Authentication Report

No.___-00128-___

Song Dynasty Bronze Offering Vessel from Yunnan Province

Priceless Past

Dealer/Collector Services
562 Lakeland Plaza #353
Cumming, GA 30041
USA
www.pricelesspast.com

Item:

This is a large, hammered bronze offering vessel from the Yunnan Province in China. It likely dates to the Song Dynasty (906-1279 AD). For a nearly identical example see "Offering Vessels of Yunnan" by Michael C. Teller, TK Asian Antiquities 2004, p. 53.

These mysterious vessels were apparently used for making votive offerings and have been found containing items such as shells, paper, and personal artifacts etc.

This particular example is relatively large compared to other known examples.

It has a rich green patina with what appears to be longitudinal streaks. These streaks could be the result of its burial or storage environment or they could be the remnants of painted decorations common on these type vessels.

This vessel has the customary twisted wire clasp and hinge. The clasp, hinge and all attachment points are intact and firm. The repousse star pattern on the lid and the lotus petal decoration (also repousse) on the base are also consistent with known examples.

There are minor losses to the bronze in both the upper and lower portions. This is quite common on these type vessels primarily because the bronze is very thin (between 1 and 2 mm).

Analysis:

Analysis of this piece consisted of visual and microscopic inspection as well as UV and Solvent testing.

The physical characteristics and morphology of the specimen are consistent with known examples.

The specimen is roughly 31 cm in height and weighs 1245 grams. The lid is approximately 20.7 cm in diameter. The lower portion is roughly 24 cm in diameter at its widest point. The opening is 19-20 cm across and the base measures roughly 14 cm across. All measurements are approximate because the piece is not perfectly round.

The patina appears to be comprised of mainly malachite ($Cu_2(CO_3)(OH)_2$, Copper Carbonate Hydroxide), with some azurite crystals ($Cu_3(CO_3)_2(OH)_2$, Copper Carbonate Hydroxide) present in certain areas. The chemical formulas for malachite and azurite are strikingly similar despite the fact that they are quite different in physical appearance. The malachite appears in varying shades of green, from a pale meringue to a deep forest green. The azurite appears as a rich blue. As a general rule, malachite represents a more advanced oxidation phase of azurite. Consequently, it is common to find small areas of green (malachite) amidst or in conjunction with the blue (azurite) in a naturally formed age patina. The crystal formations on this piece are consistent with a naturally-formed age patina.

On the base of this specimen, there is a large amount of organic matter. This organic matter appears to be plant roots or fibers in conjunction with wood particles. There is also what appears to be the remnants of either cloth or paper or both. All of these fibers are present in varying stages of mineralization which is consistent with the purported age of the piece.

There is what appears to be a modern repair or restoration to one of the lotus petals on the base. On the outside there is what looks like solder or adhesive of some sort and on the inside of the same area there is an obvious patch of sheet metal. (See photograph on page 6.)

Conclusion:

Based on the examination of this piece in its entirety with the evidence documented in this report, it is our opinion that it this piece is authentic and original as described.

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Photographs

Left: This is a view of the vessel from the top with the hinge on the left and the clasp on the right. Note the star or sun pattern.

Below: Side view of the vessel showing the clasp. A wooden peg or other similar device would have been inserted through the loops in the body and the twisted wire clasp to hold the vessel closed. Also visible along the rim is a line in the patina showing where the lid rested while the patina formed over the centuries before this piece was discovered.

Additional Photograph

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This photograph shows the upper portion of the vessel and the twisted wire hinge.

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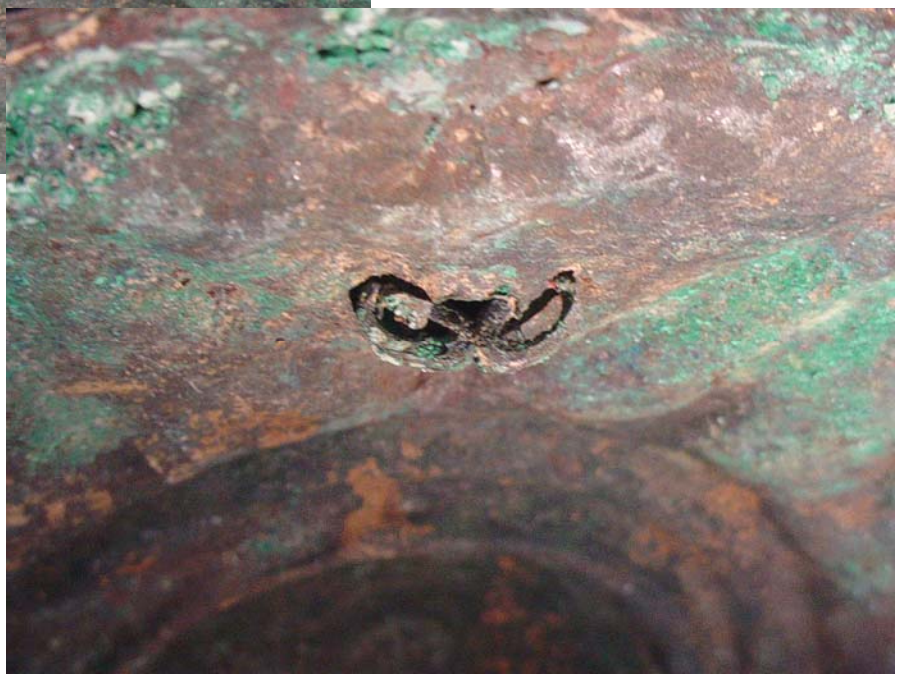
Additional Photographs

Left: Photograph showing the hinge and its connection on the inside of the lid.

Below: Close-up view of the internal attachment point for the hinge ring. The ring is a flat, rectangular-shaped piece of bronze bent into a circle. The ends of the bronze piece were then put through a hole in the lid and then bent outward much like a cotter pin to secure the hinge ring.



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Additional Photograph

Left: This is a photograph of the inside of the vessel showing an overlap of the bronze sheets. This appears to be a modern repair. There is an obvious discoloration in the corresponding area on the outside of the vessel that is adhesive or solder. You can also see heavy malachite encrustation on the internal wall.

Right: Photograph showing and area on the base where there is minor loss to the bronze in the form of a crack at the top of one petal.

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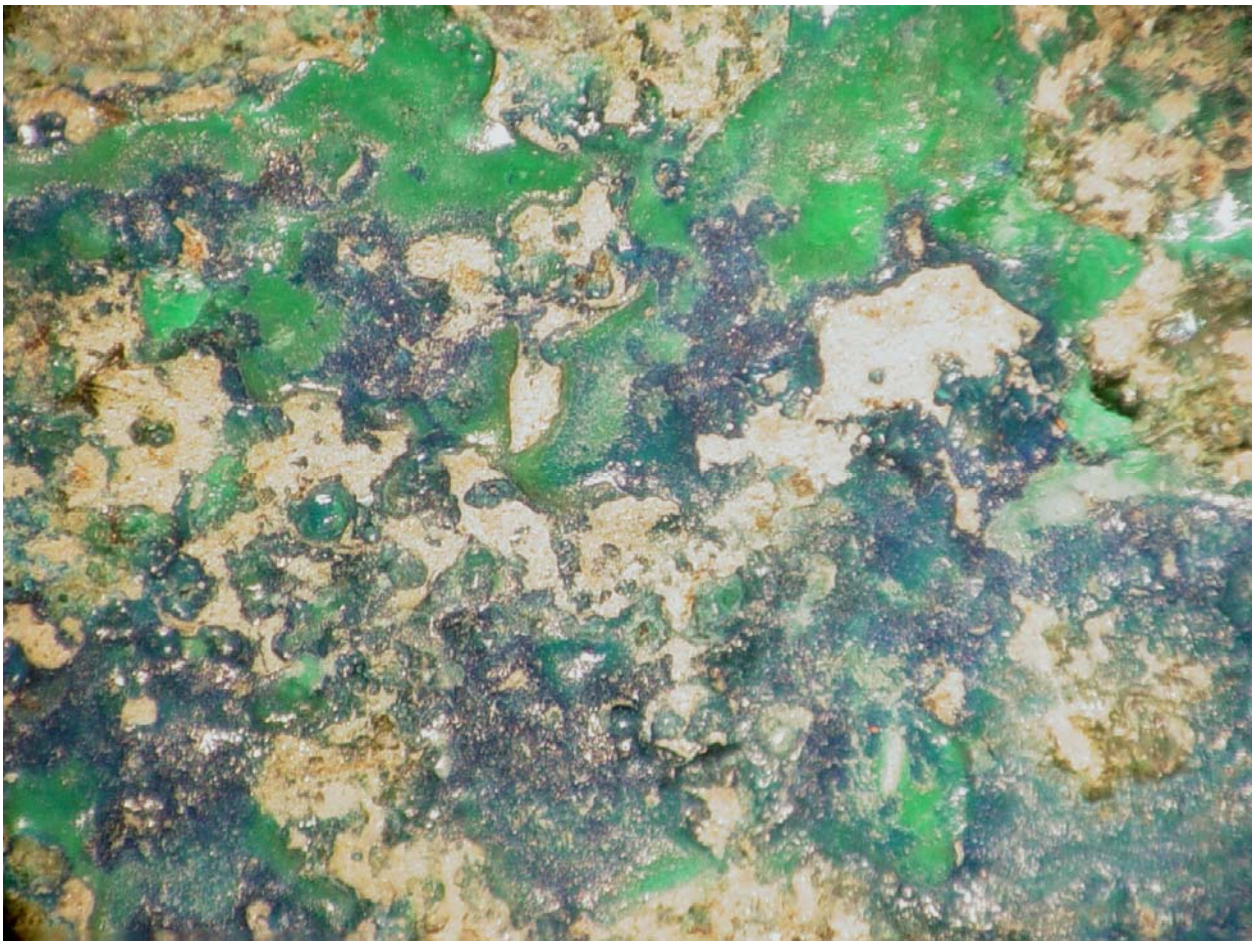
Micrograph



This is a micrograph taken from the external surface of the vessel. There is both malachite and azurite crystal growth. Small pieces of the patina were removed from randomly chosen areas. The crystals appeared to grow directly out of the metal as expected on a natural patina. Flame tests of the removed patina were positive for the presence of copper.

Additional Micrographs

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Right: Micrograph showing spheres of malachite crystals with banding in the cross section. There is also a small area of blue near the center. Magnification is 15X.

Left: Micrograph of the same area showing the bans in the malachite crystal and the azurite area. Magnification is 45X. These are magnificent examples of naturally formed malachite crystals.

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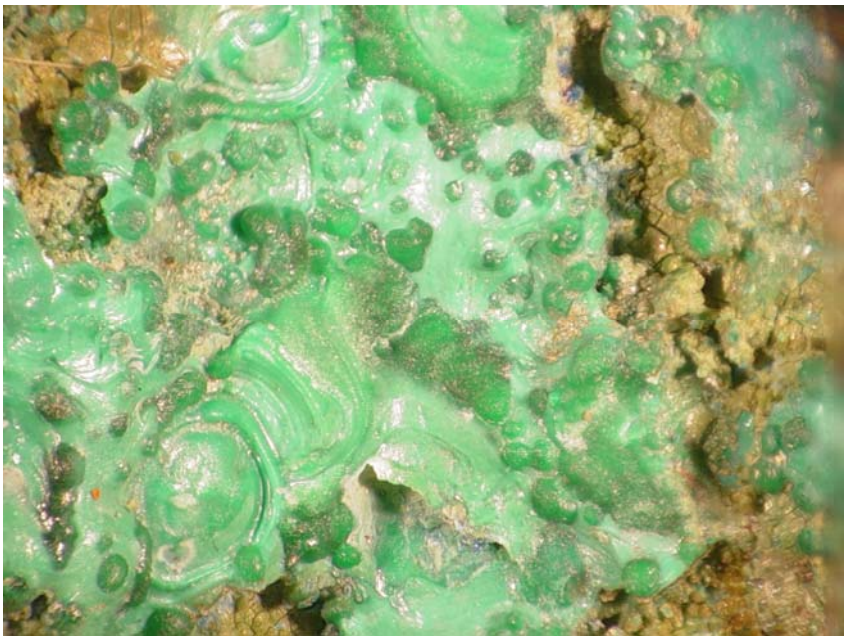
Additional Micrographs



Left: Micrograph showing another area of banded malachite crystal formation. This is from one of the external surface of one of the lotus petals. Magnification is 32X.

Right: Micrograph of malachite crystals growing on the internal surface of the specimen lid. The spheres are called botryoidal from the Greek word meaning “bunch of grapes”, which is what the spheres resemble.

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Additional Micrographs

Micrographs showing the bottom surface of the vessel with organic matter in various stages of mineralization. There are small pant fibers, larger wood and/or paper fibers and a string or cord. The cord is partially mineralized where it contacts the vessel surface. The upper micrograph is 12X and the lower is 25X.

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Map

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Authorized signature Richard A. Nable owner/operator of Priceless Past Authentications

Date

All the information contained in this document is true and accurate to the best of my knowledge.