NEDCC
NORTHEAST DOCUMENT CONSERVATION CENTER

CONSERVATION PROCEDURES

7.6 Conservation Treatment for Bound Materials of Value

Many conservation procedures are available for bound materials, several of which are briefly described here. Books of value should be examined individually, and the most appropriate treatment should be chosen based on use, condition, and the nature of the value of the book. A conservator may recommend one or more of the following. Although some procedures seem straightforward, they are not and require the judgment and technical expertise of a conservator to avoid harming a book.

SURFACE CLEANING OF BOOK PAGES

Superficial grime, dirt, and soot disfigure and abrade book pages. They can be removed with a soft brush or with a powdered eraser or a soft block eraser. Accretions like insect specks and mold residue may have to be removed mechanically with a small sharp tool like a spatula or, in the case of mold, with an aspirator, which vacuums the mold.

REMOVAL OF OLD REPAIRS AND TAPE ON BOOK PAGES

Past repairs may have been made with materials now known to be harmful, such as rubber cement and most tapes, and should be removed. Repairs that were made using water-based adhesives can be removed in a water bath, with moisture, or with steam. Many synthetic adhesives and pressure-sensitive tapes require use of an organic solvent for removal.

WASHING BOOK PAGES

Immersion of pages in water helps to remove dirt and lessen stains. It also helps to reduce acidity, which is one of the major causes of paper deterioration. Prior to washing the pages, every ink and color must be carefully tested for solubility to make sure media are stable and will not fade or blur during the washing process. Occasionally a carefully controlled amount of alkaline material may be added to the water to assist in the cleaning process.

DEACIDIFICATION OF BOOK PAGES

Deacidification and alkalization of acidic paper, usually referred to simply as deacidification, is a generally accepted conservation practice, which can be carried out aqueously or nonaqueously. The purpose of the treatment is to neutralize acids and to deposit in paper a buffer that will protect it from the formation of acid in the future. Even though the effectiveness of deacidification is questioned in certain instances, such as in the treatment of degraded ground wood pulp paper, it is generally believed to be beneficial. A few materials, however, may be altered by deacidification and should not be treated. Certain colors, for example, may change under alkaline conditions, either immediately or over time. For this reason pages with colors are often not deacidified. Also, some papers may not require deacidification because of the high-quality fibers from which they are made, such as linen or cotton rag papers, or because they have been stored well and are in good condition. Washing followed by aqueous deacidification is a more thorough treatment than nonaqueous deacidification. However, aqueous treatment requires that a volume be disbound. If the volume should not be disbound or if inks are soluble in water, nonaqueous deacidification is an acceptable alternative.

MENDING, FILLING, AND GUARDING BOOK PAGES

Tears in leaves can be carefully aligned and repaired with thin strips of Japanese paper and a starch paste or other adhesive of conservation quality. Holes or losses can be filled with inlays of Japanese paper pulp (leaf-casting). Another option is inlaying with a paper similar to the original in weight, texture, and color. This is extremely time consuming and is reserved for books of significant value. The folds (Figure 1) through which folios are sewn together when a book is bound often require reinforcement prior to rebinding. In this procedure, referred to as guarding, strips of Japanese tissue are adhered to the folds with a starch paste.

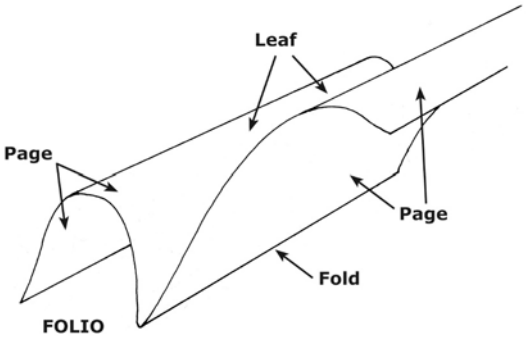

Figure 1: Folio (a folded piece of paper), leaf (one half of a folio), and page (one side of a leaf)

SEWING BOOK PAGES

This refers to the fastening together of the leaves of a book by means of thread. Several techniques are used in conservation binding. Sewing is often accomplished by grouping several folios together, one inside another, to form sections. The sections are then sewn to each other with thread (Figure 2). Often sections are sewn to sewing supports such as tapes or cords. Unbleached linen is the type of thread most frequently selected by conservators. The original sewing in a volume should be retained if this is possible; it can be reinforced using new linen thread and sewing supports.

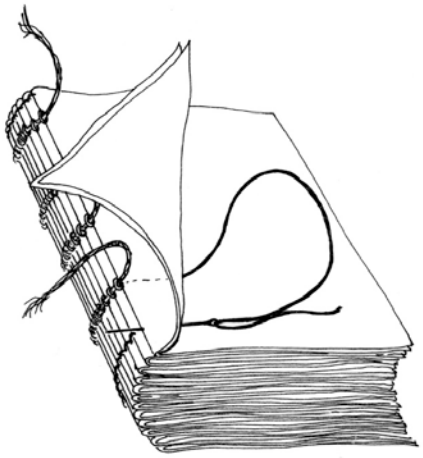

Figure 2: Sections of a volume sewn with thread onto sewing supports

LEATHER, CLOTH, AND PAPER REBACKING OF THE BINDING

This procedure is appropriate for those books that have partially or completely detached boards (covers) and/or spines (Figure 3). Original boards are reattached to the sewn pages using new leather, cloth, or paper dyed to blend with the original covering material. The new material is worked under the original at the joints, and the fragments of the spine covering of the original binding are adhered to the surface of the new spine material.

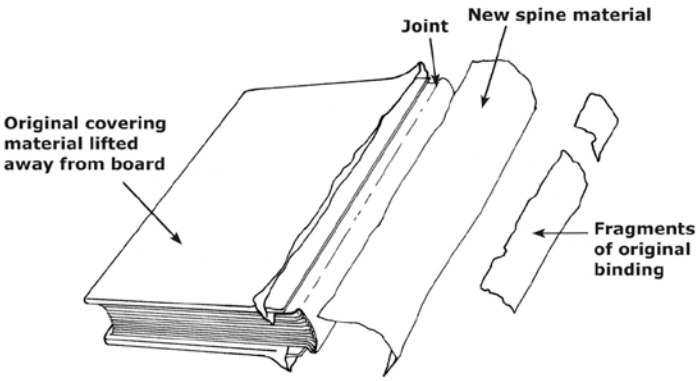

Figure 3: Rebacking of the binding

REBINDING USING A LACED-IN STRUCTURE

If the existing binding is too deteriorated to retain, the book may be rebound in a binding made of new materials of conservation quality. A laced-in structure (Figure 4) is often chosen by conservators for books that are to be bound in leather. When properly constructed, this is a strong yet flexible structure that provides adequate support for a book while allowing it to open fully and be easily read. The term "laced-in" refers to the way the boards are attached to the text block: they are laced to the text block by the sewing supports to which the sections are sewn. Although this structure can be used on books of any size, it is often chosen for large, heavy books because of the structural support it provides. This is a durable structure and, if made of good quality materials, will last a long time.

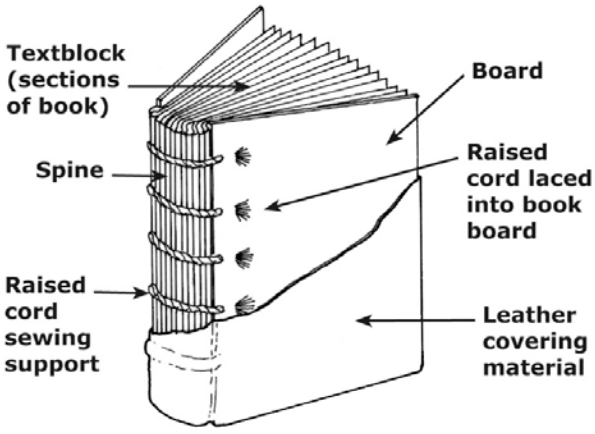

Figure 4: Cut-away drawing of a laced-in binding

REBINDING USING A SPLIT-BOARD STRUCTURE

An alternative to a leather-covered laced-in structure is a split-board structure (Figure 5). The term split-board also refers to the way the boards are attached to the textblock: stubs, which are sewn to the text block, are slipped into a split in each board and adhered in place. This structure is most often chosen for medium to large books because it provides adequate support

for them. This structure can be covered in leather or cloth. When cloth is used, it is a good alternative to a leather laced-in structure for some medium- to large-sized books because it provides adequate support and costs less to construct due to savings in time and materials.

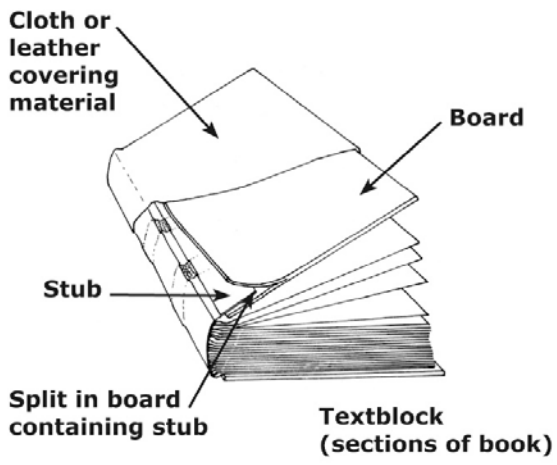

Figure 5: Cut-away drawing of a split-board binding

REBINDING USING A CASE STRUCTURE

For lightweight books a case structure (Figure 6) is adequate. In this type of binding the case (cover) is made separate from the text block and is attached to it by being adhered to the endpapers, either directly or by means of a hinge. This structure is not as strong as a laced-in or split-board structure and should be limited to light- to medium-weight books. The case is most frequently covered in cloth, although it can be covered in paper or leather as well. This structure takes less time to produce than a laced-in or split-board structure and thus costs less.

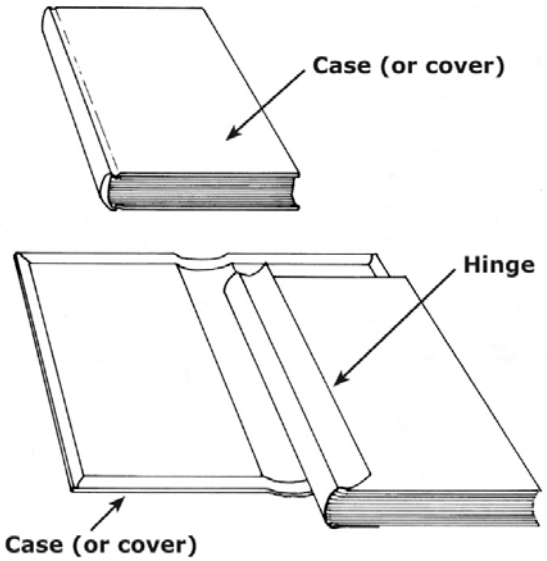

Figure 6: Case binding

ENCAPSULATION IN POLYESTER FILM AND BINDING USING A POST-BINDING STRUCTURE

When all the leaves in a book are extremely weak and/or brittle and require overall support, encapsulation in polyester film and post-binding may be appropriate (Figure 7). Polyester film is a clear, inert plastic that provides excellent support for fragile paper. Each leaf of the book is placed between two sheets of polyester film, and the film is sealed along all four edges. Ultrasonic welding is the preferred method of sealing the film. The encapsulated leaves can be bound together in what is referred to as a post-binding. Boards (covers) are attached to the encapsulated leaves by means of screw posts, which pass through the covers and polyester film to produce an album-style binding. Although the boards can be covered in almost any material, they are usually covered in cloth.

If the leaves of a book are still in folio form, the folios will usually need to be cut along the fold to facilitate encapsulation. However, paper requiring encapsulation is usually so fragile that any folds that once existed have already broken. (If the book has artefactual value, then the cutting of folios and the spine should be avoided if at all possible and another conservation treatment selected.) Polyester film has an electrostatic charge. For this reason encapsulation is not recommended for leaves that have loose, flaking, or friable media because the electrostatic charge may loosen media even more.

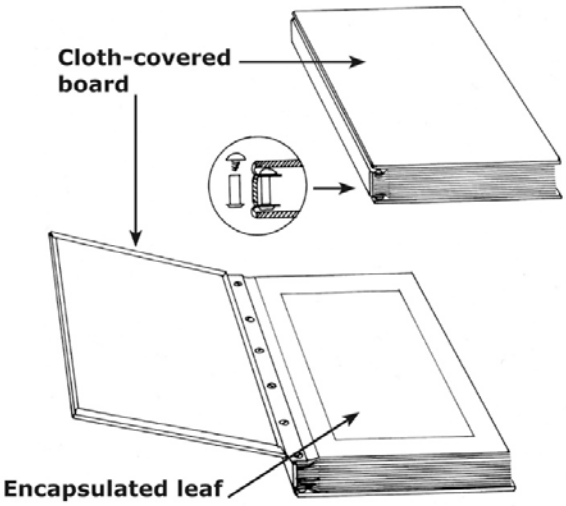

Figure 7: Post Binding

DOCUMENTATION OF TREATMENT

Preparation of written and photographic records is a requirement of responsible conservation treatment for materials of value. (See the Code of Ethics of the American Institute for Conservation.) The purpose of documentation is to record the appearance and condition of a book prior to treatment, describe the treatment that was done, and specify the materials that were used in the treatment. The purpose is

also to identify a book that has been treated and to provide information helpful to conservators who may in the future treat that book further, especially as new improved techniques and materials become available. Documentation includes a written description of the condition prior to treatment, a listing of the procedures and specific materials used in treatment, and a statement of where and when the treatment was done. Written records are supplemented by photographs taken before, after, and sometimes during treatment. These records should be retained permanently.

COLLATION OF BOOK PAGES

Collation is an important part of documentation. In the context of the conservation treatment, this procedure includes careful checking of each page of a book to document the number and order of pages, plates, maps, etc.; to check for missing pages; and to note serious tears, stains, or other types of damage or irregularity.

MINIMAL TREATMENT (BASIC STABILIZATION)

This refers to the minimal amount of treatment required to slow deterioration of a book. It excludes all cosmetic treatments and many structural repairs as well. For example, a book with detached boards and fragile paper may only be microfilmed, nonaqueously deacidified, and boxed. This level of treatment is most often chosen for books of limited value or for those that receive little use.

EXTENSIVE TREATMENT

This refers to full treatment of both pages and binding. It includes structural repairs and often cosmetic treatment as well. It frequently involves disbinding, surface cleaning, washing, aqueous deacidification, mending and guarding of pages, resewing, repairing the original covers, and reattaching them to the text. If the original covers are too deteriorated to reuse, the book is rebound in one of a variety of binding styles (case, splitboard, or laced-in structure) and titled. This level of treatment is usually reserved for books of high value.

BOXING

Boxing is crucial to the preservation of many books. Boxes provide both structural support for a book and protection from dust, dirt, light, and mechanical damage. Books with bindings of historic or aesthetic value, which should be retained as much as possible in their present condition, should be boxed. Damaged books, which are rarely used and do not warrant treatment or repair of the binding, should also be boxed. Boxes should be constructed of durable materials of conservation quality and should be custom made to fit a book's dimensions exactly. Both drop-spine (Figure 8) and phase boxes (Figure 9) are acceptable. Drop-spine boxes are preferable because they provide better support and keep books cleaner; however they are more expensive. Both types of boxes are available from commercial suppliers.

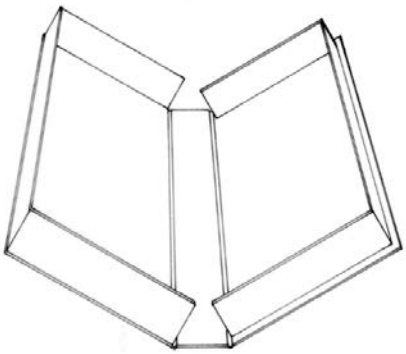

Figure 8: Drop-spine box

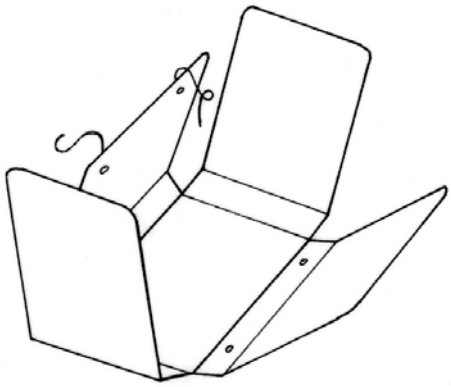

Figure 9: Phase box

REFORMATTING

Reformatting can be a cost-effective alternative for preserving information when extensive treatment of the original is not possible. Reformatting also has advantages when combined with treatment; by eliminating the need to handle fragile materials, reformatting makes minimal treatment adequate for many books that would otherwise require extensive treatment. The use of a surrogate copy allows added security by enabling off-site storage of the original and also provides researchers with easier access to unique information.

Preservation photocopies can sometimes be used as surrogates for fragile books and documents that require regular use. A photocopy can be created using permanent and durable paper, as described in ANSI/NISO Z39.48-1992 – Permanence of Paper for Publications and Documents in Libraries and Archives. Copies can be produced in-house, making this a quick and cost effective solution. While appropriate for access, preservation copies are generally not produced in color and are therefore not well suited to certain material types. Additional recommendations for the creation of preservation facsimiles are available from the Library of Congress (https://www.loc.gov/preservation/care/photocpy.html).

Digital reformatting allows for the use of digital surrogates in place of the original. Digitization can play an important role in preserving book and paper based collections, but is not a preservation strategy in and of itself. Digital imaging can be expensive and time consuming and is not appropriate for all materials. For more information, see NEDCC's Preservation Leaflet 6.6 – Preservation and Selection for Digitization.

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