

Binding Repairs for Special Collections at the Harry Ransom Humanities Research Center

ABSTRACT

Book conservators at the Harry Ransom Humanities Research Center, University of Texas at Austin, have adapted and developed techniques for the quick repair of deteriorated and damaged books. Many factors influence the decision to merely reinforce weak sewing structures or reattach original covers to their text blocks, rather than to undertake more extensive treatments. This paper will discuss how the institutional culture and the needs of researchers visiting the Ransom Center, combined with emerging information in the field of conservation, support this type of treatment. The most frequently used repair techniques will be described.

INTRODUCTION

The Ransom Center is a special collections research library at the University of Texas at Austin. Since its establishment as an institution in 1957, the Center has built a collection with a focus on nineteenth- and twentieth-century literature, which includes extensive holdings of author's manuscripts, photographs, theater costumes, and works of art on paper, in addition to books. Because most of the materials are rare or unique, the stacks are closed to patrons and the books do not circulate outside of the building.

A conservation department was founded in 1980 to aid in the care of the collections. In addition to performing single-item conservation treatments and constructing a wide range of housings, the department also carries out a variety of preservation policies. Conservators monitor the temperature and humidity levels in the building, using

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both hygrothermographs and data loggers. We evaluate and prepare materials for in-house exhibitions and loans. The department monitors the building for insects and inspects all incoming collections to prevent mold and insects from entering the building. When an insect infestation is found, the materials usually are frozen to eradicate the insects. Moldy items are isolated from the collections, and before patrons handle the materials, the mold is removed with a vacuum aspirator. The conservators offer presentations for new staff members and students in the careful handling of the artifacts. They also work with other departments to formulate policies that balance the researchers' access to materials with the continued preservation of the artifact.

In addition to the work done by the conservation department, staff from other departments throughout the Ransom Center are also involved in various preservation activities. They make simple housings such as polyester jackets for books and place manuscript materials in folders, archival boxes, or other housings. The reading room supervisor trains student pages to safely retrieve materials from the stacks and, when orienting new patrons to the library, educates them in the safe handling of objects. The conservation department has developed an annual Preservation and Conservation Priority Process that permits staff to participate in the process of selecting items to be treated. All members of the staff are invited to submit information about collection items that they feel need conservation. Conservators examine these materials and evaluate their condition. Then an administrative committee approves the list of items that the chief conservator selects for the conservation department to treat each year.

The Ransom Center could be called a collection of collections. Many of its holdings were acquired as distinct collections from authors and collectors. The Center has also obtained the complete contents of a couple of bookshops. In some cases the Ransom Center has not dispersed these discrete collections; instead, many of the collections have been kept intact and shelved together. Because many of the materials were chosen by a collector who cared for

them or were gathered or produced by an author, most of the items, although by no means all, are deteriorated as a result of a natural aging process rather than by poor storage or handling. Of greater significance is that many of the artifacts, especially those dating to the nineteenth and twentieth centuries, remain in the state in which they were originally issued: for example, many twentieth-century imprints are in original paper wrappers.

Due to the nature of the collections, researchers come to the Ransom Center not only to study the information content of the books and manuscripts, but also to study their physical characteristics. They search for clues about an author's intent, for instance, by examining the inks that James Joyce, his editor, and the printer used to make corrections in the page proofs of *Ulysses*. Or, a researcher might compare known binding materials and styles to determine whether or not a book once belonged to the great nineteenth-century British collector Sir Thomas Phillips.

In order to safeguard the sort of physical information that is intrinsic to these types of collection materials, our approach to conservation treatments is usually quite conservative. The administration and curators have balanced, particularly since the 1980s, the preservation of artifacts in their original state with conservation treatments that are needed to permit the Center's patrons to safely handle the materials. The benefit of conservative treatments to these authors' manuscripts is obvious: it allows unique qualities to be retained. I find it interesting that by the 1990s the conservative approach toward manuscripts had already influenced a similar conservative approach toward the treatment of books at the Ransom Center. Yet, since I came to work at the Ransom Center in 1990, conservation treatments have become even more restrained. Input from bibliographers, research in the material sciences, and the development of new conservation treatment techniques have all contributed to this change in our attitude and our methods.

A variety of approaches toward the preservation of bibliographic information prevailed during the last century. Many approaches are reflected in bindings that pass through our book conservation lab. Collectors and binders in England and the United States have preserved bibliographic information of some bindings with expert or even rough repairs. Other collectors employed binders such as Riviere in England who washed and bleached text blocks and rebound books to provide a product that pleased the fashions of the times. My recollection is that during the 1970s book conservators working in libraries in the United States began to realize that their treatments might obscure or destroy the bibliographic information found in books. At that time prevalent conservation binding practices rejected traditional restoration techniques. Conservators focused on treatments that would improve the condition

and longevity of the information content of a book. Acidic and discolored text blocks were given aqueous deacidification and buffering treatments as a matter of course. Books were rebound with a new structure, not only if they were severely damaged, but simply to protect the text block with higher quality materials, or so that the book would open more easily. The appearance of books was modified with fills and in-painting and by cleaning and application of leather dressing to reduce signs of wear.

Although we still perform the same types of treatments used in the 1970s and 1980s, we employ many of the techniques only for books that are severely deteriorated and damaged. A growing body of research in the field of conservation that describes the manufacture of materials used for bindings and records binding structures gives us a stronger historical perspective and appreciation of the artifact. At the Ransom Center today a conservator relies even more on the bibliographic scholarship of the curator to identify the special characteristics and qualities of a book, as a curator relies on a conservator to provide treatment options that will retain this information and stabilize the artifact for use.

A bibliographer, David McKitterick, describes the changing interests of bibliographers and the resultant demands placed on book conservators.

... the bibliographer's perception of his or her task has changed over the last two centuries or so. It may now be said to encompass the listing of books; the description of books' structure and manufacture, and of their current physical appearance; the relationship of technical description such as this ... to textual matters; and the investigation of the reception, circulation, and reading of books.... This change in emphasis has deeply affected our attitude to conservation.... What once was washed off leaves as being unsightly or irrelevant, what was once removed in wholesale rebinding, is now valued as much as the printed or written words of the text.... (McKitterick 1994, 23)

Research in the material sciences about the qualities of various materials used in conservation and procedures for the chemical treatment of artifacts influences the type of treatments we undertake. Due to the observation of occasional ill effects on artifacts after certain types of treatments, we have greatly reduced the number of books that are given chemical treatments. In choosing a treatment technique, a repair material, or a housing for a book, we balance the knowledge learned through hands-on experience with information gained from scientific studies, such as those on alkalization treatments and the stability of adhesives and papers.

Time constraints have also affected our choice of treatments. John Kirkpatrick, curator of modern literature at the Ransom Center, has observed that the types of treat-

ments have changed over the past twenty years with the practical realization by conservators and curators of the enormous number of artifacts that needed attention.¹ The collection continues to grow and each artifact simply cannot be given the most extensive treatments available. Preservation activities, for which Ransom Center conservators are responsible, also place demands on our time. Less extensive treatments are less time-consuming and allow us to treat more of the collection.

Our aesthetic appreciation of books has been changed by the repair techniques that we adopted during the last decade. This change is most surprising to us. In the past we were always inclined to camouflage visible, nonstructural damage, such as the visibility of text paper in a broken joint. Now we appreciate the deterioration for what it can tell us about the history of the materials and that we have not obscured information that might be of value to a researcher.

In the late 1980s the development of repair techniques that are less invasive to the books than treatments such as rebinding made it possible to address the input from bibliographers more fully and to preserve much more of the original artifact. These repairs can be made so that they do not obscure original structural components such as the sewing stations, the text-to-cover attachment, and the impression of the gold tooling on the spine of the book. The completed repairs are discernible but not distracting. Some of the basic techniques that we use at the Ransom Center include joint tacketing, developed by Tony Cains; Japanese paper hinges, developed by Don Etherington (1995²); a linen hinge board reattachment technique developed by David Brock,³ and the techniques of Bernard Middleton (1972). Nicholas Pickwoad (1994a; 1994b), a strong advocate for the repair rather than the rebinding of books, has also given valuable input on this topic.

The techniques that we use are a blend of traditional and new techniques. We use them to reinforce the components of the sewing structure and to reattach covers to the text block. Approaching treatments with the intent to repair the original materials encourages inventiveness. We appreciate the flexibility of these techniques and often combine them, modifying our approach to fit the needs of an individual book. The techniques are simple. Expertise, though, is required when determining which repair to use, and in assessing the condition of the materials. If, for example, the text paper is too deteriorated, the repairs will not work. Some of the methods that I will describe can be found in published articles that were noted above. So, rather than explain them in great depth, I have only included information about the techniques that we keep foremost in our thoughts as we work. Before I discuss the techniques, I will explain how we evaluate the materials and structures as we prepare for a treatment.

EVALUATING MATERIALS AND TREATMENT OPTIONS

The Text Block

First we examine the text block. We determine the mechanical qualities of the paper using a “fold endurance test.” We bend a corner of the leaf gently to determine its level of brittleness rather than making a complete fold. Many of the materials at the Ransom Center date from the nineteenth and twentieth centuries. The paper is brittle, and often a complete fold would result in a broken corner. We do not measure the pH of the paper unless we are considering aqueous treatment of the text.

If the text paper is brittle we generally do not repair the binding structure. We sometimes wash and alkalize brittle text blocks. Brittle leaves are left in their covers, unbound; usually a portfolio is made for them. To maintain a bound format, when the leaves are too brittle for any handling, the leaves are encapsulated in polyester and given a post binding.

Mends to the text block paper are made using lightweight Japanese papers or other lightweight repair papers. We are careful not to cause stiffness, or to change the drape of the leaf by mending with paper that is too thick or by using too much paste. The combination of a well-adhered mend that is still as flexible as the text paper is sometimes difficult to obtain. If a very dilute paste is used to apply the mend, often the repair paper will come loose when the leaves of the text are flexed. Our goal is to make a mend that would tear or give way before the original material. If an overly sturdy paper and thick paste is chosen to mend a page, the deteriorated page will most certainly tear before the mending paper if the item is handled roughly.

The Sewing Structure

We determine the strength of sewing threads by gently tugging on the threads in three or four of the gatherings. We avoid breaking threads as we perform this test. If the sewing, spine adhesive, and linings are intact we do not remove the linings even if the materials are in poor condition.

If the sewing thread is weak but still performing its function, and we have to apply new spine linings, we sometimes remove the original adhesive. When applying a poultice such as methyl cellulose to remove the adhesive, we keep the sewing supports dry, so that they are not weakened or broken by contact with water. Depending on the size and weight of the book, we apply an appropriate number of Japanese paper and cotton or linen cloth linings. The Japanese paper is adhered with wheat starch paste and the subsequent linen or cotton cloth linings with either paste or a synthetic adhesive, such as Jade 403.⁴

If the text block is split due to a break in the sewing supports, or if a few gatherings are loose, we adhere a new lining and sew the gatherings to the new cloth lining. We sew through the loose gathering and through a few additional gatherings on either side of the break in the sewing or the loose gatherings.

Leather Covering Materials

Chris Calnan of the National Trust, United Kingdom, presented an array of tests that can be used to characterize the condition of leather during a workshop that he gave at the Ransom Center.⁵ These tests were developed through the Step Leather Project (Larsen et al. 1994, 17). One test gives practical information about the level of deterioration in a given leather sample. Four or five samples of leather fibers, ranging from new leather to extremely deteriorated leather, were chosen to serve as standards for comparison. The fibers taken from a new leather sample are thick and long. The fibers in the older and most weakened sample are very short, narrow, and powdery, and are easy to tease from the sample. When a leather-bound book is received for treatment, the conservator uses a pin to tease a few fibers from the book to compare with the leather samples. When obtaining the fibers from the cover, the ease or difficulty with which the fiber bundles detach from the leather helps to indicate the level of deterioration. If the fibers are easy to tease from the book, it indicates that they are deteriorating. Comparison of these fibers with the samples helps us approximate the degree of deterioration. This procedure is helpful when determining if a leather cover should be treated with a consolidant; evaluating the level of deterioration in a leather binding when the joints are damaged but not yet detached; and ascertaining if moisture levels of adhesive should be reduced to avoid further damage to severely deteriorated leathers.

At the Ransom Center, Klucel G is used to consolidate deteriorated leather. The Klucel G is prepared as a 1–2% solution in ethanol or isopropyl alcohol and must be dilute enough to penetrate into the leather. (Klucel G mixed with isopropyl alcohol may stain less.⁶) To make the choice between Klucel G prepared with ethanol or isopropanol, we test the leather in a discreet area, such as a turn-in, to see how the consolidants and solvents affect the leather. If there is darkening, varying the concentration and amount of solution applied often reduces the discoloration. After consolidation, the leather is tested for cohesiveness by gently prodding at the exposed edges of the leather and by rubbing the surface of the leather with a fairly smooth paper to see if leather dust is still easily dislodged. We often apply Klucel G repeatedly to consolidate severely deteriorated leather. In the case of severe deterioration of an entire leather or suede cover, we have applied Klucel G with an airbrush. The Klucel G solution is diluted until it can pass

through the airbrush. When we use this technique, several applications are necessary.

REPAIR TECHNIQUES

Japanese Paper Hinges

A Japanese paper hinge is used to reattach loose or detached covers. The hinge extends over the joint, from the spine of the book to the cover. Another Japanese paper hinge is adhered to the inside joint of the book as well. This technique is most suited for text blocks of small, lightweight books with stable sewing structures, leather that is in good condition, and for which only the covers need to be reattached. The hinges can be adhered with wheat starch paste, a synthetic adhesive (such as Jade 403 or Lascaux 360), or a mix of the two. The hinges are often colored with acrylics to blend with the color of the book cover.

Japanese paper hinges must withstand the repeated stress of flexing as the book cover is opened and closed. If the leather is in poor condition, we make the hinges wide enough to be adhered farther onto the cover in an area where the leather is less deteriorated than at the joint. Secure hinges often overlap one-fourth to one-half inch onto the covers, and in some cases we have had to partially cover decorative tooling and titling on the spine. Hinges that have turn-ins are less likely to detach after repeated flexing. We make the hinges wider at the turn-ins, because joints are generally wider at the head and tail due to back cornering of the board and loss of leather from the end-cap.

To accurately anticipate the exact size and shape of a hinge, we draw a template that is the exact shape of the Japanese paper hinge. The outline is drawn on (2-mil) polyester film that is placed over the joint. We use a felt tipped pen that will not create an impression in the book cover and that will write on polyester. The polyester template is used as the guide to cut the Japanese paper.

Hinges made from heavier weight Japanese paper or hinges that have a thick application of acrylic paints or adhesive can be stiff. When adhered to weak, deteriorated leather these inflexible hinges are more likely to detach by pulling away the upper surface of weakened or deteriorated cover leather. Before adhering a Japanese paper hinge to the cover, we examine the condition and surface finish of the leather. If the leather is deteriorated, we apply a consolidant (as described above) to provide a coherent surface for adhering the Japanese paper hinge. Finishes or coatings on the leather may prevent absorption of the adhesive. We use enough adhesive to make a strong bond between the leather and the Japanese paper. If we see that the paste does not penetrate the leather surface, we try a synthetic adhesive.

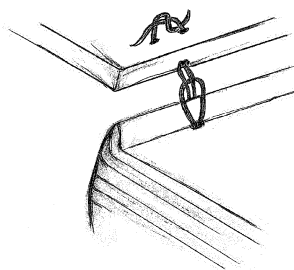


Fig. 1. Joint tackets

Joint Tackets

Detached cover boards can be reconnected to the text block by looping thread through small holes that are pierced in the cover and through the shoulder of a text block. This technique, called joint tacketing (fig. 1), has been well described by Espinosa and Barrios in their article “Joint Tacketing: A Method of Board Reattachment” (1991). The following information details some minor alterations of the tacketing procedures found in the article. In addition, some solutions to technical problems that we have encountered when using tackets are given.

We place tackets away from the original sewing stations of the text block and original slips that are adhered or laced into the covering board. This avoids damaging or obscuring extant sewing. Two to five tackets are used for small volumes and more are used for larger, heavier volumes. If even spacing of the tackets might obscure an original structural component of the book, the tacket is moved or omitted at this location.

The tacket holes are pierced directly through the shoulder and spine of a tight-back leather-bound book. For a hollow-back book, the hollow spine is released on one side at the joint. The tacket is made through the text block spine and the spine covering is reattached with a hinge. Consolidation of deteriorated spine leather before piercing, and holding a paper board against the spine while piercing, can reduce the small loss of leather that can occur on the spine of a tight back book.

We pierce holes with a sturdy sewing needle that has been shortened and inserted in an aluminum sewing needle handle. This ensures a small, evenly sized hole. (When using an awl, the hole can end up larger than necessary.)

Holes are made in the text block at the base of the shoulder. If the shoulder is small or ambiguous, the hole is placed so that the tacket thread will loop around a sufficient amount of the shoulder but not so far onto the text block that the leaves of the text block slide on the tacket thread as the pages are turned. To protect the leaves from being dented by the handle of the needle while piercing the holes, a piece of card stock can be placed over the text block.

For each tacket a single entry hole is made in the cover at the spine edge of the board. From the single entry hole

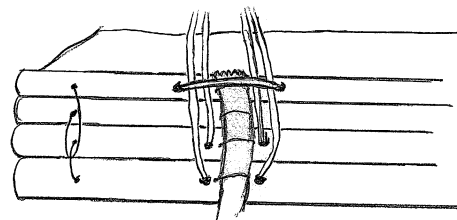


Fig. 2. New slips

two exit holes are made three-eighths to one-half inch in from the spine edge of the board, through the pastedown. There should be a distance of approximately three-eighths to one-half inch between the two exit holes on the face of the board, otherwise the board can tear between the two exit holes.

Depending on the size of the book, we use 35/3-cord or 25/3-cord unbleached linen thread for the tackets. We use a thin thread for the tacket assuming that if force is exerted on the cover, the weak threads will break before cutting through the text block or cover of the book. A small thread makes the mend less visible, but if the thread is too strong and thin, it could cut through the board or shoulder. For this reason, we use linen rather than polyester thread. The tacket threads that are visible on the spine and the board edge can be made less noticeable by coloring with media such as acrylic paints.

After knotting the tacket thread, we fray out the tails of the threads and bone the knot down on the pastedown. The tacket reattaches the board to the text block and the addition of a Japanese paper guard at the inner endpaper hinge secures the board in place head to tail. By preventing the board from moving up and down against the tacket, stress on the tackets and cover materials is reduced. We also cover the exit holes and tackets knots by adhering small pieces of Japanese paper over them or by using a wider hinge at the joint. Depending on the size of the book, we use various weights of Japanese paper such as *kizukishi*, *sekishu kozogami mare*, or *okawara* for the guards.

Japanese paper guards that are cut wide enough to cover a portion of the pastedown and that extend approximately one-eighth inch past the crease of the shoulder onto the flyleaf will not detach when the leaves are turned. The guard can be colored with acrylic paints to blend with endpapers.

Specific information on the original text-to-cover attachment and the makeup of the first and last few gatherings is noted in the treatment report. If such information is not visible or accessible, this is also recorded.

New Slips

We also reattach text blocks to their cover by attaching new slips (fig. 2) to the sewing supports.⁷ We make the

new slips by looping lengths of thread through the folds of a few gatherings. We pierce holes through the back of the text block from the inner fold of the gathering, on either side of a sewing support. A single piece of thread is passed through the holes from the outside of the spine to the inside of the gathering forming a U around the sewing support. In the fold of the gathering, we cross the thread-tails over each other and pull each thread through the other hole. This forms a loop around the sewing support with two lengths of thread (or new slips) on the outside of the spine. Depending on the thickness of the spine, thread is added in two to three gatherings, resulting in a new slip made of four to six threads. Thread is also added to the end gathering, and this thread is wrapped around the new thread slips on the outside of the spine and knotted on the inside of the end gathering. This loop of thread holds the new slips in place and causes the board to open at the joint rather than opening where the threads emerge on the spine.

The new slips can be connected to the text block in the same manner as tackets; they can be adhered to the board underneath the pastedown; or, they can be threaded through extant lacing-in channels. To minimize vertical movement of the board, a Japanese paper hinge is adhered to the inner joint.

The number of slips that we add to a book depends on how many of the sewing stations are broken and the weight of the book and covers. In general, we do not make new slips at every sewing station. For instance, in order to reinforce the text to cover attachment of a heavy antiphony with wooden boards, we made one new slip to replace the one that had broken.

Cloth Hinges with Split Flanges

We sometimes reattach covers to a text block with small cloth hinges. They are adhered to the back of the text block under the covering material at the head and the tail of the book (fig. 3). The cloth hinges pass from the spine and are adhered underneath the outside cover and underneath the pastedown. The small portion of the cloth flange that extends from the shoulder is cut in half, across the height. The end of the cloth flange closest to the head or tail of the book is adhered under the leather on the cover; the inner

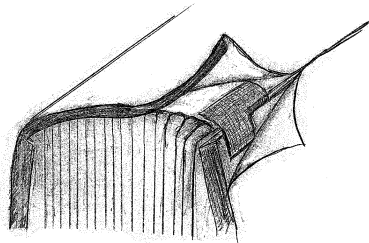


Fig. 3. Cloth hinge

portion of the flange is adhered under the pastedown. If only one cover is detached and if the back of the book is narrow, we attach hinges, as small as one-quarter to one-half inch wide, to the spine of the cover. Only small areas of the spine, board coverings, and pastedowns need to be lifted to accommodate this type of cloth hinge. David Brock, whether reconnecting one or both covers to a text block, adheres the linen lining across the entire spine.⁸

SUMMARY

It is evident to all those who handle books that an old book, even when repaired, is more fragile than a book that has been rebound using new materials. Consequently, the manner in which collection materials are stored and handled by both patrons and staff strongly influences the type of treatment that a conservator feels confident to choose for a deteriorated book. Due to the widespread acceptance of preservation principles throughout the Ransom Center, books with fragile bindings are used without being damaged. By using these types of restrained but quick and effective repairs, rather than extensive and time-consuming treatments, conservators make more materials available for patron use.

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NOTES

1. John Kirkpatrick discussed this idea during a conversation with the author on October 13, 2000.
2. Don Etherington has described this repair at various conferences. In-house directions titled "Minimal Intervention for Preservation of 19th and 20th Century Collections" are available on request by contacting Etherington Conservation in Greensboro, North Carolina (email: <ecc@icibinding.com>) or in the article, "Japanese Paper Hinge Repair for Loose Boards on Leather Books" (Etherington 1995).
3. David Brock, rare book conservator at Stanford University Library, explained this method of reattaching book covers that he had developed during an Austin Book Workers meeting on April 22, 1999, and in the article "Board Reattachment" (Brock 2001).

4. Gary Frost has often discussed this technique of consolidating the backs of books. When queried by email, on October 19, 2000, about a published description, he commented that there is nothing “published on pasted and brush stippled kozo lining on the text back. I got the idea from the Freer film “Art of the Hyogushi.”

5. Maria Fredericks (1997) summarized the proceedings of the workshop.

6. In an email dating to June 4, 1997, Chris Calnan explained that “Ethanol is a stronger polar solvent than isopropanol and will exert a greater effect on soluble tannin fractions. With highly deteriorated leather the use of ethanol may bring about staining as soluble tan material is leached out and deposited at the surface as the ethanol evaporates off.”

7. Bernard Middleton (1997, 79) shows a similar technique that reinforces the entire sewing support.

8. In an email dating to January 22, 2001, David Brock commented: “I’ve always lifted the whole spine, shoulder to shoulder, and used a linen lining that runs across the whole spine. I’m not sure adhering one-quarter to one-half an inch on the spine is strong enough. I would worry that in use the board would pull the linen off the spine, taking the covering leather with it.”

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