



## Trends in Preservation

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SEVERAL YEARS AGO the head librarian in a suburban public library opened the safe in his office, reached into the farthest corner of the lower shelf, and withdrew a carefully wrapped but badly worn volume. It was, he believed, the only available copy of a book of great regional importance. Its leaves were torn and loose, and its ragged leather cover was disconnected from the body. Because of its poor physical condition, the book was never used or exhibited, even though it would have been a valuable addition to a collection of regional literature.

Here was a significant book being neglected because the librarian did not know what to do about its poor condition; the farthest corner in the safe appeared to be the best solution. Thousands of books, manuscripts, documents, broadsides, drawings, prints, and similar important pieces are stored away in like manner because the persons in charge are unaware of the preservation techniques which would put them into condition for exhibit and, more important, use.

During the past decade a number of books and articles on preservation and restoration have appeared. Some of them were written by scientists or professionals who are making positive contributions in this field, and others by advanced amateurs who are willing to share their enthusiasm and know-how. Most of this is good because it focuses attention on the problems of disintegration. Despite the enthusiasm of the amateurs, however, do-it-yourself repair projects must be limited to unimportant items or postponed until more professional skills are developed. Far too many rare books have been "repaired" with questionable adhesives and inferior materials; far too many tears in scarce maps have been supported with plastic tape that was never meant for this purpose. Such well-intended, interim measures frequently reduce the value of the item and create difficult

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problems for the professional restorer when he is later asked to repair the piece.

Today it is possible to find a bookbinder qualified to undertake any kind of job ranging from the simplest cloth recasing to complex extra binding involving maximum skills and permanent materials. The librarian must determine the value or importance of the book before deciding what type of binding or repair would be justified, and then he must place the job with the right person. Obviously, an extra binder qualified to do the most difficult job should not be expected to use his highly developed and expensive skills on a cloth rebinding. Conversely, a binder who specializes in the binding of circulated books should not be given rarities.

For many years the larger libraries have maintained their own binderies for frequently used books, but they usually send their valuable books out to an extra binder. A few libraries have found it possible to add an extra binder to their staff. Although our country has no school for the training of certified extra binders, a few institutions offer such classes, and seminars relating to the subject are attracting an increasing number of participants. In addition, experienced binders are taking time from their full schedules to offer individual and group instruction.

The efforts of the Guild of Book Workers, an organization which has successfully raised the standards of the binders by conducting lectures, field trips, educational programs, and exhibits and by maintaining a supply list of great value to the scattered practitioners, also helps keep the craft healthy and alive. The International Institute for the Conservation of Historic and Artistic Works has supported a more general program for the dissemination of information. The Institute publishes *Conservation* and frequent bulletins.

Should an important book in poor condition be rebound or repaired? Although some bibliographers would promptly say "neither!" this is not a realistic answer. Since deterioration is progressive, the condition of the binding will get worse, not better. A protective case and ideal atmospheric conditions will retard aging, but these precautions are not enough to prevent deterioration absolutely. If the existing binding is significant and can be saved, a sensitive repair should be made, utilizing as much of the original material as possible. The alternatives are a new binding, a replica of the original binding, or a period binding.

One fairly recent development of interest reported in newspaper

and magazine articles concerns a process for the preservation of vellum, parchment, and paper. These stories report that Dom Mario Pinzuti of the Institute for the Scientific Restoration of Books at the Vatican has found that vitamins, injected or sprayed, will prolong the life of these materials. The Institute reports that the introduction of vitamin B will halt the increasing rigidity of vellum and parchment caused by aging, and that vitamin PP will equalize the absorption of gelatin, a glutinous sizing solution applied to weak paper.

Most old books, particularly heavy ones, have broken board corners; the leather is worn and the fiber of the board has lost its earlier rigidity. Rebuilding such a corner usually involves the use of an adhesive to impart stiffness, the addition of fiber, and finally the application of matching leather. Recently, Thomas A. Patterson, hand binder of The Hunt Botanical Library, Pittsburgh, designed a triangular, tapered wedge of plastic for rebuilding a broken corner, and it appears to be very useful. The wedge is glued between the board fibers, and pulped fiber is added to provide the necessary thickness before the leather is applied. The completed corner is strong and slightly flexible, two important goals of such a repair.

There is a growing tendency to air-condition buildings in which rare books and related objects are housed, for it is apparent that such material will live longer and better if it is not exposed to atmospheric pollution, variable temperatures, and fluctuating humidity. Prolonged high temperatures and low humidity will promote the dehydration of paper and the other materials used in books; excessive humidity is responsible for foxing and the growth of mold; and the acid air in urban communities ravages paper and leather relentlessly. All of these enemies can now be controlled by air-conditioning. Modern technology has made it possible to provide ideal air, either by means of a central system or window and floor units, in older buildings as well as new ones.

The disintegration of folding maps, particularly those with a multitude of folds in both directions hinged to the inside of a book, has always been difficult to repair. Mounting an entire map on linen or cotton provides lasting strength, but these fabrics also create excessive bulk. Thinner supporting materials, such as paper, silk, and plastic film, are not able to withstand repeated folding. Within the last few years, however, numerous tests have shown that polyester web, a synthetic tissue-like material, overcomes these objections and provides a mounting with strength, thinness, and permanence.

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Many broadsides, drawings, documents, and similar single sheets of paper in need of rigid support have been mounted to or placed against fiber board made of acidic wood pulp. Inferior board of this kind turns brown as it ages, then ultimately crumbles when it is subjected to mechanical stress. The short life of the material is in itself a major defect, but more important is the chemical injury and discoloration it causes to the paper it is intended to protect. The migration of acids from the board to the paper is a definite hazard that is causing serious damage to countless items of worth. Fortunately, there is now a growing interest in the use of a safe domestic board made of all-rag, chemically pure fibers, that costs only slightly more than its inferior counterpart. Progressive libraries, historical museums, and art galleries now use all-rag board, and informed private collectors increasingly request it when they have materials to be mounted.

This serious problem of migration of harmful substances extends to other materials frequently misused for the protection of valuable objects. Paper folders, plastic envelopes, storage boxes, and protective cases can be as detrimental as the board previously described if they are not made of approved, quality materials.

Although thick transparent plastic plates have been used during the past few decades for the protection of documents exposed to handling and display under abnormal conditions, the development of the Plexiglas filter provides a new facet of safety. This plastic, chemically safe and durable, eliminates much of the danger due to light, natural as well as artificial, and it does not shatter. Frequently, it is placed on both sides of the paper to be protected and held together with small screws anchored in the extreme margins. In some cases, two mat boards are added to the sandwich, with rectangular or contour apertures, and the document is suspended in the opening by means of thin threads. A matted subject mounted in this way is visible from both sides and substantially protected from the hazards of atmospheric pollution.

A word of warning: The movement of air on plastic creates static electricity. This is not highly important unless a piece of plastic is placed on an unfixed chalk drawing. In this case when a charge develops, some of the chalk tends to leave the paper and transfers to the plastic, giving a new, though unwelcome, dimension to the picture. Plastic, therefore, should always be cleaned with an anti-static liquid cleaner, applied with cotton or a soft cloth that will not scratch its relatively soft surface.

The injurious effect of both natural and artificial light in rooms where valuable materials are displayed is receiving increased attention. Paper, especially inferior kinds, discolors rapidly, and many inks and binding materials fade easily when exposed to light for prolonged periods. Strategically placed draperies and paint on the windows can help control the amount of direct or reflected sunshine in a room. Filters installed over incandescent light fixtures will minimize damage from that source, and the Fadex tube, which has a filter coating, affords the same protection in fluorescent systems.

Much of the paper worthy of preservation, made of rags, wood, or any of the other natural fibers, is highly acidic, due in most instances to the manufacturing process and in some cases to poor environment. It is now possible, through the efforts of W. J. Barrow and others who have recognized this major cause of deterioration, to subject such paper to a deacidification process involving liquid baths. Barrow introduced the process as a necessary treatment before lamination with plastic film, but today it is equally important for the preservation of paper that is not to be laminated.

Currently, under the auspices of the Council on Library Resources, Inc., the W. J. Barrow Research Laboratory is hopefully working on the problem of deacidifying bound and unbound books by means of a sprayed chemical. The purpose is to increase the strength of the paper and to prolong its life. Single sheets are not difficult to treat with chemicals atomized into the fibers, but a book securely fixed in a binding is troublesome. When sprayed with any chemical carried in water, the leaves will cockle. The firm construction at the backbone makes it difficult to eliminate this distortion. Experiments are continuing; Barrow hopes to establish a pilot operation within the near future.

Progress in the field of leather preservation is, indeed, very slow, yet the last decade or two have seen considerable headway. Years ago there were those who said the rubbing of a banana peel over the leather of a binding was the best treatment; others said shoe polish, bacon rind, thin paste, milk, and so on. Secret formulas, passed from father to son, were claimed by their exponents to be superior to anything else, but they could not tell you why. Patented commercial preparations, as well as those in the public domain, seem to improve the leather, but after a few months in many instances a deposit of stubborn white substance appears in the depressions of grainy leather. The well-known British Museum leather dressing has not been suc-

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cessful in this country. Some binders report that it remains tacky, causing books to stick together; or that it glazes the leather with a hard finish, foreign to the natural supple qualities of the skin. The total picture has been confusing to those who recognize the importance of a maintenance program.

H. J. Plenderleith,<sup>1</sup> formerly with the British Museum Research Laboratory, and R. Faraday Innes, also of England, made a significant contribution when they suggested that vegetable-tanned leather bindings be sponged with a 7 per cent aqueous solution of potassium lactate, a salt selected to retard chemical decay. They also said that oily leather dressings do not arrest chemical deterioration but do keep the fibers supple.

At the present time many binders favor a dual treatment: first, the potassium lactate; next, after the first solution has dried, the application of the well-known No. 6 dressing, made of 60 per cent Neat's-foot oil and 40 per cent lanolin, as described in leaflet No. 398, issued by the United States Department of Agriculture.<sup>2</sup> Some day the two applications may be reduced to one by the combination of ingredients that will retard decay and lubricate at the same time, with a mold inhibitor and insecticide included for additional protection.

The polyvinyl acetate emulsion type adhesive is used in our country and in Europe for many restorative operations because it bonds materials with a tenacity not always found in pastes and animal glues; however, the important question of whether it should be used on books and other material of lasting value has not been settled. Some say it is too acid, others claim the acidity leaves the adhesive during the aging process and has no deleterious effect on the material to which it is applied. Perhaps all the existing commercial products are unsafe and binders will be dependent on a carefully-formulated custom-made adhesive for the qualities being sought. This problem is being studied in the W. J. Barrow Research Laboratory and by adhesive manufacturers who recognize the need for conclusive answers.

The hand bookbinder, the restorer, or anyone applying himself to the field of preservation must collaborate with the scientist and chemist if he is to progress, and most of the practitioners are doing this today. Craftsmanship is essential, but skill alone is not enough. On the other hand, many of the traditional techniques, materials, and adhesives are still important, and should not be replaced without a careful appraisal of their worth, for they are time-tested. Progress has been slow, but the pace is getting faster and better.

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