Appendix M: Salvage Procedures

APPENDIX M1: DRYING WET BOOKS AND RECORDS

There are currently five ways to dry wet books and records. All have undergone at least minimal testing under emergency conditions; several have been used extensively. These are described to assist you in making the best choice given your circumstances: cause of damage, level of damage, number of items involved, rarity/scarcity, personnel available, budget available, and drying service available. Advice from a conservator or preservation administrator experienced in disaster recovery can be helpful before making the final selection(s). Successful recovery operations have proven that it is less expensive to dry original collections than to replace them, even if they are replaceable.

It is important to understand that no drying method restores materials. They will never be in better condition than they were when drying began. If time must be taken to make critical decisions, books and records should be frozen to reduce physical distortion and the risk of mold.

**Air-Drying**

Air-drying is the oldest and most common method of dealing with wet books and records. It can be employed for one item or many, but is most suitable for small numbers of damp or slightly wet books and documents. Because it requires no special equipment, it is often believed to be an inexpensive method of drying. But it is extremely labor-intensive, it can occupy a great deal of space, and it can result in badly distorted bindings and text blocks. It is seldom successful for drying bound volumes on coated paper. Book and paper conservators should always be consulted for the drying of rare or unique materials. They may choose to air-dry items or may suggest one of the other alternatives.

**Dehumidification**

This is the newest method to gain credibility in the library and archival world, although it has been used for many years to dry out buildings and the holds of ships. Large commercial dehumidifiers are brought into the facility with all collections, equipment, and furnishings left in place. Temperature and humidity can be carefully controlled to specifications. Additional testing

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1 This text is based, with only minor revisions, on the technical leaflet, "Drying Wet Books and Records," written by Sally Buchanan in 1994 and published in Sherelyn Ogden, ed., *Preservation of Library and Archival Materials: A Manual*, 2nd ed. (Andover, Mass.: Northeast Document Conservation Center, 1994). It included the following: "The author acknowledges expertise from many people who have contributed to the understanding of disaster recovery methods. These include Willman Spawn, Peter Waters, Olivia Primanis, and the staff at NEDCC."
is being undertaken, but the technique is certainly successful for damp or moderately wet books, even those with coated paper, as long as the process is initiated before swelling and adhesion have taken place. The number of items that can be treated with dehumidification is limited only by the amount of equipment available and the expertise of the equipment operators. This method has the advantage of leaving the materials in place on the shelves and in storage boxes, eliminating the costly, time-consuming step of moving them to a freezer or vacuum chamber.

**Freezer Drying**

Books and records that are only damp or moderately wet may be dried successfully in a self-defrosting blast freezer if left there long enough. Materials should be placed in the freezer as soon as possible after becoming wet. Books will dry best if their bindings are supported firmly to inhibit initial swelling. The equipment should have the capacity to freeze very quickly, and temperatures must be below -10°F to reduce distortion and to facilitate drying. Documents may be placed in the freezer in stacks or may be spread out for faster drying. Expect this method to take from several weeks to several months, depending upon the temperature of the freezer and the extent of the water damage. However, caution is advised: with this method, leaves of coated paper may adhere to one another.

**Vacuum Thermal Drying**

Books and records may be dried in a vacuum thermal drying chamber into which they are placed either wet or frozen. The vacuum is drawn, and heat is introduced. Drying typically occurs at temperatures above 100°F, but always above 32°F. This means that the materials stay wet while they dry. It is an acceptable manner of drying wet records, but often produces extreme distortion in books, and almost always causes blocking (adhesion) of coated paper. For large quantities of materials, it is easier than air-drying and almost always more cost-effective. However, extensive rebinding or recasing of books should be expected. This method is a solution for materials that have suffered extensive water damage. Given the elevated temperature used in drying, it is most appropriate for materials with short-term (under 100 years) value.

**Vacuum Freeze-Drying**

This process calls for very sophisticated equipment and is especially suitable for large numbers of very wet books and records as well as for coated paper. Books and records must be frozen, then placed in a vacuum chamber. The vacuum is pulled, a source of heat introduced, and the collections, dried at temperatures below 32°F, remain frozen. The physical process known as sublimation takes place; that is, ice crystals vaporize without melting. This means that there is no additional swelling or distortion beyond that incurred before the materials were placed in the chamber.

Many coated papers can be difficult to dry without sticking together once they are wet. Because it is nearly impossible to determine which papers will block, all coated papers should be treated the
same way for the purpose of vacuum freeze-drying: before any drying takes place, and ideally within six hours of becoming wet, materials should be frozen at -10°F or lower. Then they may be vacuum freeze-dried with a high potential for success. Rare and unique materials can be dried successfully by vacuum freeze-drying, but leathers and vellums may not survive. Photographs should not be dried this way unless no other possibility exists. Consult a photograph conservator.

Although this method may initially appear to be more expensive because of the equipment required, the results are often so satisfactory that additional funds for rebinding are not necessary, and mud, dirt, and/or soot is lifted to the surface, making cleaning less time-consuming. If only a few books are dried, vacuum freeze-drying can indeed be expensive. However, companies that offer this service are often willing to dry one client's small group of books with another client's larger group, thus reducing the per-book cost and making the process affordable.

**How to Air-Dry Wet Records**

Wet records may be air-dried if care is taken to follow guidelines suggested by preservation experts. The technique is most suitable for small numbers of records that are damp or water-damaged only around the edges. If there are hundreds of single pages, or if the water damage is severe, other methods of drying will be more satisfactory and cost effective. Stacks of documents on coated, or shiny, paper must be separated immediately to prevent adhesion, or they must be frozen to await a later drying decision. Care must be taken with water-soluble inks as well. Records with running or blurred inks should be frozen immediately to preserve the written record. After the items are dry, conservators can be contacted for advice and assistance.

If records must be air-dried, the following steps will help achieve satisfactory results. Wet paper is extremely fragile and easily torn or damaged, so care must be exercised. Once wet, records will never look the same, and at least some cockling or distortion should be expected.

1. Secure a clean, dry environment where the temperature and humidity are as low as possible. The temperature must be below 70°F and the humidity below 50%, or mold will probably develop and distortion will be extreme.

2. Keep the air moving at all times using fans in the drying area. This will accelerate the drying process and discourage the growth of mold. If materials are dried outdoors, remember that prolonged exposure to direct sunlight may fade inks and accelerate the aging of paper. Be aware that breezes can blow away single records. Train fans into the air and away from the drying records.

3. Single leaves can be laid out on tables, floors, and other flat surfaces protected if necessary by paper towels or clean, uninked newsprint. Or clotheslines may be strung close together (6-foot lengths spaced ½-inch to 1-inch apart) and lightweight records, manuscripts, photographs, and pamphlets laid across them or clothespinned to them for drying.
4. If records are printed on coated paper, they must be separated from one another to prevent them from sticking together. This is a tedious process, which requires skill and patience. Practice ahead of time will prove useful. Place a piece of polyester film (such as Mylar) on the stack of records. Rub it gently down on the top document. Then slowly lift the film while at the same time peeling off the top sheet. Hang the polyester film up to dry on the clothesline using clothespins. As the document dries, it will separate from the surface of the film. Before it falls, remove it and allow it to finish drying on a flat surface.

5. Once dry, records may be rehoused in clean folders and boxes. Or they may be photocopied or reformatted onto microfilm. Dried records will always occupy more space than ones that have not been water damaged.

How to Air-Dry Bound Volumes

Air-drying is most appropriate for books that are only damp or wet in places, such as along the edges. Books that are soaking wet should be vacuum freeze-dried to minimize cockling of leaves and distortion of bindings. Books containing coated paper should be frozen while still wet and vacuum freeze-dried (in general, coated books are not salvageable). Books with running or blurred inks should be frozen immediately, then vacuum freeze-dried.

1. Refer to steps 1 and 2 of the previous section.

2. Volumes can be dried on any flat surface, but tables make far easier work. Cover the tables with plastic or uninked newsprint.

3. Interleave at least every 50 pages, starting from the back of the volume. Turn pages carefully to avoid tearing them. For interleaving, use paper towels or clean, uninked newsprint. Be careful not to interleave too much, or the spine will become concave and the volume distorted. Complete the interleaving by placing clean blotter paper inside the front and back covers. Stand the volume on its head, fan it open, and place it on several sheets of absorbent paper. Change the interleaving frequently. Turn the volume over each time it is interleaved.

4. When volumes are dry but still cool to the touch, they should be closed and laid flat on a table or other horizontal surface, gently formed into the normal shape, with convex spine and concave front edge (if that was their original shape) and held in place with a light weight. Do not stack drying volumes on top of each other. In no case should they be returned to shelves until thoroughly dry; otherwise mold may develop, particularly along the inner margins.

5. Dampness will persist for some time in the inner margins, along the spine, and between boards and flyleaves. You may use a moisture meter to determine whether the paper is
dry. Normal dry paper generally has about 7% moisture content. Check often for mold growth while books are drying.

6. If the edges are only slightly wet, interleaving is not required. Stand the volume on end and fan it open slightly in the path of a flow of air (as from a fan). To minimize distortion of the edges, lay volumes flat under light pressure (e.g., a book press or paper-covered bricks) just before drying is complete.

7. If you can establish an air-conditioned room capable of maintaining a constant relative humidity of 25 to 35% and temperatures between 50 and 65°F, books with only wet edges can be dried successfully in approximately 2 weeks without interleaving. Do not try to dry books printed on coated paper by this method. In most cases, the only chance of saving such books is to freeze them while wet and dry them by vacuum freeze-drying.
APPENDIX M2: EMERGENCY SALVAGE OF PHOTOGRAPHS

Because of the number of photographic processes and their wide variety, responsible advice for the emergency salvage of wet photographs is difficult to provide. Some processes can withstand immersion in water for a day or more, whereas others would be permanently disfigured or even destroyed by a couple of minutes of exposure. In general, wet photographs should be air-dried or frozen as quickly as possible. Once they are stabilized by either of these methods, there is time to decide what course of action to pursue.

Ideally, salvage should occur under a conservator's supervision. A conservator can minimize damage to a collection if he or she can direct the salvage and treat the collection immediately after the damage has occurred. Time is of the essence: the longer the period of time between the emergency and salvage, the greater amount of permanent damage that will occur.

Minimum Immersion Time

Photographs in water will quickly deteriorate: images can separate from mounts, emulsions can dissolve or stick together, and staining can occur. Mold can grow within 48 hours at 60% RH and 70°F, and it often causes permanent staining and other damage to photographs. For these reasons photographs need to be dried as quickly as possible. If photographs cannot be dried promptly, they should be frozen.

Salvage Priorities for Wet Photographs

In general, films (plastic-base materials) appear to be more stable than prints (paper-base materials); therefore, prints should be salvaged first. Important exceptions include deteriorated nitrate and safety films, which are extremely susceptible to water damage.

Some photographic processes will not survive immersion. Photographs made by the following processes should be salvaged first:

- ambrotypes
- tintypes
- collodion wet plate negatives
- gelatin dry plate negatives
- lantern slides
- deteriorated nitrate or safety film

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• autochromes
• carbon prints
• woodburytypes
• deteriorated or unhardened gelatin prints
• color materials

Photographs that are more stable in water include:
• daguerreotypes
• salted paper prints
• albumen prints
• collodion prints
• platinum prints
• cyanotypes

**Air-Drying Photographs**

If personnel, space, and time are available, photographs can be air-dried.
• Separate photographs from their enclosures, frames, and from each other. If they are stuck together or adhered to glass, set them aside for freezing and consultation with a conservator.
• Allow excess water to drain off the photographs.
• Spread the photographs out to dry, face up, laying them flat on an absorbent material such as blotters, uninked newsprint, paper towels, or a clean cloth.
• Photographs may curl during drying. They can be flattened later.

**Freezing Photographs**

If immediate air-drying of photographs is not possible or if photographs are stuck together, freeze them.
• Place the photographs in small plastic bags before freezing, several to a bag.
• If possible, interleave photographs before freezing with a non-woven polyester material or wax paper. This will make them easier to separate when they are eventually treated.

**Drying Frozen Photographs**

Frozen photographs are best dried by thawing, followed by air-drying. As a group of photographs thaws, individual photographs can be carefully peeled from the group and placed face up on a clean, absorbent surface to air-dry.
• Vacuum thermal drying, where the frozen material is thawed and dried in a vacuum, is not recommended for photographs. Gelatin photographs undergoing this procedure have a tendency to mottle severely and stick together.
• Photographs can be vacuum freeze-dried; in this process, no thawing occurs. Gelatin photographs may mottle during the procedure, but they will not stick together.
• Wet collodion glass plates must never be freeze-dried; they will not survive. This is also true for all similar collodion processes such as ambrotypes, collodion lantern slides, and tintypes.

Salvaging Slides

Slides can be rinsed and dipped in a water/Photo-flo® mixture, slide cleaner, or a similar commercial product and air-dried, preferably hung on a line or propped on edge.

• Ideally, slides should be removed from their frames for drying and then remounted.
• Slides mounted between glass must be removed from the glass, or they will not dry.

Call a Qualified Conservator

Dried or frozen photographs are reasonably stable. Store them until you can talk to a conservator who has experience with photographs and can advise you of treatment needs.
APPENDIX M3: SALVAGE PROCEDURES: MICROFORMS

Microforms subject to water damage should be professionally cleaned and dried within 48-60 hours. Generally this involves the use of a service bureau that will rewash, process, and dry the film. In most cases, the film should not be used again. Instead, make a duplicate copy and discard the damaged one. Both Fuji and Kodak offer reprocessing services for their films (see listings in Appendix B2). Coordinate microfilm salvage with service bureaus and processing laboratories.

**Salvage Priority**
- Color microforms are most vulnerable. If the film is important, it should receive high-priority attention.
- Silver-gelatin and other emulsion film, while relatively stable, should generally be salvaged next.
- Diazo and vesicular films are most stable and should generally be salvaged last.

**Procedures for Roll Microfilm**

If the film is a duplicate and replacements are readily available, do not attempt salvage. If salvage is required, follow these steps:
- Fasten a rubber band around the box so the box, label, and roll will remain together.
- If the film is dirty/muddy, put in a 5-gallon bucket filled with clean, cold water. Agitate gently to remove major dirt deposits.
- Drain off water. Replace with fresh water that is clean (preferably distilled) and cool until ready for packing.
- Observe the film brand identification on top of each film carton. Kodak film can be packed for delivery to Eastman Kodak Company, and Fuji Film can be packed for delivery to Fuji Film Company, since both provide no-cost salvage of their film. (See Suppliers and Service Providers, Appendix B2.) Other brands of film may be sent to various film processing labs.
- Pack wet or damp reels of film in boxes lined with three layers of heavy duty plastic garbage bags (10-gallon size). Fasten each plastic bag separately and seal all boxes, marking them "WET FILM FOR REWASHING & DRYING." Each box may contain 40-50 reels of 35mm film (about 80-100 reels of 16mm film) with a maximum weight of 35 pounds.
- Prepare and enclose a packing list in the container, and retain a copy of it.
- Arrange for shipping via Federal Express, UPS, or other carrier, and be sure the service bureaus know to expect receipt.

**Procedures for Microfiche**

If the fiche is a duplicate and replacements are readily available, do not attempt salvage. If salvage is required, follow these steps:
• Keep the fiche in clean, cool water until ready to salvage.
• Set up small buckets, shallow dish pans, or photo trays with clean, cool water.
• Dip the fiche in the series of water baths to rinse off dirt, mud, or other debris.
• Hang individual microfiche sheets on clothesline to dry. Be sure clothespin is attached to edge of sheet and does not contact the image area.

**Freezing**

If film cannot be salvaged within about 60 hours, it can be frozen.
**APPENDIX M4: SALVAGE PROCEDURES: COMPUTER MEDIA**

The best procedure for salvaging computer media is to use your backups to recreate whatever data and files were lost. If you attempt salvage techniques described here, never put the salvaged media in one of your newer or better machines, as it could damage the equipment. If in doubt, always consult a data recovery specialist. Appendix B2, Suppliers and Service Providers, lists some of those companies.

**CD-ROM and Optical Disk**
- Rinse in cool, clean water.
- Dry with a very soft, non-abrasive sponge. To accelerate drying, use a blow dryer turned to the "cool" setting.

**Hard Drives and Magnetic Tapes**

To the extent possible, use backups stored off-site. If salvage is required, contact specialized companies listed in Appendix B2, Suppliers and Service Providers.

**Diskettes**

The objective in salvaging diskettes is not to save the diskettes themselves, but to allow you to copy data from a wet disk to a new one.

- Remove the disk from its plastic casing.
  a. 3½" diskette: Gently pry up the metal "door" and remove the diskette inside. A spring will be visible, and it needs to be removed. (It comes out easily as it is held in place by the metal "door." ) The plastic disk will now be visible. Using a microspatula or thin screwdriver, slide the end in slightly so as not to touch the magnetic medium, and pry open each end to break the plastic seal that holds the two sides together.
  b. 5¼" diskette: Use scissors to cut off the very edge of the diskette housing so that you create an opening on the edge of the diskette that faces outward when it is in the disk drive.

- Reach in (using clean hands or lint-free gloves) and gently remove the magnetic medium.
- Gently rinse the magnetic medium in clean, cool water. (Several rinses may be required if the disk was in dirty water.) Wipe with a lint-free cloth.
- Open a new diskette, using the procedures outlined in step 1. Remove the magnetic disk from within the casing. Place the salvaged magnetic medium into the new case. When salvaging 3½" diskettes, you do not need to reattach the metal "door" or spring, but be sure the plastic fits snugly together so it does not get jammed in your disk drive.
- Insert the disk into the floppy drive of a PC. It is a good idea to use an older PC, in case the disk still has some dust or other defects that could damage the disk drive.

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• Copy the damaged disk onto a new diskette.
• Remove the salvaged magnetic medium and discard it. You can then continue using the diskette housing for additional salvaged diskettes.
Before salvaging fine art materials, identify the media of the materials to select the appropriate treatment. This section includes instructions for salvaging the following media:

- works of art on paper
- paintings
- animal materials: bone, hair, horn, ivory, shell
- animal skins:
  - buckskin and other flexible leathers
  - leather and rawhide
  - parchment and vellum
- basketry
- ceramics, glass, and stone
- furniture
- metal
- natural history specimens
- textiles
- wood

**Works of Art on Paper**

The following procedures are appropriate for framed or matted items that are damp, but in generally sound condition. They must be frozen or dried within 48 hours.

- Preparation for drying
  a. Place frame face-down on smooth, flat surface covered with blotting paper or bubble pack where necessary.
  b. For wood frames, carefully remove hanging hardware, dust seal, nails, glaziers points or brackets, and backing boards not attached to mat.
  c. For metal frames, carefully remove corner hardware, hanging hardware, and backing boards not attached to mat.
  d. Ensure that work of art has not adhered to rabbet of frame, spacer, or glazing. For work of art that is framed, matted, and wet, use a screening support behind the back mat; then lift the entire unit (glazing, mat, and support) from the frame and lay it face up on a smooth, flat surface. Carefully remove the glazing, first ensuring that it has

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not adhered to the work of art. For a framed and unmatted work, the glazing and the work of art should be carefully removed together and laid face down on a smooth, flat surface. Apply blotting paper to the back to absorb excess moisture. It may be possible with a screening support to remove the work of art. As a last resort, leave the glazing and work of art to air-dry between blotting paper under a light weight.

e. Remove matting (window and attached back mat) with work of art.

f. Transfer matting using support where necessary and place face up on smooth, flat surface.

g. Lift window mat and detach work of art from back mat by carefully cutting hinges. If work of art is not mounted according to conservation standards and is attached firmly and directly to mat or backing board, consult a conservator.

h. Proceed to dry work of art.

- Drying: Prints and other works with **non water-soluble** components should be frozen or dried within 48 hours. Paper-based works with stable media may be vacuum freeze-dried. If air-dried, use the following procedures:
  a. Support the item with a non-woven support (e.g. Pellon or other brand of spun polyester) to aid in safe handling.
  b. Place the item on a smooth, flat surface between layers of blotting paper.
  c. Place a sheet of masonite on top with the rough side of the masonite facing away from the item. Weigh the masonite down evenly.
  d. Change the blotters frequently until the item is dry.

- Drying: Watercolors and other works with **water-soluble components** must be frozen or dried immediately. Paper-based works may be vacuum freeze-dried. For air-drying, proceed as follows:
  a. Support the item with a screen or a non-woven support.
  b. Place the item on a clean, dry surface and allow it to air-dry. Do not attempt to blot the item, since this may result in offset losses of water-soluble components.
  c. Consult a conservator after air-drying.

**Easel Paintings**

The following procedures are suggested for framed (glazed and unglazed) items in damp, but sound condition.

- Priority: Paintings should be dried immediately.

- Preparation for drying
  a. Place frame face down on smooth, flat surface covered with blotting paper or bubble pack where necessary.
  b. For wood frames, carefully remove hanging hardware, dust seal, nails, or brackets and backing boards.
c. For metal frames, carefully remove corner hardware, hanging hardware, and backing boards.

d. Ensure that painting has not adhered to rabbet of frame, spacer, liner, or glazing by gently lifting each side of the painting one at a time to ensure freedom of movement. If glazing is broken but glass is still intact, hold the glazing together with pressure-sensitive tape. The frame may then be laid face down and the painting removed. If the glazing is shattered and broken pieces have dropped behind the remaining glass, keep the frame in a vertical position and use extreme care to remove all loose pieces of glass. If the painting is damaged by the glass, consult a conservator.

e. Carefully lift painting straight up and out of frame.

f. Proceed to dry work of art.

- Drying: oils, acrylics, temperas, etc. on solid supports (cardboard, canvasboard, masonite)

  a. After the painting is removed from its frame, place it face-up on several layers of clean white blotting paper or uninked newsprint on a clean, flat surface.

  b. Cover the face of the painting with Japanese tissue or (if unavailable), uninked newsprint, then place 3-4 layers of white blotting paper on top of the painting. Where the paint is irregularly applied with thick impasto, use sufficient layers of blotting paper to cushion the projections against their possible flattening under pressure.

  c. Place a slightly larger sheet of masonite on top of the painting, taking care to ensure that the rough side of the masonite faces away from the painting. Weigh the masonite down, particularly around the edges, to prevent curling.

  d. Change the blotting paper until the painting is dry.

  e. Replace with fresh, dry blotting paper and let the painting stabilize under the weights for several days. Do not change the first layer of Japanese paper or newsprint until drying has been completed. If this layer does not easily detach, leave it in place to be removed later by a conservator. If this layer becomes detached at any time before the drying process has been completed, replace it carefully with a fresh protective layer when changing the blotters.

- Drying: oils, acrylics, temperas, etc. on canvas (linen, cotton, synthetics)

  a. Do not remove the unframed painting from its stretcher.

  b. Protect the face of the painting with Japanese paper (if available), or uninked newsprint. Keep the layers of tissue or newsprint flat and wrinkle-free.

  c. Place the painting face-down onto a flat, firm surface covered with layers of white blotting paper (if available) or uninked newsprint.

  d. Add layers of white blotting paper to the back of the canvas in the area of the stretcher bars. Fill to a depth somewhat higher than the bars. When weighted, a slight pressure will be exerted on the canvas.
e. Cover the entire back of the painting with a sheet of masonite and weigh it down. The edges should be especially weighted to prevent warping of the wooden stretcher bars.

f. Change the paper, ideally every half-hour, until dry. Leave the protective layer of Japanese paper in place until drying is completed. Check this layer for creases every time the blotting paper is changed.

g. If the protective layer of Japanese paper has not come off on its own when the drying is complete, leave it to be removed by a conservator at a later date.

**Animal Materials: Bone, Hair, Horn, Ivory, Shell**

- Priority: Begin air-drying within 48 hours.
- Handling Precautions: These may be extremely fragile when wet. Use supports to move items.
- Preparation and Packing
  - Rinse or sponge with clean water to remove mud and other debris.
  - Drain and blot to remove excess moisture.
  - Separate items with freezer paper or waxed paper to prevent bleeding of colors between objects.
  - Transport in boxes lined with open plastic (polyethylene) bags.
- Drying Method: Air-dry slowly on non-rusting screens.

**Animal Skins: Buckskin and Other Flexible Leathers**

- Priority: Air-dry within 48 hours.
- Handling Precautions: Leather may be extremely fragile when wet, and metal fasteners may tear through skin. Use supports to move items.
- Preparation and Packing
  - Rinse or sponge with clean water to remove mud and other debris.
  - Drain and blot to remove excess moisture.
- Drying Method: Air-dry. May require manipulation while drying to retain flexibility.

**Animal Skins: Leather and Rawhide**

- Priority: Air-dry within 48 hours.
- Handling Precautions: Leather (especially items with red-rot) may be extremely fragile when wet. Use supports to move items.
- Preparation and Packing
  - Rinse or sponge with clean water to remove mud and other debris.
  - Drain and blot to remove excess moisture.
  - Pad shaped artifacts with toweling or uninked paper.
- Drying Method: Air-dry.
Animal Skins: Parchment and Vellum

- Priority: Immediately freeze or dry.
- Preparation and Packing: Interleave sheets between folders, and pack items flat.
- Drying Method: Air-dry or vacuum freeze-dry. Do not freeze-dry gilded or illuminated manuscripts.

Basketry

- Priority: Air-dry as soon as possible.
- Handling Precautions: May be fragile and heavy when wet. Use supports to move items.
- Preparation and Packing
  a. Rinse in clean water to remove mud and debris.
  b. Drain and blot to remove excess water.
  c. Separate items with freezer paper or waxed paper.

Ceramics, Glass, and Stone

General Instructions: These can be allowed to air-dry if they have been immersed in relatively clean water. However, if exposed to salt water, mud, oil, or other contaminants, keep them wet until you can consult a conservator. Pottery that has been previously restored using a water-soluble glue should be left for treatment by a conservator.

- Ceramics and Porcelain
  a. Handling Precautions
    (1) Many old pieces have been repaired, and these repairs will come apart when immersed for any length of time.
    (2) Keep pieces together in plastic bag or box, and label bags.
  b. Preparation and Packing
    (1) Glazed pieces can wait until there is time to wash them off. Gilded pieces should be dabbed off with a soft cloth.
    (2) Bag or box when possible, and pack dry if possible.
    (3) Wrap pieces individually to prevent more damage.

- Unglazed Pottery/Porcelain
a. Handling Precautions: same as Ceramics and Porcelain
b. Preparation and Packing
   (1) Wash off as soon as possible, or dry with mud on and remove later with a soft brush.
   (2) Bag or box when possible, and pack dry if possible.
   (3) Wrap pieces individually to prevent more damage; can be packed in one box with dividers.

- Painted Ceramics (unglazed)
  a. Handling Precautions: same as above
  b. Preparation and Packing
     (1) Do not wash; dry as is.
     (2) Bag or box when possible, and pack dry if possible.
     (3) Wrap pieces individually to prevent more damage; can be packed in one box with dividers.

**Metals**

- In most cases, the best treatment for wet metal is to remove mud and debris with clean water, then blot off the water with toweling.
- Air-dry as soon as possible. Items can be dried in an oven at 100° Fahrenheit.
- If the item has moving parts (e.g., camera, watch), wash the item in clean water, freeze it, and leave it for a conservator for special treatment. One may attempt freeze-drying of these objects, but it is best to leave this decision to a conservator.
- Painted metal objects should be rinsed in clean water before drying. However, avoid cleaning flaking or peeling areas. Painted surfaces or other applied decorations or labels may be soft and fragile, so avoid touching them. If possible, keep flaking areas horizontal and face-up during handling, packing, and/or drying.
- Fragile metal objects should be frozen without washing. Although one may attempt freeze-drying of these objects, as well as items with moving parts, it is advisable to leave this decision to a conservator.
- Items that are a combination of metal and other materials may fall apart as a result of washing. If this happens, keep the components together to be reassembled at a later date. Consult a conservator to determine the appropriate drying treatment.
- In the case of iron, steel, and copper, there is a risk of damage because of the stains (including rust) caused by these wet metals. Avoid letting them contact other materials.

**Textiles**

Because of the risk of mold developing on organic materials, textiles should be frozen or air-dried within 48 hours.
• Small, flat textiles
  a. Handling Precautions: Do not unfold if fragile layers are stuck together.
  b. Preparation and Packing
     (1) Drain and blot to remove excess water.
     (2) Separate items with freezer paper or waxed paper to prevent dye staining between items.
     (3) If items are to be frozen, individual pieces can be placed in plastic trash bags to prevent dye transfer, then packed together into boxes.
  c. Drying Method: Air-dry or consult a conservator about freeze-drying.

• Beadwork and painted fabrics
  a. Handling Precautions: Use supports to move items.
  b. Preparation and Packing
     (1) Drain and blot to remove excess water.
     (2) Separate items with freezer paper or waxed paper to prevent dye staining between items.
     (3) If items are to be frozen, individual pieces can be placed in plastic trash bags to prevent dye transfer, then packed together into boxes.
  c. Drying Method: Air-dry. Do not freeze beadwork or painted/stenciled items.

• Framed textiles
  a. Handling Precautions: Unframe and remove mounting if possible. See instructions for works of art.
  b. Preparation and Packing
     (1) Drain and blot to remove excess water.
     (2) Separate items with freezer paper or waxed paper to prevent dye staining between items.
     (3) If items are to be frozen, individual pieces can be placed in plastic trash bags to prevent dye transfer, then packed together into boxes.
  c. Drying Method: Air-dry or consult a conservator about freeze-drying.

• Large, flat textiles: blankets, coverlets, etc.
  a. Handling Precautions: Drain items to reduce water weight, then use supports to move items.
  b. Preparation and Packing
     (1) Drain and blot to remove excess water.
     (2) Separate items with freezer paper or waxed paper to prevent dye staining between items.
     (3) If items are to be frozen, individual pieces can be placed in plastic trash bags to prevent dye transfer, then packed together into boxes.
  c. Drying Method: Air-dry or consult a conservator about freeze-drying.
• Garments
  a. Handling Precautions: Buttons, metal fasteners, bodice boning, etc. will easily tear through wet fabrics. Use supports to move items.
  b. Preparation and Packing
     (1) Drain and blot to remove excess water.
     (2) Separate items with freezer paper or waxed paper to prevent dye staining between items.
     (3) If items are to be frozen, individual pieces can be placed in plastic trash bags to prevent dye transfer, then packed together into boxes.
  c. Drying Method:
     (1) Air-dry. Pad out with uninked paper toweling, net, or colorfast fabric to restore shape.
     (2) Consult a conservator about freeze-drying.

• Tapestries and rugs
  a. Handling Precautions: These are extremely heavy and fragile when wet. Use supports to move items.
  b. Preparation and Packing
     (1) Drain and roll with toweling to remove excess water.
     (2) Unroll item, remove toweling, and repeat procedure if needed.
     (3) Fold or roll individual items.
  c. Drying Method: Air-dry or consult a conservator about freeze-drying.

Wood, unpainted

• Priority: Begin to air-dry within 48 hours.
• Preparation and Packing
  a. Remove mud and debris with clean water.
  b. Drain and blot to remove excess water.
  c. If packing is necessary, wrap items in blotting materials under loosely draped plastic (polyethylene) sheeting.
• Drying Method: Air-dry slowly, under plastic sheeting. Use fans to increase air circulation but not aimed directly at objects.

Wood, polychromed

• Priority: Begin to air-dry within 48 hours.
• Handling Precautions: Surfaces may be extremely fragile and flaking. Avoid touching painted areas. Keep flaking areas in horizontal, face-up position if possible.
• Preparation and Packing
  a. Wrap under loosely draped plastic (polyethylene) sheeting, avoiding contact with painted surface.
  b. Contact a conservator immediately for advice.
• Drying Method: Air-dry slowly, under plastic sheeting. Items may require immediate attention by a conservator.