The Coming of Age

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Six years have passed since the last review of preservation literature in this journal. The last five years suggest a “coming of age” for the field of preservation, which can be seen both in the emergence of preservation departments and of practices sufficiently developed to have their own history, methods, subspecialties, and philosophical schools. In this review, I organize the literature into eight categories: binding and bindings; physical treatment; reformatting; audio-video, film, and photographic materials; the digital arena; environment control; disaster planning; and management. The bibliography provides a snapshot of the relative distribution of the scholarly and research activities within the profession.

Six years have elapsed since the last review in LRTS of preservation literature (Drewes 1993; Bourke 1993). If my predecessors lamented the difficulties in selecting topics to cover or citations to include in 1993, then the task is even more daunting in 1999. There is an advantage, however, to reviewing a corpus of work over a longer period of time—the advantage of perspective. Nonetheless, charting five years of the literature has forced a certain necessity for restraint. Excluded from consideration here are book reviews, annual reports, preservation project announcements, standards, technical leaflets, and strictly technical conservation literature in serials and monographic series such as Restaurator and The American Institute for Conservation of Historic & Artistic Works. Including these would have swollen the scope to an unwieldy size. While technical articles are not included, I have made an exception for technical works when they have appeared outside the core preservation and conservation publications.

I have organized the bibliography into categories intended to help the reader navigate to specific areas of interest. The divisions are neither exhaustive nor fixed, and clearly, many titles could have been placed elsewhere. The advantage in listing the bibliography this way, however, is that it provides a snapshot of the relative distribution of the scholarly and research activities within the profession.

In the course of the last five years, the greatest change in the publication and dissemination of preservation literature has been the advent of the World Wide Web. The proliferation of information both original and representations of printed literature is extensive; yet, not all Web sites are created equal. I have limited my citations to those Web sites devoted strictly to preservation literature.
that are authoritative and have reliable Uniform Resource Locators.

**Review of the Literature**

The last five years of work in the field suggests a "coming of age" for preservation. Preservation has been a part of libraries both as an administrative unit and as a unified practice long enough now to have developed a history, a methodology, a series of sub-specialties, and, yes, even philosophical schools. Jones observed (1991, 294): "A survey of over sixty-five articles and news items in English... reveals that technical and managerial concerns have not changed dramatically in the recent past. This fact reflects the continuing importance of certain problems that remain unsolved and the relative youth of preservation and preservation professionals in libraries... and the suffering from a lack of shared understanding of its goals." If preservation's nature as a discipline was tenuous at the close of the 1980s, then the literature of the 1990s bears testimony to a profession that has come into its own by the sheer breadth and depth of the issues it has tackled, debated, resolved, and revisited.

Jones noted that in the literature of the previous decade, authors wrote works dedicated to developing practical repair skills or sharing managerial tales about local procedures. Such works seem appropriate to a fledgling library operation. In the literature of the early 1990s, however, authors already suggested that preservation would soon move to a new evolutionary stage.

Drewes (1993, 315) noted, "If one of the goals of preservation professionals is the integration of preservation strategies within the rest of the organization, then 1992 showed movement toward that goal... preservation issues are becoming more broadly recognized within other library functions." She cited 124 works in preservation with fewer than five titles each in the areas of: preservation cataloging and access; commercial binding; audio-video preservation; mass deacidification; disaster preparedness; copyright; microfilming and reformatting; and historical works. In this survey, approximately 50 titles covered physical treatment, environmental monitoring, and selection for preservation, while 30 titles were focused on digital technologies, preservation management, international preservation, and institutional cooperation.

That same year, Bourke (1993) reviewed the 1992 reformatting literature; he cited 138 works covering a growing repertoire of reformatting activity, which included not only traditional microfilming and photoduplication, but emerging digital technologies. Bourke noted in his introduction (383), "Issues relating to the reproduction of library materials have now proliferated far beyond the traditional practices of microfilming and photocopying... new electronic applications long technologically possible are becoming more economically feasible and are making their own distinctive niche in the filed of document publication, reproduction, and delivery."

If the literature of the early 1990s reveals an explosion in established areas and an exploration into new frontiers, then the preservation literature covering 1993 through 1995 shows refinements in established preservation concerns and a maturation and leadership in the new frontier.

**Binding and Bindings**

While standards set by the Library Binding Institute (LBI) have settled many of the core preservation decisions surrounding commercial binding, some issues remain. Tibbits (1996) pointed out the inherent difficulties associated with binding music performance scores and noted that the LBI does not address the unique needs of these materials. Moreover, commercial binders are not able to provide the diversity of binding options on a production basis for them. As a consequence, many of the binding strategies designed to address these materials have evolved from local remedies. While many practices are not sound, Tibbits noted that there are a number of good practices, and documenting these for distribution would be helpful to those who must deal with the complex binding needs of performance scores.

Several authors have discussed the automation of commercial binding practices (Paris 1993a; Bendror 1997; Rebman 1995). The debate over flatback versus rounding and backing, which preoccupied commercial binders in previous years, resurfaced only briefly in the literature (Fairfield 1997). Proponents on both sides of the debate have ample evidence to suggest that binding practices remain varied and that commercial binders should continue to provide an array of options that fit form to function. Given the central role of commercial binding in preservation departments, Clareson, Wilkinson, and Bordelian (1997) wrote about contract negotiations and working with binders, a topic that continues to merit reappearance and refinement.

The number of works on historical bindings and the history of bookbindings and bookbinders was a pleasant surprise in a decade that began with prognostications that the book as object would be eclipsed by the digital book. Allen and Gullans's definitive volume, *Decorated Cloth in America: Publishers' Bindings, 1840–1910* (Allen and Gullans 1994), provided a reminder to curators and preservation departments that our shelves are filled with volumes that cross the boundaries of treatment decisions for commercial binding, general collections binding repair, and conservation. Tidcombe's *Women Bookbinders 1880–1920* (Tidcombe 1990) was the first major work to address women's contributions to bookbinding. Foot's *Studies in the
**Physical Treatment**

While the most technical aspects of conservation can be found in the core conservation publications, other journals provide avenues for the literature as the science associated with the conservation of library materials is recognized. Two technical conservation articles appeared in *Analytical Chemistry*: Clark and Gibbs (1998) and Gibbs, Seddon, and Brovenko (1997). Brown (1994) provided a technical glossary for illuminated manuscripts, while Cattacca and Anderson (1995) provided one on matboard and glazing. Preservationists have long recognized that conservation is both a scientific and a humanistic enterprise. The migration of preservation issues into other professional literature continued in the mid-1990s, a trend that both Drewes (1993) and Bourke (1993) noted in their reviews of the literature.

The literature of physical treatment is a healthy reminder of the significant investment of time and money associated with research. The work to develop and articulate the parameters of a mass deacidification delivery process by preservation librarians at the Library of Congress, at other libraries, and in the private sector is one such example. This process was originally thought to be the heir apparent in solving the acid book problem. Harris and Shahani (1994) explained the science and the benefits of the diethylene zinc process. Independent assessments by Forck (1996) and Brandt (1993) of other mass deacidification processes suggested that there were alternatives. Interestingly enough, since Preservation Technologies' successful delivery of a mass deacidification process, only Grinnell (1997) has written on the topic. While it is true that mass deacidification has been successfully established as one of several preventative treatment options available to libraries, much of the literature in this area has been eclipsed by the advances in digital technology. Mass deacidification provides a much needed preservation bridge between what is already acidic, but not yet brittle, and the associated costs of reformatting. One can hope that future preservation literature will include works devoted to strategies for cooperative mass deacidification programs.

While several authors wrote between 1993 and 1995 about housing options for special collections (e.g., Glaser 1994; Kulka 1995; Norris 1998; BonaDea 1997; and Tuttle 1995), only four authors examined the role of conservation or book repair programs (Chopra 1995; Silverman and Grandinette 1993; Grandinette and Silverman 1994; and Milevski 1995). This suggests either that physical treatment is well defined and established in our programs, or that new technologies are eclipsing conversations about treatment.

**Reformatting (Microfilming and Photoduplication)**

Like commercial binding, preservation microfilming has attained a certain maturity and authority, which is often the case when there are standards that define a practice. The greatest number of works published in this area appeared between 1993 and 1995. Elkington (1994) and D'Arienzo, Ostendarp, and Silverman (1994) offered some refinements to microfilming technology and to management issues associated with activities in the archival community. Fox (1996) provided greater emphasis on the importance of bibliographic control and project administration than had been previously explored in the original edition. Fox rightly noted that bibliographic control is the linchpin for national and international preservation efforts. Indeed, there is no better testimony to the need for global accessibility to microform masters than the successful conversion of the National Register of Microform Masters into the databases of the OCLC Online Computer Library Center and the Research Library Information Network. On the other hand, works by Kesse (1993) and Jones (1993) remind us that the success of any technology is related directly to the reliability and diligence of individuals, institutions, and the profession in maintaining quality.

A number of authors wrote during this period on the topic of improving preservation photoduplication efforts. The Subcommittee on Preservation Photocopying Guidelines (1994) established guidelines for photocopying. Weber (1993) assessed the effect of photocopiers, while Baird (1997) examined implementing a national effort to identify and to share in the photoduplication of titles. Traditional reformatting technologies continue to meet the preservation and access needs of many patrons. Willis (1993) suggests that there is ample evidence that for the foreseeable future, preservation departments will rely upon...
a number of technologies to preserve and to provide access to deteriorating resources.

Audio-Video, Film, and Photographic Materials

Preservation librarians have not been particularly adept at dealing with the preservation issues associated with nonbook formats. There are myriad nonbook formats that populate our libraries, including photographic collections, recorded sound collections, moving image collections, and CD-ROMs. From 1993 through 1995, a number of authors wrote about physical care of these items (e.g., Eilers 1995; Kierman 1996; Lindner 1994; and McKee 1993). Others have written about the handling and storage of these materials (e.g., Forgus 1997; St. Laurent 1996; Van Bogart 1995; and Wheeler 1997), as well as reformatting issues (Eilers 1996; Kesse 1996; and Storm 1997). Dale et al. (1998) provided a first step in identifying the preservation literature of these formats. Boyle (1997), Cochrane (1994), Forgus (1997), Murphy (1997), and Storm (1997) discussed the need to improve management and strategic planning in this area. Several authors referred to the lack of standardization and to the fragmented nature of the preservation research being done in this area.

The Digital Arena

The most important change in the preservation literature of this period is the number of titles devoted to digitization. Pearson (1992) cited approximately 444 works, 300 of which were devoted to digital technology. The authors of many of these earlier works focused on what digital technology could do for libraries. These early proponents of digital technology were not bashful in proclaiming that the revolution was at our doorstep. They claimed that digital technology would have many effects, including dramatically improving and streamlining both bibliographic and physical access; saving shelf space; cutting costs associated with serials acquisitions and traditional preservation treatments; and, fundamentally transforming the library from place to space. Many of the same themes were echoed by authors cited by Bourke (1993). Both Pearson and Bourke observed, however, that the majority of these works were published outside the library profession. While many library professionals were convinced that the new technology could soon deliver what was previously imagined, preservation librarians recognized the need to determine the real, and not the “virtual” utility of the new technology. The most important change since the last review of the literature, therefore, is not the burgeoning field of digitization literature, but the wholesale absorption of digitization into preservation management.

In 1993, librarians at Cornell University commenced a project to test the feasibility of using digital image technology to preserve and improve access to deteriorating library materials by digitizing directly from the source document. Kenney (1993) and Kenney and Chapman (1995) established standards for digital preservation documents, expressed as scanning resolution quality for image and text. Cornell continues to be a leader in the digital arena for its thoughtful and methodical investigation of potential uses and practical applications in preservation and access.

Simultaneously, Conway (1996a) explored the feasibility of means, costs, and benefits of converting large-scale quantities of preservation microfilm to digital images. Conway (1996c) suggests that the potential difficulties of defining selection for digitization can be assuaged by turning to the enormous investment of existing microfilm collections.

By 1995, the place of digital imaging and optical recording technologies for preservation and access took center stage at the International Symposium on in Essen Germany (Weiss 1996). Presenters at the conference pronounced that, in the new digital world, preservation is access and access is preservation. The irony of this new vision is that, while it is true that digital technology increases physical access to works, it has no inherent ability to increase intellectual access. Unlike the book format, digital formats increase the distance between the reader and the text, between the signifier and the signified. This necessarily increases human dependency on the number of technological intermediaries that must take place before data can be converted into meaningful structures. Thus the necessity for metadata and for standards.

Since 1995, organizations such as the American Research Libraries, Research Libraries Group, and the Commission on Preservation and Access (now subsumed within the Council on Library and Information Resources) have provided a number of publications based on case studies. The authors of these have demonstrated the growing partnership between scholars and librarians in an effort to explore subject-specific applications for the new technologies (e.g., Bagnall 1995; Boston 1994; Butler 1997; D’Amato and Klopfenstein 1996; Dykeman 1997; Durran 1997; Ellis 1996; Ester 1994; Gartner 1997; Gladney, Mintzer, and Schiattarella 1997; Gertz 1996; González 1998; Hagenbruch 1994; Nugent 1994; Ostrow 1998; Scally 1997; Sekor 1997; Wilhelm and Brower 1993). McElrath (1996) provided a dramatic snapshot of the digital terrain during this time. She clearly illustrated that early digital projects were focused on access and not preservation.

If the road to access and the road to preservation are to meet in the digital arena, then bibliographic control, informational longevity and authentication, and the longevity of digital files must be addressed and standards articulated. Preservation librarians have led the discussion and the
systematic research needed to develop the standards for use, application, and added value. The question of developing standards is echoed by Shoaf (1996), who noted (224), “This new access technology is expected to seriously alter the way libraries acquire and disseminate information, but it also changes the role of preservation. Whereas before preservation was most concerned with physical permanence of information, whether original or surrogate copies, in the new digital paradigm the act of preservation also provides access in ways not previously possible.” He also stated (225), “Access, while central to the workable concept of digital preservation is an area where research and planning is ongoing, but where considerable progress has yet to be made. A chief component of the growth and acceptance of microfilm was the adoption of standards for areas of film production. No such standards are yet in place for the digitization process, although test bed projects to identify and recommend standards for digitization processes are in place and are being discussed.”

Graham (1995, 335) clarified for the reader, “Refreshing is agreed to be necessary for long term preservation across advances in computing technology, media, and software. And that authentication and integrity is the provision for ‘intellectual preservation’ which ensures the ‘protection of the intellectual structure of the information as it was recorded by its author.’” Commitment to standards and compliance is needed first, before any institution can claim to have succeeded in digital preservation. Graham noted (335), “Nothing makes clearer that a library is an organization, rather than a building or a collection, than the requirement for institutional commitment if electronic information is to have more than a fleeting existence.” The National Digital Library Federation is an example of just such an effort that is committed not only to exploring the standards for conversion, but also to the inherent issues associated with archiving.

A number of authors have addressed the life of digital files (Howell 1996; Casey 1998; Graham 1993; Hedstrom 1997a; Lesk 1996; Mohlenbrinck 1993; Scally 1997; Saunders 1997; Waters 1996; Van Bogart 1994; and Weber and Dörr 1997). Waters and Garrett (1996) are optimistic that migration strategies will take care of the long term issue. From the perspective of preservation librarians, however, digitization is still not preservation, no matter how much we may want it to be or how much the literature uses the terms equivocally. Marcum (1996b) noted that while digital libraries and digital archives both collect and provide access to digital information, only digital archives claim responsibility for storing and ensuring the long-term accessibility to that information.

Gertz (1996), Kenney (1993), and Conway (1996c) added that digitization without selection, bibliographic control, standards, and commitment to longevity neither constitute building a digital research collection nor does it constitute preserving it. For each of these authors, bibliographic control is more critical, not less, in a digital environment. Conway stated (1996c, 70), “Now, as we move toward the creation of a full-scale digital library created from a wide variety of source documents, some critics of traditional cataloging practice are beginning to suggest that we downplay full cataloging of electronic resources precisely at the point at which the MARC record is beginning to fulfill its potential as a universal data exchange format. This would be a mistake . . . without improvements in intellectual access to microfilm collections that support subject oriented retrieval, digital conversion of these collections may prove to be quite feasible technically and quite untenable intellectually.”

Environment Control

For some time now, preservation professionals have asserted the critical role that maintaining a controlled environment in preserving collections. Lull (1995) and Wilson (1995) each provided further refinements to environmental guidelines or standards. Sebera (1994) and Reilly, Nishimura, and Zinn (1995) provided qualitative tools for assessing the damaging effect that the environment can have on collections. These tools offer practical assistance to both the professional and the layperson in understanding the concept and the mechanics of useful life in the context of environmental factors.

Several works addressing insect and pest infestation (Child and Finniger 1994; and Harmon 1993) and preventing and treating microbiological infestation (Kaplan 1995) also appeared during this period.

Disaster Planning

Eighteen monographs on disaster planning were published during this five-year period. The works sponsored special libraries, archives, and records management organizations. Some might argue that the number of works resulted from that peculiar psychological quality that no one ever “feels” adequately prepared or from the fact that the 1990s witnessed more than its share of library disasters. It is more likely the case, however, that we recognize that regularly scheduled reviews of disaster plans and its attendant manuals are at the heart of successful disaster recovery. As a result, disaster planning has something of a perennial existence within the literature.

Management

Under the rubric of management is an array of scholarly research that reflects the breadth and the depth of the issues
that have engaged preservation managers and the profession. This category includes works dealing with the management of materials, human resources, collection assessment, selection for preservation, preservation education and awareness, outreach, collaborative programs, and international preservation.

There were a number of works devoted to collection assessment, both nationally and internationally. At home, Ames (1997), Baird, Krentz, and Schaffner (1997), Braun and Hopkins (1995), and Gertz and Blaine (1994) assessed the deteriorating state of specific subject collections; while O'Neill and Boomgaard (1995) assessed the state of book deterioration and loss magnitude in the Ohio libraries. Smith and Olzak (1997) described the full range of strategies that have been employed in our libraries to cope with mutilated art books, everything from ignoring them to repairing or replacing them to restricting access to them. Bloom and Stern (1994) suggest that electronic resources might help in this regard. Indeed, Schunn (1994) noted that the demand for mutilated periodical articles has decreased over time, and, as a result, mutilated items might not be a high priority in a used-based preservation selection program. These authors and others continue to offer methods and strategies to preservation librarians that can assist in informing our decisions regarding selection and prioritization.

We continue to live with the legacy of acidic and brittle books. Gertz et al. (1993) addressed some of the issues that must be worked through in a comprehensive preservation program. The authors also remind us, however, that the fundamental question remains the same: "What are the preservation obligations with respect to maintaining the library's known subject strengths?" Even in the digital arena, the question of selection remains central to the preservation mission.

Wright, Demas, and Cybulski (1993) described the program for preserving core titles of national interest in agricultural and rural life in New York state. These authors argue that partnership with subject librarians and scholars remains the most meaningful alliance. Demas (1997) rightly observed that preservation activities across the disciplines tend to be driven more by the availability of national funding than by a coherent approach to the needs and priorities of the disciplines themselves.

DeStefano (1995) expressed concern that this same principle is leading the selection criteria for digitization and argues that a use-based model is valid and as worthy a selection criterion as the subject approach. DeStefano (411) wondered whether "sole reliance upon 'strong' collections produce the kind of preserved national collection that properly records intellectual diversity and important scholarship. Or does it just passively repeat existing patterns of collecting in an attempt to save time?" What stands out in the works on selection is not antithesis, but a recognition that not one approach, but several approaches might be necessary to fulfill the preservation mission.

In the course of preserving the core agricultural literature, librarians at Cornell conducted a pilot project to develop procedures for determining copyright status for monographs. Demas and Brogdon (1997) were the first to provide a prescription for preservation librarians as they begin to confront the copyright issue.

In light of the digital revolution, database design for preservation project management might seem insignificant, but Hayman (1997) rightly noted that database design is critical. The ability to exploit computer technology to conduct preservation condition surveys, track commercial binding or reformatting and treatment queues, is still underdeveloped. None of these functions are easily extracted from our general online catalogs, and while it is true that the USMARC field 583 was designed to provide such information, its reduction in projected scope has meant that preservation assessment and analysis is still a matter of customizing local databases. Hayman traced the various online applications that have been customized to provide these functionalities.

International preservation efforts seemed to mirror many of the same concerns and activities that occupied librarians in the United States. Feather, Matthews, and Eden (1996) and Hazen (1994) assessed the state of preservation programs and developments in the United Kingdom. They show that while some progress has been made, it is inconsistent and laborious.

In Africa, Alegbeleye (1996) studied book deterioration at the University of Ibadan Library. The assessments of Komeni (1996) and Kufa (1997; 1998) of the collections at the Kenyan National Archives and Archives of Botswana, respectively, stand in striking relief with our own efforts. Similarly, Kislovskaya (1996) explained the preservation challenges that Russian librarians face amid a changing political climate. Recognizing that the preservation effort must be a global effort, several American librarians, Hazen (1994; 1995), Henchy (1998), and Dean (1997), have become strong advocates for taking a more proactive approach in addressing deteriorating foreign collections housed in U.S. libraries. As usual, the European Commission on Preservation and Access took a leadership role and convened an international conference to discuss comparative strategies for access to the world's intellectual heritage (Choosing to Preserve 1997). Meanwhile, volume 47 of Libri was devoted to international preservation.

Williams and Lunde (1997, 73-74) stated that by "the 1990s, collection development was a well articulated discipline with a core body of literature as characterized by bibliographies, prominent authorities, and an extensive body of research... In contrast, the literature of preservation, while certainly not scarce developed more slowly. Although some
may argue that preservation has not yet developed an equivalent intellectual and theoretical structure, standard preservation works have been published.” They added (82), “By the early 1990s, preservation had effectively divided into two tracks: cooperative projects devoted to mass reformatting of subject-based collections and funded by private or federal grants and locally organized and funded initiatives focused on the traditional preservation operations of binding, repair, and conservation.” If these are true characterizations of the literature of the past decade, then it is true that in the years since then authors in the preservation literature have explored an expanse of ideas, methods, and possibilities that has reached further than merely describing local practices. Indeed, preservation librarians have reflected upon themselves and have developed an historical perspective of themselves. This is nowhere more evident than in the several works devoted to historical retrospectives of the profession (Shoaf 1996; Higgenbotham 1995). It is for these reasons that we can claim that the preservation literature from 1993 through 1998 reflects a profession that has truly come of age.

References

Review of the Literature


Binding and Bindings


**Physical Treatment**


Framing Research Project Committee. San Rafael, Calif.: ACTS Institute.


Reformatting (Microfilming and Photoduplication)


Audio-Video, Film, and Photographic Materials

Research techniques in photographic conservation: Proceedings of the conference held at the National
The Digital Arena


Environment Control


Disaster Planning


A Review of the Preservation Literature

Management


Choosing to preserve: Towards a comparative strategy for long-term access to the intellectual heritage. Papers of the international conference organised by the European


