NATIONAL PARK SERVICE
DEPARTMENT OF THE INTERIOR

Conserve O Gram

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Preventive Conservation Recommendations For Organic Objects

Park museum collections contain diverse objects composed of organic materials. Material types typically represented in organic collections include: wood; paper; textiles; leather and skin; hair, fur, and feathers; horn, bone, and ivory; shell; grasses, fibers, and bark; lacquers and waxes. Regardless of age or cultural origin, objects composed of organic materials are highly susceptible to deterioration caused by light, relative humidity, temperature, air pollution, microorganisms, insects, and rodents.

Because of the size, diversity, and sensitivity of these collections, preventive conservation is the most effective method of preservation. The goals are to provide a stable and protective environment and to avoid those conditions that accelerate deterioration. The following guidelines constitute the principal measures of care required for these organic materials:

1. *Use protective enclosures.* The protection provided by an appropriate enclosure, such as an exhibit case or storage cabinet, is of major importance in minimizing relative humidity (RH) fluctuation, as well as in reducing handling, soil accumulation, and infestation by microorganisms, insects, and rodents.

2. *Provide a stable and appropriate humidity level.* Relative humidity should be controlled to the extent possible and its fluctuation should be minimized. The specific RH set points for a collection will vary according to local climatic considerations, the facility's climatic control capability, the condition of the objects in the collection, the requirements of materials of composition, and the equilibrium moisture content to which the objects are accustomed. Commonly recommended goals for organic collections are:

   RH Range: 40% to 55%

   RH Fluctuation: less than 5% fluctuation about the set point per 24-hour period, with a seasonal change of less than 15%

3. *Avoid excessive heating of objects.* Excessive heating desiccates organic objects and may result in irreversible embrittlement. Changes in temperature also destabilize relative humidity levels. Exhibit lighting, direct sunlight, and proximity to heat registers and radiators are a few of the common sources of heat that can easily damage organic materials, many of which become more sensitive to heat as they age.

4. *Exclude atmospheric pollutants and other contaminants.* Industrial fumes, such as sulphurous compounds, will react with many organic materials and should be eliminated from the object's environment. Air conditioning and filtering methods are available for buildings containing collections, and, whenever possible, should be coupled with the use of protective enclosures. *Pollutant absorbers*, such as activated charcoal, are commercially available and can be easily installed within exhibit and storage cases. It is also important to avoid direct contamination of these objects with chemical reagents and preservatives such as cleaners, dressings, and waxes; they are generally not beneficial and may complicate or prevent subsequent preservation efforts.

5. *Provide adequate physical support for three-dimensional objects.* Most organic materials lose their structural integrity as they age and often require supplemental physical support. Collapsed, creased, or folded organic materials will develop local weaknesses and may sustain damage if not protected. Mounts and supports can be constructed for objects on exhibit and in storage. High quality, inert materials should be employed, such as rigid acrylic sheeting, acid-free mat board and tissue, washed and undyed cotton fabric, and polyester fiber-fill or polyethylene foam products. Barriers of polyethylene sheeting or acid-free tissue may be used to separate components and prevent deterioration caused by contact between dissimilar materials.

6. *Inspect objects regularly to detect and record accelerated deterioration.* Deterioration of objects made of organic materials may go undetected and unchecked if a systematic effort is not made to evaluate and document their state of degradation. A thorough condition evaluation should be recorded when objects are acquired and these records should become a permanent part of the objects' documentation. Periodic inspections should be made to identify progressive damage, such as lengthening of tears, increase in surface or pigment loss, and evidence of biological attack. The frequency of such inspections may be weekly, monthly, or annually, depending on the object, the environmental conditions, and staffing. It is recommended that a conservator be employed to conduct a Collection Condition Survey on objects and to establish treatment needs. See NPS *Museum Handbook*, Part I (Rev 9/90), Chapter 3, for guidance on Collection Condition Surveys.

7. *Clean objects only as necessary to remove airborne soil accumulation.* Organic objects are continually subject to soiling from their use in an exhibit or simply from their storage environment. All soils contribute to the deterioration of these materials: dirt is unsightly, abrasive, corrosive, and generally detrimental. Soils are surface deposits of finely divided solids and generally consist of small amounts of organic material, carbon soot, siliceous dust, and other airborne matter.

   The degree to which soiled organic materials can be cleaned depends upon the nature of the soil and the sensitivity of the object. Some surface soils are not removable by simple cleaning methods, and other soils are not removable at all. Each object under consideration for cleaning must be evaluated individually by trained staff.

Cleaning Exceptions

Highly deteriorated museum objects cannot be cleaned by routine procedures. Degraded surfaces should be documented and protected so that future cleaning can be avoided. When decorative elements on an object are extensive and very delicate, cleaning should be performed by a conservator.

Soil accumulations that have occurred naturally during the period of use and that reflect the object's historical usage must be evaluated separately from those resulting from more recent periods of storage or display. This distinction is sometimes difficult to make and requires professional judgment. Care must be taken not to disturb historical accumulation, because its informational value often outweighs the threat posed to the object by deterioration. One example would be cornmeal adhering to inside surfaces of a Navajo wedding basket.

Allowance must also be made for the original *patina* of an object. It is the result of years of handling and exposure to body oils, incense, or paints, and should be carefully preserved for aesthetic as well as informational reasons. One example would be body paint around the collar of a Sioux Ghost Dance shirt.

Cleaning Methods For Airborne Soil

Cleaning methods can be divided into two categories: chemical and mechanical. It is ***not*** recommended that the park staff become involved with the more risky chemical cleaning procedures involving reagents such as solvents, detergents, and stain removers. Assistance from a conservator should be requested when such treatment is needed.

Cleaning procedures should be employed by the park museum staff on two occasions: 1) when an object is acquired, before it is put on display or in storage, and 2) after inspection, as part of a routinely scheduled preventive conservation program.

The following cleaning techniques can be carried out by designated and trained staff and require careful recordkeeping.

1. ***Vacuuming.*** Airborne debris is easily dislodged through vacuuming. This is the safest cleaning technique, if done carefully. See NPS *Museum Handbook*, Part I (Rev 9/90), Appendix K, for vacuuming procedures.

   Tools: Fine plastic screening, vacuum cleaner with adjustable suction (or use with rheostat switch), and high-efficiency particulate air (HEPA) filters. These filters trap even the smallest particles to prevent the vacuum cleaner from exhausting back into room.

   Caution: The screening protects the object as dirt is suctioned off, but movement of the screen can cause abrasion. Flaking surfaces and loose parts can be detached by the screen or vacuum.

2. ***Dusting.*** Dusting with a soft brush can be very effective. Whenever possible, brush into a vacuum cleaner and work away from other collections to prevent redeposition of the soil.

   Tools: Camel hair brushes in various sizes.

   Caution: Dust acts as an abrasive. Each time an object is brushed, surface materials can be removed. Brushing also increases the danger of knocking off delicate or loose pieces.

3. ***Forced Air.*** Compressed air cleaning must be done outside of the collection area, or dust will simply be moved around. It is the most dangerous cleaning method and should be used only when vacuum cleaning is impractical.

   Tools: Compressor (10-15 PSI), air hose and compressed air nozzle.

   Caution: Loose or fragile pieces can be blown off if too great a pressure is used.

Toby Raphael
Conservator
Division of Conservation
Harpers Ferry Center
National Park Service
Harpers Ferry, West Virginia 25425

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