



San Gemini Preservation Studies - Program B (lectures and workshop)

INTRODUCTION TO CONSERVATION OF ARCHAEOLOGICAL CERAMICS IN ITALY

Prof. Elena Raimondi, conservator-restorer

Student's name: Christina Januszewski

University: University of Texas at Arlington

FINAL CONSERVATION REPORT

Reference data and description

Inventory # 373822, Neck of an Amphora. 25 cm length X 9 cm width X 20.5 cm height. Provenance: Bevagno 79 Struttura 7. Owned by the state and kept in an indoor storage place. Material is common pottery, wheel thrown amphora with both handles present, the color is red, and the finish is without coating though it cannot be known if there was originally slip due to the bad condition of the surface.

Condition report

This amphora is only pieces of the rim, neck and both handles in 10 variably-sized sherds. The pieces are fairly large and it is easy to see how they would be put together, except for a single sherd which does not connect directly to any of the existing pieces, and probably belongs to the shoulder. The pieces are all heavily encrusted with soil including on most of the fractures. The fractures that do not contain encrustation must be new, so probably occurred during the excavation of the object. There are a few little cracks that are probably due to the age of the piece so do not seem to be manufacturing defects. As with most amphoras, there are no identifying marks to be found, though the fact that we only have the top made it unlikely that there would be identifying marks to begin with. The only evidence of prior restoration are found in the lower part of the neck which contained traces of adhesive from tape which would have been used to hold the pieces of the neck together until the complete process could take place.

Restoration

1. Documentation

1. Conservation Record: After assignment of our objects we filled out the conservation record with the information that has been documented in the previous section.
2. Photographic Record: Next, we removed all of the pieces from the bag and tried to piece them together. Next, we made a scale from grid paper, alternating between black and white squares every centimeter. After, we arranged the sherds in an arrangement of how they would have to be placed back and took pictures. These pictures had to display every side of each piece and have the proper coloration. We tried to have the pictures be as close to the object as possible to record the maximum amount of detail. The best pictures were uploaded and kept in a central file location.
3. Graphic Record: From these photos, black and white photocopies were made. We taped transparent sheets to these, and recorded them in different colors of marker. This is similar to what you would find if you used AutoCad to document the different layers as is done in bigger labs. For this piece, I outlined the edges of the sherds as well as the fractured edges. In different colors I recorded such aspects as chips, lack of encrustation (due to the overwhelming percentage covered), and on later discovery, cracks.

2. Cleaning (which method you used, its characteristics, how and why)

Both my partner and I started by using a number 15 blade on a scalpel to remove the soil encrustations. After awhile it was suggested that I try to use water to remove the encrustations. When this was done a dusty surface appeared on the surface of the piece, so even the portions which were not previously encrusted with soil became dusty due to the spread

of powder from the encrustation from the dissolved body. This method had me wrap a cotton swab around a wooden skewer until it was tight. This was dipped once into de-mineralized water and swept across the encrustations to try to safely remove them from the surface without adding further damage to the piece. However, it was determined that the encrustations were harder than the ceramic itself, so this action was not very effective to remove the debris since it caused the red clay to be removed as well. Despite the danger of scratching and punctures from the blade of the scalpel, it was determined to be the better of the two methods to clean the surface. We split the pieces into two separate groups and cleaned the outsides of the pieces well using these mechanical rather than chemical methods. The insides would only be cleaned if time allowed, and less thoroughly since it would not be as noticeable once fully restored in the narrow, closed form of the amphora. Additional pictures were taken when this step had been completed.

3. Bonding

After the pieces had been cleaned to the point that they were even between the two group members, and revealed more about the character of the object, rather than the encrustation, we used consolidators to strengthen the ceramic. This is an irreversible process, so we had to make sure it was done correctly and evenly. We used acrylic resin (Paraloid B72 2.5% w/v in acetone). We fully submerged the smaller pieces. The larger pieces were first brushed on the fractures, followed by two coatings for the surfaces. After this had dried, we painted the fractures that would be joined with Polyvinylbutyral resin (Mowital B60HH) 3% w/v in ethanol. Next, Mowital 5% w/v in ethanol was used in the same way until the surface of the fractures was shiny, so we knew that once gluing took place, the porous nature of the ceramic would not matter. To bond the pieces, we used Mowital 20% w/v in ethanol. This was done in a rather rapid process where the glue was painted onto the fracture, and then the adjoining fracture piece was held in place as pieces of tape were added to each side of the break. These were added both inside and outside, with about two pieces per edge. This was allowed to dry overnight. It was determined that the handles would be added at the very end because their precarious positions, heavy weight, and lack of bodily support would make further work difficult and dangerous for the object. The fractures were further consolidated with 10% w/v Mowital in ethanol so that they would be more strongly bonded in the eventual attachment.

The next day we carefully removed the tape and the object was well glued except for a single sherd which had not bonded. Due to the consolidation, the tape did not adhere to the object and cause further damage to the porous surface. We re-glued and re-taped the last piece. The next day we made sure this piece was secure, and we took more pictures.

4. Filling

We systematically found the correct color for our amphora by adding spoon tip amounts of color to 20 ± 1 g of Pollyfilla. Polyfilla is more highly refined Plaster of Paris which contains cellulose resins that add to the thickness. Polyfilla is easy to work with because it is relatively weak and gives a fairly good, smooth texture which doesn't shrink much.

For the final coloration I added thirteen 'portions' (approximate measurement of color of about pea-sized amounts on the tip of a spoon) of Burnt Sienna, five portions of Burnt Umber, two portions of Raw Umber, four portions of Raw Sienna Earth, and finally four portions of Yellow Ochre. This color seemed quite close to the color of the object and was confirmed by comparison to natural lighting. We made test chips by mixing a small portion of the colored Pollyfilla with water slowly added and mixed until desired consistency had been met. This paste was added to a cap, trying to push up against the edges in a smooth fashion to avoid bubbles. I should not have stirred the mixture as much as I had because it set up quicker than desired so many bubbles remained. After these had dried, they were popped out of their molds and systematically sanded from coarse to fine sand paper (Size 180, 280, 320, 500). This created a flat, smooth surface that would duplicate the final coloration that we would find should we use this color on our object.

We added 2.5% w/v Paraloid in acetone to a quarter of the chip to see what the final color once this had been protected would appear on the object. We could have used other low percentages of Paraloid and Mowital on the chip to test for color compatibility with the object, however the 2.5% Paraloid was a really good match so we did not do further investigations. My partner and I compared our chips to the color of the object. She had mixed her colors independently and used different colors and proportions to achieve a similar effect. It was determined that hers was a little dark and mine was a little light, so the perfect color would be a perfect combination for the desired effect. We combined our bags

which was fortuitous so that we had a larger volume of Pollyfilla to work with.

We had a very large portion (about 25%) of the neck which was missing. This would be the first place we would use the Polyfilla mixture. Initially we cut a flat piece of wax which would more than cover the area of the missing sherd. This wax was then heated until it was malleable, and held against the solid internal surface of the neck. This provided a good template for what we would need for the hole. After the wax had cooled, we repositioned it over the hole, securely taping it in place.

We first added the mixture to the internal portions of the fractures, to try to create the strongest bond possible with the original pieces. We worked our way towards the center of the hole, attempting to create strong, solid connections using vertical sweeps of the spatula. Instructed to use an excess of plaster on this hole, we used the vast majority of our Polyfilla here. It was difficult to get the curvature of the neck correct while adding amounts that would be smooth, and adhere well to the previously added portion of Polyfilla. Ideally we would have put a large portion of this plaster mix on in the beginning, but it was very difficult for us to initially determine just how much we would need for this part.

After the main piece had been done, we mixed the remaining portion of Pollyfilla with DI and continued to fill the remaining holes and cracks which were most severe in similar fashion to how we had previously done. This was difficult because the Polyfilla became dry quickly and many of the cracks were quite narrow. For the narrow cracks, it was important to use the smallest spatula possible and really push the plaster into the holes, while achieving the best contact possible with the edges.

When the Polyfilla had dried, my partner and I took turns with trimming the plaster to the desired shape and depth. This is a long process consisting of sanding the plaster using both coarse and fine paper to get the basic shape. Unfortunately, this was not done quite carefully enough, and my partner sanded some of the edges a bit too close, leaving evidence of the sanding on edges of the piece itself. Using a scalpel, I slowly created a slight ridge on the edges where the Polyfilla meets the original pieces. This was then leveled out using the scalpel, maintaining the original shape of the amphora. This process is done to respect and differentiate the original work from the portions that have been rebuilt.

5. Other notes

If our piece had been more complete we may have handled things a little differently. For example, had there been large holes, we may have used Plaster of Paris for a first layer, followed by a Polyfilla layer. We also would have needed some addition support system while bonding the pieces. This would add to the strength and durability. In addition, we would have been certain to fill in every crack, rather than just the biggest ones. We would have had a lot more issues with supporting the object since most amphorae lack a flat base, and would be excessively large and rounded for transport via tray.

The challenges that we have had with our handles stem from the fact that they are so heavy and we have no good way to support the weight. There is uncertainty about the best way to give proper support to these handles. We may try to use a high concentration of glue or some other mechanism. As of the writing of this report, the decision for what to do about this has not been decided.

In addition, we plan on using Paraloid 2.5% in acetone as a protective agent on the rebuilt areas. This will aid in making the coloration between the old and new parts more subtle. As of this writing, it has not been completed, but it will be done in the near future.

Photo (before)



Photo (during)



Photo (during)



Photo (during)



Photo (after)