WINTERTHUR MUSEUM
CONSERVATION DEPARTMENT
OBJECTS CONSERVATION LABORATORY

Minor Conservation Treatment Report

Object: Teapot **Accession No.:** 2005.0003.

Conservator: Lauren Fair **Examination Date:** 10/11/2008.

Object Description:
The object is a silver-plated copper teapot with a wooden finial on the hinged lid and a wooden handle. It was donated to Winterthur Museum in 2005 by Dr. W. Lehman Guyton. The only known provenance is that the donor has stated this teapot has been in his family since the early nineteenth century. It is thought the teapot was made in England around 1830, and that the silver plating was created via the fused plate process.

The teapot construction can be broken down into seven parts:

1. A stepped, circular base, which appears to be stamped, with a gadrooned outer rim, which is most likely die rolled and attached to the base by soldering
2. A trumpeted stand made of a sheet of fused plate that connects the base to the main body via silver solder
3. The belly of the teapot, made of sheet metal, that makes up the main body, swelling out to its widest point (11 2/5 inches)
4. The top of the teapot, which is stepped and probably also stamped, and has a die rolled gadrooned outer rim attached by soldering
5. A hinged lid that is connected to the top of the pot via what appears to be lead soldering to a hinged bezel
6. A tapered gooseneck spout that is connected to the belly opposite the handle and that consists of two sheets of fused plate, soldered together with silver solder
7. The wooden components: a reeded, umbrella-like finial attached to the hinged lid via a copper screw and wing nut, and a carved ear-shaped handle opposite the spout that is attached via silver colored pins going through the handle and additional pieces of silver-plated copper that are soldered to the main belly of the teapot

Main flat pieces of fused plate that comprise the body and lid of the teapot appear to be hammered out with tools or stamped, while the decorative gadrooned bands appear to be made by die rolling or stamping in an iron suage to impart the pattern.

Object Condition:
Overall, the teapot is in poor condition. There are condition issues concerning the structure of the teapot as well as the surfaces.

The body of the pot is structurally sound, but the lid is split from the bezel and hinging pieces due to multiple areas of failed lead solder. In addition, there are two holes or areas of loss to the silver on the inside rim of the pot's mouth, on either side of the hinge. One of these holes is filled with a white powdery material that is most likely polish residue. These visual observances may indicate that the lid has been repaired previously and/or that parts of its current attachment are replacement pieces. Further examination into the style and materials of the lid may suggest that the lid is not original to the teapot. This can be confirmed with elemental analysis of the alloy compositions using energy-dispersive X-ray fluorescence spectroscopy.

The inner lip of the pot's mouth is bent in multiple places, possibly damage caused by use of the teapot or repair to the lid. The gadrooned rim on the upper portion of the teapot has some losses and dents in the surface; however, these are more likely manufacture flaws rather than damage. In the largest loss on this decorative rim, there is a significant amount of polish residue.

The main condition issue of the silver surface is the heavy layer of tarnish present over the entire surface area of the teapot. The color of the tarnish appears to be a mostly uniform warm brown color except for some blue iridescence present on some of the more widely curved surfaces of the belly and spout. Also, the underside of the teapot belly does not exhibit as much tarnishing, as this area was most likely protected from greater airflow from the surrounding environment. In addition, on the flat surface of the top of the lid, in an area surrounding the wooden finial, the silver surface appears to be worn away: the area is brighter with less heavy tarnish present, and some of the copper substrate appears to be showing through. It is not clear, but this difference in appearance may have been caused by a previously applied cleaning solution that has affected the silver substrate. Another hypothesis is that an acid cleaning treatment was applied to the teapot, the solution soaked into the wooden finial, and acidity from the finial is seeps onto the surface of the lid each time the pot is wetted. Acid can dissolve silver; this also explains the lessened tarnish in this area, as there is less silver present.

Other surface condition issues are the following: there are several small scratches, dents and fingerprints on the surface, probably caused by use of the teapot. On the trumpeted stand, there is a small, 1 mm area of abrasion to the silver layer, exposing what appears to be corroded copper below. Next to this small abrasion on the stand there is a small network of tiny dots: this could be copper corrosion coming through the silver plating layer. In addition, there are many fine scratches that are likely due to previous polishing campaigns. In the area just around the base of the wooden finial on the lid, as well as on the wing nut and screw attaching the finial to the lid, there is a small amount of powdery green corrosion product. Finally, on the outer flat area of the teapot lid, there are what appear to be two drips of lead solder: one is smooth and the other has a bumpy texture. As mentioned earlier, there are remnants of white polish residue in the interstices of design elements and soldering joins of the teapot.

Finally, the wooden components also exhibit remnants of polish residue, and the handle appears to have remnants of a coating where the handle meets the silver teapot. It is possible that this handle was painted and had been stripped. One note to also mention about the wooden components: given the darker and more "worn" look of the handle as compared to the finial on the lid, it is possible that one or both of these pieces are not original to the teapot.

The number "3118: is lightly scratched into the surface on the underside of the bottom of the teapot. The accession number "05.3" is applied in red acrylic paint with a clear barrier coating also on the underside of the bottom of the teapot.

Purpose of Treatment:
In order to return this teapot to be viewed in the study collection: clean and remove polish residues, remove layer of tarnish on the silver surface, and stabilize loose parts of the hinged lid. Apply a protective lacquer coating to the silver elements so that the piece will not tarnish further.

Treatment Outline:

1. Remove accession number with acetone.
2. Wrap wooden handle with Parafilm M for protection during treatment. Remove wooden finial on lid for duration of treatment.
3. Clean object with a dilute aqueous solution of a non-ionic surfactant, such as Triton XL-80N, to remove all polish residue; rinse thoroughly with de-ionized water; and allow for complete drying.
4. Polish the silver surfaces with a slurry of calcium carbonate in a 1:1 solution of de-ionized water/ethanol; clean thoroughly with a dilute aqueous solution of a non-ionic surfactant (Triton XL-80N) to remove all polish residue; rinse thoroughly with de-ionized water; and allow for complete drying with compressed air. Wooden elements will be removed or protected with Parafilm M.
5. Degrease the silver surface with acetone and buff with Selvyt cloth.
6. Apply a temporary epoxy to the portion of the lid that has split from its hinged support ring. This lid and attachment hardware is not thought to be original to the object; therefore a temporary mend is recommended. Future treatment will need to consider replacing this lid with a more appropriate reproduction.
7. Apply at least two coats of 1:1 Agateen lacquer #27/Agateen lacquer thinner #1 with a brush to silver surface.
8. Reapply accession number in acrylic paint (blue-violet) to indicate the presence of a coating.
9. Reattach wooden finial to the lid, adding a slip of mylar in between the metal and the wood to protect the silver surface from further damage of contact with the finial.

Submitted by: _____(signature)

Approval: Supervising Conservator _____(as necessary) Curator _____

Materials and Techniques:

Cleaning: Solvents & Chemicals (include product and preparation information as necessary):

[X] Water
[X] Acetone
[ ] Ethanol
[X] Other
[ ] Petroleum Benzine
[ ] Toluene
[ ] Xylene
[ ] Thiourea Solution
[ ] 50/50 Water/Ethanol at pH 9.0 with NH_4OH

Dilute solution of Triton XL80N, a non-ionic surfactant, in de-ionized water to effectively clean surface and remove polish residue, followed by adequate rinsing and de-greasing with acetone.

Cleaning: Abrasives (include product and preparation information as necessary):

[X] $CaCO_3$ in Ethanol or Water
[ ] Aluminum Oxide
[ ] Glass Bristle Brush
[ ] Scalpel
[ ] Air Abrasive
Powder Type and Size:

Cleaning using calcium carbonate abrasive with a 50/50 mixture of ethanol/water proceeded in a straightforward manner, effectively removing tarnish on the surface and polishing the silver.

Adhesives/Consolidants (include product and preparation information as necessary):

[ ] Acrylic Resin
[ ] PVA Emulsion
[ ] PVA Resin
[ ] Hide Glue
[ ] Wheat Starch Paste
[ ] Methyl Cellulose
[X] Epoxy
[ ] Other

HXTAL NYL-1 epoxy resin used as an adhesive to repair bezel. This was applied in one area where the solder had failed, and clamps were employed to hold the bezel in place while the epoxy resin set.

Fills (include product and preparation information as necessary):

[ ] Plaster
[ ] Wax
[ ] DAP Vinyl Spackling Compound
[ ] Other

N/A

Inpainting (include product and preparation information as necessary):

[ ] Acrylic Paint
[ ] Charbonnel Restoration Paint
[ ] Magna Paint
[ ] Watercolor
[ ] Gouache
[ ] Inks
[ ] Colored Pencils
[ ] Other

N/A

Coatings (include product and preparation information as necessary):

[ ] Acrylic Resin
[X] Nitrocellulose Lacquer
[ ] Wax
[ ] Other

1:1 Agateen lacquer #27/Agateen lacquer thinner #1 – two thorough coats were applied with a brush.

Application Method: [X] Brush [ ] Air Brush [ ] Immersion

Documentation: [X] Object Catalog Record [ ] Survey [ ] Color Slides [X] Other (digital)

***Note:** The wooden finial on the teapot lid, which is most likely a replacement piece, was removed during treatment. The silver screw and washer in the finial were also removed and polished in the same manner as the teapot; however, these pieces were not coated with Agateen. After treatment, the screw and washer were returned to the finial, the finial was secured back into place, and a small piece of mylar was placed beneath the finial to provide further protection to the silver surface from any chemicals that may be latent within the wooden finial.

There is a small blackened area of tarnish just below the lower handle attachment on the teapot. This area was not removed during polishing and has been sufficiently coated during treatment; therefore it is not expected to tarnish further while this coating is in place.

Small amounts of Renaissance microcrystalline wax were rubbed onto to the moving parts of the hinged lid with a cotton swab to protect the coating from abrasion.

Treatment Completed: 1 March 2009