

# *Conservation and Preservation in the Digital Age*

Presented by John F. Dean

Preservation and Conservation Librarian, Cornell University Library

The inaugural lecture of the Brodsky Series for the Advancement of Library Conservation

## **Abstract:**

By digitizing primary source material, libraries can make them widely available through the Internet while minimizing actual handling, and resultant deterioration, of these unique artifacts. Nevertheless, digitization has led to more, not less, emphasis on conservation and preservation as libraries work to prepare materials for scanning. In his talk, Dean will examine the challenges of performing conservation treatments on books, manuscripts, and other library materials not only for the purpose of obtaining the best possible electronic images, but also for preserving their original functional integrity for future scholars.

After emigrating from Great Britain to the United States in 1969, John F. Dean managed the preservation program at the Newberry Library before establishing the apprentice training and conservation program at the Johns Hopkins University in 1975. He went to Cornell University in 1985 to establish and develop the Department of Preservation and Conservation. He is widely recognized as one of the major proponents of preservation programs at academic libraries and was the 2003 recipient of the American Library Association's prestigious Paul Banks and Carolyn Harris Preservation Award. He is increasingly in demand internationally as a conservation consultant.

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For those of you who are mentally prepared to have their eyes glaze over at the thought of even more stuff on digital imaging take heart. In this presentation, I want to briefly examine some of the perceptions abroad about digital imaging, begin to examine the development of traditional conservation in libraries, describe my own experiences in conservation, and bring everyone up to date on some of the main intersections of the two apparently diverse approaches. Let us first take a look at some of these perceptions about the electronic future and by extension, digital imaging. In looking at the future of libraries and archives, one persistent view is that book collections will eventually disappear and that everything worth reading will be on the Web or the Net, one of the problems is that this might be a little more difficult than first thought.

One of the immediate practical effects of the invention of printing was the ability to produce many copies of an author's work, which tended to make the suppression of ideas, clearly vulnerable in manuscript form, much more difficult as it was harder to control their distribution. The invention of the World-Wide-Web seems to have similar, but much more dramatic, characteristics, disseminating ideas widely and making next to impossible the banning or curtailing the spread of information. Although our use of digital imaging technology predated the invention of the Web, the seemingly insatiable market that the technology has created is based upon the notion of instantaneous and random access to absolutely everything.

These expectations may or may not be justified, but there are certainly serious concerns for preservation. Abby Smith, of the Center for Library and Information Resources, cautions on the possible dangers of this oversimplification. "What we have found is that digitization often raises expectations of benefits, cost reductions, and efficiencies than can be illusory, and, if not viewed realistically have the potential to put at risk the collections and services libraries have provided for decades (1)." This concern with losing what we have fought so hard to build is not just a reluctance on the part of traditionalists to slow down the clock and hang on to old ways but is a recognition that, without the necessary standards and protocols, we may be entrusting the record of scholarship to an immature medium, one which does not appear to have much of a record for actually preserving anything.

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Despite the charge of immaturity, the technology has now been around for quite some time and our knowledge on how to make things work to our advantage does continue to grow. One of our prime concerns is in ensuring the preservation and continued life of our images because of the enormous file sizes that are being produced and the need to bring to bear all our managerial and technical skills to migrate these files over time to ensure that the images still live. Technology dependencies and vulnerabilities, and inadequate documentation may be added to the file maintenance list, although I believe that the technology will soon be available to ensure the long-term retention of images in one form or another through migration, emulation, refreshing, and a variety of hybrid strategies. The safe archiving of digital images is especially of concern for images that are “born digital,” usually the result of electronic publishing. Librarians cannot control the preservation of these images, and worry that the images will cease to exist as digital archives once the commercial value has been fully exploited, or that they will be unable to afford to preserve them when the images are transferred.

One of the more serious concerns is the ubiquity of scanning which seems to be done by everyone and all over the place with devices purchased from office supply stores, and there is a general lack of managerial systems to maintain images as an institutional and collaborative responsibility. This is understandable given the project-driven nature of most library digitization projects, which are really designed only to create digital resources rather than to maintain them. What is needed is a transfer from project to programs that are ongoing and which will encompass the full cycle of digital resources, from selection and creation, to management, access, and preservation, with a range of strategies to ensure that resources are allocated properly (2).

Investigations into digital imaging for preservation purposes started at Cornell at the end of 1989, and its locus within the Department of Preservation and Conservation surprised many in the preservation field. The decision of the Department to embark on what seems such an antithetical path was essentially pragmatic, as it was recognized at that time that the onset of the technology was inexorable, and that unless we took steps early on to try to understand and manage it, we would be swept away.

Some of the difficulties were identified early in 1990 by M. Stuart Lynn, then Vice President for Information Technology at Cornell and later President of the Commission on Preservation and Access. Lynn noted that librarians “tend to think in terms of periods of centuries rather than having (or wanting) to recopy every few years. Such considerations may either hinder the adoption of digital technology for preservation or other purposes or eventually cause some rethinking of the underlying economics of librarianship.” Lynn, a fervent and articulate advocate of the technology, nevertheless also recognized the danger of oversimplification. “Between the eager apostles of technology and those who approach change with extreme caution lies the mass of professionals who are trying to understand and grapple with the potential of this shifting environment, many of them implementing prototype activities designed to elucidate greater insight, many working to close the gap between promise and reality (3).”

There are enormous benefits to be derived from digital imaging technology once we have resolved some of the rather complex problems that confront us. Some of the benefits may involve attaining a measure of control over aspects of librarianship that have eluded us so far. Collaboration among libraries, especially in collection management, has always been a Will-o-the-Wisp, yet digital imaging technology offers significantly enhanced prospects for cooperation through the collective provision of information service to users who have no particular interest in its origins. Colin Webb, head of preservation at the Australian National Library, points out that for many libraries, “it will be less critical to own a collection and critical to have access to information...at the same time,

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there is widespread recognition that someone has to collect and keep information (4).” He goes on to say that this may mean that fewer libraries may need to maintain large collections, but can keep smaller collections of scarce and unique materials.

However, the future is not just digital technology. The problems that libraries face seem only exacerbated by the technology and by computers in general. Although the early advocates of digital technology predicted the end of paper and libraries as separate utilities, it seems that we cannot construct buildings fast enough to contain the rapid increase in paper collections. At Cornell University, four sizeable library facilities have been constructed over the last few years, with three additional high-density storage facilities now in progress to add to the two existing storage facilities. The rate of circulation continues to increase with the use of Rare Books and Manuscripts increasing by an equal amount with more than half of all its use by undergraduates. As Walt Crawford, a confessed professional technologist from the Research Library Group, notes in an excerpt an essay in *Future Libraries: Dreams, Madness, and Reality* that the

- The future means both print and electronic communication
- The future means both linear text and hypertext
- The future means both mediation by librarians and direct access
- The future means both collections and access
- The future means a library that is both edifice and interface

In other words, we continue to do what we are doing as well as we can, we continue to be self-critical about our objectives and values, we try to anticipate the future, but must adopt the principal of the evolutionary approach espoused by Herman Fussler, Dick De Genero, and others, from hybrid solutions to expansions in our programs.

We must not lose sight of the fact that our collections exist on many layers, and that the immense heritage of knowledge passed down to us by our forefathers and mothers must be passed on by us to future generations; that the rare, unique, and fragile artifacts of our own age existing on color film, audio tapes, photographs, and computer data are preserved.

Preservation professionals have a responsibility to engage in the broader discussions on the future of libraries, and to try to look beyond the boundaries of their own collections to places in lands where pieces of the world’s cultural heritage are disappearing at an even faster rate. (Over the last twenty years, I have been working abroad on behalf of Cornell University in many different countries in recognition of this fact, and returned only two weeks ago from working at the University of the West Indies in Jamaica to train bindery staff to recover from Hurricane Ivan.) We must be pragmatic, and understand that administrators, especially those outside the library, are not going to be swayed by panegyrics on the principals and ethics of conservation, but by cost-effective and utilitarian solutions that will benefit the most people.

Warren Haas, then Executive Director of the Council on Library Resources, produced a still valid prescription for the nationwide preservation program, but it needed an RLG to bring collective focus to individual institutions’ collection development and preservation programs (5). Now, however, the nationwide distributed approach to a national system is perhaps too decentralized, with no organizing principal at work, especially since RLG largely abandoned preservation coordination some years ago.

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Will some of the more marginal institutional preservation programs continue to survive without the peer pressure and support of a central organization?

As high speed and comprehensive data about our collections spread and increase, will our conservation programs be capable of dealing with the consequences of heavier collection use?

Will it be possible to actually fulfill the promises of our bibliographic records and maintain our books in a "usable" condition rather than trying to hide them in remote storage or boxes?

Perhaps more encouragingly, I sense a growing interest, at least among Cornell alumni, in protecting and preserving the collections, and it may be that private funding is the best bet for the future. I do not see public funding agencies nor overtaxed library administrators sustaining support for preservation programs.

Library administrators are wavering in their support for traditional collections, trying desperately to keep up with the new and the old. Thus it is clearly up to preservation administrators to recognize that it is neither possible nor even desirable to preserve everything, and that they must demonstrate, through objective and quantified demonstrations of need, that sound and cost-effective preservation management is a vital part of the library enterprise. Expert preservation management of routine processes, information based on careful analysis of the collection, integrated with data on collection value and utility, should be the elements driving preservation and conservation programs.

### **The Development of Preservation:**

The book arts as we know them today, are the eventual result of the evolving efforts of printers, papermakers, and bookbinders to produce books that are designed to fulfill their primary purpose to present and record the thoughts, creations, and ideas of humankind. One of the primary functions of libraries, we were told in library school, was "to preserve the sum total of human knowledge," so clearly the production and purchase of books, and the responsibility to preserve them, are not unrelated. The idea of preservation is certainly as old as the ideas of record-keeping and libraries, and, as we were reminded recently on an electronic list devoted to library conservation, the history of preservation and conservation itself is now a field of growing interest and literature.

I think an important point to make about conservation practice in particular is that a great deal of it is still influenced by immediate practicability, and many of our methods and techniques are based on simple observation of what has worked successfully in the past and what has not. Obviously, we apply the results of materials testing to our work, and obey, perhaps sometimes rather uncritically, the received scientific wisdom of the day, but, of course, this is what bookbinders have been doing for centuries. Modern book and paper conservation practice is firmly based on the crafts, mainly bookbinding, and it seems clear to me that bookbinders have always operated in this way, experimenting with new or hybrid techniques and avoiding methods and materials that have not been successful. Thus for example, we are told by Saint Jerome that, in the library of Pamphilus at Ceasarea, papyrus manuscript books were interleaved with parchment when it was noticed that papyrus was weak and parchment strong, and that all badly damaged papyrus manuscripts were automatically replaced with parchment (6), an early example of what digital imaging technologists call "refreshing."

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For binders working in large research collections, even a modicum of observation of bindings and materials over time can lead to some worthwhile and readily-applicable information. The quite sophisticated use of materials and flexible Coptic binding construction in early English bindings such as the seventh century Stonyhurst Gospel, discovered in the coffin of Saint Cuthbert in Durham Cathedral for example, places some of our lofty ideas about the superiority of modern book conservation technique into sobering perspective.

The eighteenth century bindings of Roger Payne, a binder much vilified by Thomas Frognall Dibdin as a dypso-maniac, are not only elegantly tooled and beautifully bound, but show the superb paper repair skills of Payne's assistant, Molly Weir. Payne's work on the great Earl Spencer Library, now largely in the collections of the John Rylands University Library of Manchester, is a demonstration of carefully thought-out conservation work of the highest order, some volumes carry still the records of his treatment. The John Rylands Library also has a few of Payne's protective enclosures that, while cleverly and novelly constructed in accordance with the whims of the day, are specifically designed to avoid abrasion to the book.

In many cases, it may be noticed that skilled craftsmanship was negated by poor materials, a fact not easily discernable in the past and sometimes not even now. For example, two of the great collections at Cornell University are the Dante and Petrarch collections, gathered together by Willard Fiske, Cornell's first University Librarian, beginning in Florence in 1881. A true bibliomaniac, Fiske combined his first book buying trip with his honeymoon, and was soon writing to a Cornell colleague that, on his first night in Florence, he had added dozens of incunabulae to the many that he had purchased at the Sutherland sale, and that he was determined that his acquisitions be suitably clothed in fine bindings. But Fiske also wisely ensured that original bindings of "much historic and artistic interest" were preserved to document the development of binding over the previous four hundred years. Accordingly, he sent his books as he purchased them to binders in England, who, for the most part, performed their work of binding restoration very competently. Unfortunately, while the methods they employed were excellent, the goat and calfskin leathers they used were not, and the collection is now undergoing repeat binding conservation work, again with goat and calfskin leathers. Despite carefully selecting the leathers that, we are told, are the most likely to last, I am not entirely confident that binders a hundred years from now will not be repeating our work.

In some cases, bindings have suffered because of changes in shelving practices, and the binding mechanism has been subjected to strains not anticipated by the original binder. This is especially true of bindings produced before 1600 (7). Most bindings in the sixteenth century were of relatively massive construction, with quarter-cut oak boards, metal clasps and bosses, and large beveled squares. The design was intended to protect books as they lay flat on their sloping reading desks or stored flat in chests, the metal bosses intended to prevent abrasion to the covers and outer joints, the clasps to prevent the uppermost cover from warping, and the large squares to act as protective bumpers. When these same volumes began to be stored on edge as libraries increased in size by the end of the century, the structural design was wrong, and the heavy texts began to slump inside their crutch-like squares causing breakage to the top joints and loosening of the text. This seems to be one of the lessons that modern book conservators have failed to learn, as bindings still balance ballerina-like on the points of substantial squares, with text blocks sagging to rest their weary tails on the shelf. (We will revisit this structural problem at the end of the discussion.)

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The Industrial Revolution affected binders initially in indirect ways. As the number of books increased dramatically along with the population, especially after the powering of the printing press beginning in 1814, binders struggled with wholly hand craft methods to try to keep up with a printing impression rate that had increased by a factor of ten, virtually overnight. The only covering materials available until the invention of book cloth ten years later were leather, paper, and parchment, and the only method of sewing was by hand until 1856. In desperate efforts to keep up, binders began to take short-cuts, reducing the number of sewing slips, sawing-in thin cords, employing the Oxford hollow indiscriminately, using odd slow-drying glue concoctions for gluing up backs.

The haste to keep up also affected the manufacturers of paper and other binding supplies, and inevitably the quality of materials began to deteriorate. The fall in quality caused alarm and panic amongst librarians, and when the famous scientist, Michael Faraday, was asked by fellow members to examine the deteriorating condition of the leather armchairs and bindings in the Athenaeum Club in 1842, this former bookbinding apprentice produced a report on which many similar modern investigations have been modeled, citing “inherent vice” exacerbated by poor environment as the chief culprits of the deterioration. Faraday’s report to the club committee was read as a lecture at the Royal Institution in 1843 and presented to the Society of Arts.

It was not until 1899, however, that the Council of the Society actually moved on the report because of the growing number of complaints, and in the May of 1900, the appointed committee met for the first time, with leather scientists, chemists, and book binders, including Douglas Cockerell, Thomas James Cobden-Sanderson, Walter Leighton, Sarah Prideaux, and Joseph Zaehnsdorf (8). This was a famous group. Douglas Cockerell was Cobden-Sanderson’s first apprentice at the Doves Bindery, and obtained his post through his uncle, Sir Sydney Cockerell, William Morris’s secretary. Cockerell rapidly became one of the most influential bookbinders of his day, largely through his remarkable conservation work on the *Codex Sinaiticus* and through his students who included Sangorski and Sutcliffe.

Cobden-Sanderson was a friend of William Morris, Burne-Jones, and Dante Gabriel Rossetti, and he founded both the Doves Bindery and the later Doves Press. Cobden-Sanderson's view of bookbinding was naturally greatly influenced by the Arts and Crafts Movement, and he campaigned for a return to much earlier standards of quality. He was very much influenced by his friends in the Pre-Raphaelite Brotherhood, and he believed that early bindings represented the very best in materials and structure, which was essentially true given the hastily produced materials of the late nineteenth century.

Walter Leighton was a master bookbinder, the son of a famous binder and the father of another. Sarah Prideaux was the author of one of the first bibliographies of works on bookbinding in 1892, and a distinguished amateur bookbinder and writer on the book arts. Joseph Zaehnsdorf was the third Joseph Zahnsdorf to be a bookbinder, and he continued the famous London firm of Joseph Zahnsdorf Ltd. established by his father.

The results of the work of this remarkable committee were to greatly influence the design of bindings for libraries and to begin the process of critical assessment of binding structures and materials, including leather. Cockerell’s landmark manual, *Bookbinding and the Care of Books: A Handbook for Amateurs, Bookbinders, and Librarians*, published in 1902 and still in print, incorporates many of the committee’s conclusions. In 1904, Cobden-Sanderson, who had already made it clear where he stood (9) was moved to produce regulations for a new Bookbinders’ Guild that would, among other things, promote series of lectures on methods and “animal and vegetable products (10).” In that same year, another Society of Arts committee member, J. Gordon Parker, Director of the London School of

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Leather Manufacturers, urged binders to apply the results of the most recent research, which showed that leather should not be shaved, not be dyed with sulphuric acids, and should be gall or sumach tanned (11).

My own training was very much influenced by the events going back to Faraday and beyond. When I was eleven, I won a scholarship to the School of Arts and Crafts, an offshoot of the Manchester Royal College of Art, and among the arts and crafts I experienced was bookbinding, with the primary text one of Douglas Cockerell's school craft series published by Dryad (I took a look at one of these texts the other day and marveled that anyone would ever think them elementary).

My formal six-years craft apprenticeship began at the age of fifteen and consisted of days at the bench at Lee Whiteheads Ltd, and nights at the Manchester College of Science and Technology (now the University of Manchester Institute of Science and Technology or UMIST), where my first year apprentice prize on the way to my City and Guilds of London Institute was Cockerell's *Bookbinding and the Care of Books*. The printing, ruling, and bookbinding firm where I served my apprenticeship had been established in 1780, and at that time, 1951, all printing produced by the firm was letterpress, using hand-composed type or slugs from linotype machines.

One of the most valuable records of bookbinding apprenticeship was written by Henry Aston as "An Old Craftsman's Memories" and published in the *Bookbinding Trades Journal* for 1905 (12). Aston served his apprenticeship beginning in 1836 at George Schmidt Ltd. of Covent Garden. This, incidentally, was where Michael Faraday began his apprenticeship a few years before Aston. Aston's description of his workplace, the methods of production, working conditions, and the type of work produced during that period, gave me the idea that I might relate a little of my own early experience.

Work in the Lee Whiteheads binding department included delicate paper repair and hand sewing, and all binding used hand processes. Most books were either ledgers or so-called fine or "extra" bindings covered in sheep, calf, goat, vellum, or sealskin. All book edges were either marbled or gilded and one of my early jobs was to "lay-on" gold leaf for the edge gilding of a large group of diaries for the town council.

The organization of the bindery was essentially divided by sex, with women and girls occupying about two thirds of the space and the rest being taken up by the men and boys. Women served a separate apprenticeship from men and concentrated on hand and machine sewing, document repair, and various other preparatory tasks. The men did most of the heavy pressing of books before sewing and included making all the complex endsheets that consisted of marbled paper and cloth joints.

There were six men and two apprentices, one aged nineteen and myself at fifteen. The normal workweek was forty-five hours, which made for a long day of standing at the bench especially for a boy fresh out of school where sitting insisted upon by the teachers. For the first few weeks, I had to put up with the constant pranks of the men and the petty tyranny of the older apprentice until I set him straight one lunchtime. It was the apprentice's job to ensure that all the hot glue pots were constantly full, that all the work surfaces and various implements were clean, and that new paste was made at least every week.

The men were on a daily docket system. This was a system where every binding job was timed from the ledger, the ledger having been first compiled in the late nineteenth century. Each day, the daily docket had to be filled out by every man with eight and three-quarters hours worth of work, fifteen minutes being allowed for

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“miscellaneous time.” The apprentice was allowed thirty minutes miscellaneous time to enable the cleaning chores to be carried out. All the men had their own piece of a very long bench set against the window which looked out on a row of terraced houses and alleyways. The men were divided up into one man on finishing, one man on marbling, and four men binding at the bench. Every month, the men would change position, so the same men did not do the do the same work all the time. The main advantage with this system was that every man was a good finisher and marbler as well as binder.

The quality of work being produced was very high, and every binding was inspected when the work was complete by the foreman and then by the firm’s manager before being delivered to the customer. The type of bindings was extremely varied, ranging from traditional ledgers to elaborately tooled presentation bindings. All ledgers were constructed with a spring back, split boards, and covered in leather, usually sheep or goat skin. Some of these were quite elaborate, constructed with full rough calf, double-straight Russia bands, laced through the boards with vellum strips. Many ledgers were indexed at the fore-edge, and I learned about the intricacies of vowelled indexes, Scotch and Irish indexes, and through-out indexes. Many ledgers had special locks fashioned out of brass, and had to be installed when the ledger was almost finished. Most of the tooling on ledgers was in blind, with the lettering in the second tooled panel on the spine. Lettering and tooling on a light colored leather, such as fair calf, was always done by picking up the pigment from a black carbon paper with the hot tool then making the impression, which then varnished with a tiny brush.

One category of binding that consumed a lot of bench space was law reports being bound in fair calf with each lettering panel in different colored on-lays of black, red, green, brown, blue, and other colors to differentiate the divisions of law, such as “Queen’s Bench,” “Appeals Cases,” “Admiralty Cases” and others. All law books were sewn with five sawn-in hemp cords laced through mill-boards, bound with Oxford hollows made from hand-made paper. Usually one man and an apprentice would take on sixty or so of these volumes. Because of a special pricing arrangement with several law firms, the law reports were sent for binding together and then distributed to the customers when the work was done.

Presentation bindings were varied. At that time, crematoriums were being built in England, and Lee Whiteheads had a brisk trade in Books of Remembrance. These were quite large books of hand-made paper in which the names of the incinerated were written, with the pages being turned every day. Because the books always lay opened on a lectern, the covers were not seen, but the inside borders of the full leather bindings were inlaid with different colored leather and extravagantly tooled. Other finely tooled books were designed for special occasions as it was the fashion then to present visiting dignitaries, such the Queen, with books to commemorate their visits. Often, these books would have the coat of arms of the town incorporated into the design, usually in a dropped panel. Lee Whiteheads also worked with a local calligrapher to produce what were known as illuminated addresses. These were quite beautiful leaves of parchment written and illuminated by the calligrapher and placed in specially tooled cases.

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Other fine bindings were executed for private collectors, and these were in a broad variety of types and styles. One popular style incorporated dark calf treated to produce a tree pattern on the surface, another involved sprinkling with different colored inks through shaped templates onto the leather surface combined with gold tooling, yet another combined leather on-lays cut with steel punches and tooled in gold with the corresponding tool. Usually these designs consisted of leaves and flowers.

For me as an apprentice the work steadily increased in complexity as I moved through the six years and eventually I took my place at the finishing bench and the marbling trough. Marbling was almost always applied to book edges. Most of the patterns were variations of Dutch designs with wide combs for the thick ledgers that we bound, but the patterns and colors were much more subtle for letterpress books, and were Turkish, Hair Vein, and Non-Paralle. Marbling was done using Carrageen moss, a seaweed imported from Carrageen in Northern Ireland. The moss was placed in a large cauldron with the requisite amount of water and brought to the boil then removed from the gas ring and immediately cold water poured into the mix. As a young apprentice, I had to sit on the bench and stir the size with birch twigs as it cooked, one of the rare occasions when I was allowed to actually sit down. At Lee Whitehead's we then poured the resultant mucilage into a large earthen-ware pot to cool overnight before straining off the glutinous seaweed in the morning. In cool weather, the size would last about eight weeks but in warm weather it became putrid in six. When the size was ready, it was carefully poured into the trough and allowed to settle. The colors were ready-mixed and were applied to the surface of the size, where they lay quite safely and allowed easy manipulation with combs or stylus. In order to make the colors spread, ox gall was added to the colors. The book edges had been prepared with a mixture of dissolved alum, which acted as a mordant, and the edges dipped onto the surface of the size and the pattern transferred.

All gold tooling was produced with gold leaf, as there was no good foil substitute in those days, and the gold was set with egg albumen. I was often sent to the cooperative store across the street to buy bags of plain flour (for the paste), eggs (for the glaire mixture for finishing), vinegar (to reduce the grease on the surface of the leather), and, with a short walk to the slaughter house, a gall bladder from which we extracted the liquid to make the marbling colors spread.

Not all the work at Lee Whiteheads was interesting. We had to bind lots of truck drivers' receipt books, cotton mill spindle books and the like. But even combining with the men on large group projects for routine work was a treat for me. Conversation was constant on those almost mechanical projects, and the men talked incessantly about politics, boxing, cricket, rugby league, and, occasionally, bookbinding. The discussion of bookbinding ranged from discussion on materials and methods to historical models, and I was surprised that Cobden Sanderson was admired, even though he was not a time-served professional binder. I think I learned a lot simply listening to the men talk and occasionally joining in.

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I served my apprenticeship at a fortuitous time. In 1951, Lee Whiteheads had an enormous accumulation of work from before the Second World War, and the town's 365 cotton mills were working at full stretch, providing lots of ledger work and other residual binding benefits. In 1956, I was obliged to join the British Army to do my National Service, and when I returned to the bench in early 1959, much of the work was gone, most of the cotton mills had closed down, and an air of depression pervaded the town.

Midway through 1959, there was a nationwide strike, the first affecting binders since 1926, by the printing and kindred trades against the Master Printers' Federation to try to reduce the hours of work from 43 and a half hours, as they were by then, to 40 hours. The strike lasted six weeks and we eventually won the hourly reduction. This was almost ironic in a way, as one of the first strikes of bookbinders ever was also about hours. In 1786 the London bookbinders struck to reduce their weekly hours from 84 per week by one hour per day. This case resulted in the imprisonment of the five strike leaders to two years in the felons side of Newgate Prison where two of them died. The rest were released on the "Glorious 28<sup>th</sup> of June" and their sacrifice for the one hour per day reduction was always commemorated by union picnics arranged as close to the actual anniversary as possible.

In 1960, I left Lee Whiteheads to work at the Manchester Central Research Library and so began my library preservation career. Thus my reflections were established early but are now based on more than fifty-five years of careful observation.

The mechanization of bookbinding that took place in the middle of the nineteenth century clearly resulted in the production of poor-quality materials and increasingly poor paper. It also tended to separate the mass production, publishing part of bookbinding from the more craft oriented production of fine binding. Cobden-Sanderson's struggle against the more grotesque forms of fine binding of his day resulted in the increasing application of the philosophies of the Arts and Crafts movement, with its emphasis on good materials and solid structures, and his training of numbers of American women binders, such as Helen Gates Starr and Edith Diehl, began to spread the movement to the United States.

### **The Library Preservation Management Challenge:**

So far, I've talked a little about the process of learning from the experience of others, and moving forward to build so others can learn. But preservation is, of course, much more than bookbinding, and certainly over the last forty years, has been related more to the health of entire collections rather than individual volumes, and this in turn, is influenced by the building of collections. Library collections by their nature, have always grown, but their growth in size and complexity since the end of the Second World War has been remarkable. The costs associated with maintaining these obese collections are now beyond what most institutions can afford, especially as librarians are being pushed into maintaining collections in a variety of formats irrespective of utility. Clearly, issues associated with collection development and selection are as much a part of preservation as other aspects of the research library, and the identification of preservation priorities is sometimes confounded by a lack of clarity

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in the objectives of the library and its parent institution. The criteria generally used to target materials for preservation are: poor physical condition, evidence of use, and significance for research, and when all three elements are in place, certainly the need for preservation action is usually undisputed. Of the three, the most contentious is "significance," as the basis for decision-making is often quite subjective. The Research Libraries Group Conspectus provided a measure by which collections were graded in terms of importance to the nation, but this has now been dropped because, RLG staff tell me, selectors and curators of member institutions consider the updating of the levels too time-consuming. The larger the collection, the more difficult the logistical decisions that must be made about it, the number and vociferousness of the voices raised about its disposition increases, and the role of preservation becomes less clear. The use of remote high-density storage is becoming more common in an effort to contain all that the user requires we keep, yet the user often tries to insist on full, undifferentiated access while decrying the gobbling up of central campus space by more library buildings.

The main intersection of collection development and preservation over the last several years has been the issue of books printed on paper that is, or soon will be, brittle. The self-destructing book alarm was sounded even before the first mechanical wood-pulp paper rolled off the machine just after the American Civil War, but it is only over the last fifteen year that massive efforts by research libraries, supported mainly by the National Endowment for the Humanities, have concentrated on the reformatting via microfilm of hundreds of thousands of deteriorated titles to prevent their total loss. Although many titles have been saved, a growing aversion to microfilm seems to have developed among scholars and some librarians and, of course Mr. Nicholson Baker. The main criticism was that hard-copy books were disappearing from the shelves to be replaced by a format that: will not allow circulation outside the library, will permit only sequential access to books and periodicals, and renders study awkward. Unfortunately, despite continuing and strenuous efforts, microfilm remains the only reliable preservation reformatting medium, and it has the advantage of having virtually no recurring costs after the initial capture.

Most of the institutional preservation programs in the United States began to develop after 1970, with the exception of the pioneering program started by Paul Banks at the Newberry Library in 1964, and most of them were centered on the resolution of the brittle books problem through microfilm, in some cases, carrying on in a more centralized way work that had been going on for some time. As the 1970s progressed, the idea of preservation management became more widely accepted, and most of the basic operations of the library associated with preservation, commercial binding, pre-shelf processing, book repair, and reformatting, were being placed under an administrator who also took responsibility for environmental monitoring, disaster planning, and collection needs assessment. Nevertheless, the majority of these programs was quite weak and underdeveloped, and the Warren Haas report to the Association of Research Libraries in 1972 helped greatly to legitimize and shape them in a national context.

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### **Preservation and Technological Change:**

Over the last twenty-five years, the promise of mass de-acidification has both tantalized and frustrated. When investigations into what was thought would be a vapor-phased chemical solution began, the intention was to develop systems that would be very low cost (“just pennies”) because they would treat collections *en masse*, would obviously be effective and non-damaging, would have low logistical impact on collections as the systems would be applied on-site at libraries, and could be applied to entire collections without significant selection. Judging by these criteria, we are still waiting for a system that we can afford. The Library of Congress, which has suffered through most of the trauma of development, has now begun to actually de-acidify books from its collections in 1996, using the Bookkeeper III system of Preservation Technologies. It remains to be seen whether or not unit costs of this technology can be reduced to the point where libraries can afford to pay, as the national funding agencies have made it clear that they are willing to support only preservation strategies that improve distributed access to library resources, and clearly, both de-acidification and conservation treatment are designed to preserve specific collections in place.

The preservation of the artifact is clearly the responsibility of a librarian and the staff of the preservation department, and it is vital that preservation administrators, conservators, and curators, ensure that, in the rush to simply make images available, institutions do not damage or destroy original research materials. Perhaps the best way to do this is through scanning projects that encompass a range of preservation strategies, including the creation of microfilm, conservation treatment, and enhanced stability through improved housing. Preservation seems even more critical now than at any time in the past, and, as Colin Webb, head of preservation at the National Library of Australia, has noted, we must use a variety of approaches supported through a strong management system that allocates resources as needed. It is important that we learn to adapt to change without losing the skills and functions that we need to continue to maintain.

Increasing activity in digital imaging technology has actually brought about a fresh interest in conservation. Unlike the materials provided by commercial electronic publishers, collections captured digitally by libraries and archives tend to be mainly artifacts that are not owned by other libraries. Indeed, as we have discussed, the great strength of the technology is its ability to make scarce and unique research collections available to all. Moreover the copyright laws tend to encourage institutions to scan those materials that are older and no longer covered by copyright. The role of conservation becomes more clearly defined by ensuring that materials look their best when they are scanned and are cared for in improved fashion following scanning. More institutions are becoming aware of the need to preserve artifactual materials to ensure that the content information is not lost. An example of this combination of operations is the hybrid program that involves both conservation and digital technology. The words “conservation” and “digitization” represent two different philosophies and seem to operate in different worlds. Yet an increasing number of digitization projects involve rare and unique materials, and scanning is often undertaken by staff who lack experience in the handling of artifacts. Sometimes attention is focused so intently on the technical requirements needed to produce and store viable images that ensuring competent care and secure housing for the artifact is given inadequate consideration (13).

Inaugural lecture of the Syracuse University Library's  
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Presented 1 April 2005.

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Conservation represents the care of the original artifact in terms both of stabilization and treatment. The definition of an artifact, according to the CLIR *Evidence in Hand: Report of the Task Force on the Artifact in Library Collections* (14) is “an information resource in which the information is recorded on a physical medium, such as a photograph or a book, and in which the information value of the resource adheres not only in the text or content but also in the object itself.” For example, the way a book is bound, the materials used in executing the binding, the paper on which the text is printed or written, the form of printing and illustration, the decoration, and so on, are all potentially valuable pieces of information that should be preserved. In the context of these guidelines, “artifact” is taken to mean an item which, when scanned, will be retained and returned to the collection.

From the conservation standpoint, it is often tempting to regard digital imaging as no different from microfilming or any other analog photography, as all seem to reproduce the artifact. However, the ubiquity of access possible with digital conversion seems to add another dimension, and the special lighting requirements, exposure times, and handling concerns, suggest that a different response should be made, especially as many analog reformatting tasks were traditionally the province of conservation. Every digital imaging project concerned with the capture of artifacts must involve the preservation of the digital image and the original artifact, and at the very least, digitization should do no harm to the original source document. It is the overall goal of the curator and conservator to protect the artifact, minimize its physical handling, ensure that the scanning function does not cause any damage, and that the artifact is stored or treated in a secure and stable fashion following scanning.

Let me give you some examples of hybrid projects.

Cornell University's Anti-Slavery Pamphlets, <<http://www.library.cornell.edu/mayantislavery/>>, was a project funded by the National Endowment for the Humanities. It was designed to provide broad and popular access--- via digital imaging, cataloguing, and full conservation treatment--- to important Anti-Slavery pamphlets from the collections of Cornell University Library, mostly collected by Samuel May, a well-know Syracuse abolitionist. The scanning and conservation treatment of these pamphlets occurred over a three-year period that began in January 2000, and accomplished the capture and conservation treatment of approximately 10,000 pamphlets. Conservation treatment for this material was based on the premise that some of the historical and research information provided by the original format cannot be adequately represented in any other fashion, and the collection is a vital cultural artifact. Many of the pamphlets were important because of their direct association with previous owners, and many bear their signatures and marginal notes. Scanning the pamphlets ensured that the textual content of the pamphlets was made broadly accessible through Cornell's digital library on the World-Wide-Web.

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The conservation treatment involved disbanding the 500 volumes of bound pamphlets, de-acidification, and dry cleaning, paper repair, reversion to the original pamphlet form with a protective cover, then enclosing the treated and scanned pamphlets in custom boxes according to the bound volume gatherings. This project was very successful in that it allowed the scanning of the full body of the texts, which are freely available through Cornell's Web-site and provided for the full treatment of then original artifacts.

The project demonstrated the essential integrated nature of preservation and has lead to a series of special projects promoted by the Cornell University's Librarian, Sarah Thomas. The "special grants program," initiated by Dr. Thomas invites proposals from Cornell faculty to transform research and teaching resources into digital collections, searchable and accessible over the Web. The collections include those already held by the library, the creation of new collections based on faculty collections, the conversion of other materials held by other institutions that will support research and teaching at Cornell.

Some of the projects have included a close association among the faculty member, digital imaging staff, and conservators. For example, a recent project featured a detailed survey of early choir books in the Cathedral of Toledo in Spain that we hope will lead to a conservation and digital imaging project for all 400 volumes of manuscripts. Now we move to the audio-visual part of my presentation with a look at one of these projects in progress.

**[The PowerPoint slides for this segment of the lecture are currently unavailable]**

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### Notes

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