

## The Treatment of Oversize Paper Artifacts

by Gary E. Albright  
Thomas K. McClintock

- I. Many conservators are hesitant to treat large items, usually for lack of one of the following:
  - A. Space.
  - B. Facilities - large sinks, tables, etc.
  - C. Proper materials - rolls of Mylar, release paper, etc.
  - D. Staff - often need 3 or 4 people for handling of the object.
  - E. Experience - problems are intensified because of size.
- II. Surface cleaning of large objects - similar to smaller objects.
- III. Aqueous treatment of large objects.
  - A. The main consideration is to minimize movement and handling. The more handling the object receives, the more likely damage is to occur.
  - B. Supports used during washing.
    1. Non-woven polyester web (Reemay, Hollitex) - used on both sides of object.
    2. Wet-strength paper - used with polyester web for additional support. It tends to cling to the object, holding broken up areas together.
    3. Large rigid screen - can be useful in handling very large items.
  - C. The object is often wet up beforehand.
  - D. The water level in the sink should be kept shallow so pieces won't float around.
  - E. The object is submerged by gently pouring water on top, this helps minimize handling of the surface.
  - F. The sink is drained before removing the object from the bath.
  - G. Many objects have either a cloth or paper backing.
    1. It often is best for all aqueous treatments to be performed before the backing is removed.
    2. This helps keep the object together in one piece.
    3. After the backing is removed, adhesive residues are removed with cotton, blunt scrapers, or sponges.
  - H. Occasionally, the object is larger than the sink.
    1. Locate a seam or seams at which to divide the object so it can be treated in sections.
    2. Where there is no seam construct a large sink of wood planks and polyethylene sheeting. Be cautious of the sink bottom which could cause abrasion of the object during treatment.

- I. Deacidification of the object, if called for, would occur immediately after washing, before the object dries.
- J. Bleaching is usually performed before the object is lined. It may be done during the washing procedure or once the object has been washed and dried.

IV. Lining of large objects.

A. Dacron lining.

1. Procedure.

- a. Prepare a sheet of plexiglas or other appropriate support.
  - 1.) The surface needs some tooth to help dacron material adhere well. If plexiglas is used, it should be sanded.
  - 2.) Clean the surface of excess paste or paper from previous linings.
- b. Apply paste to plexiglas (See paste formula below).
- c. Place dacron material (or other suitable material) on the pasted plexiglas and smooth out.
- d. Apply paste to surface of dacron.
- e. Place lining paper, usually a Japanese paper such as Okawara, on the dacron.
- f. Paste the lining paper.
- g. Over the paste apply a lubricating layer of thin methyl cellulose if needed. This helps in aligning tears.
- h. Place down the object to be lined. The object should be thoroughly wet. It can be "carried" to the lining by allowing the face to cling to a sheet of Mylar or non-woven polyester web.
- i. Position the tears properly and adhere any loose pieces. (When moving large areas, have as much hand contact as possible on the object. Also one can use cotton or paper towels if actual handling is too harsh.)
- j. Dry for two days or more.
- k. Pull the dacron from the plexiglas.
- l. Run a bone folder around edges of lining paper to separate the edges from the dacron. This helps prevent tearing of the object.
- m. Remove the dacron from the lining paper.

2. Paste.

- a. 200 g. "Aytex-P" starch added to 400 ml. water.
- b. Add this slurry to 1000 ml. water which has been heated to 80°C.
- c. Cook for 45 minutes, stirring occasionally.
- d. Cool.
- e. To use for lining dilute with 1-1½ parts water for every part paste. Paste of the same consistency is used for each step of the dacron lining.

3. Notes.
    - a. Since the object is drying through the front, it must be washed thoroughly beforehand, otherwise staining can result.
      - 1.) Where possible, we wash in an alkaline bath (pH 9-10) of  $\text{Ca}(\text{OH})_2$  to remove discoloration.
      - 2.) All seams<sup>2</sup> should be cleaned of adhesive to prevent staining.
    - b. With dacron linings we usually do not do any mending before lining.
      - 1.) Mending strips tend to dry slower than the remainder of the object, and tears can occur at these areas when the object begins to contract.
      - 2.) Mending strips often form visible ridges.
    - c. If an object dries too fast or doesn't have enough paste, the dacron can shear from the plexi or the lining paper from the dacron.
    - d. If the object is removed from the plexiglas before it is entirely dry, cockling occurs upon completion of the drying.
    - e. Edges or borders are easily added during lining. As long as the different papers are matched up when wet they will usually remain flat when dry.
  4. Advantages of dacron lining.
    - a. The object dries flat - a major advantage for large items.
    - b. Tears are easily aligned, loose pieces easily placed in position.
    - c. There is a long working time in which to make corrections.
  5. Disadvantages of dacron lining.
    - a. A paste layer is left on the reverse of the lining.
    - b. The object must be thoroughly wet before lining.
      - 1.) Objects which can't be washed should not be lined this way.
      - 2.) Occasionally different sections cannot be properly aligned when wet due to different expansions of the paper.
    - c. The flatness of the object after dacron lining is not always desirable.
    - d. The stretch drying of these objects may strain fragile or highly expansive papers.
- B. Mylar lining.
1. Mylar is the facing on which the object is relaxed and filled, and also the carrier for the pasted lining sheet.
  2. Procedure.
    - a. The object is thoroughly washed, relaxed, and placed face down on Mylar.
    - b. All tears are aligned by moving wet object around the Mylar. Once in position excess moisture is removed to minimize further sliding.

- c. Losses are filled (see V.A, below). Excess moisture is removed once the insert is in position.
- d. The lining paper is relaxed on a sheet of Mylar and pasted with wheat starch paste. (This paste is much thinner than that used for dacron lining.)
- e. The lining sheet is applied and adhered by application of pressure. The Mylar is removed and further smoothing occurs.
- f. The object is dried between felts.
- 3. This lining is preferred for thin tracing paper or any object where tension during drying is undesirable, or where adhesive on the reverse of the lining should be avoided.
- C. Traditional Japanese lining.
  - 1. Procedure.
    - a. The object is expanded by humidifying with moisture.
    - b. The Japanese paper is expanded and wheat starch paste applied.
    - c. The Japanese paper is applied by freely suspending it over the back of the object, laying it down, and brushing it into place.
    - d. The object is dried between felts, or stretch dried on a Japanese screen (see below).
  - 2. This lining procedure is used for objects which cannot be thoroughly wet up or for objects which will not lie flat upon expansion.

V. Inserts for losses in the paper support.

- A. Inserts may be made before lining.
  - 1. The wet object is placed face down on Mylar over a light table.
  - 2. Paper pulp may be used to fill losses.
  - 3. Inserts from matching paper can also be used.
    - a. The insert paper, wet on a small sheet of Mylar, is placed over the area of loss and pared to size.
    - b. It is removed from the Mylar and placed in position on the object. Excess moisture is removed so the insert will stay in place.
- B. Inserts may be made after lining.
  - 1. The object is dry and placed over a light box.
  - 2. Matching paper inserts are made by placing the insert paper over the area of loss and "trimming" the insert to size using a needle.

VI. Inpainting of abrasions and areas of loss.

- A. Inpainting is usually one of the last procedures performed.
- B. If the object is on a drying screen or plexiglas, inpainting would be done before removal from the supports. Large areas can be inpainted with watercolors without any subsequent cockling.

VII. Flattening of large objects.

- A. With dacron lining the objects are flat upon removal from the plexiglas.
- B. Objects lined by Mylar or traditional Japanese methods are flattened one of two ways:
  - 1. Between plexiglas sheets (or some other rigid material), between blotters with weights on top of the plexiglas sheet.
  - 2. By stretching on a Japanese screen or other suitable material.
    - a. The object must have large borders of lining paper.
    - b. The object is moistened slightly.
    - c. The edges of the lining paper are pasted up.
    - d. The object is adhered face out on a screen or other support.
    - e. Once dry the object is removed from the screen.
    - f. The procedure can be repeated several times if necessary.

VIII. Mounts for large objects.

- A. The mounting of an object cannot be thought of after-the-fact. It must be considered from the beginning of the treatment.
- B. The leaving of excess lining borders on the object allows flexibility in the choice of a mounting technique.
- C. Traditional window mat with back board.
  - 1. The object is hinged in place on back board.
  - 2. Very large matboard is currently available from Andrew/Nelson/Whitehead.
- D. Mounting on a rigid panel.
  - 1. Desirable characteristics of the panel.
    - a. Availability in large dimensions.
    - b. Rigid torsionally - it won't warp.
    - c. Light weight.
    - d. Good aging properties.
    - e. Good long-term accommodations of object to the mount.
    - f. Strong edges and corners.
    - g. Ease of mounting and removal.
    - h. Reasonable cost of materials and time in construction.
  - 2. Laminates - an assembly of sheets adhered to each other to attain proper size. They are sheathed with matboard and/or layers of archival quality paper.
    - a. Archivart multi-use corrugated board (Process Materials).
      - 1.) Acid-free chemical wood pulp with 3% calcium carbonate.
      - 2.) Modified starch adhesive.
      - 3.) Sheet size up to 48" x 96".
    - b. Gator Foam.
      - 1.) Polystyrene core covered with bleached Kraft paper which is resin impregnated (70 urea formaldehyde/20 PVA/10 plasticizers) and set by heat.
      - 2.) Sheet size up to 48" x 96" x 3/16" or 1/2".

- c. Fome-cor.
- d. Kraft paper honey comb display board.
- e. Tycore (Process Materials).
  - 1.) Cotton fiber honey comb sheets with a covering of museum quality matboard and/or watercolor paper.
  - 2.) Sheet size up to 48" x 96".
- 3. Assemblies - a masonite, aluminum, or fiberglass sheathed honey comb core with wooden edges.
  - a. Fine Art Stretchers products.
    - 1.) Masonite sheeting, maximum size of 60" x 48" because of weight and tendency to warp.
    - 2.) Fiberglass sheathing.
      - a.) Unlimited size.
      - b.) 48" x 96" x 5/8", 25.6 lbs., \$600.00.
      - c.) Matboard can be bound with epoxy.
    - 3.) Aluminum sheathing.
      - a.) Unlimited size.
      - b.) 48" x 96" x 5/8", 38.4 lbs., \$536.00.
  - b. Sheathed lattice frames using Archivart board, Fome-cor, Gator Foam covered with layers of archival quality material. Matboard alone dishes between lattice members.
- 4. Traditional Japanese mounting screen.
  - a. Lattice wood frame covered with layers of Japanese paper in a prescribed manner.<sup>1</sup>
  - b. Major advantages.
    - 1.) Unlimited size.
    - 2.) No seams.
    - 3.) Strong and light weight.
    - 4.) Objects are easy to mount and to remove.

#### IX. Summary.

Essentially, the procedures described here to treat large objects are a modification of techniques developed at the Northeast Document Conservation Center in the treatment of wall maps.<sup>2</sup> The main point to remember is that treatments should be thoroughly thought out beforehand. If any potential problems are suspected be prepared to handle them. Many of these items are extremely fragile and broken up. This necessitates that all aqueous treatments be performed in close sequence and that handling be minimized as much as possible. Make sure large blocks of time are allotted for treatment. Once certain procedures are started they must go to completion. Be flexible during a treatment. Problems will arise which require a quick change of plans. You'll find that the treatment of large objects will challenge your awareness of techniques and combinations of materials. It will also push your talents and patience to their limits.

- 1) Koyano, Masako, JAPANESE SCROLL PAINTINGS, A HANDBOOK OF MOUNTING TECHNIQUES, 1979.
- 2) Glaser, Mary Tood, AIC talk, 1981.