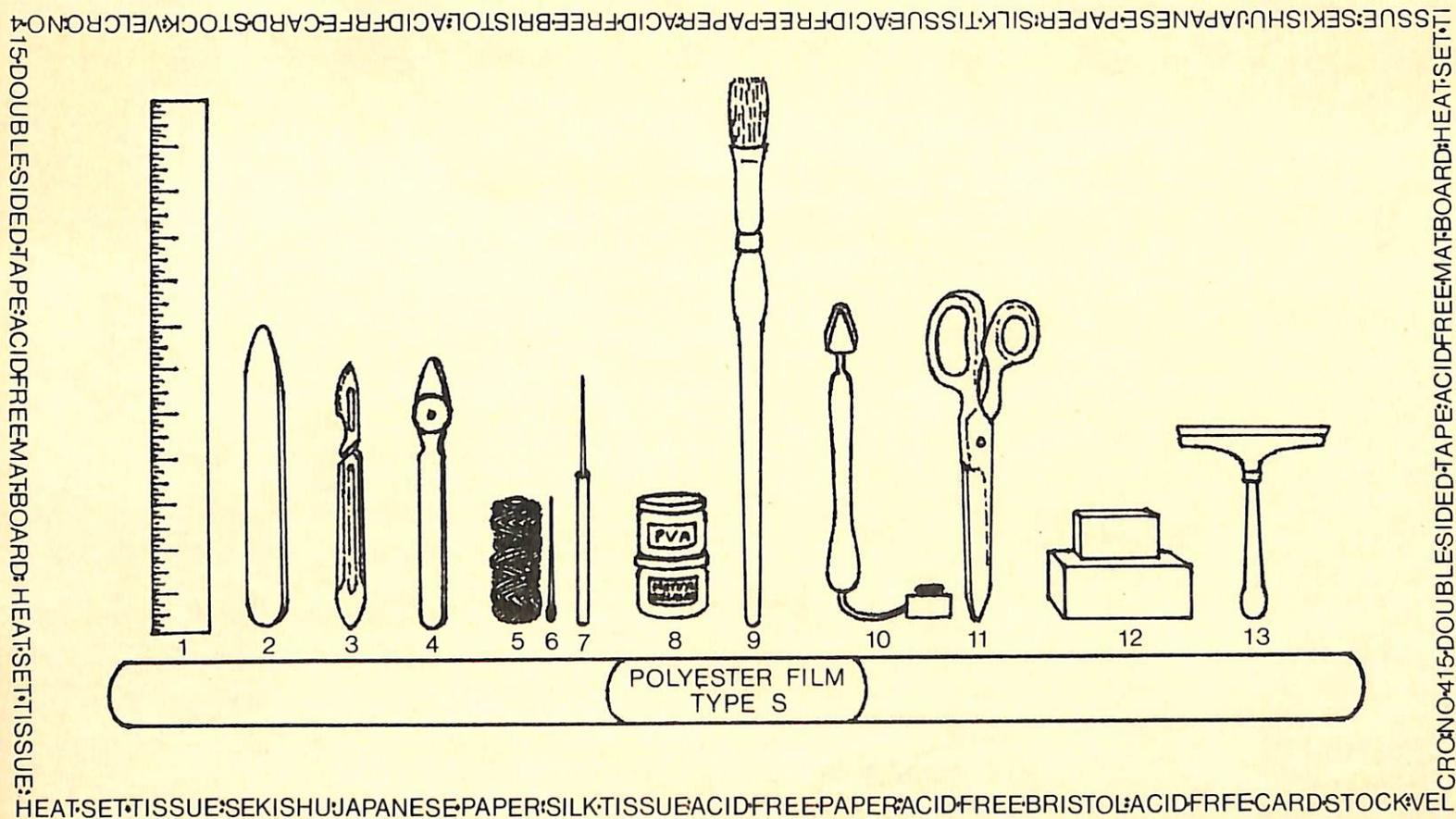


SIMPLE REPAIR AND PRESERVATION TECHNIQUES
FOR
COLLECTION CURATORS, LIBRARIANS AND ARCHIVISTS

Text and illustrations by Jean Gunner



Hunt Institute for Botanical Documentation
Carnegie-Mellon University
Pittsburgh, Pennsylvania

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Illustrated on the front page are the tools and adhesives necessary to accomplish the projects described on the following pages.

1. Steel ruler. Good to have two, including one heavy one to use as a cutting edge.
2. Bone folder. Ideal tool to use for folding paper, bristol and card stock. It is easier to fold paper if you score it with the bone folder, running the bone folder against a straight edge.
3. Scalpel. Used for cutting and trimming. Recommend No. 23 blades.
4. Ruling pen. Ideal for paper repairs, however item no. 7 can be used as a substitute.
5. Linen thread. Used in sewing. Number 18/3 cord is a good thickness to use.
6. Sewing needle. Use a long thin one.
7. Needle awl. This is a substitute for item no. 4. Can be used in paper repairs and for punching holes before sewing.
8. Polyvinal Acetate (P.V.A.) = glue. Used for making hollow tubes and phase boxes. Methyl Cellulose = paste. Used for paper repairs.
9. Glue and paste brush. Need two; artists' oil paint brushes are excellent.
10. Tacking iron. For heat-set tissue paper repairs. A good investment if you have a lot of paper repairs to do. An ordinary iron will also work fairly well.
11. Scissors.
12. Weights. An assortment of lead weights are best. You can also make weights from half bricks covered in felt, or make felt bags and fill them with sand.
13. Squeegee. For use in polyester film encapsulation.

INTRODUCTION

More and more curators, librarians and archivists are recognizing the need to take care of their deteriorating collections. Many have little or no budget to send items out for professional care, and in an attempt to do something, often make the situation worse by using incorrect materials and bad techniques. It is always better to do nothing than to attempt a repair you are not really sure about. Everything you do must be reversible. It is also important to use good materials, which are more expensive, but well worth the expense for they will remain trouble-free. Never use substitutes.

On the following pages are some simple and inexpensive things you can do or train someone to do. I would suggest practising the techniques first on items of little value, as the procedures are not as easy as they look. I have included the single- and multiple-section sewing because many collections use Pam Binders. Pam Binders are very acid, and the tape used to stick the item in with often destroys or badly damages the first and last pages. It only takes a few minutes to sew the item onto an acid-free wrapper. This will save hours of restoration time in the future.

Finally, good housekeeping is essential to help retard further deterioration of collections. Keep shelves and items dust-free, try to shelve books by size, never putting them on their fore-edges, and shelve oversized volumes horizontally. Maintain an oiling program for the leather bindings. Carolyn Horton's Cleaning and preserving bindings and related materials is essential reading for all those involved with collections.

The time has come when bookbinders, restorers, curators and the like must work together to save humankind's heritage.

ACKNOWLEDGEMENTS

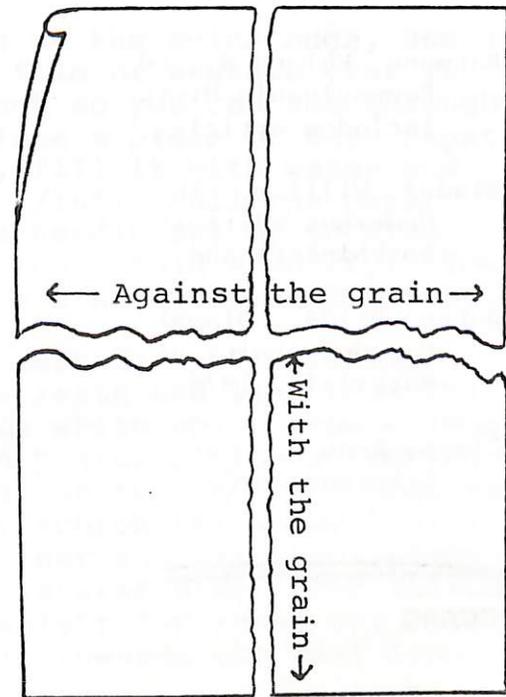
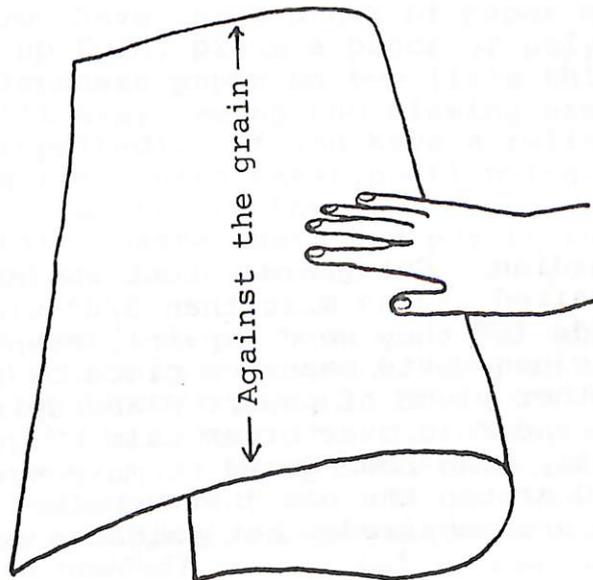
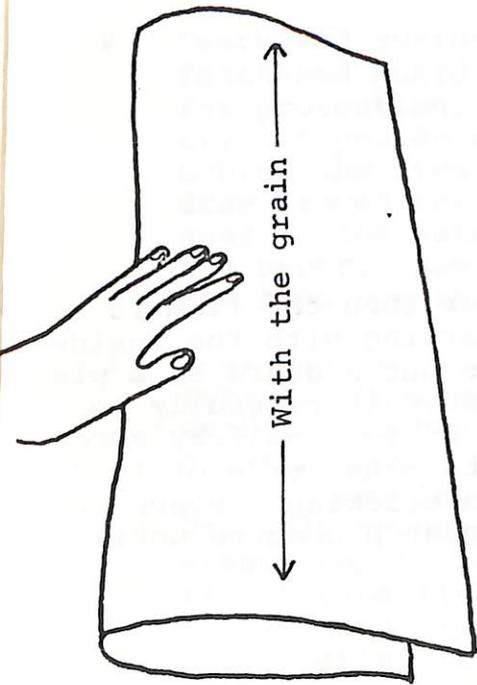
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Jean Gunner
Bookbinder/Conservator
1980

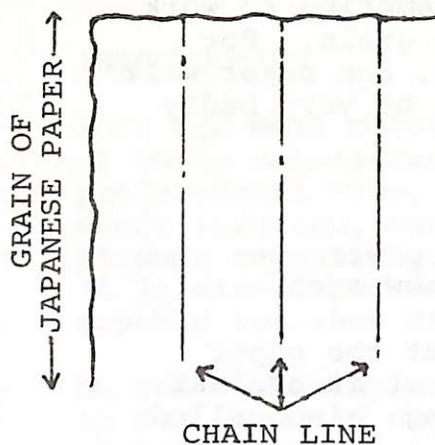
GRAIN OR MACHINE DIRECTION OF PAPER

It is important to know the grain or machine direction of paper before attempting to work with it. When paper is glued or pasted, it swells and expands against the grain. For example, if the paper used for the hollow tube is folded against the grain, the paper will stretch the wrong way and be too large. And when the paper dries, it will be very badly cockled.

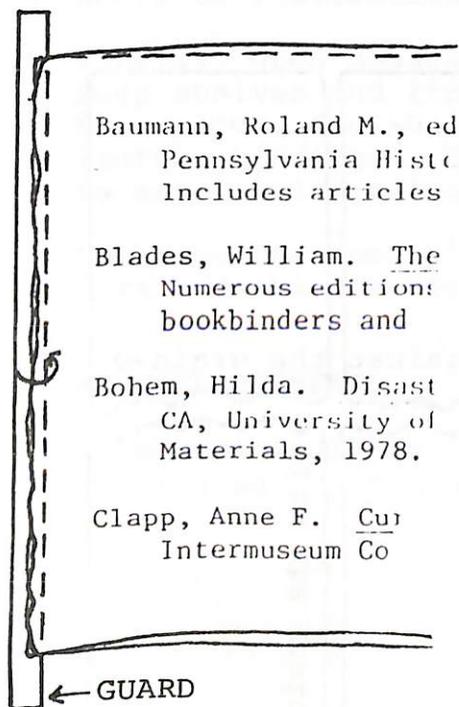
1. To determine the direction in which the grain is going, first fold the paper one way (do not crease it) gently pushing it down with your hand, feeling how much resistance is in the fold.
2. Repeat procedure folding the paper the opposite way. You will find that the paper will resist one way more than the other. The way it resists the greatest is against the grain. The easiest way is the direction in which the grain is going, also called machine direction.
3. Another test is to lick one corner. It will curl in the direction the grain is going.
4. Try tearing a piece of paper in each direction. The tear with the grain is much easier and straighter; the tear against the grain is harder and very uneven.



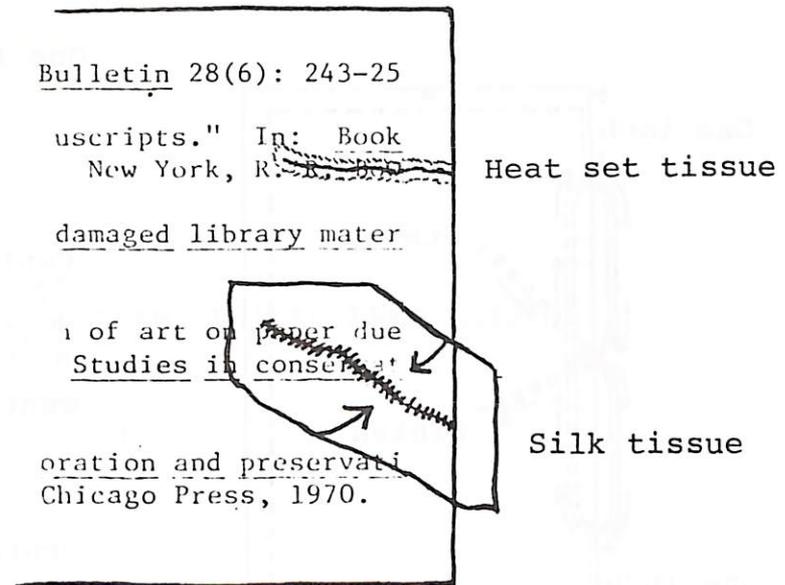
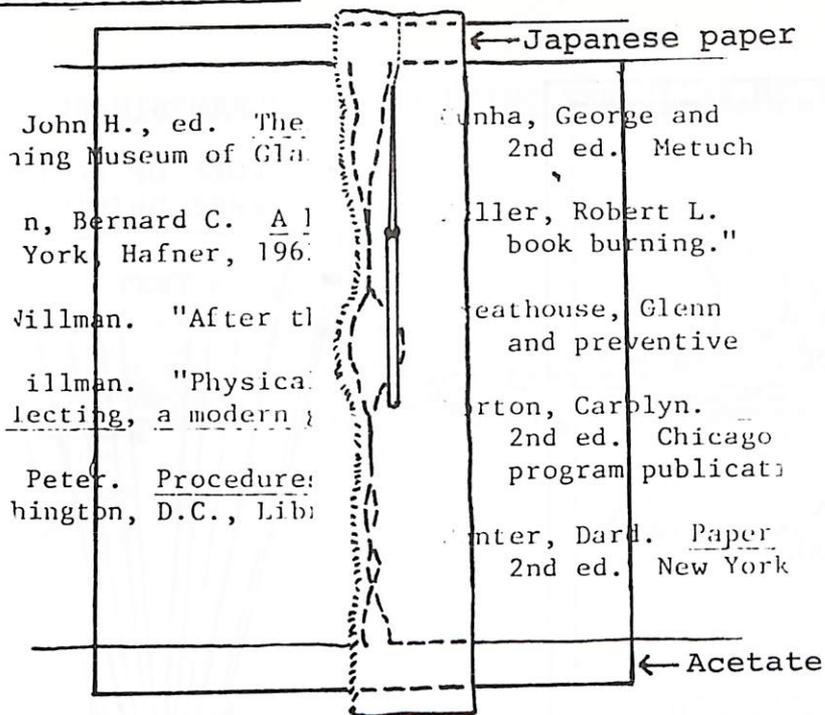
PAPER REPAIRS



Before any sewing of sections can be done, the spine folds must be in good repair. If there are any tears or large holes, use one of the guarding methods shown below. Sekishu white and natural Japanese papers are good for most items. It is important in guarding that the grain of the paper run parallel with the spine. If you hold the paper up to the light you will see evenly spaced lines, called the chain lines, which run parallel with the spine. Never use straight P.V.A. for paper repairs. A good paste to use is straight methyl cellulose -- mix about one tablespoon of the powder to half a cup of water and leave overnight before using. It should have the consistency of Jello just before it sets. Methyl cellulose has an indefinite shelf life and is water-soluble. If you have difficulty in making it stick to heavier paper, add about a teaspoonful of P.V.A.

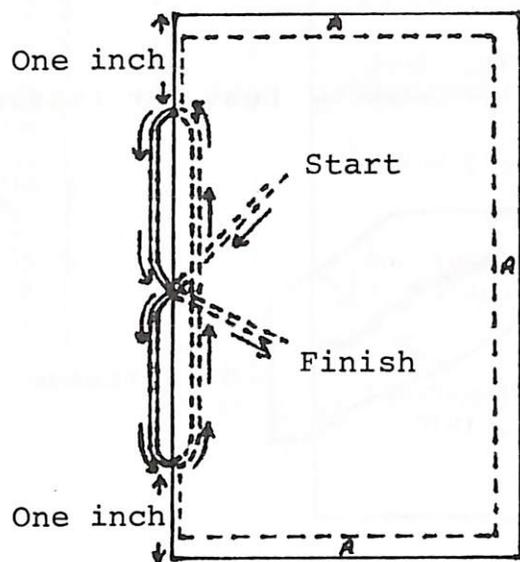


1. Guarding. Cut guards about an inch longer than the item to be repaired and no more than 3/8" wide. Starting with the inside folds (if they need repair), evenly paste out a guard on a piece of clean waste paper or piece of glass, move it carefully to another piece of paper, place spine edge of fold halfway across it, and fold over other half of guard onto other side of fold. Gently bone down guard to make sure it is sticking. Place next fold around the one just repaired and repeat procedure until all are repaired. Set aside to dry.

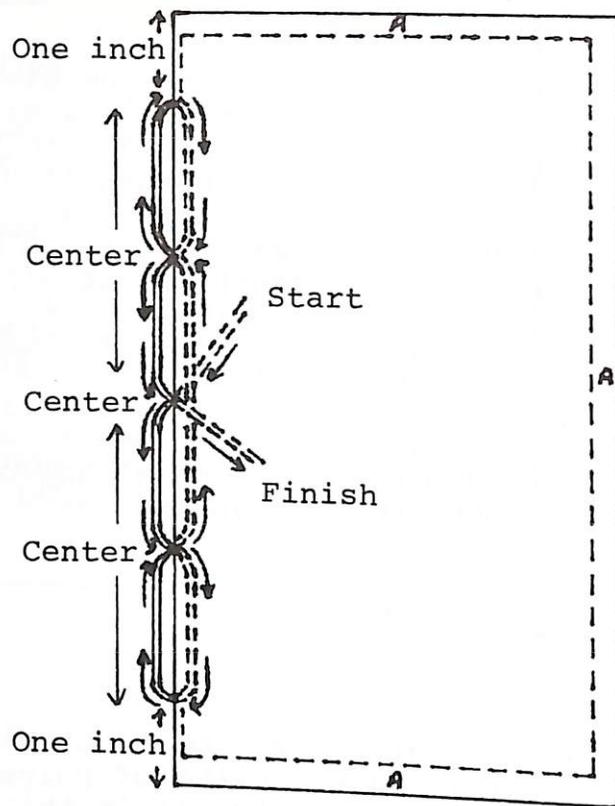


2. Feathered guards. If you have large areas of paper missing at the spine edge, use a feathered guard. Open up fold, place a piece of polyester film or acetate over it for protection, place Japanese paper on top (it's thin enough so you can see through it. If you do have difficulty seeing the missing areas, place a piece of dark paper behind the item to be repaired). If you have a ruling pen, fill it with water and draw around the missing areas with water, overlapping about 1/16". Pull the paper away at the water line. You can do the same thing with the needle awl by scoring the paper. Remove acetate, paste guard and put it in position. Fold when dry. You can also use this method on the other edges where you will not be covering the text.
3. Tear repair. Use where you have tears across the text and must do an "invisible" repair. Heat-set tissue is a tissue coated with an acrylic resin and is a good investment if you have a lot of paper repairs. It's excellent for white shiny papers (coated stock). Cut a piece a little larger than the tear, tack in position with a tacking iron or regular iron, place a piece of silicon release paper on top and iron down well. Use only enough heat to stick the tissue, as you can easily scorch the paper. Silk tissue repair is done by painting a line of paste over the tear and placing a piece of silk tissue (larger than needed) on top and another on the reverse side. Put silicon release and blotting paper on either side and put under a weight for about one half hour. After it's dry, remove excess tissue by pulling it in towards the tear from either side.

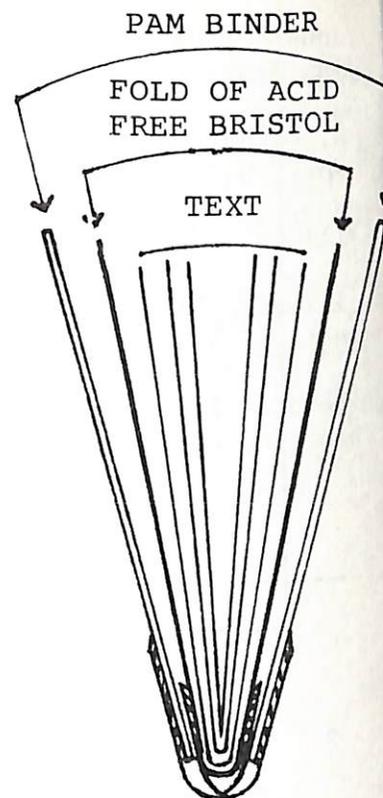
SINGLE-SECTION SEWING



SEWING FOR SMALL AND MEDIUM
SECTIONS (UP TO EIGHT INCHES)

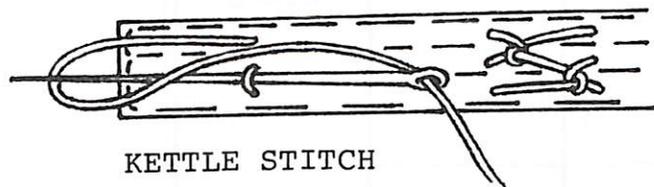
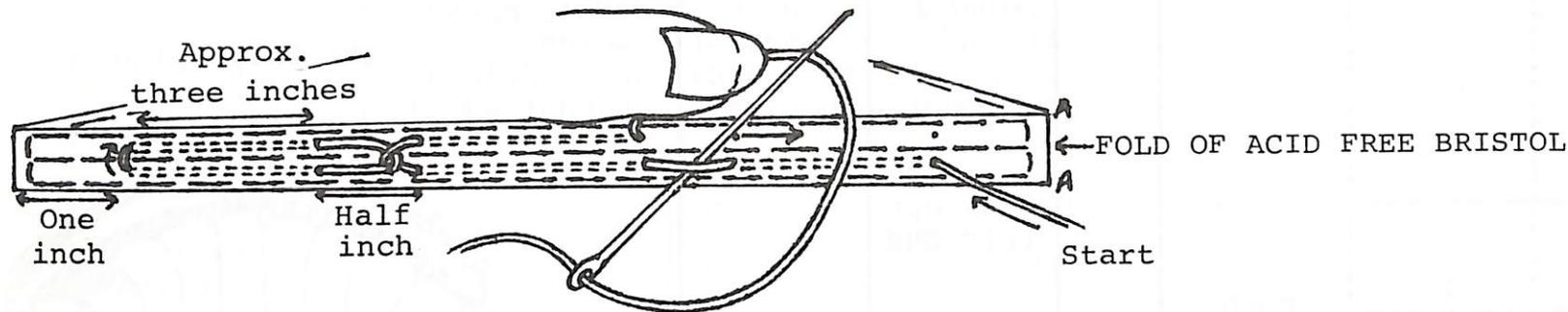


SEWING FOR LARGER SECTIONS



1. Using linen thread, sew the single section onto a fold of acid-free bristol, allowing at least one quarter inch of overlap around each of the three edges (A).
2. To finish, hold both ends of thread and pull so the sewing is snug. Tie a square knot across the inside center thread.
3. Cut ends of thread to 3/16". If desired, section can now be stuck into a Pam Binder.

MULTIPLE SECTION SEWING USING THE "LINK STITCH"

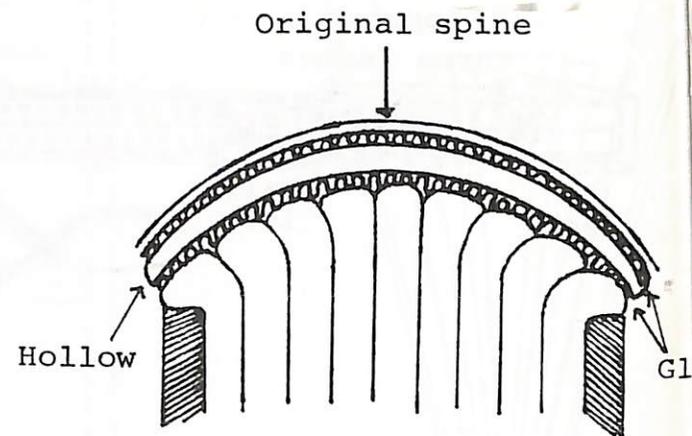
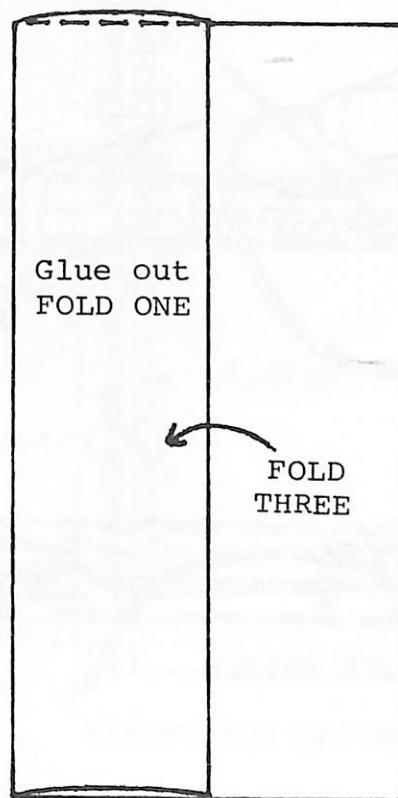
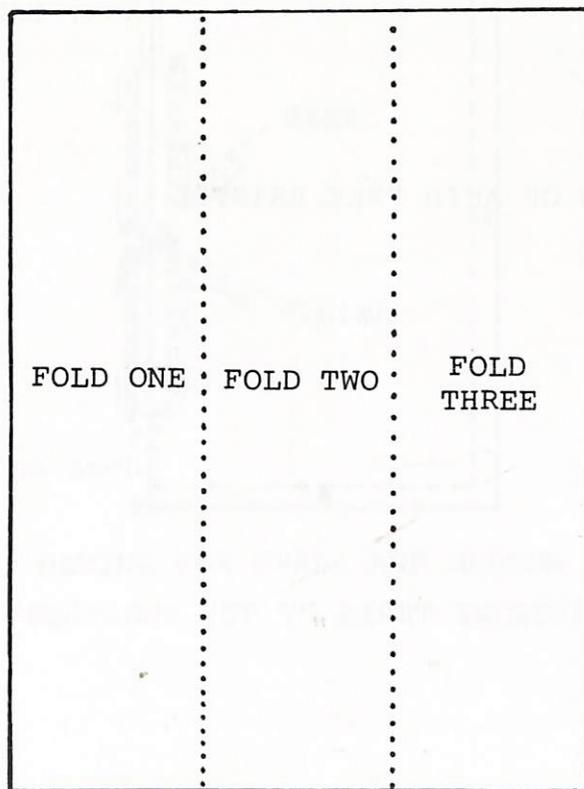


1. Cut a piece of acid-free bristol, allowing for the height of the spine and one quarter inch of overlap around each of the three edges.
2. Crease for the height of the spine (A).
3. Sew sections onto the bristol as shown, ending with a square knot on the second section.
4. For more than two sections use the kettle stitch as illustrated, making a double kettle stitch on the last section.

HOLLOW TUBE

The hollow tube can be used where the boards are still intact and the spine is becoming, or has become, detached. However it should not be used on rare items (put item in Phase Box instead). It is ideal for reference and circulating books.

GRAIN OF PAPER GOING PARALLEL WITH SPINE

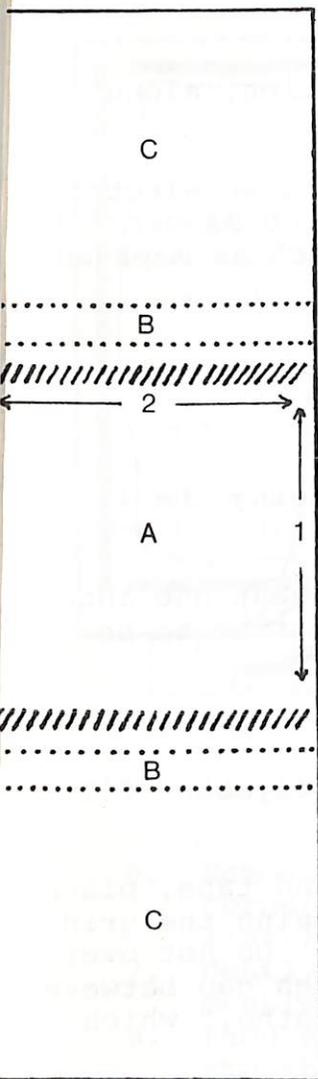


..... = FOLD

1. Making sure the grain is going parallel with the spine of the book, cut a piece of acid-free paper the length of the spine plus one inch, and about four times its height (thickness).
2. Mark the width of the spine onto the paper and fold and glue as illustrated. Trim off excess paper. It's important not to make the hollow tube too wide as this will interfere with the opening of the boards.
3. Glue the tube onto the spine, making sure the single side is down and double side up.
4. Trim the ends of the tube to the height of the boards.
5. Glue original spine onto the hollow tube.

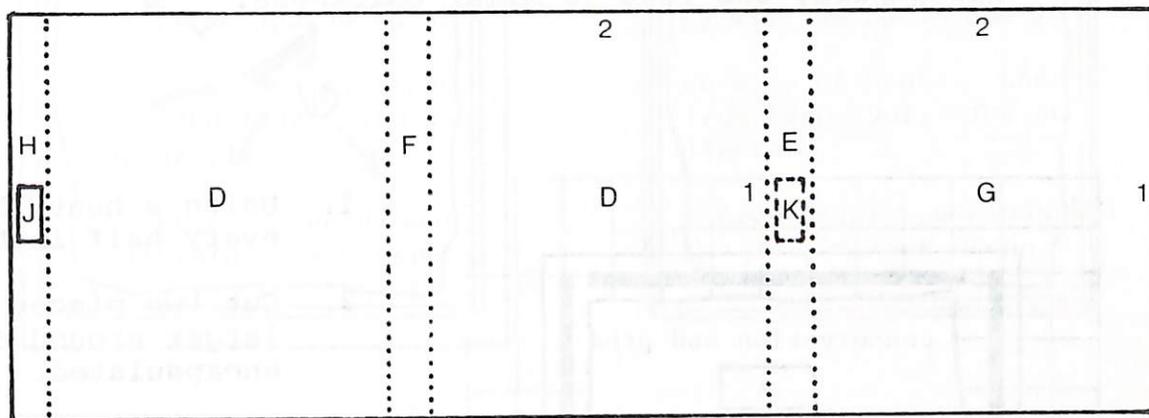
MPLE PHASE BOX

This is a very simple phase box to make for rare items in fragile condition. It should be made from acid-free card-weight stock.



VERTICAL PIECE

- A. 1. Length of book. 2. Width of book.
- B. Height of spine. (Check fore-edge; if it is higher, use that measurement.)
- C. Half the length of book, plus one inch.



HORIZONTAL PIECE

- D. 1. Length of book. 2. Width of book.
- E. Height of spine or fore-edge, plus 1/16".
- F. Height of spine or fore-edge, plus 1/8".
- G. 1. Length of book. 2. Width of book minus 1/8".
- H. Height of spine or fore-edge minus 1/8".
- J. Velcro.
- K. Velcro on verso.

///// = Glue

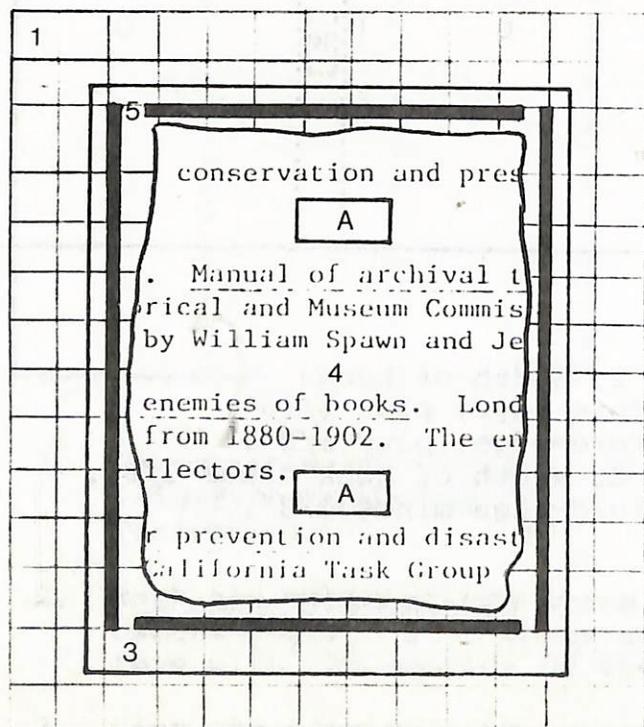
..... = FOLD

Glue vertical piece (A) as illustrated, and place horizontal piece in position (D 2 gets stuck to A). Put under weights for about 30 minutes. Position book on A, D and fold in C's, G and H in sequence. Center Velcro and glue on (J and K).

POLYESTER FILM ENCAPSULATION

It is very important to use a non-plasticized polyester film for encapsulation, along with the number 415 double-sided tape; both have been tested for stability.

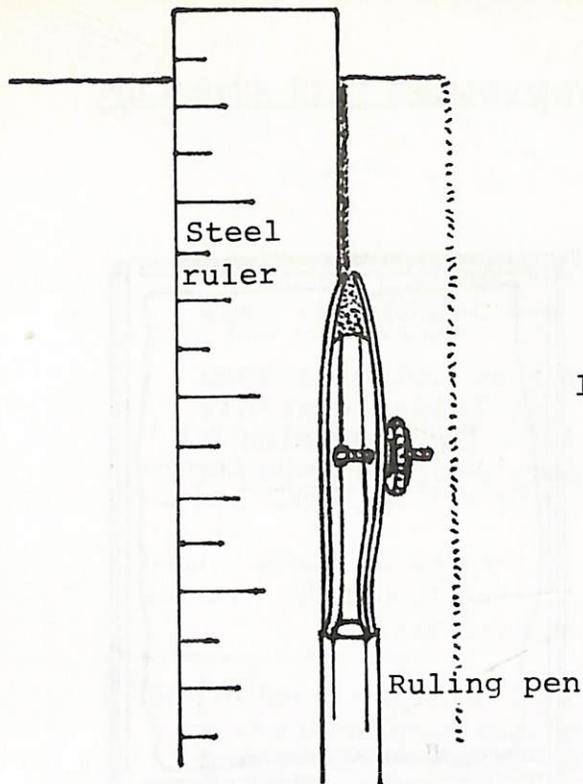
Encapsulation is ideal for brittle and fragile items. However, polyester is an electrostatic material and should not be used with charcoal, pastels, or illuminated manuscripts. A thickness of .003 (3 mils) is ideal for most items; for larger items, such as maps and newspapers, use .005 (5 mils) thickness.



1. Using a heavy board, make a grid, spacing the lines every half inch.
2. Cut two pieces of polyester film at least one inch larger around all four edges than the item to be encapsulated.
3. Place one piece onto the grid.
4. Center item to be encapsulated onto polyester film and weight in place.
5. Leaving a small margin between item and tape, place double-sided tape on the polyester, using the grid as a guide to keep the tape straight. Do not overlap tape and leave about a quarter-inch gap between strips. This allows the item to "breathe," which is very important.

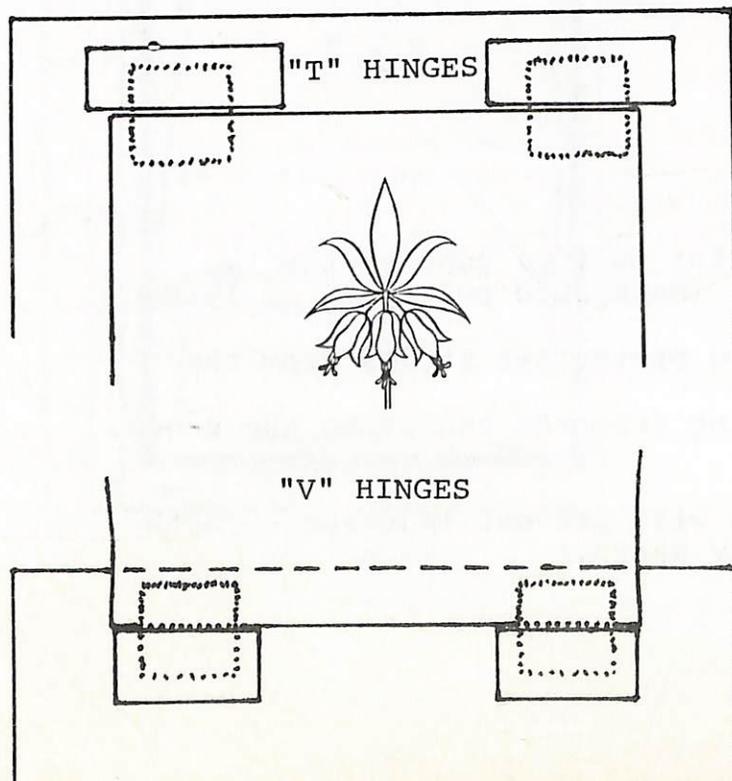
A=Weight

HINGES FOR ITEMS TO BE MATTED



A great deal of damage has been done by improper matting of items. Acid-free mat board must always be used for permanent storage. Never solidly mount anything; never have the item up against the glass in framing; never use a wood or corrugated board as a backing on the frame. Never use anything but paste and Japanese paper for hinging.

1. The part of the hinge that will come in contact with the print should be feathered. Do this with a ruling pen filled with water as illustrated. The hinges should be about one inch wide and long



2. Where the mat will cover part of the print, use the "T" hinge method. Paste out half the feathered hinge on blotting paper (the blotter will absorb excess moisture so there will be less chance of cockling the print); adhere to recto side of print. Repeat for second hinge. If you have a large print, put a third hinge in the center. Put between blotting paper and under a light weight until dry. Position print on mat and paste out cross strips (these do not have to be feathered) and adhere in position over "T" stem leaving about a 1/32" gap between the print and strip.
3. Where you cannot overlap the mat onto the print, use the "V" hinge method. Follow instructions 1 and 2, but fold the feathered hinge back on itself, making a "V". Position print with recto side facing up and paste on cross strips as in 2.

It is important not to cover any writing, etc. with hinges. If you have something such as a manuscript that has writing on both sides and no border, you can encase it in polyester film and then adhere it to the

