

The Future of Preservation

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Symposium on The 3-D's of Preservation: Disasters, Displays, Digitization
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In the Ostrogothic Kingdom in Italy in the Sixth Century A.D., a high official named Cassiodorus wrote about the earlier invention of papyrus with all the eloquence of some computer enthusiast in our time writing about the invention of digital media. Here, in English translation, is what Cassiodorus wrote:

Then was papyrus invented, and therewith was eloquence made possible.

Papyrus, so smooth and continuous, the snowy entrails of a green herb;

papyrus which can be spread out to such a vast extent, and yet be folded

up into so little space; papyrus, on which white expanse the black

characters look beautiful; papyrus which keeps the sweet harvest of the

mind and restores it to the reader whenever he chooses to consult it;

papyrus which is the faithful witness of all human actions, eloquent of the

past, a sworn foe of oblivion.¹

“A sworn foe of oblivion?” Only a fraction of what the ancient world committed to papyrus has come down to us. The heat and humidity of the Nile Delta have seen to that, along with vandalism, fire, and other catastrophes, natural and human, that erased so many records on papyrus from the ancient empires of Persia, Greece, and Rome. No insignificant part of what we know about the Egypt of the pharaohs comes from

discarded records on papyrus that survived only because they were stuffed in mummies, particularly those of holy crocodiles—what a preservation technology!

No, preferable as papyrus was over tables of clay and wood as a communications medium, relatively few of the millions of messages recorded on “the snowy entrails” of the “green herb” have survived catastrophic destruction and natural disintegration, to the great regret of historians ever since.² Papyrus was a useful medium, but far from eternally durable. Oh, Cassiodorus, if only you had realized!

But are we any different? Our libraries are full of the glorious communications technologies of the modern era—that is, of acidic paper, of fragile film, and, increasingly, of unstable magnetic media containing all kinds of electronic documents. Like Cassiodorus’s papyrus, all are headed for oblivion without much more care than we have been able so far to give them.

Please consider the following from our experience in America.

In 1986, the same year in which IFLA created its Preservation and Conservation Core Program, a Committee on Preservation and Access in the United States made a report entitled, *Brittle Books*. It said, in a nutshell:

*The paper in most books published, worldwide, for the past 125 years is acidic and the content of most of those books will become increasingly inaccessible unless their texts are reproduced.*³

Scientist and library school dean Robert Hayes initially estimated that some ten million volumes were already at risk or would become so within the subsequent twenty years unless transferred to a more stable medium.⁴ Given the magnitude of this concern,

the committee became the Commission on Preservation and Access, charged with promoting action to save brittle books.

After publicizing the problem and encouraging the adoption of new standards for the durability of book paper (as IFLA PAC has been doing in the world at large), the Commission and others persuaded the Congress of the United States to establish a nationwide program for the preservation microfilming of brittle books. Beginning in 1989, the Congress provided annual appropriations to the program, administered by the Office of Preservation of the National Endowment for the Humanities, a government agency, which has provided grants to libraries to do the microfilming. The program's goal was to microfilm three million volumes within the subsequent twenty years, that is, by the end of 2008.⁵

We are now in the program's eighteenth year. As of January 30, 145 libraries and library consortia across our country had participated in the effort to microfilm brittle books and serials. When currently funded projects are completed, the number of embrittled volumes preserved by the program will total 1,094,650,⁶ which is a lot. But it is only slightly more than one-third of the program's three-million goal.

Why, after such concerted effort to launch a national program, has this initiative withered? No doubt, the development of digital information technology and online library access are largely responsible. How could preservation librarians, whose ears already were full of the complaints of researchers about using cumbersome, eye-straining microfilm, ignore the popularity of the new medium? As a working group of the German Research Association wrote in a report in 1996, translated into English in 1997:

*Digitization is no doubt the issue that most fascinates and haunts preservation managers in archives and libraries at the moment. The possibilities seem limitless, the advantages are obvious, and from all sides there is pressure to exploit the new medium for preservation purposes, sometimes to the extent that funds are earmarked for digitization that might previously have been allocated to microfilming or conservation . . .*⁷

Roughly eight years later, in June 2004, as digitization of library resources mushroomed, the Association of Research Libraries in the United States (known as ARL) formally recognized digitization as an acceptable method of reformatting fragile materials, for preservation as well as access. A report from the ARL's Preservation of Research Library Materials Committee noted that "no one solution can fit all needs," but declared that "digital reformatting should now be considered a valid choice among the various methods for preserving paper-based materials."⁸

Why? As the German group had said, scholars and students were increasingly expecting to access their research resources electronically. Indeed, materials left in non-digital formats, such as microfilm, were in danger of being ignored, "orphaned," as one writer put it. Moreover, digital technology could capture features not easily reformatted with other technologies, and could generate multiple copies on paper and on microfilm, if desired. Additionally, the ARL committee argued, the library community had learned that digital "files can be preserved in the short term."⁹

Yes, but what about preservation for the long-term? Well, the ARL report answered, the short-term strategies "are a bridge to the emerging solutions that are being developed to ensure long-term availability and access"—that is, a bridge to something

hoped for rather than in place. The report admitted that “standards, guidelines, and best practices for producing and maintaining digital facsimiles for the long-term are in the development stage.” But, citing techniques such as refreshing and migrating data, maintaining redundant digital files, and emulating obsolete computing systems, the report insisted that, quote, “best practices are in place to ensure that digital objects are being managed in such a way that keeps them safe now and allows us to implement long-term strategies as they emerge.”¹⁰ The report further minimized the long-term preservation problem by flattering libraries for their historical ingenuity, as follows:

*Ensuring high-quality image capture and providing for the long-term viability of digital objects is an admitted challenge, but the library profession has a long history of developing standards and best practices in order to support sustainable operations and facilitate inter-institutional collaboration. This tradition provides confidence that digital preservation challenges will be met.*¹¹

In short, we kept on producing digital resources because we had to while whistling in the dark about their long-term preservation.

Today the ARL’s Committee on the Preservation of Research Library Materials no longer exists as a separate committee. Preservation concerns have been folded into ARL’s Scholarly Communication initiative. Today the National Endowment for the Humanities makes microfilming grants out of a Division of Preservation and Access, which also supports digitization projects—that is, “digitization of collections to enhance their accessibility.”¹² The Endowment’s budget has gone up and down over the past ten years or so,¹³ as has the number of volumes that U.S. research libraries have annually

microfilmed.¹⁴ In contrast, over the decade ending in 2004, research libraries' expenditures on *electronic* materials have "grown sharply," three to ten times faster than expenditures on library materials overall. The average member library of ARL "now spends over 31 percent of its materials budget on electronic materials," and for fourteen major research libraries in the U.S. the figure exceeds 50 percent.¹⁵

On top of this growth, plans are abundant for additional, ever-larger digital libraries. Here in Europe, the Conference of European National Librarians recently launched The European Library, TEL, which will establish a single access point to digital holdings "spanning a range of collections in all the partner national libraries." At least nine European libraries are participating by making accessible eleven million records and digitized items from 150 collections.¹⁶ Many of these libraries already have built their own digital collections, such as Gallica here in France's Bibliothèque nationale. Our National Science Foundation in the United States is collaborating with the governments of India and China to finance the digitization by 2007 of a million books. The Google company has announced a program to digitize all or large parts of five major libraries in the United States and the United Kingdom. Other search companies are supporting the new Open Content Alliance to digitize certain libraries and archives in the U.S., Canada, the U.K., and continental Europe. The Digital Library Federation in the United States is creating Project Aquifer to make digital library resources from several libraries available through a single portal as if all were from one large library. And just last winter, we at the Library of Congress announced fundraising to support creation of a World Digital Library as a nonexclusive partnership among major libraries in every area of the planet.

With all this investment in digitization, what happens in the future to library preservation—preservation of digital *and* traditional materials?

I am pleased to say that in spite of the cautionary tale I have been telling so far, there is hope for progress in preservation in the future. One preservation leader, the one we honor with this symposium, Marie-Thérèse Varlamoff, has been undeterred by fads and trends. She understood in a fundamental way that digital preservation is not a substitute for traditional preservation. She has been a one-woman band in the crusade to enable all libraries to carry out basic preservation of their collections. In addition, a number of the world's libraries are working hard on preservation concerns. You are aware of important work done by PADI, the Preserving Access to Digital Information initiative of the National Library of Australia; by JISC, the Joint Information Systems Committee, which conducts digital preservation initiatives in the United Kingdom; by the Dutch National Library in such projects as its creation of a repository for Elsevier journals; and here in France, where the Bibliothèque nationale, among other things, participates in the International Consortium for the Preservation of the Internet. These are but a few examples.

I am heartened also by work going on in my own country, where several libraries and scientific organizations are collaborating with the Library of Congress in the program we call NDIIPP. That stands for National Digital Information Infrastructure and Preservation Program, which has been created and generously financed by the United States Congress. I won't say more now because you will hear about NDIIPP's progress from my colleague Laura Campbell in the panel that follows me. On that panel you also will hear from our friends in France and the Netherlands about their work on

“safeguarding digital heritage,” which is the title of the panel’s program. Concerning long-term digital preservation, I will simply say that we no longer are just whistling in the dark.

What I hope for the future is that we will remember also to preserve *traditional* resources that remain valuable for study and learning, now and for generations to come. Let’s leave the digital area momentarily and look into future prospects for preserving paper resources, such as brittle books; visual resources, such as photos, films, and videos; and sound recordings of various kinds.

Concerning brittle books, the current strategic plan adopted by the National Endowment for the Humanities declares that it will “support the preservation of and expanded access to the content of brittle books, United States newspapers, and other historically significant materials” through the fiscal year 2009.¹⁷ Presumably that means it will continue to make grants to American libraries to microfilm brittle books to the extent that money continues to be appropriated by our Congress.

In the meantime, libraries and other organizations are extending the life of books in another way—by using mass deacidification. Deacidification has been undertaken in Canada, China, France, Germany, Japan, the Netherlands, Switzerland, South Korea, and the United Kingdom, among others.¹⁸ In the U.S. Library of Congress, we have used deacidification technologies to extend the useful life of more than one million bound volumes, approximately as many as had been microfilmed through the program of our National Endowment for the Humanities that I mentioned earlier. Additionally, using a new, single-sheet treatment cylinder, we have deacidified more than two million sheets of manuscript material.¹⁹ Thus we are advancing toward the goal of our Mass

Deacidification Plan to stabilize more than thirty million books and manuscripts within thirty years. Many libraries now have the technologies to progress in arresting the embrittlement of books if our governments continue to support deacidification programs.

But what becomes of the *original* items that we microfilm and/or digitize? Not every library needs to retain every printed book and journal that is reformatted, but retaining some artifact copies remains important, and print access may yet be needed, particularly if redigitization should become necessary. Here, too, there is some progress. For example, in the United States, Harvard University and the University of California announced last fall a plan to create print journal repositories in partnership with JSTOR, our nonprofit organization that provides electronic access to back issues of many scholarly journals. The plan is to assemble, validate, and preserve in special repositories the printed copies of many complete journal sets.²⁰

Such repositories for bound journals and books are increasingly outside of main libraries, in auxiliary facilities where temperature and humidity can be more closely controlled. That, in itself, will help to extend the longevity of paper-based materials.²¹ Attention to such basics as controlling climate in storage areas will continue to be essential in preserving collections. We must also remain concerned about the bindings of our books. Over the past half-century we have seen a huge increase in books with soft covers that were not designed to endure.²² And a substantial percentage even of hard-bound books, if often used, eventually need repair.²³ New preservation needs in the digital era does not relieve us of traditional conservation and preservation requirements.

Let us turn now from printed resources to newer media apart from the digital. We all now recognize, for example, the importance of preserving many kinds of sound

recordings. We cannot listen to the famed orations of Demosthenes and Cicero; we cannot analyze how Beethoven or Chopin themselves played their enduring works for piano; we cannot hear the pronouncements of Charlemagne or Napoleon. But scholars and students now can directly experience much from the late-nineteenth and the twentieth century through our historical gold mine of audio recordings—the music, speeches, radio broadcasts, interviews, and other aural communications captured on cylinders, discs, and tapes. Future generations also will be able to hear expressions of our era—*if* we can preserve such media.

Doing so will be a major job for librarians in the future. Already we have lost a lot through destruction or neglect of tapes, disks, and other recording media. Nonetheless, in the United States for example, experts believe that 7,000 cylinder recordings, commercially produced in the 1890s, still exist, along with some 360,000 commercial recordings of various kinds issued prior to 1965.²⁴ Additionally, we still have and must preserve many noncommercial recordings made by scholars, such as Cornell University's recordings of bird sounds, the whale sounds collected by the Scripps Oceanic Institute, and materials collected by ethnographers, folklorists, and linguists in countries throughout the world.²⁵ As in digital preservation, we are challenged not only by fragile media—such as deteriorating tapes that contain sound recordings—but also by the obsolescence of machines for recording and playing back sound recordings. Industry has been abandoning traditional sound technologies in favor of digital recordings.²⁶

We have learned much about how to preserve sound recordings; the largest problem has seemed to be getting sufficient preservation funding. However, two recent studies, commissioned from the Council on Library and Information Resources in the

U.S. by our Library of Congress, have identified another major inhibition—the restrictions of copyright. The Congress of the United States, in 1972, extended federal copyright protection to sound recordings that were made in the U.S. *after* that date. Anything recorded in the U.S. *before* 1972 remains protected by what one expert has called “a patchwork of state laws, civil and criminal,”²⁷ and will not enter the public domain until the year 2067, more than a half-century from now. That applies, of course, to the recordings themselves. A different copyright law also restricts reproduction of the “underlying works”—that is, the musical or verbal compositions that are recorded.

Under the law, a recording can be copied if the original is in an obsolete format, but “obsolete” means only that the device necessary to play it is no longer commercially available. That rules out copying thousands of long-playing and 78-rpm records because one still can purchase turntables that can play them. Many recordings worthy of preservation have not been reissued or reformatted.

For that reason, our Congress passed the National Recording Preservation Act of 2000, calling for a study of “copyright and other laws applicable to the preservation of sound recordings.”²⁸ The act enabled the Library of Congress to establish a National Recording Preservation Board, which is commissioning several reports needed to enable us to prepare a “comprehensive national plan for audio preservation.”²⁹ One of the first reports reached the following conclusion:

With the exception of recordings of a few companies whose assets have been abandoned or donated to the public, there are virtually no public domain U.S. sound recordings Because only the copyright owner can legally make old recordings available, historical recordings are at risk of

*physical loss as well as of passing, unnoticed, from the nation's aural memory*³⁰

In the words of another of the new studies, there is “clear evidence of the need for updating copyright law to take advantage of digital technologies to preserve and to make accessible the full range of our sound heritage.”³¹

Can anything be done under such obstacles? Yes, within limits. The experts advise libraries and others to focus on projects involving no or few third-party rights and limit dissemination.³² Such measures, it is argued, “could reduce the risk of commercial harm to the right holder and increase the likelihood that the activity would be deemed privileged if a claim were to be asserted.”³³ But the preservation of sound recordings in the future will remain inhibited, at least in my country, unless adjustments occur in copyright laws.

In the meantime, however, we at the Library of Congress are doing something else to preserve sound recordings—and to preserve photographic formats, another great kind of documentation of the modern era. Thanks to support from the Packard Humanities Institute, we are building a National Audio-Visual Conservation Center, in the town of Culpeper in the state of Virginia. Eventually the Library of Congress will move there its Motion Picture, Broadcasting, and Recorded Sound Division.³⁴

Much of what I have said about preservation of sound recordings could also be said about the preservation of film—that is, photographs, moving pictures, and videotapes. We have all learned of the fragility of film and of the need to protect films from mechanical damage when running a reel through a projector, and to reformat films to rescue them from flammable film stock. We have also recognized that the preservation

of film begins with raising awareness and locating what still exists outside of libraries to be saved. For want of such searches previously, America has suffered what one report calls a “catastrophic loss of silent film.”³⁵ But thanks to other countries in the world, such as Australia and the Czech Republic, where American film copies have turned up, we now can preserve films that were lost in our own country.³⁶

Filmmaking studios themselves are taking better care of their products, recognizing that old films and photos can retain value as commercial assets. Also, at the Library of Congress, we now have a National Film Preservation Plan, sponsored by a National Film Preservation Board to preserve historically significant films, noncommercial films in particular. Nonetheless, one could say about preserving all kinds of film what one author has said about videos in the following quotation:

*For anyone concerned about the future of our cultural legacy as recorded on videotape—whether it be the video artist whose early work will no longer play or the archivist with thousands of tapes to maintain—the challenges of video preservation are considerable, the responsibility awesome, the problems numerous, the resources spare, the urgency great.*³⁷

Concerning all media, I conclude that the future of preservation for library collections depends on our ability as librarians to keep raising awareness of preservation needs, to keep persuading society to invest in the prevention of significant losses, to keep processing our preservation backlogs with today’s proven techniques while working to develop even better ones, and to integrate the preservation of digital with traditional resources. We must remain stewards of *all* parts of our collections and understand their

interrelationships, particularly in national libraries, which have full-range collecting and preserving responsibilities. We must remember that the most basic preservation techniques—protective storage, climate control, disaster planning—remain as important as the newest mass deacidification cylinders and digital migration methods.

The future of preservation also depends on our ability to keep ourselves from being overwhelmed by digitization. Right now our ability—and desire—to create digital resources is far outrunning our ability to preserve them. I hope that a thousand or so years from now, historians will not have to say, looking back at us as we do at Cassiodorus—“Oh, if only in their enthusiasm for the new medium, they had paid more attention to its fragility, and to the cultural value of preservation for our century as well as for theirs, and for all the centuries in between.”

I now join you in looking forward to hearing what progress our colleagues on this morning’s panel are making in digital preservation. All of us must look to their work with great hope. Thank you.

¹ Ernst Posner, *Archives in the Ancient World* (Chicago: Society of American Archivists, 2003), p. 186. Reissue of the 1972 original, which modified the English translation from Thomas Hodgkin, ed., *The Letters of Cassiodorus* (London, 1886).

² Posner, *Archives*, pp. 71-72, 88, 119-120, 137.

³ Committee on Preservation and Access, *Brittle Books, Reports [sic] of the Committee on Preservation and Access* (Washington, D.C.: Council on Library Resources, 1986), p. 21.

⁴ Committee on Preservation and Access, *Brittle Books*, p. 8. The books figure is given as 12 million rather than 10 million in Stephen G. Nichols and Abby Smith, *The Evidence in Hand: Report of the Task Force on the Artifact in Library Collections* (Washington, D.C.: Council on Library and Information Resources, Nov. 2001), p. 21.

⁵ “\$12.5 Million Approved for N.E.H. Preservation Program,” *Commission on Preservation and Access Newsletter*, No. 5 (Oct. 1988): 1.

⁶ E-mail message to Gerald George from Ralph Canevali, acting director, Division of Preservation and Access, National Endowment for the Humanities, Jan. 30, 2006.

⁷ Hartmut Weber and Marianne Dörr, “Digitization as a Means of Preservation? Final report of a working group of the Deutsche Forschungsgemeinschaft (German Research Association), translated by Andrew Medlicott (Amsterdam: European Commission on Preservation and Access, Oct. 1997, republished by the U.S. Commission on Preservation and Access, 1997): <http://www.clir.org/pubs/reports/digpres.html>, accessed Jan. 2006.

⁸ Kathleen Arthur, et al., “Recognizing Digitization as a Preservation Reformatting Method,” a report prepared for the ARL Preservation of Research Library Materials Committee, June 2004: http://www.arl.org/preserv/digit_final.html, accessed Jan. 2006.

⁹ Arthur, “Recognizing Digitization.” For “orphaned,” the report cites an e-mail message it received on March 29, 2004, from Abby Smith, then director of programs for the Council on Library and Information Resources.

¹⁰ Arthur, “Recognizing Digitization,” appendices 2 and 3.

¹¹ Arthur, “Recognizing Digitization.”

¹² NEH description of grant categories: <http://www.neh.gov/grants/guidelines/pcahc.html>, accessed Feb. 2006.

¹³ Martha Kyrillidou and Mark Young, *ARL Preservation Statistics 2003-04, A Compilation of Statistics from the Members of the Association of Research Libraries* (Washington, D.C.: ARL, 2005), p. 6.

¹⁴ Kyrillidou and Young, *ARL Preservation Statistics*, p. 14.

¹⁵ Martha Kyrillidou and Mark Young, “ARL Library Trends,” *ARL Statistics 2003-04*: <http://www.arl.org/stats/arlstat/04pub/04intro.html>, accessed Feb. 2006.

¹⁶ “The TEL Vision,” http://www.europeanlibrary.org/tel_vision_111102.htm.

¹⁷ National Endowment for the Humanities, *Strategic Plan, FY 2004-2009*: <http://www.neh.gov/whoware/strategicplan.html>.

¹⁸ L.C. Preservation Directorate, "Caring for America's Library, 1989 – Present," Web page: <http://www.loc.gov/preserv/history/1989topresent.html>, accessed Jan. 2006.

¹⁹ *Annual Report of the Librarian of Congress for the Fiscal Year Ending September 30, 2004* (Washington, D.C.: Library of Congress, 2005), pp. 86-87.

²⁰ John Kiplinger, "Print-Repository Effort Under Way at UCLA and Harvard," *CLIR Issues*, no. 47 (Sep./Oct. 2005): 1, 3.

²¹ Stephen G. Nichols and Abby Smith, *The Evidence in Hand: Report of the Task Force on the Artifact in Library Collections* (Washington, D.C.: Council on Library and Information Resources, Nov. 2001), p. 20.

²² Nichols and Smith, *The Evidence in Hand*, p. 19, 22-23.

²³ Nichols and Smith, *The Evidence in Hand*, p. 23.

²⁴ Tim Brooks, *Survey of Reissues of U.S. Recordings* (Washington, D.C.: Council on Library and Information Resources and the Library of Congress, Aug. 2005), pp. 11-12.

²⁵ Nichols and Smith, *The Evidence in Hand*, p. 38.

²⁶ William D. Storm, *Unified Strategy for the Preservation of Audio and Video Materials* (Washington, D.C.: Library of Congress Preservation Directorate, 1998), p. 6. Also see Nichols and Smith, *The Evidence in Hand*, p. 38.

²⁷ June M. Besek, *Copyright Issues Relevant to Digital Preservation and Dissemination of Pre-1972 Commercial Sound Recordings by Libraries and Archives* (Washington, D.C.: Council on Library and Information Resources and the Library of Congress, Dec. 2005), p. 2.

²⁸ Pub. Law 106-474. See Besek, *Copyright Issues*, p. vii.

²⁹ Besek, *Copyright Issues*, p. vi.

³⁰ Brooks, *Survey*, p. 6.

³¹ Besek, *Copyright Issues*, p. vii.

³² Besek, *Copyright Issues*, p. 43.

³³ Besek, *Copyright Issues*, p. 43.

³⁴ *Annual Report . . . 2004*, p. 44.

³⁵ Nichols and Smith, *The Evidence in Hand*, p. 35.

³⁶ Nichols and Smith, *The Evidence in Hand*, p. 36.

³⁷ Deirdre Boyle, *Video Preservation: Securing the Future of the Past*. New York: Media Alliance, 1993. (Quoted in Nichols and Smith, *Task Force*, p. 33.)