Minnesota Historical Society

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Standards for Processing Archaeology Collections

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General Conservation Guidelines for the Field and the Lab

It is best to take a minimal and cautious approach to treating objects. Oftentimes, it is best to do nothing at all to an object and suffer a minor loss than to use a risky and dangerous treatment and lose the entire object and its intrinsic information.

1) **BE PREPARED**!! Make the effort to know what objects and materials may be recovered, and have the proper supplies and equipment on hand. Contact a qualified professional archaeological conservator for advice before you go into the field.

2) **It is the archaeologist's responsibility and obligation to become familiar with new field manuals** that have been published from the perspective of modern conservation practices (see attached references). It is no longer acceptable to rely on "conservation" advice from other fields such as paleontology or geology or on outdated recipes and publications.

3) **Acrylic thermoplastic resins** (such as B-72) **are the only glues that are approved for conservation use**. Most commercial adhesive preparations are not approved by MHS archaeological conservators for use on archaeological objects due to a lack of chemical stability. Cellulose nitrate glues such as Duco Household Cement are completely unacceptable due to long-term instability and other technical problems. Poly vinyl acetate (PVAc) formulations may be used in some circumstances with the assistance of the conservators.

4) **Avoid chemical cleaners of any kind** in the cleaning water for ceramics, bones, and other organic materials. A conservator must be contacted if it is deemed that such a cleaner needs to be used to remove a mineral crust or stain.

5) **All iron objects do not need to be cleaned by the electrolytic method**, as has become common in historic archaeological lab methodology. This method may actually destroy valuable artifactual information. A qualified conservator should be consulted before proceeding.

6) **Thorough photographic and written documentation** must be done before, during, and after any conservation treatments, such as reconstruction, are performed. Field removal in situ consolidation and block removal must also be photographically and graphically documented. This documentation must become part of the excavation records.

Don't hesitate to contact a conservator when you encounter a recovery problem that is beyond your knowledge or experience.
Please contact the Daniels Object Conservation Laboratory directly if you have any questions on these guidelines. paul.storch@mnhs.org (651) 297-5774 or

tom.braun@mnhs.org (651) 282-2745. General numbers for MHS Conservation are: 1-800-657-3773 or 651-297-1867

A BRIEF LIST OF SUGGESTED READINGS:

Collins, Chris. 1995. The Care and Conservation of Paleontological Materials. Butterworth-Heinemann. *The sections on sub-fossil bone are written by archaeological conservators, and the entire book contains update information.*

Storch, Paul. 1997. "Conservation of Archaeological Shell Objects", Number 22, Sept. 1997, Conservation Notes. Texas Memorial Museum, The University of Texas at Austin, Austin, TX.

Storch, Paul. 2003. "Field and Laboratory Methods for Handling Osseous Materials". MHS Conservation Website. ***Originally published in the Conservation Notes series Number 6, November 1983, Texas Memorial Museum, The University of Texas at Austin, 2400 Trinity, Austin, TX 78705. Copies of the original can be purchased from the TMM for $1.00 each.***

Cronyn, J.M. 1992. The Elements of Archaeological Conservation. Routledge, New York.

Hodges, H.W.M. 1987. In Situ Archaeological Conservation. Getty Conservation Institute, CA.

Kite, M. and Thomson, R. 2006. The Conservation of Leather and Related Materials, Chapter 22: "The Conservation of Archaeological Leather", Butterworth-Heinemann-Elsevier, Amsterdam.

Pearson, C. 1987. Conservation of Marine Archaeological Objects. Butterworth-Heinnemann.

Poirier, D.A., and Feder, K.L. 2001. Dangerous Places: Health, Safety, and Archaeology. Bergin and Garvey, CT.

MHS Standards for Labeling Artifacts for Curation

Cataloging

Assign specific catalog numbers and label artifacts during lab analysis. Use a three- or four-part number consisting of the collection accession number (the year and collection number) and a sequential object number; or if a fourth number is used, a provenience number and an object number, such as:

> **2006.21.2**
> **2006** (year – part of the collection number assigned by the Minnesota Historical Society)
> **.21** (collection number – assigned by the Minnesota Historical Society)
> **.2** (object number – assigned by the depositor)
>
> or **2006.46.15.7**
> **2006** (year – part of the collection number assigned by the Minnesota Historical Society)
> **.46** (collection number – assigned by the Minnesota Historical Society)
> **.15** (a number for the provenience unit – assigned by the depositor)
> **.7** (object number – assigned by the depositor)
>
> ▪ Apply labels as specified in the *Labeling* section.
> ▪ Record the materials and methods used to clean and label artifacts in the project documentation.

Culling

Do not submit materials collected from contaminated sites. You must also remove all live ammunition, toxic or radioactive materials, asbestos, and other hazardous substances from collections before depositing collections for curation! The Minnesota Historical Society will not accept such material or human remains.

Beyond the removal of hazardous materials, the Minnesota Historical Society does not have a policy regarding the culling or sampling of materials before curation. Bear in mind however that when an application has been made for an Expanded Repository Agreement, the Acquisitions Committee may not accept a collection with a large quantity of low value items.

Artifact sampling is the responsibility of the principal investigator and may be carried out in the field or in the lab, depending upon the methods specified in the research design. Items such as building materials and fire-cracked rock are examples of artifact classes that might commonly be culled before curation. **It is essential that all decisions and actions are well documented** and become part of the project record. Culled objects with the detailed descriptive and provenience information should be listed with catalog records, but marked as "discarded".

Labeling

It is essential that the catalog number remain associated with an object or a group of objects as soon as the number has been assigned.

An object may become inaccessible without the catalog number. For this reason, directly label all stable artifacts larger than the size of a dime. (e.g., lithics, glass, ceramics, bone, antler, most metals). The number must be:

durable to remain legible over time,
removable, should the need arise to make a change in the future, and
never cause harm to the object.

Applying Direct Labels

Direct paper labels
Paper labels may be **generated from a computer and laser printer** as an alternative to applying numbers using India ink and pens. Compared to traditional handwritten labels, printed labels:

- are more consistently legible,
- can be reduced in size to fit small items,
- can save time as the barrier layer does not need to dry to apply the paper label on top of it, and
- avoid the problem of finding a white background for a dark object.

Materials:

Acryloid B-72, 20% solution in acetone*
Acrylic gloss medium, Golden Artist Colors, Inc. (water-based acrylic emulsion)
Acetone, 100%*
Rhoplex
Printer paper (acid free) & laser printer
Archival paper tags with soft cotton string
2H pencil

Where to Label:
When applying direct labels, **avoid diagnostic portions of an artifact**. For example:

- Stone tools should be labeled on the unmodified portion, or cortex, of the tool if possible. If a tool has been bifacially worked, label the least photogenic side.
- Sherds should not be labeled on the broken edges because accurate reconstruction would be inhibited and would prevent observations of the ceramic body.
- Labels should not cover maker's marks or design elements, if possible.

Procedure:

- **Choose the right barrier** for the material.
  B-72: Most three-dimensional objects (glazed ceramics, glass, metals, stone, ivory and bone) can receive B-72 as a barrier layer for the label.
  Rhoplex: Some kinds of basketry, wood, shoes w/o leather soles and plastics should have Rhoplex as a barrier layer for the label.

- Use extra care and concentration when applying barrier and surface layers as you are making an application directly on the object. A clear B-72 barrier or Rhoplex layer (whichever appropriate) is applied to the object to create a surface upon which to lay the paper number, followed by a seal that protects the number from easy removal.

- Make sure the surface you will mark is clean and free of corrosion
- It may be advantageous to number a group of objects at one time.
- Beware of drips sliding down your brushes. Try to remove as much excess as possible before approaching the object.

1. **Barrier Layer**
   - Brush on a barrier layer of B-72 or Rhoplex (whichever is appropriate). A thin rectangular layer is applied. Its size should not be excessive, but should be able to accommodate the number and a topcoat within its boundaries.
   - Lay the paper accession number tag on to the barrier layer when it is just tacky to the touch, OR
   - Let the barrier layer dry completely before attempting to write the number on the layer if you are using India ink and pens.

   Note: Thin your supply of B-72 with a small amount of acetone if it becomes too thick, added 2-3 drops at a time. If your supply becomes yellow, it should be discarded and a fresh batch made.
2. **Accession Number**
   - Enter accession numbers into a word processing document and print to a sheet of paper. Use a legible font and size, such as “Arial” or “Times New Roman”, appropriate for the artifact and the location of the number on the artifact; this may vary anywhere from 2 pt. to 14 pt. Do not use script fonts such as “President” or novelty fonts such as “German Black Letter”.
   - Cut the accession number from the sheet of numbers and apply it to the barrier layer on the artifact. The small border around the number provided by the paper background can improve the visibility and legibility of the number.
3. **Seal**
   - If **B-72 was used as a barrier layer, brush a thin coat of acrylic gloss medium** over the paper number to ensure it is secured to the artifact. It will go on white, but will dry to a clear finish.
   - If **Rhoplex was used, brush on Rhoplex** as a sealant layer also.
   - The topcoat should be smaller than the barrier layer. Allow to it to dry completely before moving the object.
4. **Removal**
   - All layers can all be carefully removed with acetone applied with a cotton swab if a mistake is made or change is needed after a number has been applied.

- **It is important to keep your solvents clean**. Never re-dip a dirty swab into your supply of solvent.
- Use solvents sparingly**.** They should not come in contact with an object's surface any more than is necessary. Do not pour solvents into the sink. Contact the objects conservator if you must dispose of any solvent.

Applying Indirect Labels

▪ An archival quality, acid-free tag may be tied to an unstable object in order to label it.
▪ An acid-free card may be included with the packaging of materials that cannot be labeled or tagged, such as floral or soil samples.

Where to label:
Objects made of fur (skin), leather, or which have heavily corroded or porous surfaces cannot hold an applied label. Instead, their primary label will be a paper and string tag.

- **Choose a strong holding point** that will not break or abrade easily if the tag is pulled or caught. If the sharp edges of the tag seem to be a hazard, round them off or use soft Tyvek paper instead. If no safe area can be found, the tag may be placed in the container holding the object without being attached.

Samples, such as soil or charcoal samples, and artifacts smaller than a dime that cannot have a label attached will have bag tags as their primary labels.

- **Print the labels** or **use a pen with archival ink** (such as a Pigma Micron © or India ink).
- Place the bag tag in its own bag before enclosing it with a charcoal sample or other material where the sample or the tag may be harmed by contact.

Materials:
2H pencil
Archival paper tags with soft cotton string
Printer paper
India ink or Pigma Micron © pen

QUICK REFERENCE:

MATERIAL TYPE	***PRIMARY*** **LABEL TYPE**	**LABEL LOCATION**
Ceramics, glass, metals, stone, ivory, bone	B-72 is the barrier layer. Acrylic gloss medium as the seal layer to enclose the ink or printed label.	Unobtrusive area (usually bottom or back)
Some kinds of basketry, wood, shoes without leather soles, plastics, wax, lacquered surface	Rhoplex as the barrier layer. Rhoplex is also the seal layer to enclose the ink or printed label	Unobtrusive area (usually bottom or back)
Leather or skin (fur), heavily corroded metals, other porous surfaces	Paper and string tag or cotton cloth tape, loop	Unobtrusive spot that will not be harmed by the string; tie loosely

MINNESOTA HISTORICAL SOCIETY

MHS Standards for Packing Artifacts and Records for Curation

The processing of artifacts is the responsibility of the depositor. This includes cleaning, analyzing, cataloging, labeling, and packing.
Collections deposited with MHS should be ready for long term curation and/or conservation procedures, as needed.

Packing Artifacts

- Use archival materials only (see table below)
- Separate artifacts by material types and weights, as appropriate.
- Place all objects in 2 to 4 mil zip-lock polyethylene bags. Use other containers, such as polypropylene or glass vials, for support and protection of fragile items, as needed.
- Use an appropriate bag size for the size and number of artifacts.
- Ventilate bags containing non-metal artifacts.
- Include data blocks (see form in appendix) printed on archival paper in each object bag or write with permanent marker on the outside of bags that have white panels for this purpose (never write on bags without panels). This should include:
    1. Accession number(s)
    2. Site number
    3. Site name (if applicable)
    4. Provenience information
    5. Object name
    6. Object count

Organize the artifact bags systematically; consider **future use** of the collection, **size** of collection, and number of **diagnostic** artifacts.

- **Provenience unit** is the preferred criteria when organizing collections for storage (this is especially suitable for small survey collections).
- **Analytical units**, such as artifact classes, may be packed and stored together but should be ordered by provenience unit within each analytical group.
- **Frequently examined artifacts** or “diagnostic” collections may be stored together in an easily accessible place. These items should also be ordered by provenience within the group. A cross-reference card should be placed in sequence with the other artifacts from the provenience where the “diagnostic” might otherwise have been stored, in order to indicate where the artifact can be found.

Always use bags that have white label panels when grouping smaller artifact bags into larger ones. Label the outer bag with a list of the provenience units contained within. Write with permanent marker on the outside of bags (never write on bags without panels).

Provide adequate support for objects when assembling artifact bags into boxes. Do not pack light or fragile items directly with heavy items.

Include a box list detailing the catalog numbers, site number(s), and project information for the collections found in the container (see form). The box holding the collections for deposit does not

need to be made of archivally stable materials because the Minnesota Historical Society will provide a box for collections storage.

Associated Documentation

- Leave records in the order listed on the Documents Checklist form (see Checklist form).
- **Do not submit electronic records**, except for the artifact catalog and photographs.
- Use archival materials:
  Remove paper clips, staples, and rubber bands. Use archival quality folders to group materials.
- Label all document cover sheets with the Repository Agreement number and applicable project and accession numbers.
- Label each photographic image with: photographers name; date image was taken; and a description of the image; or a unique identification number referencing a photographic log containing this information.
- Over-sized maps should be rolled, wrapped in Melinex® (formerly know as mylar®) or acid-free paper, and placed in a stable tube. Label the tube with the Repository Agreement number and applicable project information.

Materials:

Below is a table of materials that should and should not be used for packing and storing material remains. In general, containers should be self-closing. Rubber bands, twist ties, tape, string, staples, or heat sealing should not be used to close containers.
(http://www.cr.nps.gov/archeology/collections/mgt_02.htm)

Recommended Packing Materials for Objects	**Packing Materials *Not* Recommended for Objects**
Acid-free boxes	Cigar boxes or regular cardboard boxes
Acid-free paper	PVC or unidentified plastic containers
Acid-free poster board	Styrofoam
Acid-free tissue paper	Sandwich baggies
Polypropylene containers	Unidentified plastic wrap
Polyethylene foam	Polyurethane chips
Polyethylene bags with zip closure (2-4mm thickness)	Toilet paper, facial tissue, or newspaper
	Acidic paper
Polyethylene sheeting and chips	Brown paper bags
Polyester batting	Cellophane tape
Tyvek® for labels	Cotton wool
Aluminum foil (C14 samples only)	Foam rubber, urethane foam
Metal containers (limited uses)	Masking tape
Glass containers (limited uses & insulated against breakage)	
Cotton or muslin fabric	
Melinex®	
Ethafoam®	