Portfolio of Conservation Projects

# Mark Erdmann

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Mark Erdmann is an art conservator in private practice in the Raleigh/Durham area of North Carolina, treating a wide range of three-dimensional objects. Examples of recent projects include an 18th century glass covered chalice, a 19th century Swedish dress sword and leather scabbard, an early 20th century Viennese brass table lamp, Mixtec ceremonial shell, and a gilded mirror frame with reverse painted glass.

Mr. Erdmann moved to Durham from Cleveland Ohio where he was employed at ICA (Intermuseum Conservation Association) for 12 years, ultimately as the head of Objects Conservation. At ICA he routinely encountered a broad range of historic and artistic objects of all material types as well as outdoor sculpture and monuments.

He earned the Post-Graduate and Professional Development diplomas in Conservation/Restoration of Fine Metalwork from West Dean College of Arts and Conservation, in West Sussex England, and interned at the National Maritime Museum in Greenwich England. He is a Professional Associate of AIC (American Institute for Conservation of Historic and Artistic Works).

# 18th century glass pokal

This pokal is on open display in an historic South Carolina stately home, and was a gift from British officers to the original owner during the Revolutionary War. It was broken during off-season storage, and all but one fragment were retained. It was reassembled with HXTAL epoxy, and one triangular loss was recreated with HXTAL in a wax mold. Etched details were recreated in the epoxy fill using diamond burs on a rotary tool.

Before Treatment:

After Treatment:

# Dress sword from Royal Stockholm Orchestra, c. 1830

The sword is owned by the great, great grandson of the original owner, who plans to display it in his home beneath a portrait of his ancestor. The leather scabbard was broken into two pieces, with small losses along the break edge. The leather was distorted at the break edges. The sword blade had several areas with severe corrosion, and the gilt bronze grip had patches of discolored adhesive.

Distortions in the leather were flattened by ultrasonic humidification followed by forming the leather around a custom shaped wood mandrel to preserve the interior shape. The leather was repaired by underlaying with heavy Japanese tissue and adhered with acrylic emulsion. Losses were filled with small pieces of blotter soaked in acrylic emulsion and fitted into the loss area. Additional strength was created in the join by overlaying with Japanese tissue. The repaired areas were toned with acrylic paints and matte medium to imitate the aged resin coating on the original leather. The corrosion on the blade was reduced with a gelled chelating agent, followed by polishing with fine micromesh. The sword was protected with two coats of microcrystalline wax. Discolored adhesive was softened with gelled paint stripper and removed with sharp wooden picks.

Before Treatment:

After Treatment:

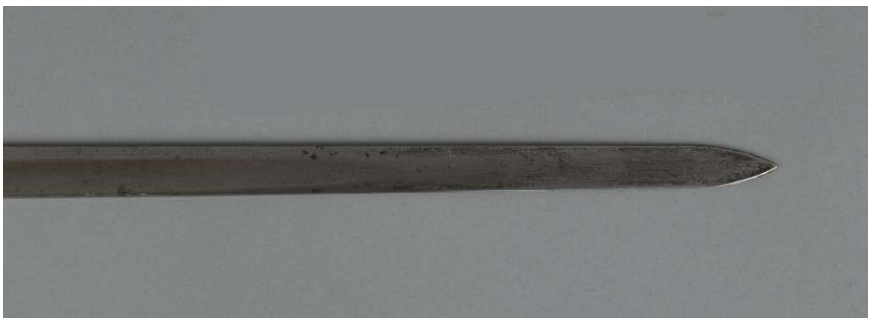
## Details:

Scabbard before treatment:

Scabbard after treatment:

Before Treatment:

After Treatment:



# Silver Hollowware collection

This project involved over 100 objects damaged in an attempted theft from a museum in which the silver objects were forcibly removed from glass display cases by smashing the glass, and then placing the objects in plastic garbage bags. Damage included dents, scratches and gouges caused by shards of glass impacting the silver, as well as sharp corners of objects impacting other objects. Mr. Erdmann evaluated the collection on site, and created a spreadsheet to categorize the level of damage, the estimated cost of treatment, and the type of damage. A prioritized list was created based on importance to the collection, extent of damage, and budget.

Treatment included dent removal with custom silversmithing stakes and mandrels, polishing to remove scratches, and laser welding to add silver in deeply gouged areas. The photo below represents a small sample of some of the objects treated.

Epergne – repairs included casting missing leaf tips, straightening bent components, brazing broken joins, and leveling all baskets.

# Mixtec culture shell trumpet:

This pre-Columbian ceremonial shell trumpet, dating between 900-1500 CE had numerous cracks and several large losses that made the object risky to handle, and distracted the eye from the carved geometric patterns. The cracks and losses were reinforced from the back with Japanese tissue and Paraloid B-72, then fills were made on the front using bulked and pigmented Aquazol 200. The fills were carved to complete the geometric designs, and inpainted to match the aged original surfaces.


Before Treatment


After Treatment

# Gilded mirror frame with reverse painted glass

This large gilded mirror frame had numerous losses in its surface including cracked and flaking gesso and two decorative elements. The central reverse painted glass panel was broken into three pieces and had paint loss from the image. The gesso and gilding losses were consolidated with heat activated adhesive, losses were filled, and inpainted with color-fast gold acrylic paint. The lost decorative elements were reproduced by making molds of identical intact elements. The broken glass was adhered with HXTAL epoxy and the flaking paint consolidated. Lost gold paint was inpainted directly onto the reverse of the glass using 23.5 K gold watercolor. Losses in the blue sky areas were compensated for by painting on a piece of mat board placed behind the glass. The framing around the panel was rebuilt and the panel held in place with custom made brass clips, toned to the color of the surrounding wood.


Before treatment


After treatment


Before treatment


After treatment


Before treatment


After treatment

After treatment with central glass panel in place

# Jewelry Box, Florence King Harding:

This jewelry box is a wood box with tortoise shell veneer over a red ground, beveled glass top, velvet interior and ormolu legs and trim. It was damaged during an attempted theft which left the legs severely distorted and broken loose, the corners of the wood box splintered and losses to the veneer.

Loose pieces of tortoise shell veneer were adhered with a 40% B-72 solution in acetone. Golden fluid acrylics were used to recreate the existing red ground layer. To imitate the veneer, pigmented wax fills were made with a heated spatula to achieve translucency and appropriate thickness. Gamblin conservation colors with additional resin were used to imitate the veining on the veneer and a similar gloss.

The bent legs were removed from the box, annealed and reshaped using custom made jigs, clamps and other silversmithing tools. After reshaping, the legs were coated with colored lacquer to restore the color of the original ormolu, and were re-installed with new brass escutcheon pins.

## Before Treatment:

Box – note damage to tortoise shell veneer at right and left sides

Legs after removal from box, before annealing and reshaping

After Treatment:

# Pewter oil lamp:

The hinge lugs were thinned and broken through repeated use. Since the object is displayed in a home and is accessible to family and visitors, it needed to be functional. The missing hinge lugs were built up by soldering additional material onto the existing lugs, followed by shaping with hand tools. The repaired areas were chemically patinated, and the hinge pin reinstalled.

Before Treatment:

After Treatment:

# Brass candlesticks, oil lamp and basin:

These brass decorative objects are on open display in an historic home that is still occupied by the descendants of the original owners. The tarnished and battered appearance was not compatible with the way the collection is interpreted, and the loose stem on the oil lamp created a risk of further damage. The loose stem was repaired by reactivation of existing low temperature solder. Dents in the large basin were removed by manipulation over polished steel and wood mandrels. The objects were polished with a slurry of calcium carbonate and ethanol, followed by spray application of Agateen lacquer.

Before Treatment:


After Treatment:

# Gemmail, after Georges Braque, *The Packing Case*

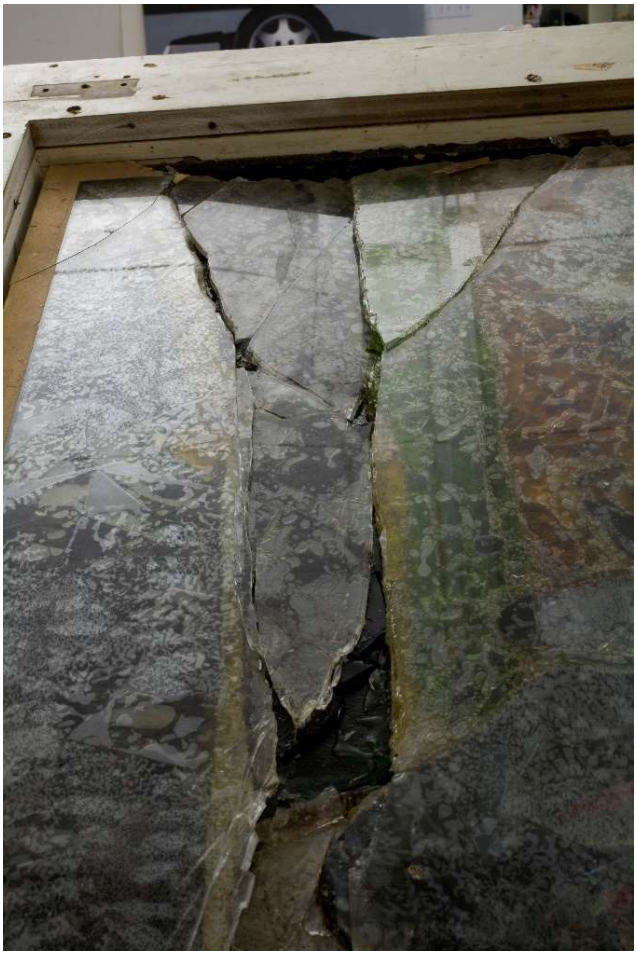
*Gemmail* is type of stained glass art developed during the 1930s by French painter Jean Crotti. It differs from traditional stained-glass techniques in that the individual pieces of colored glass are not joined by lead cames, but overlapped and glued together with a clear resin. These heavy glass mosaics were meant to be displayed with back-light, and many, including this example, had built-in electric light sources. This Gemmail depicts George Braque's painting, *The Packing Case,* and suffered a major impact, breaking the plate glass support, and dislodging many of the individual glass pieces. The owner wished to display it with a low profile, low-heat light source.

The gemmail was removed from the existing wooden frame, and disassembled into smaller fragments in order to lay it flat on a new glass substrate. It was dry fit together and then held in place with small circles of clear silicone adhesive. Loose glass pieces were relocated using images of the original painting to recreate the image. Missing pieces were created by breaking up new pieces of colored glass to match the original. Pieces were adhered with B-72 in acetone.

A new wood enclosure and frame was designed and built by ICA technician, Chris Pelrine, and fitted with an LED light system by CREE, and implemented by Mr. Erdmann.

Before Treatment:

Detail of planar distortions in glass support



LED light panel built into the new framed wood enclosure

Gemmail after treatment with new frame and light source

# *Tadpole,* Alexander Calder

*Tadpole* is a painted steel sculpture known as one of Calder's stabiles, and displayed outdoors by a private collector. The matte black paint had become very chalky, there were corrosion streaks extending down from the bolted connections, and areas of blistering paint due to underlying corrosion. The sculpture was disassembled, and the paint removed by blasting with glass bead media. A three-step paint system approved by the Calder Foundation was spray applied to the separate components prior to reassembly. The first coat was a zinc-rich epoxy primer, followed by an iron oxide epoxy primer, and finally a catalyzed polyurethane topcoat with a gloss level of 11-14 gloss units at 60°. A final topcoat was applied after assembly.

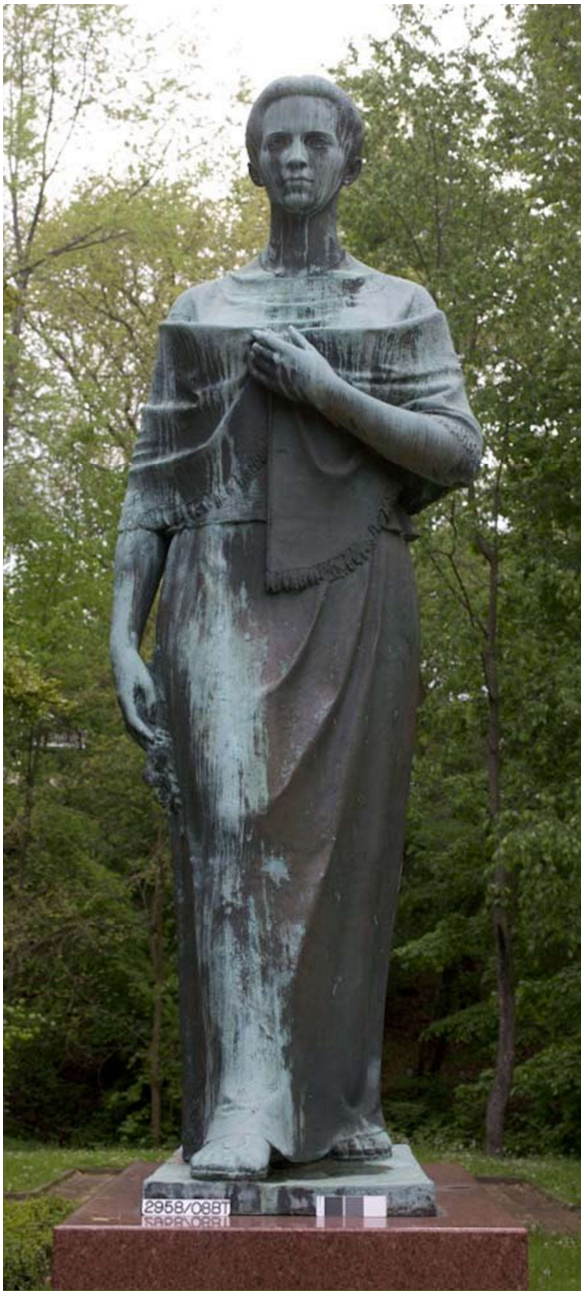
Before Treatment:

Calder, *Tadpole* After Treatment:

# *Lesya Ukrainka*, Cleveland Cultural Gardens

This larger-than-life bronze sculpture stands on a red granite plinth in the Ukrainian cultural garden in Cleveland's cultural gardens. Installed in 1956, but not properly maintained, it had lost its original patina, and become disfigured with sulfate crusts and copper corrosion products. It was cleaned to bare metal by glass bead blasting, followed by re-patination with ferric nitrate and sulphurated potash. A protective coat of wax was applied with heat to allow the coating to melt over the surface, filling porosities and crevices in the bronze. After two years, the sculpture was washed and coated with cold paste wax as a routine maintenance coating.

Before Treatment




After Treatment