

About Silver



Silver objects are often important family heirlooms, passed down through generations. These objects frequently include tableware, ornaments, and jewelry. In the course of caring for silver objects, it sometimes becomes necessary to do more than simply provide preventive care measures. Silver objects that have been damaged, mishandled, or are tarnished often do not accurately reflect the appearance originally intended by the artist or silversmith. The cleaning procedures discussed in this handout are for decorative silver objects only. The waxing procedures should only be carried out on silver that will not be used for food service. Ethnographic or archeological materials should not be cleaned *or* waxed.

The procedures below should be carried out carefully as permanent damage could result from their misapplication. Consult a conservator in order to assess all the issues relating to the care of the specific object in question.

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Handling and Examination

It is important to determine the structural integrity of your silver object, due to the amount of handling required by these procedures. Before handling any metal object, it is a good idea to wear gloves to avoid transferring oils, acids, and salts from your hands to the object. Cotton or chlorine-free nitrile

gloves are both appropriate choices. Remove all jewelry that can scratch the object while you are handling it. Make sure that you have a clean, dry place to examine the object before you move it, and always use two hands.

Examine the structure of your object carefully, looking for cracks, weak ar-



eas, old repairs, and loose or missing parts. Once you have thoroughly examined the structural condition, consider the surface of the object.

When examining the surface of a silver object, it is necessary to determine if there is an original surface coating. In some cases, this is simple. Other coatings, however, may not be so easily seen. An important type of decorative and protective surface often applied to silver alloy objects is patina. A patina is a thin, chemically-induced layer of



relatively stable corrosion on the surface of an object. While patinas can form naturally over time, silversmiths commonly create them as a part of the finishing process. Patina on silver creates a lively surface by increasing the visual contrast associated with engraving and repoussé work, and is typically gray or black in color. Patina is usually found tenaciously bound in depressions and should be avoided if polishing is determined to be necessary.

Another type of coating sometimes found on silver is a gold layer over part of the object. This coating is variously called parcel gilt, vermeil, or gold wash. This type of surface is extremely thin and very easily damaged. Aggressive cleaning and polishing techniques can cause it to be lost entirely.

Cleaning and Polishing

If the artifact is determined to be structurally sound, it has no evidence of original surface coatings, and has only minor superficial soil and/or tarnish, proceed with caution. Materials and techniques used should be extremely gentle to avoid causing unnecessary damage. Avoid the use of commercial polishes, as many contain corrosive chemicals such as ammonia or harsh abrasives that can permanently damage delicate surfaces.

The materials and techniques listed below have been tested by conservators and found to be safe and effective when used in a careful manner.

Provide a clean, well-ventilated work area for the cleaning process, including adequate light, and sufficient ventilation to remove fumes. Place a clean towel on your table, followed by a clean, white sheet, to create a padded work surface. Wear a clean cotton smock or apron to protect your cloth-

ing. Wear clean disposable chlorine-free nitrile gloves to protect both your hands and your artifact. To the extent possible, disassemble the artifact. Take digital images and notes to be certain

Procedure

Remove any loose dirt or dust by dusting lightly with a soft brush. Haké brushes are good choices for dusting because their handles are made entirely of wood or bamboo. If a soft artist's brush is used, cover the metal ferrule with tape to avoid scratching the object. Do not use dusting cloths as they will not reach into small crevices, and can scratch objects if trapped grit is rubbed over surfaces. Stiffer brushes may be needed on badly corroded items. Be very careful not to scratch the surface of your object.

Old polish residues trapped in recessed areas are a common problem found when cleaning silver. Many commercial polishes contain waxy components that cause the abrasives to stick to the surface. These can usually be removed by applying dilute detergent solution (one teaspoon of clear, unscented dishwashing liquid in about a half gallon of distilled water) with a soft brush or cotton swabs. A small amount of waiting time may help facilitate removal. Gently agitate with a soft sable paintbrush to help loosen embedded material, and then rinse thoroughly with clean cotton swabs dampened in distilled water. Be very careful when doing this to avoid

that parts can be reassembled correctly. Use thin sheets of clear polyethylene plastic to mask out any nonmetallic elements, such as wooden or ivory handles, to protect them during cleaning.

scratching the surface with old polish and accumulated grime. Change swabs often to reduce risk and use a rolling rather than rubbing motion.

Do not allow liquids to penetrate hollow handles or other hollow parts that are difficult to rinse or dry. Do not immerse the object in a bath of water.

In some cases, light tarnish can be removed from silver artifacts by simply wiping the surface with cotton moistened with dilute detergent solution, and then rinsing with clean, distilled wa-



Materials to Have on Hand

- Clean towel and clean white sheet for padded work surface
- Cotton swabs, pads, cotton balls, pieces of clean cotton fabric (For cleaning, drying, applying polish, and wax. It is best to have a variety of materials for different surfaces)
- Clean nylons, silk stockings, or Selvyt polishing cloth (for buffing)
- Gloves: powder-free, chlorine-free, nitrile gloves. (Nitrile gloves provide adequate protection when using mineral spirits. It is important they be chlorine-free, as chlorine will tarnish silver)
- Mineral spirits
- Precipitated calcium carbonate
- Mild detergent solution composed of a squirt (a teaspoon) of clear, unscented dishwashing liquid in about a half gallon of distilled water
- Distilled water (one gallon; half for to be used in detergent solution, half for rinsing)
- Large bucket for dilute detergent solution
- Soft clean natural bristle brushes, such as haké, watch, or paint brushes
- Apron or smock to protect clothing
- Clear microcrystalline paste wax, such as Renaissance® wax, or a clear hard paste wax available in hardware stores such as Behlens® paste wax.
- Clean natural bristle stippling or stencil brushes, or shoe buffing brushes, for waxing and buffing
- Polyethylene plastic (if needed to mask non-metallic elements)

ter. In order to determine if your silver needs polishing, test-clean a small area with detergent solution and examine the results to see if this is necessary. If polishing is not needed, wipe the object gently with pieces of clean flannel or loose cotton dampened with deter-

gent solution, changing them frequently to prevent surface abrasion. Rinse the surface by wiping it with clean cotton dampened with distilled water, and allow the object to dry completely in a warm, dust free environment.

Polishing



“A cotton swab may be lightly used to remove excessive tarnish in recesses, although complete removal of tarnish is undesirable.”

If polishing is necessary, mix a small amount of precipitated calcium carbonate and dilute detergent solution together in a shallow dish. Do not substitute ground chalk, whiting, baking soda, or toothpaste. The mixture should be approximately the consistency of cream. Apply a small amount of polish to the object with a piece of clean cotton flannel or a wad of loose cotton, rubbing gently in a circular motion. Replace the cotton or flannel often as you work so that you are not grinding the removed tarnish and used calcium carbonate back into the surface. A cotton swab may be lightly used to remove excessive tarnish in recesses, although complete removal of tarnish is undesirable. It takes very little calcium carbonate to polish an object--a common mistake is to use too much. It is important to keep in mind that even the finest polish is an abrasive that works by removing a microscopic layer of silver from the surface of your object. The more often you polish, the faster you will remove surface detail and crispness of design.

Some silver objects can develop holes caused by years of repeated polishing!

Once polishing has been completed, remove residues by rinsing the surface with cotton dipped in clean distilled water. It is important at this point to change the pads on the table and to change your gloves so that you are working on a clean surface. As before, do not allow liquids to enter hollow handles or other places that are difficult to clear or to dry.

Dry the object thoroughly by wiping with a clean, dry piece of flannel. To remove any remaining traces of polish material, buff the surface with a clean piece of cotton velveteen or cotton Selvyt cloth. The velveteen surface will trap stray polish residues. If the artifact is to go into storage, wrap it in acid free tissue and place it in a clean polyethylene or Pacific Silvercloth® bag. If your silver is decorative and you want to display it, you are now ready to apply a protective coating to keep it from tarnishing too quickly.



Before and After picture courtesy of the Harry S.Truman Library, Independence, Missouri

WARNING: When working with solvents, be sure to follow all recommended safety precautions noted on the containers. Mineral spirits are flammable solvents and their fumes are harmful to your health when they are not used as instructed. Nitrile gloves (that do not contain chlorine) will provide adequate protection when working with mineral spirits and the solvents present in the wax mixture. **Always work in a well-ventilated space and be aware of the location of the nearest fire extinguisher when working with flammable solvents and waxes.**

Waxing

Silver objects that **will not be used for food or drink** in the future can be protected from moisture and airborne pollutants with a coat of paste wax. Apply a small amount of microcrystalline paste wax, such as Renaissance Wax® or Behlens® paste wax, to a soft clean dry cloth or very soft brush and rub it over the entire surface of the artifact, being careful to get complete coverage. Do not apply too much wax; only a small amount is needed. Wait a moment and buff the wax with clean pieces of old silk, nylon stockings, or soft natural bristle brushes. These materials will not leave lint trapped in the wax. Wax has a flat plate-like structure and buffing helps align and compress the plates for a more complete and protective coating. If you accidentally leave unbuffed wax on the surface too long, apply a small amount of fresh wax

to soften the dried wax and buff immediately.

To maintain the wax coating, periodically dust the artifact with a soft natural bristle brush and check for evidence of tarnishing. The wax should provide good protection for approximately one year, depending on the environmental conditions and the amount of handling the object receives. When tarnish is noted, remove the old wax by wiping the surface with cotton pads wetted



with mineral spirits. Clean the object and reapply the wax as described above. For objects on permanent display, consider having a conservator professionally clean the artifact and apply a

stable organic resin coating. This durable and protective coating can provide up to twenty years of protection and minimizes the repeated wear and tear associated with periodic polishing.

Support and Long-term Care



If the artifact is to go into storage, wrap it in acid-free tissue and place it in a clean polyethylene or Pacific Silvercloth® bag. If you would like to display your waxed silver out in the open, it is best to do so in a clean, stable environment, where the temperature is kept below 72°F and the relative humidity is kept between 30 and 50%. If there are organic materials such as wood present with the metal, it is recommended that the relative humidity be kept above 45% to keep the organic components from drying out. It is al-

ways best to keep metal objects indoors, in a space other than an attic, garage, or damp basement. If possible, house the objects in a closed container to prevent dust accumulation, which can attract moisture to the object's surface, resulting in corrosion. Closed storage also minimizes the object's exposure to atmospheric pollutants and changes in relative humidity. Polyethylene or polypropylene storage tubs are readily available at most hardware stores and can be identified by the "PE" or "PP" imprint found on their underside. Another storage option is boxes composed of acid-free, lignin-free board. Avoid using containers or shelving composed of wood, which can off-gas harmful acidic vapors. Materials such as wool, felt, and rubber, should not be stored with the object as they can emit sulfur gases, which tarnishes silver. It is best to limit the object's exposure to light, particularly if it has a coating on its surface, which will degrade more rapidly upon continuous exposure to ultraviolet radiation.

Consulting a Conservator

If your silver object is unstable, damaged, or exhibits original paint, coatings, or applied patina on the surface, it is best to have it looked at by a conservator before trying to clean and wax it yourself. A conservator will be able to assess issues relating to its care, and determine an appropriate treatment that does not diminish its value. Conservators can provide basic structural repairs, corrosion reduction, protective coatings, and proper storage materials for objects.

Additional Resources

Canadian Conservation Institute. *Care of Metals*. Retrieved from <http://canada.pch.gc.ca/eng/1453994182990>

American Institute for Conservation of Historic & Artistic Works. *Caring for Your Treasures: Metal Objects*. Retrieved from www.conservation-us.org/docs/default-source/resource-center/paintings.pdf

Conservation Suppliers

Most materials listed for cleaning, waxing, and proper storage can be found at hardware stores, art supply stores, or online. The Selvyt cloths and the Pacific Silvercloth® material mentioned in this handout can be found at numerous online retailers. The following are recommended resources that carry more specialized supplies needed for the care and long term preservation of objects.

Conservation Resources International

5532 Port Royal Road
Springfield, VA 22151
Toll free: (800) 634-6932
www.conservationresources.com
Archival housing/storage supplies, photographic supplies, general

Gaylord Archival

P. O. Box 4901
Syracuse, NY 13221-4901
Toll Free: (800) 448-6160
www.gaylord.com
General conservation supplies, housing supplies

Hollinger Metal Edge, Inc.

6340 Bandini Blvd
Commerce, CA 90040
Toll Free: (800)-862-2228
www.hollingermetaledge.com
Archival housing/storage supplies

Light Impressions

100 Carlson Road
Rochester, NY 14610
Toll Free: (800) 975-6429
www.lightimpressionsdirect.com
Photographic supplies, housing, matting and framing supplies

University Products

517 Main Street
P. O. Box 101
Holyoke, MA 01041
Toll Free: (800) 628-1912
www.universityproducts.com
General conservation supplies, housing and matting supplies

Talas

330 Morgan Ave
Brooklyn, NY 11211
Telephone: (212) 219-0770
www.talasonline.com
Conservation supplies, photographic supplies, general

Gerald R. Ford Conservation Center

1326 S 32 Street
Omaha, NE 68105
402-595-1180
nshs.grfcc@nebraska.gov



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