

## Preserving the Past for the Future: Artifact Conservation & Historical Archaeology at Historic St. Mary's City

With the assistance of the Institute for Museum and Library Services, Historic St. Mary's City has been involved in a multi-year journey to preserve the material fruits of nearly forty years of extensive archaeological investigations at the site of Maryland's first capital. The conservation of excavated material is the responsibility of all archaeologists. These pages discuss how HSMC has approached the challenge and where we are headed in the future. The stewardship of these irreplaceable remains can serve as a model for other institutions. Included is a discussion of the Lead Coffins project and how conservation planning was an essential element from the beginning.

### **The Conservation Survey: Knowing what you have**

The conservation survey conducted at Historic St. Mary's City (HSMC) was a multi-year effort funded by the Institute of Museum and Library Services. The purpose of the survey was to assess the condition of the artifacts that have been excavated from archaeological sites throughout HSMC and to provide museum staff with treatment recommendations. These recommendations were entered into a computerized database and address the appropriate methods of stabilization for deteriorated artifacts, the continued desiccation of metal artifacts, and the repackaging needs of collections using archival products. The valuable information generated by the conservation survey works to ensure that these objects are properly cared for and preserved for researchers, the general public, and future generations.



*Undertaking the Conservation Survey at HSMC.*



*Data was entered directly into a relational database.*

### **The Preventive Care of Archaeological Collections**

Preventive conservation involves controlling certain environmental variables that can potentially alter the structure and condition of archaeological collections. This section discusses effective methods of preventive care practiced by Historic St. Mary's City.

Common environmental variables that may be detrimental to the preservation of artifacts are fluctuations in temperature and relative humidity, destructive pests, ultraviolet radiation, and dust particles. Acidic oils found on the skin can degrade the integrity of artifacts as well. The utilization of a hygrothermograph enables the museum staff to closely monitor and, if necessary, alter the environment in order to protect the objects. This tool accurately records the air temperature and relative humidity (RH) of areas that house artifacts. The acceptable temperature and RH levels for spaces that store or exhibit artifacts are 68-70°F and 45-50% RH. Altering or controlling the environment is efficiently executed with an HVAC system. Another preventive practice involves IPM activities.

These techniques include storing certain organic materials in freezers, setting and monitoring insect and rodent traps, vacuuming regularly, and storing food in airtight containers outside of collections areas. These methods take the place of harmful chemical-based pesticides, which can also be hazardous to humans. Ultraviolet (UV) radiation tends to fade the pigments found in artifacts such as archaeological textiles and leather. The amount of radiation that may come into contact with vulnerable objects can be decreased by the installation of UV-absorbing filters on window panes inside collections spaces or by utilizing dark curtains or blinds to prevent overexposure. Storing collections in acid-free boxes or creating archival storage mounts with lids works to further protect objects from ultraviolet radiation. Dust can attract airborne pollutants and moisture, which can play a major role in the deterioration of artifacts. Vacuuming collections areas routinely, storing artifacts in enclosed cabinets, and implementing the use of dust covers will decrease the presence of this abrasive material. When mounting artifacts, it is important to wear cloth or nitrile gloves. These items protect objects from the acidic oils found on the skin as they can leave behind evidence of improper handling. Permanent fingerprints etched into the surface of a metal artifact are an example of the damage an object can sustain when gloves are not worn.

These preventive methods practiced at Historic St. Mary's City significantly reduce the risk of environmental damage to artifacts and aid in the preservation of archaeological collections.

### **Archaeological Conservation - In order to better understand our past....**

A conservator is a specially trained professional who cares for cultural property and heritage collections. Archaeological conservators specialize in the preservation of materials and artifacts that were once buried underground or underwater. Conservators prevent objects from deterioration through careful examination, documentation, analysis, preservation, and preventive care. Professional conservators care for cultural property in accordance with an ethical code such as the American Institute for Conservation (AIC) Code of Ethics and Guidelines for Practice and have formal and hands-on training in chemistry, art, history, anthropology and archaeology. The primary goal of the archaeological conservator is to preserve information found through the excavation of artifacts and to make sure that information is available for future study, research, and exhibition.

An archaeological conservator serves as a partner to archaeologists in order to preserve archaeological resources before, during and after excavation. Activities may include planning for the recovery of artifacts, rescuing delicate artifacts from the field, transport of artifacts from the field to laboratory,

analysis of materials, treatment of artifacts post-excavation, storage of collections and careful documentation to ensure the long-term stabilization of excavated objects. Conservators analyze and treat artifacts to preserve important archaeological information attached to that object such as tool marks, evidence of use and wear, mineralized organic remains and residues, as well decorative elements often revealed through cleaning. An archaeological conservator may work on a variety of materials such as ceramics, glass, metals, organics, architectural elements and composites of these materials.

Metal artifacts are one of the greatest challenges encountered by conservators working on material from historic sites. Iron, lead, and copper all offer their special challenges and all can yield fantastic information.



*Conservator Lisa Young treating an iron fishing trident from the Tolle-Tabbs site in St. Mary's City.*



*The "bug binder" is used to record all insects captured in "sticky traps" as part of an integrated pest management program.*



*Artifacts properly packed in archival quality materials.*

Archaeological conservators assist archaeologists in reconstructing the past, by preserving important historical information that is attached to each artifact. Often this information can be found in bits of corrosion, breaks, or crystalline residues. These areas of degradation serve as clues which indicate how the object was made, how it was used, when and why it was thrown away and what type of environment it was buried in. By carefully stabilizing archaeological objects, a conservator is able to assist the archaeologist in recreating stories about the people who lived here before us.

*"All archaeological excavation carries the professional obligation to preserve the materials recovered through proper and appropriate conservation treatments" (SHA 1993).*

## Conservation Resources on the Web

[The American Institute for Conservation](#)

[Conservation OnLine](#)

[Society for Historical Archaeology](#)

[The Getty Conservation Institute](#)

[The United Kingdom Institute for Conservation](#)

[The Canadian Conservation Institute](#)

[Washington Conservation Guild](#)

## Archaeological Conservation Texts

Cronyn, J.

1990 *The Elements of Archaeological Conservation*. London: Routledge.

Museum and Galleries Commission

1992 *Standards in the Museum Care of Archaeological Collections*. MGC, London.

Robinson, W.

1998 *First Aid for Underwater Finds*. London: Archetype Books.

Sease, C.

1994 *A Conservation Manual for the Field Archaeologist*. Los Angeles: UCLA Institute of Archaeology.

Singley, K.

1988 *The Conservation of Archaeological Artifacts from Freshwater Environments*. Michigan: Lake Michigan Maritime Museum.

Washington Conservation Guild

2004 *Conservation Resources for Art and Antiques, 2nd Edition*. WCG, Washington, DC: Library of Congress

Watkinson, D. & Neal, V.

1998 *First Aid for Finds*. London: Rescue/UKIC Archaeology Section

## Glossary

**Archival:** acid-free and lignin-free paper products designed for preservation purposes; these materials possess a neutral 7.0 or slightly alkaline pH.

**Hygrothermograph:** a tool that accurately records the air temperature and RH (relative humidity) of areas that house artifacts.

**HVAC:** the acronym for a heating, ventilating, and air conditioning system within a building, which maintains the environmental condition suitable for the storage or exhibition of artifacts. It is important to remember that appropriate conditions will vary among artifacts. For example, metals will require a drier environment than other artifacts due to their highly reactive nature. Consult a conservator if questions arise.

**IPM:** the acronym for integrated pest management; these techniques work to control and eliminate the appearance of insects and other potentially destructive pests.

**Mounts:** archival storage trays for artifacts; created with acid-free paper board and polyethylene products such as Volara® and Ethafoam®. These structures and the materials used to create them support the center of gravity of each object and aid in shock absorption.

**RH:** the acronym for relative humidity; a measurement of the moisture maintained in a created environment as compared to the actual amount of moisture that same air could hold if completely saturated.