

Review Article

Thinking About Archival Preservation in the '90s and Beyond: Some Recent Publications and Their Implications for Archivists

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Abstract: A profusion of new preservation literature has rapidly developed from current research, technological experimentation and pilot projects, task forces, and conferences. The drive to disseminate new approaches in preservation management to practicing collections managers has also contributed to this new base of literature. This essay introduces recent advances in preservation administration and their implications for archival practice, through an examination of the preservation-related publications released in the last few years. It also confirms a growing interest among archivists in preservation ideas from other information management fields, particularly in the areas of selection for preservation, standard preservation assessment methods, preservation of electronic media, the use of digital technology in preservation reformatting, and specialized media preservation.

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IT HAS BEEN FIVE YEARS since the special preservation issue of the *American Archivist*.¹ Since then, many of the preservation challenges identified in that issue have been confronted aggressively and by a variety of ways and means: through new research, by the innovative use of technologies, by task forces, conferences, publications, and in education and training programs. In the broad realm of collections management, age-old considerations remain at the fore. How do archivists prioritize collections for the urgent preservation attention they need? How do we preserve the most important materials while ensuring maximum accessibility to them? Are there new technologies or results of scientific research that can aid us in our mission of preserving archives for future access? How do we ensure that the archival profession is truly preserving the vital documentary sources necessary to support definitive research in a given subject area? How do we get the preservation "word" out—in other words, how do we proselytize, train, and educate both new archivists and those already in the field? Many of the new publications dealing with preservation, in both the archival and library spheres, offer the latest advice in answering these questions.

An overview of recent preservation-related publications indicates the diversity of areas that concern archivists. Presented in the form of internal guides, reports of committees and task forces, proceedings from conferences, reports of new scientific research, monographs, manuals, and journal articles, these sources together illustrate the pressing preservation issues with which archivists are grappling. Several topics, such as selection for preservation and the standardization of preservation assessment methods, which have been of particular

concern in librarianship, are now becoming topics of concern in archival practice. Additional areas of significance to both archives and libraries are the preservation of electronic media and the use of digital technology in preservation reformatting. Spreading the word about preservation has received more attention than ever before. The preservation of iconographic materials, both moving and still photographic images, is resurgent and has gained considerable notice in the archival and library worlds. The dissemination of information on modern perspectives of preservation management is being carried out with a missionary's zeal and by ways as diverse as the major NEH-funded education and training programs, such as the Preservation Intensive Institute and the SAA's Preservation Management Training Program, as well as several new "how-to-do-it" manuals. This essay introduces recent advances in preservation administration and their implications for archival practice by drawing upon the profusion of preservation-related publications released in the last few years.²

Let's begin by looking at the preservation component of archival acquisition and collection development. How do archivists decide what should be preserved for future use? A few major efforts at adapting archival appraisal methods for preservation selection, as well as integrating preservation administration concepts into appraisal, are underway. Although there are only a few short publications on this topic, the ramifications of recent reports and products relating to the selection process for archival preservation are tremendous. Two principal desires drive the work in selection for preservation: 1) to create standard management tools for archivists and librarians to use in evaluating the condition of their repositories' holdings for the purpose of assigning

¹"Special Preservation Issue," *American Archivist* 53 (Spring 1990).

²This essay does not include a review of recent literature on conservation treatments.

preservation priorities, and 2) to ensure that documentary information (published and unpublished) of great importance to specific disciplines and to particular constituencies are identified and preserved through cooperative and strategic planning among archivists, librarians, and scholars.

At the center of this topic is the Commission on Preservation and Access Task Forces on Archival Selection. The project began in 1991 with two task forces charged with investigating the use in preservation of methods derived from archival appraisal and documentation strategy. The Commission's original premise was that concepts and practices from these areas could inform the creation of a standard process to prioritize the preservation of certain archival materials. Of particular initial interest was the examination of the process of documentation strategy and its inherent inter-institutional methods. The Commission recognized the need for a standard decision tool in archival preservation for two purposes. First, to determine the value and condition of collections in order to establish preservation priorities in one archival repository. Second, to compare the value of collections and to measure the risk of losing them across institutions. Similar methods have been developed for libraries with Barclay Ogden's work at the University of California at Berkeley.³ During the summer of 1992, the Bentley Historical Library of the University of Michigan, through its Research Fellowship Program for the Study of Modern Archives, funded a week-long meeting of select members of the task

forces and their advisory committee to compose the final report on their findings.

The result was *The Preservation of Archival Materials: Report of the Task Forces on Archival Selection to the Commission on Preservation and Access* (April 1993), featuring a "preservation priority worksheet" to be used in archives. The two-page worksheet is the latest preservation assessment survey tool, developed specifically for use with archival material. It accommodates both gathering information relating to the value of archival records and risk assessment of the collection, with the latter section taking into account its holdings maintenance need, level of use, level of exposure, physical condition, and level of risk. The worksheet represents an amalgamation of Barclay Ogden's approach to selecting books for preservation, Karen Garlick's holdings maintenance guidelines employed at the National Archives and Records Administration, and Paul Conway's dissertation research into developing quantitative methods using matrices to evaluate the preservation status of collections.⁴

The Research Libraries Group (RLG) agreed to field test the worksheet using their member libraries as field testers. RLG's *Final Report of the Archives Preservation Needs Assessment Field Test* (written by Laurie Abbott of the Research Libraries Group, January 1994) summarized the experiences of nineteen field testers. The feedback was not positive. Testers criticized the Commission's assessment tool on many fronts. Overall, they found it to be too vague. The tool did not produce either the information or the collection

³See Barclay Ogden, "Toward a California Preservation Program: Preservation Needs Assessment Survey Report," (Unpublished report, University of California at Berkeley, 19 November 1991), and "Preservation Selection and Treatment Options," in *Preservation: A Research Library Priority: Minutes of the 111th Meeting of the Association of Research Libraries* (Washington, D.C.: Association of Research Libraries, 1987), 38-42.

⁴See Ogden's "Toward a California Preservation Program," and "Preservation Selection and Treatment Options;" also Karen Garlick, "Planning an Effective Holdings Maintenance Program," *American Archivist* 53 (Spring 1990): 256-65 and Paul Conway, *Archival Preservation in the United States and the Role of Information Sources* (Ph.D. diss., University of Michigan, 1991 (UMI Order No. 9208522)).

rankings that the testers needed in developing strategies to address preservation needs. The RLG field testers concluded that the preservation priority worksheet brought to us by the Commission on Preservation and Access does not work. However, the report and the worksheet bring the archives profession a long way down the road toward developing a standard preservation assessment tool that can be used either intra- or inter-institutionally to produce meaningful and comparable data. At this juncture, it would be prudent for the SAA Preservation Section, with the permission of both the Commission on Preservation and Access and RLG, to appoint a task force to further examine and refine these products. The use of a standard assessment tool can assist archivists in gathering enough preservation status information to develop nationwide strategic approaches to the preservation challenge in archives across the U.S. While the goal is admirable, it continues to be elusive.

Activities in the general area of selection for preservation have taken on even more global proportions than those just described. Another Commission on Preservation and Access-sponsored project addressed the need to investigate international collaboration in saving the contents of libraries from loss through the embrittlement of books. The Commission's report, *Preserving the Intellectual Heritage: A Report of the Bellagio Conference, June 7-10, 1993* (October 1993), documents the efforts of conference attendees to build a European-centered effort to collaborate with scholars, librarians, and archivists to address preservation issues. The Commission feels that Europe's research collections are important to both European and American scholars, librarians, and archivists because of these various groups' overlapping interest in many fields of study. The report advocates creating national-level strategies for selection for preservation, specifically taking into account

the preserving of national cultural heritage. Different large scale preservation methods, represented in the report, indicate that the Europeans have emphasized mass deacidification with the development of large-scale treatment laboratories, as well as microfilming. The introduction of digital imaging for preservation is so far a distinctly North American undertaking. Another interesting divergence is the involvement of American scholars in deciding the importance of certain materials for preservation. In Europe, the selection process is seen as something carried out solely by librarians and archivists.

The Bellagio Conference, the Task Forces on Archival Selection, and other contemporary efforts at global and discipline-based preservation strategies⁵ indicate a healthy skepticism of the differences between methodologies of library and archival preservation on the part of the project sponsors and report writers. "Archives, it was argued, are different from library collections and may need to be approached differently" (p. 23). Remarks such as this one, interjected throughout the Bellagio report, leave the reader to wonder whether the authors fully comprehend the views of the few invited archivists attending the conference. It is also possible that in library-spawned global schemes of selection for preservation, "specialized" items like archives simply do not fit easily into the paradigmatic plans of action being proposed. Moreover, archival preservation priorities, processes, and policies are recognized only to the extent of their being "different" from those found in library preservation. No further consideration of archives is offered in the Bellagio report. The three reports discussed here indicate tensions between librarians, archivists, and scholars that inhibit the effective preser-

⁵Such as the RLG's Whole Discipline Preservation Task Force projects.

vation of our worldwide intellectual heritage. As methods for selecting archival materials for preservation continue to be probed, no doubt the process will be accompanied by numerous growing pains. The need for archivists to understand their institutional and inter-institutional preservation priorities is crucial. These investigations must go on and they must be led by archivists.

Perhaps the most intriguing area for developments in preservation revolve around the use of digital technology in preservation reformatting. Several library- and archives-based pilot projects, using digital imaging technology for reformatting, are being conducted at institutions like Cornell University, Virginia Commonwealth University, University of Connecticut, and Indiana University.⁶ At the 1994 ALA annual meeting, all but two of the twenty-three digitization projects described at the Preservation Administrators Discussion Group involved archival materials.⁷ Experimentation in the digital capture of information may one day provide another archival-quality preservation option for the archivist's tool box.

The leading pilot project in using digital scanning and storage for preservation is being conducted at Cornell University. Representations of the published work on the joint Cornell/Xerox Corporation/Commission on Preservation and Access undertaking are contained in two reports to the Commission: Anne R. Kenney and Lynne K. Personius' *Joint Study in Digital Preservation Phase 1* (1992), and *A Testbed for Advancing the Role of Digital Technologies for Library Preservation and Access: Final Report by Cornell University to the Commission on Preservation and Access* (1993).⁸

The goal of the joint project is to create an optical disk storage information system that can scan textual images, store them, and produce output on paper facsimiles, microfilm, or as electronic transmissions. Currently, system output such as paper facsimiles is considered to be the preservation copy. Cornell is working toward eliminating the use of system output as preservation copy. Instead, the preservation master copy will be the digital image file. The scanning work has involved predominantly bound published material, with only a cursory look at archives. Nevertheless, the project still gives shape to the hardware and software configurations that can be used in the digital capture of archival materials.

The published findings claim that digital imaging technology is a viable preservation reformatting option. It was found to be of comparable quality to and actually cheaper than preservation photocopying. Digital imaging can also be performed at a similar cost to preservation microfilming, according to Kenney and Personius. However, they point out there are several hurdles to be surmounted before imaging for preservation can become as viable a reformatting technique as microfilming. Of great concern is the obsolescence of imaging technology, both hardware and software. Each imaging system is proprietary. This means that systems produced by different corporations cannot yet interface and transfer data seamlessly. Standards for imaging

⁶Several universities have banded together in a Digital Preservation Consortium. Their digital imaging pilot projects involve both library and archival materials. These universities are: Cornell, Harvard, Yale, Princeton, Penn State, Tennessee, Stanford, and Southern California.

⁷*Infinity: The Newsletter of the SAA Preservation Section* 10/2 (Summer 1994): 3.

⁸See also, Kenney's article in Janice Mohlhenrich's *Preservation of Electronic Formats & Electronic Formats for Preservation* (Fort Atkinson, Wis.: Highsmith Press, 1993), entitled, "The Role of Digital Technology in the Preservation of Research Library Materials," and Kenney and Personius' article entitled, "The Future of Digital Preservation," in Barbra Buckner Higginbotham and Mary E. Jackson's *Advances in Preservation and Access*, Volume 1 (Westport, Conn.: Meckler Publishing, 1992).

systems and data transmission still need to be developed.

A promising approach to digital imaging for preservation and access has been articulated by Don Willis, Director of Advanced Technologies at University Microfilms International, in his *A Hybrid Systems Approach to Preservation of Printed Materials* (1992).⁹ He reviews the advantages and disadvantages of both micrographics and digital imaging, and recommends a preservation and access system that utilizes the strengths of both technologies. Both Willis and Kenney describe this system design as a provisional solution in preservation, combining the initial image capture and access benefits of digital imaging with the long-term preservation benefits of micrographics. However, initial image capture methods which differ from those put forth by Willis are being articulated. The use of high-quality microfilm cameras manufactured in Europe is one approach. The latest technology in microfilm cameras can produce very high resolutions of 200 lines per millimeter, or over 5,000 dots per inch, which reportedly rivals current digital scanning technology.¹⁰ The current debate on how best to implement hybrid systems not only indicates their high potential, but also the archival and library communities' great interest in developing standard systems for nationwide use.

Pilot projects to utilize hybrid systems in libraries and archives are being undertaken today. Perhaps the most prominent example is the Yale University Library project now called "Project Open Book," which is detailed in two reports, one by Donald Waters and Shari Weaver, *The Organiza-*

tional Phase of Project Open Book (1992), and the second by Paul Conway and Shari Weaver, *Setup Phase of Project Open Book* (1994).¹¹ Yale's pilot consists of scanning existing microfilm to create digital images stored on optical disk systems. The result is a much more accessible reformatted product than the use-copy of the microfilm. For the first time when using systems like the one being developed at the Yale University Library, access to reformatted materials will be greater than access to the originals. Technologically-hybrid preservation systems, being digital and microfilm-based in their configuration, will revolutionize preservation reformatting and access to reformatted materials. In the coming years, archivists will benefit from the published experiences of these projects. A preliminary conclusion seems to be that archives are likely to use hybrid systems to achieve the aims of both preservation and access.

Perhaps the largest instance of digital imaging with archives was performed in Spain at the Archivo General de Indias in Seville, and described by Hans Rutimann and M. Stuart Lynn in *Computerization Project of the Archivo General de Indias, Seville, Spain* (1992).¹² Over eight million records from the Archivo General, dating

⁹Don Willis, *A Hybrid Systems Approach to Preservation of Printed Materials* (Washington, D.C.: The Commission on Preservation and Access, 1992).

¹⁰See C. Lee Jones, "Preservation Film: Platform for Digital Access Systems." This article is a three-page insert to the *Commission on Preservation and Access Newsletter*, July 1993.

¹¹Donald J. Waters and Shari Weaver, *The Organizational Phase of Project Open Book: A Report to the Commission on Preservation and Access* (Washington, D.C.: The Commission on Preservation and Access, 1992), and Paul Conway and Shari Weaver, *Setup Phase of Project Open Book: A Report to the Commission on Preservation and Access on the Status of an Effort to Convert Microfilm to Digital Imagery* (Washington, D.C.: The Commission on Preservation and Access, 1994). See also, Donald J. Waters, *From Microfilm to Digital Imagery: On the Feasibility of a Project to Study the Means, Costs and Benefits of Converting Large Quantities of Preserved Library Materials from Microfilm to Digital Images* (Washington, D.C.: The Commission on Preservation and Access, 1991).

¹²Hans Rutimann and M. Stuart Lynn, *Computerization Project of the Archivo General de Indias, Seville, Spain* (Washington, D.C.: The Commission on Preservation and Access, 1992).

from the fifteenth-century through the early twentieth-century, have been scanned and stored as digital images on optical disk. No provisions have been made, as yet, for their availability over networked information systems such as the Internet. The project's significance lies in its early lessons regarding the scanning, storing, and local use of digitally imaged archives. Another early project is recounted by the National Archives and Records Administration, which evaluated the archival use of digital imaging and optical media storage technologies.¹³

Closer to home, another account of digital imaging in archival applications comes from the Cornell group, carrying on from their experiments with published material. *Preserving Archival Material Through Digital Technology: A Cooperative Demonstration Project (October 1992 -March 1993)*¹⁴ documents Cornell's work in cooperation with the eleven comprehensive research libraries in the state of New York "to test and evaluate the use of digital image technology to preserve a wide array of archival material" (p. I). Included in this report are actual preservation-copy reproductions of the test images which were used in this project. The original materials used as the test images were donated by the eleven libraries. The reproductions used in the report were produced from the imaging system developed by Cornell and the Xerox Corporation.

Using paper copies produced from two-hundred scanned documents, project per-

sonnel from the eleven institutions evaluated them for preservation purposes. The resolution in the majority of the paper copies was found to be of higher quality than those copies produced through preservation photocopying. In almost half of the cases, the quality of the copy was higher than that of the original. Below average resolution was produced under some conditions: with certain media such as fine line etchings, engravings, or when the writing instrument was unevenly applied to the paper surface (i.e.: pencil, quill pen, or felt tip pen). However, the report claims that the digitally-produced paper reproductions "rendered a high degree of legibility and fidelity to the originals" (p. I). Pilot projects like this one are important as demonstrations of the plausibility of digital imaging in archives. Demonstration projects involving several institutions build a broad base of support and create a pool of archivists with imaging experience.

Electronic text preservation is another area where archivists are putting their energies. One example of a project in this non-imaging realm of electronic preservation is found in *Preservation of Electronic Formats & Electronic Formats for Preservation*, edited by Janice Mohlenrich (Fort Atkinson, Wis.: Highsmith Press, 1993).¹⁵ The paper, entitled, "The Marquette Electronic Archive," by Michael B. Pate, describes the Marquette University Library and its Special Collections and University Archives Department's experiences providing access to on-line digitized text for both published and archival record material. The attendant preservation concern of ensuring long-term access to the

¹³*Optical Digital Image Storage System Project Report* (Washington, D.C.: National Archives and Records Administration, 1991).

¹⁴By Anne R. Kenney, Project Manager with Michael A. Friedman and Sue A. Poucher, Scanning Technicians (Ithaca, N.Y.: Cornell University, 1993). This report was published by Cornell University Library with the support of the New York State Program for the Conservation and Preservation of Library and Research Materials and its partners among the Eleven Comprehensive Research Libraries.

¹⁵This volume records the proceedings of the Wisconsin Preservation Program of the Council of Wisconsin Libraries conference held during June 1992 at the University of Wisconsin, Madison. The conference's theme was the preservation challenges involving new technologies in library information management.

text files is well covered. Mohlhenrich's volume is important and should be read by archivists. It provides an excellent look at the current state of electronic media preservation. The volume has a good mix of library projects, archives experiences, technical considerations on electronic formats, industry updates on disk manufacture, and hybrid information systems for use in preservation.

Preservation of Electronic Formats... also provides a view into a major contemporary issue in the archives profession, the preservation of electronic records. It contains a useful overview article by Fynette Eaton, entitled "The National Archives and Electronic Records for Preservation." Eaton compares an electronic preservation program to the elements of a "traditional" archival preservation program.¹⁶ She stresses that many of the same preservation concerns apply to electronic records. Examining each program element, Eaton describes the points where electronic records depart from paper-based material. The Center for Electronic Records' various approaches to preservation, the methods it uses to monitor updates in information on storage media, its work on standards for the creation, transfer, and access of electronic records and other pertinent areas, are all described by the author. Archivists with an understanding of preservation administration who find themselves confronted with the issue of electronic records retention will find Fynette Eaton's article to be a useful introductory overview.

While this review essay in no way attempts to address electronic records preservation in the comprehensive manner it deserves, there are a few other recent publications that archivists should be aware of and consult. Frederick J. Stielow's 1992

American Archivist article, "Archival Theory and the Preservation of Electronic Media: Opportunities and Standards Below the Cutting Edge," should be at the top of this list for its mix of common sense approaches to electronic records preservation, along with its call for future actions in establishing technological standards.¹⁷ Several other archivists have written about and advocated the importance of information technology standards for information exchange across software and hardware systems.¹⁸ Stielow echoes these calls and further suggests that, with each new major technology, archivists must re-examine their theories and methods in archival management, including preservation. This is a daunting task indeed.

Charles Dollar, in his 1992 book, *Archival Theory and Information Technologies: The Impact of Information Technologies on Archival Principles and Methods* (Macerata, Italy: University of Macerata), reflects the archival primacy of standards for information exchange but moves further to examine the interplay between information technologies (which produce, store, and transmit electronic records) and current archival methods. Dollar redefines the very concept of preservation. He asserts that the permanent preservation of recorded information is an impossible goal to achieve, especially when considering the high costs of the information technologies involved.

¹⁷Frederick J. Stielow, "Archival Theory and the Preservation of Electronic Media: Opportunities and Standards Below the Cutting Edge," *American Archivist* 55 (Spring 1992): 332-43.

¹⁸See Richard J. Cox, "The Archival Profession and Information Technology Standards," *Journal of the American Society of Information Science* 43 (September 1992): 571-75; Victoria Irons Walch, "The Role of Standards in the Archival Management of Electronic Records," *American Archivist* 53 (Winter 1990): 30-43 and Charles M. Dollar, *Archival Theory and Information Technologies: The Impact of Information Technologies on Archival Principles and Methods* (Macerata, Italy: University of Macerata, 1992).

¹⁶The commonly recognized elements are: environment, storage, handling and use, microreproduction and reformatting, exhibition, disaster planning, and conservation treatment.

Dollar offers the principle of "continuing value" in place of "permanent value." This shift recognizes that certain records, including electronic records, can actually lose their value over time. This can occur when the difficulties and expense of maintaining certain records outweighs the value of continuing to sustain them for some future use. Dollar maintains that, in some cases, this is happening with electronic records.

By making archival value contingent upon many variables whose relationships change, Dollar advances a new definition of preservation for the automated world in which we live. He concludes that, "the emphasis of traditional records preservation on the physical carrier of information provides little guidance for dealing with such critical issues as technology obsolescence and access to electronic records" (p. 79). Thus, the preservation of electronic records means ensuring their technical readability and intelligibility to humans over time and across technologies. This approach suggests a "fundamental reorientation to preservation activities" (p. 67). Charles Dollar's seminal book should be required reading for all archivists who are facing the challenge of long-term retention of electronic records.

The 1993, *Electronic Records Management Program Strategies*, edited by Margaret Hedstrom,¹⁹ is another volume that will become a standard for archivists' bookshelves. Most useful for the purposes of electronic records preservation is the 250-entry annotated bibliography compiled by Richard J. Cox, which includes a small section specifically on preservation. The heart of this work is an assessment of current strategies, which is written by Hedstrom, and case studies on international organi-

zations like the World Bank, national and state governments, and universities, which are authored by an international array of archivists. The publications in the area of electronic records include important sections on the key job of preservation, and provide a comprehensive guide to other publications relevant to the area.

The experiences of libraries and archives in preserving electronic records and media by using similar technologies to expand reformatting options are growing. The technologies will continue to change how we preserve information and how we perceive preservation in the larger schemes of archival management and information management. The library literature makes much of the future "library without walls" concept. The new model library will deliver information via computer networks to users distributed across distant locations. The same distributed access to distant users can happen for archives. Once standards are developed for the creation, storage, transmission, access, and retrieval of digital images, the preservation of and access to archives may be radically changed. For example, document control structures such as SGML for text and TIFF for images²⁰ are being used to tag electronic textual documents and document images for transmission from one automated system to another, respectively. Once there are standard document control structures along with standards in other areas, the on-line public access catalog, or OPAC, which archivists became quite familiar with in the 1980s, can be linked to on-line text files or image files representing the archival ma-

¹⁹*Electronic Records Management Program Strategies*, edited by Margaret Hedstrom (Pittsburgh: Archives & Museum Informatics, 1993).

²⁰For further explanation of the archival applications of Standard Generalized Mark-up Language (SGML), see Victoria Irons Walch, *Standards for Archival Description: A Handbook* (Chicago: Society of American Archivists, 1994), 97-98. For further explanation of Tagged Image File Format (TIFF), see Charles Dollar, *Archival Theory and Information Technologies*, 88 (glossary entry).

terials themselves.²¹ The publications mentioned demonstrate that the cooperative perspective has great potential.

As a product of this process, efforts may turn toward preserving the digital images as long as possible, changing the concept of archival preservation as we know it. Much of the necessary technology exists, and work in the area of standards development is being conducted. Due to the convergence of technology, preservation procedures for scanned, digitally captured images will be similar to those for records originating in electronic information systems. These similar technologies will give rise to cooperative research and testing between groups interested in using digital technology to reformat and transmit information, and groups interested in the long-term retention of information of electronic origin. Here is one place where methods and techniques developed in libraries and archives are crossing to find direct applications in both fields. The ground is fertile for cooperative development.

Getting the word out on current developments in preservation administration is the universal force behind the present flurry of preservation-related publishing. This activity is the result of a renewed effort to provide on-going training and education for archivists and librarians in the latest methods of preservation administration. Part of this renewal has resulted in new nationwide education and training programs, such as the NEH-funded Preservation Intensive Institute and the SAA Preservation Management Training Program. The latter SAA program is especially important in its coverage of the entire spec-

trum of archival preservation management. Three weeks of "in-class" training sessions, spread over one year, were required to update archivists as to all the latest developments in the field. This exhaustive training program demonstrates the large volume of new preservation-related information archivists must attempt to integrate into their work. The continuing education of archivists needs to be supported with up-to-date publications.

Many new publications survey disaster planning and response, integrated pest management, air quality in buildings, building design, photographic preservation methods, preservation microfilming, and general preservation administration.²² Expert authors in their respective areas of preservation, such as Mary Lynn Ritzen-thaler, Judith Fortson, Henry Wilhelm, and Nancy Elkington, synthesize the latest well-tested approaches for incorporation into the management of archives in the 1990s. New publications also expound upon the state of preservation regarding format-specific archival materials. The most notable works address the areas of film and video preservation, which is receiving a real "jolt in the arm" in the effort to increase public and professional

²¹The HTML (Hypertext Mark-up Language) document control structure is currently being used and undergoing further development to link hypertext images to text and sound in databases. Perhaps the best contemporary example of this application is with the World Wide Web server and navigational programs such as Mosaic and Netscape.

²²Among the publications not reviewed in this essay, but worth mentioning are: *Building Air Quality: A Guide for Building Owners and Facility Managers* (Washington, D.C.: Environmental Protection Agency and the National Institute for Occupational Safety and Health, 1991); James D. Harmon, *Integrated Pest Management in Museum, Library and Archival Facilities* (Indianapolis: Harmon Pest Management, 1993); Lois Olcott Price, *Managing a Mold Invasion: Guidelines for Disaster Response* (Philadelphia: Conservation Center for Art and Historic Artifacts, 1994); *Preservation of Library & Archival Materials: A Manual*, edited by Shereilyn Ogden (Andover, Mass: Northeast Document Conservation Center, 1992); Susan Garretson Swartzburg and Holly Bessey with Fran Garretson, *Libraries and Archives: Design and Renovation with a Preservation Perspective* (Metuchen, N.J. and London: The Scarecrow Press, Inc., 1991); Anthony Slide, *Nitrate Won't Wait: A History of Film Preservation in the United States* (Jefferson, N.C.: McFarland, 1992).

awareness of the circumstances in which these media exist. An overview covering many of these new titles follows.

There is a new monographic series that archivists can look to as a resource on current preservation administration developments. The first volume of the new series, *Advances in Preservation and Access*,²³ edited by Barbra Buckner Higginbotham and Mary E. Jackson, lives up to the series' early expectations. It is billed as an annual compilation of invited articles on recent developments in preservation and access in the library and archival fields. The first volume, published in 1992, nicely integrates both archives and library preservation issues. Some of the key articles on many of the topics already mentioned have been previously published elsewhere, and are written by leading experts in their respective areas: education (by Deanna Marcum); selection for preservation (by Margaret Child); preservation microfilming (by Janet Gertz); mass deacidification (by Peter Sparks) and digital preservation (by Anne Kenney and Lynne Personius). Other articles cover what is called "the preservation platform." They focus on major organizational efforts, such as the Research Libraries Group's preservation program, the rise of the National Endowment for the Humanities' Division of Preservation and Access, and the Commission on Preservation and Access' support of advocacy, research, and professional meetings on preservation management issues. A small section is dedicated to the future of archives preservation. These two articles, written by Richard J. Cox and Paul Conway, detail future preservation issues and approaches in the field, as well as the development of a nationwide strategy for archival preservation. A wonderful bibliographic essay has been

compiled and annotated by Susan Swartzburg and Robert Schnare, which provides useful guidance on the current literature.

Advances in Preservation and Access gives an excellent historical overview of major preservation efforts, and offers a context in which to understand the mushrooming preservation activities of the 1980s and early 1990s. Volume One stresses and clearly demonstrates that archivists and librarians now have a wider range of methods available in undertaking preservation, and that there are many decisions to be made about their respective applications. Archivists should expect to see future papers in this series on assessment, digital preservation, and electronic records preservation, all currently debated issues in archival preservation. Given the thought-provoking base which Volume One provides, future volumes should provide in-depth analyses of specific projects so archivists can discern what the impact may be on their preservation management work.

Leading the way in revising archivists' understanding of archival preservation management is Mary Lynn Ritzenthaler's *Preserving Archives and Manuscripts* (Chicago: Society of American Archivists, 1993), which is a part of the SAA Archival Fundamentals Series. Replacing her twelve-year-old *Archives and Manuscripts: Conservation* (1983), *Preserving Archives and Manuscripts* is revamped and expanded in several areas. Ritzenthaler's introduction declares at the outset that "preservation is a management function" (p. viii). Other phrases describe preservation as "an integral part of the ongoing archival and curatorial functions" and "preservation should not be considered as a separate program element to be implemented sporadically" (p. viii). The author embraces preservation administration's move away from reactionary conservation treatment to proactive repository-wide management schemes. She revised much of her commentary on conservation person-

²³Barbra Buckner Higginbotham and Mary E. Jackson, eds. *Advances in Preservation and Access*, Volume 1. (Westport, Conn. and London: Meckler Publishing Corp., 1992).

nel, budgets, and program implementation (formerly chapters 8 and 9 in the 1983 volume), and repositioned it in chapter 2, now entitled "Implementing a Preservation Program." This is a most significant improvement in the book. Ritzenthaler also ponders on the selection for preservation discussion, and includes very practical advice in new sections on conducting preservation surveys repository-wide and for individual collections, preservation decision-making, and establishing priorities. The introduction and first two chapters lay the foundation for the remaining eight chapters. Ritzenthaler carefully builds the case for supporting the rejuvenation of archival preservation as an element of the work performed by all archivists, be they engaged in reference, acquisitions, appraisal, arrangement and description, outreach, or as a "jack-of-all-trades" archivist.

The Research Libraries Group and Nancy Elkington have made yet another keen contribution to archives, for which archivists will be most grateful. This time it is in the realm of preservation microfilming. In 1992, RLG released the *RLG Preservation Microfilming Handbook*. Created from the recommendations of three RLG blue ribbon task forces, this handbook is recognized as the modern bible for preservation microfilming. It has essentially replaced Nancy E. Gwinn's *Preservation Microfilming: A Guide for Librarians and Archivists* (Chicago: ALA Books, 1987), which has been out of print for some years. However, the 1992 RLG handbook does not directly address the points of divergent microfilming practices between library and archival material in areas such as materials selection, pre-filming preparation, filming, providing access, and administrative control. Even with Gwinn's volume, archivists had to search diligently to uncover recommendations specific to archives buried amongst the wealth of information pertaining to library materials. Today RLG has solved this problem.

Released in the latter half of 1994, the *RLG Archives Microfilming Manual* is a savior.²⁴ It fills a gaping hole in archives-specific preservation publications long bemoaned by archivists with interests in preservation microfilming. Like its 1992 library companion, this RLG publication is the result of an inter-institutional microfilming project. Involving fifteen institutions, the RLG Archives Preservation Microfilming Project included a cost study of archives microfilming and the publication of the manual in order to codify the latest practices and to disseminate them throughout the profession. Two task forces were formed to address these elements of the project. The *RLG Archives Microfilming Manual* simultaneously presents evolving standards in microfilming archives, and offers benchmarks by which the quality of future archives microfilming projects will be measured.

There are many strong points to this manual. It begins much like the Ritzenthaler book, urging archivists to comprehend "the big picture." The first chapter addresses archival preservation microfilming project management, microfilming's place within a larger preservation priority context, cost factors, staffing and training, project assessment, and funding opportunities. Other "nuts-and-bolts" chapters cover contractual relationships with vendors, preparing materials for filming, bibliographic and archival control, the filming of archival collections, film inspection procedures and considerations, and postfilming activities. Once again, the recurring topics of the "new frontier," microfilm to digital conversion and archival selection

²⁴Nancy E. Elkington, ed. *RLG Archives Microfilming Manual* (Mountain View, Calif.: The Research Libraries Group, Inc., 1994). Since this volume was released just in time to be mentioned in this essay, feedback from field experiences beyond RLG's inter-institutional Archives Preservation Microfilming Project is not yet available.

for preservation, are discussed in the last chapter and in the first appendix, respectively. Following the lead of the archival literature of the 1980s on archival appraisal, the authors dub the first section of the appendix on selection for preservation, "the archivist's first responsibility." Several other appendices provide essential information on undertaking archival microfilming projects. The simple fact that microfilming techniques and approaches used by a few major archival repositories have now been distilled and standardized is reason enough to use the *RLG Archives Microfilming Manual*.

Among the finest preservation publications today are those relating to disaster prevention and response. Judith Fortson's *Disaster Planning and Recovery: A How-To-Do-It Manual for Librarians and Archivists* (1992), is Volume Number 21 in the New York-based Neal-Schuman Publishers' "How-To-Do-It Manuals for Libraries" series. Fortson's book is logically arranged according to the type of disaster: fire, water, wind, and earthquakes. The final three chapters are devoted to recovery techniques, planning, and managing risk. She walks the reader through ways in which archivists and librarians can reduce the ill effects of various disasters, while always being mindful of the practicality of the measures introduced. Fortson also recognizes the inevitability of some loss in the face of disaster. In her last chapter, she informs us about insurance coverage which can help archivists and librarians continue their services and recover the damaged materials in as timely a fashion as possible. This is sorely needed advice, rarely compiled in such a widely disseminated publication.

Can You Stand the Heat? A Fire Safety Primer for Libraries, Archives and Museums (1993), by Michael Trinkley, focuses exclusively on fire prevention and response. The volume, published by the SOLINET Preservation Program, Atlanta,

covers fire management basics found in the Fortson book, but also provides detailed explanations and evaluations of fire detection and suppression systems, and discusses at length the range of fire signaling systems. If you have been burned before and want to devise a comprehensive fire management system, you will want to consult this volume. As a program service to its member libraries, SOLINET distributed *Can You Stand the Heat?... free of charge*. There is a growing trend for institutions and consortial organizations to prepare preservation publications specifically for their constituencies. Another example is the Historic New Orleans Collection's *Before Disaster Strikes: Prevention, Planning, and Recovery: Caring for Your Personal Collections in the Event of Disaster* (1992). This 40-page booklet was written by Priscilla O'Reilly Lawrence for the Collection's constituencies, so they can learn how to better care for their personal belongings, given the frequency of hurricanes along the Gulf coast. The crusade to convert both professionals and laymen to being "preservation-wise" is clearly represented in these publications.

Strong statements on the age-old issue of preservation are coming from new constituencies. Film and video have been around long enough now for the public and the archives and library professions to recognize their significance to our intellectual heritage, as well as the potentially overwhelming preservation task they pose. Mandated by the National Film Preservation Act of 1992, the Librarian of Congress, James H. Billington, has released a joint examination entitled, *Film Preservation 1993: A Study of the Current State of American Film Preservation* (Washington, D.C.: Library of Congress, June 1993). It describes the current state of preservation and the range of preservation practices employed in the U.S. film industry and in public and nonprofit archives, identifying what the authors call today's "film preservation

crisis.” While the study states that current federal funding for film preservation is at half its 1980 level, it does not see additional grant funds as the major measurement for future successes. Instead, it points to the ultimate development of additional archival film programs in the U.S. The Librarian of Congress and his National Film Preservation Board are to be commended for acknowledging the important differences between short-term approaches and viable, long-term solutions.²⁵ However, what remains is the most difficult task of finding ways to foster the proliferation of new archival film programs.

Another nationwide study, this time on video preservation, is represented in the Media Alliance’s *Video Preservation: Securing the Future of the Past* (1993).²⁶ This organization is a nonprofit group that works to develop the diverse world of what it calls “media arts.” In 1991, it began an initiative to examine the issues in video preservation. The volume includes the findings of the Media Alliance’s 1991 survey of video collections, and summarizes the proceedings of the subsequent symposium that same year on the state of video preservation. It also summarizes the Alliance’s 1993 follow-up symposium which tells of the collaborative efforts of institutions whose members attended in 1991. The film and video studies intentionally plant the seeds for national strategies to heighten public awareness of preservation and to seek higher levels of funding to see the work through. To be sure, more will be heard from the Library of Congress/National Film Preservation Board and the Media Alliance on future strategies for film

and video preservation.²⁷ The efforts of both the Library of Congress and the Media Alliance, while important, only begin to scratch the surface of the challenges awaiting nationwide film and video preservation efforts. We are witnessing this movement’s infancy, it still has such a long way to go.

Color photography, in popular use for over fifty years, has reached a milestone with the definitive *The Permanence and Care of Color Photographs: Traditional and Digital Color Prints, Color Negatives, Slides, and Motion Pictures* (Grinnell, Iowa: Preservation Publishing Co., 1993), by Henry Wilhelm and contributing author Carol Brower. The authors cover the broad spectrum of color image materials and their uses, and provide recommendations on the storage and display of black and white photographs including those on modern resin-coated (RC) papers. They also deal with photo CDs and high resolution ink jet color print processes. Wilhelm reveals how color images can be preserved for hundreds of years.

Wilhelm’s long-awaited 744-page book is comprised of 20 chapters, each having a “recommendations” section for use by photography professionals and photographic collections managers, such as archivists. Also included are a wealth of references, notes, and over 500 reproduced photos, illustrations, bars, tables, and graphs. The text and its many supplements combine to communicate the technical information Wilhelm presents. The author seems to cover everything known about color image deterioration and the steps

²⁵See also, *Redefining Film Preservation: A National Plan: Recommendations of the Librarian of Congress in Consultation with the National Film Preservation Board* (Washington, D.C.: Library of Congress, August 1994).

²⁶Written by Deirdre Boyle (New York: Media Alliance, 1993).

²⁷Another organization significant to film and video preservation is the Society of Motion Picture and Television Engineers (SMPTE). See for example, *Advanced Television and Electronic Imaging for Film and Video: Selected Papers from the SMPTE Advanced Television and Electronic Imaging Conference held in New York City, February 5-6, 1993*, edited by Joyce R. Hurwitz (White Plains, N.Y.: SMPTE, 1993).

which must be taken to make it more stable. The quantity and detail of the information which is carefully organized in this, the bible of color photography preservation, has taken many years to acquire and compile. Wilhelm and his book have lived up to their expectations; *The Permanence and Care of Color Photographs...* will be the reference standard for preserving color images for many, many years to come. Wilhelm's book, together with the studies on the state of film and video preservation, symbolize the staunch and articulate supporters of visual materials preservation who will continue to provide solutions into the twenty-first century.

All of the activity in preservation as represented in these publications addresses the very core of archival practice, the profession's mission, and confirms a growing interest among archivists in preservation ideas from other information management fields. The new wealth of cross-disciplinary published work will improve archivists' and librarians' ability to ensure that information will be available for consultation as far into the future as possible. Recent advances in digital imaging support this goal, as do efforts to improve the selection of materials for future research use and prioritizing preservation actions. The energies invested in education and training programs, as well as the "new and improved" preservation publications, are most significant, and in some cases, path-breaking. But what is distinctly important about preservation is that it is all-encompassing. Preservation is not an isolated function, like acquisition or reference, nor is it a skill with a restricted domain, like conducting appraisal or administering access. Preservation is not something you do to archives; preservation is an overall management consideration to be included with every component of every archival activity. One of the values possessed by archivists that distinguishes them from other information professionals is their commitment

to ensuring access to information found in evidential sources over long periods of time. Archivists should evaluate a broad spectrum of preservation publications, works like those covered in this review essay, to assess their potential to improve preservation management decisions. Archivists are preservation administrators. Future research, teaching, and publishing activities should continue to reflect this perspective.

Bibliography of Reviewed Titles

- Laurie Abbott. *Final Report of the Archives Preservation Needs Assessment Field Test*. Mountain View, Calif.: The Research Libraries Group, 1994. Worksheet and instructions. 21 pp. Stapled. Free.
- Deirdre Boyle. *Video Preservation: Securing the Future of the Past*. New York: Media Alliance, 1993. 66 pp. Paper. \$24.00.*
- The Commission on Preservation and Access. *Preserving the Intellectual Heritage: A Report of the Bellagio Conference, June 7-10, 1993*. Washington, D.C.: The Commission on Preservation and Access, 1993. 36 pp. Paper. \$10.00.*
- Paul Conway and Shari Weaver. *Setup Phase of Project Open Book: A Report to the Commission on Preservation and Access on the Status of an Effort to Convert Microfilm to Digital Imagery*. Washington, D.C.: The Commission on Preservation and Access, 1994. 24 pp. Paper. \$10.00.
- Charles M. Dollar. *Archival Theory and Information Technologies: The Impact of Information Technologies on Archival Principles and Methods*. Macerata, Italy: University of Macerata, 1992. Appendices, glossary, bibliography. 117 pp. Paper. \$30.00.
- Nancy E. Elkington, ed. *RLG Archives Microfilming Manual*. Mountain View, Ca-

- lif.: The Research Libraries Group, Inc., 1994. Appendices, figures, tables, forms. 208 pp. Spiral bound. \$50.00.*
- Judith Fortson. *Disaster Planning and Recovery: A How-To-Do-It Manual for Librarians and Archivists*. New York and London: Neal-Schuman Publishers, 1992. Bibliography, appendices, index. 181 pp. Paper. \$40.00. ISBN 1-55570-059-4.*
- Margaret L. Hedstrom, ed. *Electronic Records Management Program Strategies*. Pittsburgh: Archives & Museum Informatics, 1993. Bibliography. 156 pp. Paper. \$35.00. ISSN 1042-1459.*
- Barbra Buckner Higginbotham and Mary E. Jackson, eds. *Advances in Preservation and Access*. Volume 1. Westport, Conn. and London: Meckler Publishing, 1992. 297 pp. Cloth. \$55.00. ISSN 1063-2263 and ISBN 0-88736-787-9.*
- Anne R. Kenney and Lynne K. Personius. *Joint Study in Digital Preservation Phase I*. Washington, D.C.: The Commission on Preservation and Access, 1992. 47 pp. Paper. \$10.00.
- Anne R. Kenney and Lynne K. Personius. *A Testbed for Advancing the Role of Digital Technologies for Library Preservation and Access: Final Report by Cornell University to the Commission on Preservation and Access*. Washington, D.C.: The Commission on Preservation and Access, 1993.
- Anne R. Kenney with Michael A. Friedman and Sue A. Poucher. *Preserving Archival Material Through Digital Technology: A Cooperative Demonstration Project (October 1992 - March 1993)*. Ithaca, N.Y.: Cornell University Library, Department of Preservation and Conservation, 1993. 19 pp. plus appendices. Paper. \$10.00.
- Priscilla O'Reilly Lawrence. *Before Disaster Strikes: Prevention, Planning, and Recovery: Caring for Your Personal Collections In the Event of Disaster*. New Orleans: The Historic New Orleans Collection, 1992. Bibliography. 48 pp. Paper. \$6.95. ISBN 0-917860-32-2.
- Annette Melville and Scott Simmon. *Film Preservation 1993: A Study of the Current State of American Film Preservation: Report of the Librarian of Congress*. Vol. 1: Report, June 1993; Vol. 2 and 3: Hearings, Los Angeles and Washington, D.C.; Vol. 4: Submissions (in three physical volumes). Washington, D.C.: National Film Preservation Board of the Library of Congress, 1993. ISBN 0-8444-0803-4.
- Janice Mohlhenrich, ed. *Preservation of Electronic Formats & Electronic Formats for Preservation*. Fort Atkinson, Wis.: Highsmith Press, 1993. Bibliography, glossary, index. 144 pp. Paper. \$25.00. ISBN 0-917846-17-6.*
- Mary Lynn Ritzenthaler. *Preserving Archives and Manuscripts*. Chicago: Society of American Archivists, 1993. Appendices, glossary, bibliography, index. 225 pp. Hard. \$27.00. ISBN 0-931828-94-5.*
- Hans Rutimann and M. Stuart Lynn. *Computerization Project of the Archivo General de Indias, Seville, Spain*. Washington, D.C.: The Commission on Preservation and Access, 1992.
- The Task Forces on Archival Selection. *The Preservation of Archival Materials: Report of the Task Forces on Archival Selection to the Commission on Preservation and Access*. Washington, D.C.: The Commission on Preservation and Access, 1993.
- Michael Trinkley. *Can You Stand the Heat? A Fire Safety Primer for Libraries, Archives and Museums*. Atlanta, SOLINET Preservation Program, Southeast Library Network, Inc., 1993. Illustrations. 70 pp. Paper. \$10.00.
- Donald Waters and Shari Weaver. *The Organizational Phase of Project Open Book: A Report to the Commission on Preservation and Access*. Washington,

D.C.: The Commission on Preservation and Access, 1992. 11 pp. Paper. \$5.00.

Henry Wilhelm with Carol Brower. *The Permanence and Care of Color Photographs: Traditional and Digital Color Prints, Color Negatives, Slides, and Motion Pictures*. Grinnell, Iowa: Preservation Publishing Co., 1993. Illustrations, bars, tables, graphs, index. 744 pp. Hard.

\$44.95 plus \$4.95 shipping and handling. ISBN 0-011515-00-3.*

Don Willis. *A Hybrid Systems Approach to Preservation of Printed Materials*. Washington, D.C.: The Commission on Preservation and Access, 1992. Appendices, notes, figures. 45+ pp. Paper. \$10.00.

*Available from the Society of American Archivists, 312/922-0140, info@archivists.org.

SELECTED RECENT PUBLICATIONS ON PRESERVATION

Advances in Preservation & Access Volume 2. Edited by Barbra B. Higginbotham. Medford, N.J.: Learned Information Inc, 1995. xiv, 427 pp. Index. Illustrated. ISBN: 0-938734-88-1. \$49.50.*

Archival Enclosures: A Guide. By Edward Kulka. Ottawa: Canadian Council of Archives, 1995. 68 pp. Index. ISBN: 0-929115-07-4. \$ 17.50. Also available in French. ☉*

The Conservation Assessment Guide for Archives. By Jane Dalley. Ottawa: Canadian Council of Archives, 1995. 85 pp. ISBN: 0-929115-11-2. \$17.50. Also available in French. ☉*

Conservation Environment Guidelines for Libraries and Archives. By William P. Lull with the Assistance of Paul N. Banks. Ottawa: Canadian Council of Archives, 1995. 102 pp. Index. Illustrated. ISBN: 0-929115-09-0. \$17.50. Also available in French. ☉*

Disaster Response and Prevention for Computers and Data. By Miriam Khan, Columbus, Ohio: MBK Consulting, 1994. vi, 69 pp. Illustrated. \$45.00.

Environmental Guidelines for the Storage of Paper Records. By William K. Wilson. NISO Technical Report: 1. Bethesda, Md.: NISO Press, 1995. vii, 21 pp. ISBN: 1-88012421-1, ISSN: 1081-8006. ☉*

Fading Away: Strategic Options to Ensure the Protection of and Access to Our Audio-Visual Memory. Ottawa: Task Force on the Preservation and En-

hanced Use of Canada's Audio Visual Heritage. 1995. ii, 51 pp.

Managing Preservation. A Guidebook. A Cooperative Publication of the State Library of Ohio and the Ohio Preservation Council. Columbus, Ohio: State Library of Ohio, 1995. 176 pp. Index. \$5.04.

North American Permanent Papers. Edited by Ellen R. McCrady. Austin, Tex.: Abbey Publications, 1995. vi, 52 pp. ISBN: 0-9622071-3-6. \$19.50. ☉

An Ounce of Preservation: A Guide to the Care of Papers & Photographs. By Craig Tuttle. Highland City, Fla.: Rainbow Books Inc., 1995. 111 pp. Index. Illustrated. ISBN: 1-56825-021-5. \$12.95. ☉

Photocopying of Library and Archive Materials. London: British Library. National Preservation Office. c. 1995. 7 pp. Free.

Photograph Preservation: Basic Methods of Safeguarding Your Collections. By Peter Mustrado and Nora Kennedy. Technical Leaflet no.9. Mid-Atlantic Regional Archives Conference, 1994. 36 pp.

Preserving Library Materials: A Manual. By Susan G. Swartzburg. Second Edition. Metuchen N.J.: Scarecrow Press Inc., 1995. x, 504 pp. Index. Illustrated. ISBN: 0-8108-2855-3. ☉*

RLG Digital Image Access Project. Proceedings from an RLG Symposium Held March 31 and April 1, 1995 Palo Alto, California. Edited by Patricia McClung. Mountain View, Calif.: Research Libraries Group, 1995. viii, 104 pp.

*Available from the Society of American Archivists, 312/922-0140, info@archivists.org.