readily available and the expression of such information was not standardized.
4. *Scarce and dwindling resources available for preservation.* The budgets of major academic libraries, the core supporters of the shared print initiatives, continued to be stressed, and available resources diverted to priorities other than management of physical collections. Therefore expanding the scope of the archiving activity would require new sources of support for the existing programs and a larger set of partners.

⁷ Obviously, many additional copies of those titles are held by individual North American research libraries and will probably be retained for the long term. However, even major "libraries of record" are finding it increasingly difficult to preserve and service as comprehensive a collection of print materials as they once did. And anecdotal information suggests that pressures to reprogram collections space and resources at law, engineering, agriculture, science, and other academic libraries are increasing, and necessitating difficult decisions about collection management.

CRL's findings based on quantitative data were affirmed and supplemented by anecdotal evidence accrued in the course of discussions with planners of shared print efforts and administrators at major U.S. and Canadian research libraries. The conversations strongly suggested that the pressure to reclaim collections storage space through withdrawal of print materials was accelerating. Many more volumes were being offered by academic libraries to CRL for its JSTOR archive in 2016 than in 2001, when that project began. And the Law Libraries Microform Consortium was being inundated with offers from major U.S. law school libraries of print volumes for its digitization program.

3 Remedial measures identified

It was clear that certain measures must soon be taken to help meet the key challenges. In its report on the @Risk forum CRL identified those measures:

1. *Radically expand the scope of the print serials corpus archived by the existing major North American print sharing and archiving efforts,* to encompass important materials that are not widely held and that are not available in electronic format. Those materials include, for example, pre-1945, non-JSTOR titles; certain titles in the humanities and social sciences; titles produced outside the U.S., Canada, and the U.K.; and vernacular and commercially produced serials.
2. *Enlist "libraries of record", digital preservation services and publishers to augment the efforts of the print archive programs by formalizing and making more explicit their commitments to maintaining their serial holdings.* Not all of the important serial titles will be able to be adequately archived by cooperative programs. Nor will they need to be, as major individual research libraries continue to maintain and develop print holdings, and many journals are adequately preserved in digital format.
3. *Increase the amount of "actionable" information and services available to support informed due diligence and decision-making by archiving and stakeholder libraries.* CRL has begun to provide structured information about archiving policies, practices and commitments disclosed by archive programs and "libraries of record." This could be accomplished by refining and publicizing "trust metrics" on archive programs and standardizing formats for systematic reporting and disclosure of policies, practices, and commitments by archives and individual libraries. Funders of digitization projects might also be enlisted to endorse as a best

practice disclosure of relevant information about storage conditions and maintenance of originals digitized.

4. *Exploit, and integrate the further development of, existing technical infrastructure and tools for harvesting, analyzing, and registering holdings information.* Existing technical infrastructure and tools include the PAPR database; the University of Florida's Journal Retention and Needs Listing (JRNL) software tool; PAPR collection analysis; the PAPR Issue-level Holdings System (IHS); and the MARC21 field 583 (Preservation & Digitization Action Note).

4 CRL's shared print collections agenda, 2017–2026

Discussions at the @Risk forum and subsequent conversations with individuals at libraries, universities, and funding agencies suggest that prompt and decisive action was needed to ensure that the rich and unique legacy of centuries of library investment endures. Therefore CRL decided to allocate new resources, beginning in 2017, to a sustained effort to shift the burden of preserving the “critical corpus” of published serial literature from individual North American libraries to the collective. CRL's goal for the next ten years is to radically reduce and redistribute the costs of maintaining the corpus of important print serials, while generating new benefits for North American scholars and libraries.

Specifically, the agenda consists of five points:

1. Substantially expand the scope and improve the quality of the shared collections.
2. Merge preservation and electronic access.
3. Forge and formalize new partnerships to achieve greater scale.
4. Create and promote a “CRL consensus” on the scope, norms, and standards of print stewardship.
5. Articulate and promote a clear and convincing narrative for scholars and funders.

4.1 Substantially expanding the scope and improving the quality of the shared collections

At the @Risk forum on shared print stewardship James O'Donnell, of Arizona State University, made the following observation:

“I believe that at this moment, with the tools available to us, we do not just have an opportunity to engage in cooperative collection development, we have an absolutely unavoidable obligation. No-one outside our tribe, understanding what we have in front of us and what we can do, will for a moment accept that we cannot engage in cooperative collection development [...] on a scale well beyond what we have ever accomplished in the past. It simply will not be a story we can tell.”

O'Donnell's point was that simply forming and sharing collections, without actively and strategically developing those collections, is an enterprise that would be difficult to justify and sustain in the current economic environment. The value of preserving collections, on the other hand, is increased by collective investment in completing and augmenting those holdings. For that reason CRL prioritizes investment in print sharing efforts that combine preservation and strategic collection development. Such efforts will identify and assemble secure and well-curated serial collections and will work to improve their quality, integrity and comprehensiveness. That will entail actively identifying materials of interest, filling gaps in serial holdings, gathering, and analyzing detailed data about holdings and repositories, and other measures to ensure the long-term integrity and completeness of the shared collections.

4.2 Merging preservation and electronic access

The benefits of archiving are multiplied when they are accompanied by services like digital access and interlibrary loan. There are limits as to how much even the largest U. S. research libraries are willing to invest in preservation per se, absent the benefit of access to the archived materials. Therefore CRL aims to significantly increase the number of important serial titles that are both adequately preserved and digitally accessible to North American libraries. This will involve investing heavily in systematic, progressive digitization of shared CRL collections as well as in “on-demand” digitization triggered by scholars' interlibrary loan requests.

JSTOR has provided a template for combining electronic access to journals with preservation of the paper originals in a sustainable way. Drawing upon revenues earned from subscribers to the JSTOR Archival Journals, the republisher has subsidized the creation of print archives of JSTOR journals at the University of California and Harvard University. This approach, however, is based on highly selective digitization, focusing on the back issues of a limited number of titles: as of 2016 only slightly more than 2,400 scholarly journals. It is doubtful that the JSTOR

approach will scale sufficiently to address the much larger corpus of journals held by North American academic libraries.

Project Ceres, a CRL program that finances the digitization of agricultural serials, offers an alternative model. The program awards small amounts of funding to libraries to support digitization and Open Access Web hosting of historical U.S. agricultural serials. As a condition of funding, the awardee library agrees to maintain the original print copies of the digitized serials indefinitely. The funding amounts are minimal, but have resulted in enabling the libraries to obtain additional funding from their own institutions.⁸

Yet another model for merging preserving and electronic access to specialized materials is partnerships with for-profit electronic publishers. The World Newspaper Archive program, established in 2005 by CRL and NewsBank, Inc., has digitized several million pages of newspapers, and subsidized archiving of the microform copies of the WNA database content. The costs of digitization and hosting of the content were shared by CRL and NewsBank.⁹ Unfortunately, the costs of such partnerships are necessarily inflated by profit margins of the commercial partners. And, again, scalability is limited.

For “on-demand” digitization of serials triggered by scholars’ interlibrary loan requests, CRL has put in place a process through which it has over the last ten years delivered approximately 12 million scanned pages of monograph and journal content. The cost of this service is built into CRL’s revenue base, and thus subsidized by CRL’s 200 plus member libraries. It is not clear, however, the extent to which those libraries will be willing to increase their annual investment to meet the challenge at hand.

Aside from financial and technical challenges to merging preservation and electronic access, legal issues come into play as well. The preservation-and-access strategy will require CRL to find ways to overcome copyright and other intellectual property restrictions on published materials, which might stand in the way of digitization. Possibilities for overcoming those obstacles do exist. They include negotiating permission to provide digital delivery of restricted materials with limited functionality, or for specified uses such as academic research and teaching at non-profit post-secondary institutions. Because an enormous amount of published material does not fall within the

public domain sphere, success will require CRL to confront and address the IP challenges decisively.

4.3 Forging and formalizing new partnerships to achieve greater scale

CRL is the largest, but by no means the only, shared print effort in North America. To meet its goals and optimize the return on its member libraries’ investment, CRL will endeavor to negotiate and formalize the terms of a rational division of labor between CRL, “libraries of record” and other credible print sharing efforts supported by CRL members. Libraries of record include the libraries of major research universities, which smaller libraries have long relied upon to preserve and, to a lesser extent, provide access to extensive, specialized serial literature. They also include independent research libraries, like the New York Public Library and the Linda Hall Library of Science, Engineering and Technology, in Kansas City, Missouri, libraries established by public and private entities in the United States for purposes of collecting and supporting study in particular fields. In 2012 CRL established a partnership with the Linda Hall Library to maintain and develop a collection of over 40,000 science, technology, and engineering journals.

In forming such partnerships CRL must establish a high level of assurance that the collections maintained will be complete and well taken care of for the long term. Historically CRL has set a high bar for the stewardship of shared print. For its almost seventy year history, the organization has set rigorous terms for its own stewardship: incorporated as an entity with full legal standing, CRL is governed by formal bylaws and an elected board accountable to the stakeholders, and is capable of owning property and entering into contracts that are legally binding. The CRL commitment to shared print also rests upon the foundation of a dedicated, bricks-and-mortar collections facility, sound and audited financial practices, and \$7 million in net assets.

Those features differentiate CRL from other U.S. shared print initiatives, but are essential to CRL’s ability to guarantee researchers long-term access to shared resources. The strength of its commitment is underwritten by terms that ensure member libraries’ avoidance of the costs of creating and maintaining certain resources locally. They are essential to North American libraries’ ability to reduce their collections footprint responsibly, and inform decisions that are consequential and in some cases irreversible. CRL takes its obligation to maintain a high level of curation very seriously.

CRL approached the formation of its partnership with the Linda Hall Library of Science, Engineering and Technology (LHL) in this spirit. The main features of a newly nego-

⁸ Information on the Project Ceres program and awardees is at <http://www.crl.edu/node/9217>.

⁹ For background information on the plan and business model of the World Newspaper Archive, see <http://www.crl.edu/node/5945>.

tiated agreement with LHL provide a level of certainty that is both appropriate and in line with economic realities.

- The term of the agreement is ten years. Given the rapid pace of change in today's information sphere, ten years is the longest period for which conditions can be predicted with any certainty. Forecasts that go beyond that horizon, and commitments made on the basis of those forecasts, are simply not credible.
- The agreement is executed at the chief executive level between two legal entities, i.e., a non-profit corporation (CRL) and a trust (LHL), and therefore has legal enforceability.
- The collections involved are central to each partner institution's mission, are (and have always been) non-circulating, and are maintained in a secure, climate-controlled physical environment.
- Funding is guaranteed to Linda Hall by CRL, in return for explicitly defined services. The services include document delivery of articles from over 3,500 current STE serial titles and 40,000 retrospective STE titles through RapidILL, and digitization of historical serials to preservation standards.
- Development of the Linda Hall serial collections will continue, governed by a joint STE collection development policy adopted by CRL and LHL in 2015.

As CRL explores the possibility of new partnerships with other trusted repositories, to further expand the scope and improve the quality of its shared collections, certain „trust metrics“ will be considered. Aside from the scope of the serial collections to be maintained and available to CRL libraries, other considerations include the granularity of the data about archived holdings that the partner can disclose, and the degree to which that data is validated or verified. Also a factor is the environmental conditions under which the collections are stored and maintained. And finally, CRL's evaluation of potential partners will take into account the relative strength and specificity of the archiving commitment, the history of the organization, and its „business model“ or level and source of funding.

The immense pool of knowledge at CRL's disposal, the experience and expertise of the librarians and scholars in the CRL community, will provide a defensible basis for decisions on the appropriate level of redundancy, service, transparency, and care of the shared collections. Those experts will determine the way in which CRL measures the trustworthiness of the various shared print programs.

4.4 Creating a “CRL consensus” on the scope, norms, and standards of print stewardship

Sustainable preservation requires clear and realistic goals. Therefore CRL has declared that it will limit its shared print investment to printed serials, i.e., printed journals and newspapers, and will exclude monographs and U.S. federal government publications. This will minimize duplication of effort with other specialized and regional initiatives in which CRL member libraries also invest, such as the HathiTrust and EAST shared print programs, which take monographs as their area of focus.

Even within the domain of published serials, comprehensive archiving could be an overwhelming task. One of the chief obstacles to strategic expansion of the U.S. print archiving efforts is an absence of consensus on the set of materials worthy of being preserved. CRL's and OCLC's separate estimations of the scope and scale of the serials universe ranged from approximately 500,000 titles (CRL) to over five million titles (OCLC). In short, there exists no accepted frame of reference on the universe of serial literature relevant to scholarly research. Without such a frame of reference it is possible neither to calculate the cost or requirements of a comprehensive North American approach to serials preservation, nor to measure progress toward accomplishment of such an effort.

Therefore as the basis for further defining the scope, priorities and timetable for CRL's work over the next ten years, the “critical corpus” of print serials that are and important to academic research in the humanities and social sciences must be identified.

In September 2016 CRL was awarded funding by the Andrew W. Mellon Foundation for an eight-month planning effort to develop and cost out a methodology and strategy to identify this corpus. The effort will test methodologies for exchange, harmonization, and classification of title-level serials data from ten leading U.S. academic and independent research libraries. This work and resulting data will inform a broader effort by CRL and the print archiving community to strategically target print serial materials for retention, preservation, and development.

CRL has now collected available data about print serial titles held by four major U.S. research libraries: Cornell University, Columbia University, The New York Public Library, and Princeton. At this writing CRL is now normalizing that data and integrating it with data in the Print Archives Preservation Registry (PAPR) database on the serial holdings of CRL and its partner institution the Linda Hall Library; and from four Big Ten Academic Alliance (BTAA) libraries. The data from these ten libraries will form the core

of a larger list of serial titles from twenty U.S. and Canadian libraries that will serve as a “critical corpus” of published humanities and social science journals. The data will provide a basis upon which to plan and measure the strategic print preservation efforts of North American libraries.¹⁰

4.5 Articulate and promote a clear and convincing narrative for scholars and funders

Despite new budgetary constraints librarians remain answerable to scholars for whom access to the physical artifact continues to be indispensable. Therefore the supporting narrative of North American print sharing must emphasize the “new goods” that the preservation efforts create. Such a narrative will be necessary to counter the negative perception that managing down library collections will necessarily result in the loss or degradation of scholarly assets. That perception resulted in adverse reactions to library attempts to downsize collections in the past and undermined trust in American research libraries during the era of widespread preservation microfilming.¹¹

The merging of archiving and digitization of print materials CRL will therefore develop and take every opportunity articulate a supporting narrative and will actively promote the new goods and their benefits for scholars.

5 Importance of the Designated Community

The essential responsibility of all libraries is to support the interests of their designated communities. It is from those communities that the trust and authority of libraries as important institutions to society arise. In every way, and

through every decision, North American research libraries must advance and defend the interests of academic researchers. The present generation of American librarians will make consequential and irreversible decisions on the maintenance and disposition of an unparalleled legacy of research materials and historical evidence built over the course of several centuries by institutions of higher learning in the U.S. and Canada. Those decisions must rest upon a solid foundation of information and commitment.

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¹⁰ The combined serial holdings of the following twenty American academic institutions, plus three specialized research libraries (CRL, The Linda Hall Library of Science, Engineering, and Technology, and The New York Public Library) will provide the basis for the “critical corpus” list of titles: Harvard University, Cornell University, Columbia University, Princeton University, Yale University, University of Illinois, Indiana University, University of Iowa, University of Maryland, University of Michigan, Michigan State University, University of Minnesota, University of Nebraska-Lincoln, Ohio State University, Pennsylvania State University, Purdue University, Rutgers University, University of Wisconsin-Madison, University of California, Berkeley, and University of California, Los Angeles.

¹¹ A particularly negative picture of U.S. library preservation reformatting programs was drawn by Baker (2000).