SKYLIGHT STUDIOS, INC.
FINAL TREATMENT REPORT FOR UNCLE SAM MEMORIAL STATUE

Uncle Sam Memorial Statue Bronze and Stone	
Date:	1976
Sculptor:	Theodore Cotillo Barbarossa
Location:	Town Center, Arlington, MA

After treatment

EXISTING CONDITIONS BEFORE TREATMENT

Bronze:

- The color of the overall surface of the bronze is blackened with areas throughout of a green verdigris natural patina. There is no evidence of any protective coating on the surface of the bronze. There is also no record found to indicate that the surface of the bronze was ever maintained since its dedication. Unprotected outdoor bronzes exposed to the environment will

progressively corrode with time and continued exposure to acid rain, which is the primary pollutant. The corrosion will continue to accelerate. The metal is essentially eaten away and pitted, thus loss of surface detail is caused. This process is evident throughout the surface of this bronze. It is particularly eroded on many of the top or horizontal surfaces (see pictures 1 and 2).

- The dedication plaque that is mounted on the proper left side of the base stone is discolored with corrosion, and it is also loose and in danger of falling off**.**

Stone:

- The stone has intrinsic color variations throughout and particularly on the front surface of the base.
- The stone seems to be structurally in good condition although it is weathered and stained with dirt and organic matter. The joints are tight and intact although there are a few areas where the mortar could be repacked.
- There are some areas of minor chips and losses on the bottom section of stone.
- There is a green stain caused by the bronze corrosion which runs vertically down the proper right side of the front and the back of the base stone (see picture 3).
- There is a white ingrained stain at the base of the monument that may be a result of salt deposits from rock salt or from minerals in the earth below.

COMPLETED TREATMENT

The Town of Arlington provided a water source and a temporary fence and barricade to surround the work site. Pipe staging was erected surrounding the stone and bronze. This was used for access to the bronze and to tent in the monument during the abrasive blasting and patination treatments (see picture 4).

Bronze:

- The sculpture was isolated from the stone base by masking off the surrounding stone surfaces (see picture 5).
- Air blasting with walnut shells and fine silica sand was used as necessary to remove the existing corrosion from the surface of the bronze. It is necessary to remove all corrosion in order to successfully re-patinate a bronze (see picture 6).
- After blasting, the top surfaces of the bronze were highlighted by hand with fine Scotch-Brite.
- Residue was removed from the surface with compressed air.
- After blasting, the sculpture was re-examined for defects, holes, and cracks. There were none visible.
- The surface of the bronze was heated with a propane torch, and multiple applications of ammonium sulfide brown patina chemical diluted with water were applied by spray to chemically renew the rich brown patina. There is no documentation or archival information available at this time that indicates the formula of the original patina. It is reasonable to assume,

although, that it may have been a deep, warm brown-bronze with highlights on the top surfaces which was typical of this time and of sculptor Theodore Barbarossa (see picture 7).

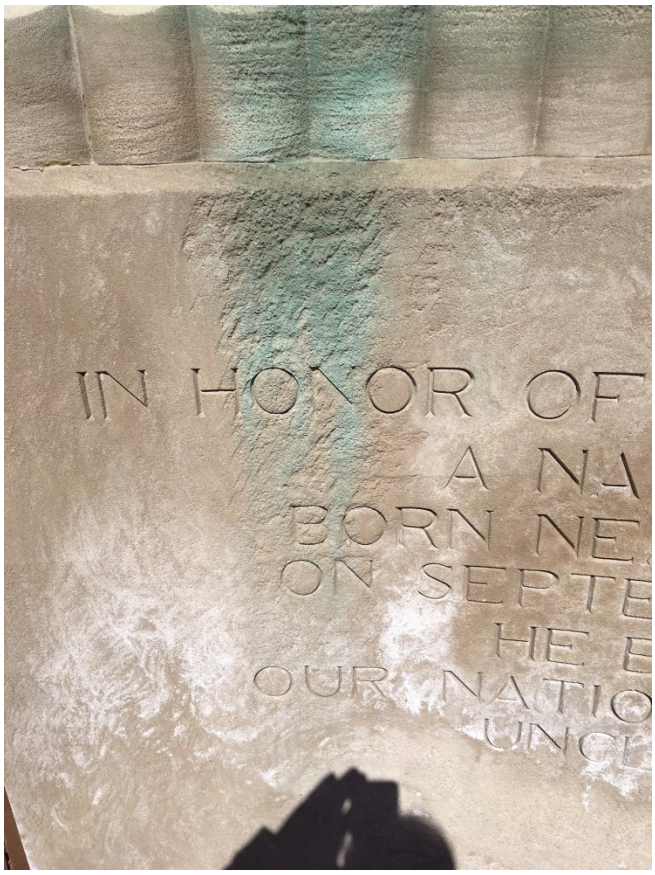
- After patination, the bronze was thoroughly rinsed with water.
- Fine Scotch-Brite was used to renew the bronze highlights.
- The surface of the bronze was coated twice with incralac diluted 30% with Xylene. Incralac is the coating recommended by the International Copper Association to offer the maximum protection on the surface of outdoor bronze statuary (see picture 8).
- After the incralac dried, two (2) coats of a microcrystalline paste wax were applied with a brush. The wax was lightly buffed after drying.
- The dedication plaque was removed and transported to Skylight Studios, Inc. It was restored using the same method that was used on site on the bronze sculpture. After restoration, it was reinstalled at the site with use of its original mounting pins and industrial strength anchoring epoxy.

Stone:

- The surface of the stone was cleaned with a mild pressure-wash and multiple applications of the environment-friendly soap D/2 Biological Solution stone cleaner.
- Additional green bronze stains on the stone were removed by using multiple applications of Sure Klean poultice (see picture 9).
- Any unstable caulk or mortar joints on the stone base were mechanically raked out, and the joints were repointed with tinted mortar or caulk as necessary (see picture 10).
- Some minor areas of loss and cracks were patched with a tinted Jahn mortar.
- The corroded area of stone above "IN HONOR OF…" was lightly flattened with a stone block to minimize the appearance of the erosion (see picture 11).

Picture 1 – Patina before treatment


Picture 2 – Bronze corrosion



Picture 3 – Green stain

Picture 4 – Pipe staging

Picture 5 – Masking stone surfaces

Picture 6 – Air blasting

Picture 7 – Patination

Picture 8 – Incralac coating

Picture 9 – Cleaning with poultice

Picture 10 – Repointing

Picture 11 – Completed erosion restoration

BEFORE AND AFTER IMAGES

Picture 12 – Before treatment

Picture 13 – After treatment

RECOMMENDED MAINTENANCE

Short-term Annual Maintenance:

- An annual cleaning and re-waxing of the bronze is recommended. This will ensure continued protection for the incralac coating and surface of the bronze to prevent corrosion. The bronze should be thoroughly washed with multiple applications of running water and soft sponges to remove all surface dirt which has accumulated on the surface. If surface dirt remains, Vulpex soap diluted 10:1 with water can be applied with a soft sponge manually and rinsed thoroughly with water. After cleaning it is necessary to completely dry the surface of the bronze. This can be achieved with compressed air or a portable leaf blower. A microcrystalline paste wax such as Butchers Wax, Trewax, or BWC paste wax is applied manually with a soft bristle brush to completely coat the surface of the bronze. After the first coat has dried, a second application should be applied. Once the wax has dried for a minimum time of two (2) hours, the wax is buffed mechanically with soft cotton cloths. Note: Re-waxing should be completed over two (2) days that have no precipitation and a relatively low humidity. The Spring or Fall are optimum times to complete this treatment.
- All mortar and lead joints should be inspected yearly and repointed if necessary.

- The stone should be cleaned of organic matter and dirt as needed by applying D/2 Biological Solution. This biodegradable liquid cleaner removes biological and air pollutant staining from many materials including stone and wood. It should be applied with a brush or pump sprayer to a dry surface. After application, allow it to dry. Steps can be repeated if necessary.
- The use of ice melt or rock salt around the monument should be avoided.

Long-term Maintenance:

- Over time, the incralac coating will break down and deteriorate due to the exposure of ultra violet light. This may occur within 8 to 10 years. This condition will be visible by the appearance of a whitish flaking on the coating on the surface of the bronze. At this time, the remaining wax coatings should be stripped mechanically with a solvent such as Naphtha. After the wax is stripped, the incralac coating should be thoroughly stripped mechanically with an organic paint stripper or solvent. At that time the stone should be masked off and protected from potential run-off. Alternatively, it may be possible to remove the existing incralac coating by use of a dry ice blaster. Once the incralac is removed, the re-patination will still be intact. After thoroughly drying the surface of the bronze, two (2) new applications of incralac diluted 30% with Xylene should be applied by spray. This should be followed by two (2) new coats of microcrystalline paste wax applied with a soft brush and buffed when dry.

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