

Historical Silver

By Clara Deck, Senior Conservator, The Henry Ford

Historical silver can be maintained for years of use and enjoyment provided that some basic care and attention is given to their preservation. The conservation staff at The Henry Ford has compiled the information in this fact sheet to help individuals care for their objects and collections. The first step in the care of collections is to understand and minimize or eliminate conditions that can cause damage. The second step is to follow basic guidelines for care, handling and cleaning.

IDENTIFYING SILVER OBJECTS

Most people know that silver is a white, lustrous metal. Pure or “fine” silver is called “Sterling” if it is not less than 925 parts silver to 75 parts alloy. Silver objects, especially coins and jewelry, contain copper as an alloying metal for added hardness. The copper may corrode to form dark brown or green deposits on the surface of the metal. Silver is usually easy to differentiate from lead or pewter which are generally dark gray and not very shiny. If your object forms a white powdery substance anywhere on the surface, it indicates lead corrosion. This proves that the object is either not silver, or that it is silver-plated.

Silver is often plated (deposited) onto other metallic alloys, almost always with an intermediate layer of copper in between. The earliest plating process, “Sheffield Plate” was developed in England in 1742. By the mid-19th century, the process was largely replaced by electroplating (which used less silver). The base metal in plated artifacts may consist of any of the following metals or alloys: copper, brass, “German silver” or “nickel silver” (50% copper, 30% nickel, 20% zinc), “Brittania metal” (97% tin, 7% antimony, 2% copper), or a “base” silver containing a high percentage of copper. Hallmarks or other stamped marks on the underside can usually aid in determining the composition of silver or silver-plated artifacts.

CAUSES OF DAMAGE

TARNISH

Tarnish (silver sulfide) is a form of corrosion characterized as a dense, thin, black layer that disfigures the surface of an artifact. Silver will tarnish on exposure to air containing sulfide gases. Humidity in the air is also required for the corrosion to progress. Since the

Metro-Detroit area has heavy industry and elevated pollution levels, as well as hot, humid summers, both the criteria for tarnish are met in this area.

Tarnish does not itself pose a threat to artifacts. Most damage to silver occurs as a result of the required polishing to remove the tarnish. Over-polishing results in a loss of detail definition in raised areas of design over time. On plated objects, frequent polishing can actually remove the silver plating, leaving dull areas of exposed base metal that may be mistaken for stubborn areas of tarnish.

In rare cases where the silver object has been exposed to high airborne salt concentrations, "horn silver" may develop on the surface. This corrosion, silver chloride, is characterized as dirty purple or slate gray. It is dense, compact and usually quite difficult to polish off.

Old lacquers, applied in the past to protect the piece, may wear or peel off in some areas. This leaves the exposed silver to tarnish, while the rest may remain bright.

ABRASION, DENTING

Objects made of silver, a relatively soft metal, could be damaged by rough handling. Raised areas and handles are especially susceptible to denting and joint failure. Display pieces should be handled with care, lifting from the center of gravity, never by the handle or lip. If historic silver serving pieces are being used, their owners should accept a certain amount of wear and tear from handling and more frequent cleaning.

Repairs to valuable silver, which may involve soldering or raising and reshaping dents, should be done by a qualified metalsmith familiar with historical techniques or an art conservator. In some cases, jewelers may be willing to do small repairs on silver artifacts.

CLEANING SILVER

Old lacquers must be removed prior to cleaning. This is best done with acetone, preferably by immersion. Acetone is a volatile solvent that should never be used in poorly ventilated conditions. (Please consult the manufacturer or Material Safety Data Sheet for complete safety requirements.)

POLISHING

Polishing with a mild abrasive is the only safe cleaning method conservators can recommend for most historic silver artifacts. Commercially available "silver dips" may contain undesirable components such as hydrochloric or sulfuric acid that act too quickly and remove more metal than simple polishing does. Conservators do resort to special dips in certain, extreme cases, but

for most tarnished silver, this method is too aggressive. Silver which has been dipped usually requires further burnishing to restore luster to the surface. Some commercial paste polished (i.e. "Duraglit") are quite abrasive and may scratch your fine silver. "Hagerty's Foam" polish and "Twinkle" for silver are thought to be somewhat less abrasive than others. Light polishing may be done using jeweler's cloth containing rouge (i.e. "Birk Cloth", "Hagerty Glove"). A museum-proven, safe polishing method is as follows:

For most polishing, we use fine calcium carbonate, CHALK ("whiting"), worked into a slurry or runny paste with equal amounts of ethanol (denatured alcohol or ethyl alcohol) and distilled water. The paste is rubbed across the surface working a small area at a time with cotton balls or clean, cotton rags. Detailed areas may be polished with Q-tips or with cotton wadding on the end of a sharpened bamboo skewer. Depending on the design of your object, it may not be desirable to OVER-CLEAN every crevice, as this decreases the overall contrast of the detailing. It is important to remove all residual polish with distilled water. Drying may be accelerated by adding ethanol to the rinse water, or by giving the object a final wipe with ethanol.

COATING

Polishing exposes fresh, reactive metal to the atmosphere and, therefore, to further tarnishing. Objects that will not be used can be lacquered for protection. This process involves the use of solvents to clean the metal properly (acetone or tri-chloroethane). It also requires spraying on the lacquer. In general, spray lacquering is a task best left to qualified individuals with the background and equipment necessary to do a good job. Poorly applied lacquers can actually cause more severe corrosion if small areas are left exposed. However, if you wish to attempt to lacquer your artifact, guidelines can be found on U.S. General Services Administration web site in the Historic Preservation Technical Procedures Database at http://www.gsa.gov/Portal/gsa/ep/contentView.do?contentType=GSA_BASIC&contentId=16428&noc=T. It is not advisable to wax polished silver because the effect is too variable. It is difficult to achieve a continuous, even coat of wax. Most people who do not have access to professional services must accept the fact that they will have to polish their silver as often as is needed.

HANDLING

Polished silver should not be handled with bare hands. Salts and oils from your skin can etch into any polished metal and may even cause permanent damage. Soft, cotton gloves, or any clean glove or rag may be employed for this purpose.

STORAGE

A simple way to preserve fine silver, and to reduce the necessity for polishing, is to store silver properly. Maintaining an even, low humidity where metal objects are kept (ideally below 50%

Relative Humidity) will help. In most homes, this is difficult to ensure, but generally speaking, basements are often damp in the summer and, therefore, should not be used for silver storage. Humidity sensors are available through the suppliers listed for those who wish to check conditions near their collections.

Silver Tarnish Inhibiting Cloth (not the polishing kind) is available from better fabric stores for storing silver. It should be wrapped around the silver piece; it protects the object by absorbing tarnishing pollutants. The wrapped silver may then be placed in a clear bag, preferably made of "Mylar" (turkey baking bags are good) or "polyethylene" clear plastic. Never use "polyvinyl chloride" plastic bags to store artifacts. Silver kept wrapped and stored properly can be taken out and enjoyed as often as you like with the minimum amount of polishing and trouble

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Sandwith, Hermione and Shelia Stainton. *The National Trust Manual of Housekeeping*. Penguin Books USA , 1986. AISN #0140076387.

Loyen , Frances. *The Thames and Hudson Manual of Silversmithing*. London : Thames & Hudson, 1980. ASIN #0500680213

MacLeish, A. Bruce. *The Care of Antiquities and Historical Collections Second Edition*. Altamira Press, 1986. ISBN #0761991352.

Selwyn, Lyndsie and Charles G. Costain. "Evaluation of Silver Cleaning Products". *Journal of the International Institute for Conservation – Canadian Group*. Volume 16, 1992.

Smithsonian Center for Materials Research and Education. <http://www.si.edu/scmre/takingcare/guidelines.htm>

SUPPLIERS

(Silver Care Products and Materials)

SOLVENTS (Acetone, Ethyl Alcohol or Ethanol):

Hardware stores

Gilding supply companies:

Sepp Leaf Products
381 Park Ave.
New York , NY 10016
212/683-2840

CHALK (Calcium Carbonate or Gilders Whiting):

Builders' supply companies

HUMIDITY INDICATORS

University Products
517 Main Street
PO Box 101
Holyoke , MA
800-762-1165
<http://www.universityproducts.com>
(Suppliers of humidity indicators)

Talas

213 West 35th Street
New York , NY 10001-1996
<http://www.talasonline.com>

PLASTIC BAGS

Grocery stores

National Bag
2233 Old Mill Road
Hudson , OH 44236
800/247-6000



<http://www.nationalbag.com>

SILVER TARNISH INHIBITING CLOTHS

Good fabric stores (ex. Hancock Fabrics)

Jewelry or specialty gift stores (ex. Lord & Taylor's)

POLISHES/JEWELER'S POLISHING (ROUGE) CLOTHS

Good hardware stores

Jewelry or specialty gift stores:

C.R. Hill
2734 11 Mile Rd.
Berkley , MI
248/543-1555

"Hagerty's" – W.J. Hagerty & Sons Ltd.

"Twinkle" – Bristol -Myers Products Ltd.

SPRAY LACQUER

Custom Aerosol Packaging
PO Box 1411
Pique , OH 45356
800/237-6765



REFERRALS

For a listing of conservators in your area, please contact:

The American Institute for Conservation of Historic & Artistic Works
1717 K Street NW
Suite 200
Washington, DC 20006
202/452-9545
<http://aic.stanford.edu/>

Note: The in-house conservation staff at The Henry Ford has developed these Preservation Fact Sheets to assist in caring for your historical materials. These fact sheets provide basic information on the care, cleaning, and handling of a particular type of artifact, referral information to other conservation organizations, and a bibliography of authoritative works. Individuals may also arrange for a private consultation with a conservator. For more information, please contact the Benson Ford Research Center at research.center@thehenryford.com.

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