

4-15-2014

# Conserving Pithoi, Past and Present: The Mugello Valley Archaeological Project

Sarah Elizabeth Montonchaikul

*Southern Methodist University*, [smontonchaikul@gmail.com](mailto:smontonchaikul@gmail.com)

Follow this and additional works at: [http://scholar.smu.edu/upjournal\\_research](http://scholar.smu.edu/upjournal_research)

---

## Recommended Citation

Montonchaikul, Sarah Elizabeth, "Conserving Pithoi, Past and Present: The Mugello Valley Archaeological Project" (2014). *Engaged Learning Collection*. 48.  
[http://scholar.smu.edu/upjournal\\_research/48](http://scholar.smu.edu/upjournal_research/48)

This document is brought to you for free and open access by the Engaged Learning at SMU Scholar. It has been accepted for inclusion in Engaged Learning Collection by an authorized administrator of SMU Scholar. For more information, please visit <http://digitalrepository.smu.edu>.



# **Conserving Pithoi, Past and Present: The Mugello Valley Archaeological Project**

Manual for Pithos Conservation

Sarah Montonchaikul  
Southern Methodist University  
2014



## Acknowledgements

I would like to acknowledge Southern Methodist University's Engaged Learning program for their generous support in this project.

I would also like to acknowledge my two mentors, Dr. P. Gregory Warden, director of the Mugello Valley Archaeological Project and president of Franklin College in Switzerland, and Allison Lewis, archaeological objects conservator and head conservator at Poggio Colla. Your support and encouragement were invaluable and I would have not been able to complete this project without your advice and expertise along the way.

# Table of Contents

- I. Introduction
- II. *Pithoi*
- III. Conservation of *pithoi* at Poggio Colla
- IV. Methodology: Conservation of *pithos* fragments
- V. Bibliography

## Introduction

"Everyday, the vision of artists, the identity of peoples, and the very existence of history all threaten to disappear. Left alone, old buildings will crumble. The Declaration of Independence will disintegrate. The photographed faces of battle-weary Civil War soldiers will fade away...

Preserving this cultural material is of paramount importance, but it still presents complex challenges to our society. Conservation professionals are those who embrace these challenges with passion, commitment and dedication. By melding art with science, conservation professionals protect our heritage, preserve our legacy, and ultimately, save our treasures for generations to come.

Future generations should not be deprived of knowing and understanding their history, because priceless artifacts were allowed to fall into disrepair."

American Institute for Conservation of Historic and Artistic Works

(AIC)

This conservation manual began as an investigation of conservation practices during my internship in the field conservation laboratory at Poggio Colla. During my first season at the site, the students in the field were excavating a high volume of *pithos* fragments and the study of those fragments evolved into in-depth research

of the existence of pithoi at Poggio Colla and their conservation. The 2012 excavation season provided the research materials for my project, allowing me to estimate the number of distinct vessels excavated and to oversee the conservation, rehousing, and storage of those fragments.

Art conservation is a profession best learned experientially. So much of what a conservator does is based on her senses of touch and sight, guided by the experiences of the more seasoned conservators in the laboratory. A novice conservator will not know what to look for in the objects unless he sees it in the laboratory with his own eyes, completes the treatment, and sees the success or failure of that treatment. My experience in the field has been invaluable to me as a future conservation student, as I could not have learned those theories without being able to use them practically in my decisions in the lab. As an inexperienced art conservator aiming to enter the profession, I seek to gain the wide range of lab experience that is required to advance my study. My internship in the laboratory at Poggio Colla was the first of what I hope to be many experiences in archaeological field conservation.



## *Pithoi*



*Photo of pithos fragments from Feature 11, PC 30, treated by Sarah Montonchaikul during the 2012 excavation season under the supervision of head conservator Allison Lewis*

In ancient Etruria, the scale of ceramic products ranged from the miniature to the massive; the size of the vessels depending upon their intended function and placement in the schematic of Etruscan life. Ritual seems to have demanded miniature bowls for offerings and libations in sacred spaces, and oversized coarseware vessels (called by the Greek term *pithos*) could have provided storage in domestic operations. Evidence of seeds in excavated Etruscan *pithoi* suggest a function similar to Greek *pithoi*, which served as bulk containers for the storage of

wine, rainwater, oil, honey, grain, and other food products<sup>1</sup>. Previous excavations at the Etruscan settlement at Poggio Colla have exposed more than forty catalogued finds that include *pithos* fragments from an undetermined (yet high) number of *pithoi* vessels.

Excavation during the summer of 2012 unearthed several large *pithoi* in trenches 22, 30, and 45 (labeled PC 22, PC 30, and PC 45). Adjacent to each other, trenches 22 and 30 were opened simultaneously and were excavated as one large trench. The *pithoi* found in those trenches occupied the same stratum (that is to say, were found to be in the same context and time period), and the close proximity of the vessels implies some kind of relationship between them. Whether that relationship was dependent on the space that they occupied, their contents, or the individuals using them is quite uncertain. The fragments were not found in any recognizable vessel form, further complicating any analysis of the ceramics.

*Pithos* research this season focused on four different Features: Feature 11 (PC 30), Feature 14 (PC 30), Feature 16 (PC 30), and Feature 17 (PC 22). Nearly five hundred fragments were brought to the laboratory for conservation, and were sorted by trench and feature to which they belonged. Feature 11 proved to have the

---

<sup>1</sup> Susanne Ebbinghaus, "Protector of the City, or the Art of Storage in Early Greece," *The Journal of Hellenic Studies* 125, (2005): 52, accessed 12 August 2012, <http://jstor.org/stable/30033345>.

most fragments of the five features, totaling two hundred fragments ranging in size from five centimeters across to twenty five centimeters across.

According to the data collected from the rim sherds, at least seven different *pithoi* were excavated in the 2012 field season. The size of the *pithoi* ranged from exterior diameters of 36.5 centimeters to 63 centimeters, and interior diameters of 23 centimeters to 50 centimeters. The range of measurements is not very wide; each of the *pithoi* would have been quite large storage containers, relatively similar in size. This assortment of oversized ceramic vessels, grouped together, was not random. The features with higher concentrations of sherds and different vessels should be examined in conjunction with diagrams of the trenches and diagrams of the fragments *in situ*, such research could possibly suggest the purpose of the *pithoi* or potentially the structure in which they were housed. Questions surrounding the exact function of these ceramics could possibly be answered with a study of these sherds that would result in the reconstruction of the *pithoi*; a concentrated effort in the reassembly of *pithoi* would allow for the analysis of the vessels as they stood in ancient times, and could point to a more definitive conclusion about the manner in which the vessels were used by Etruscans at Poggio Colla.

## Conservation of *Pithoi* at Poggio Colla



*Pithos rim fragments (Feature 17, PC22) treated by Sarah Montonchaikul (including a rim fragment joined with Hardrock Indurente Epoxy and inpainted), 2012 season, under the supervision of head conservator Allison Lewis*

Conservation of *pithoi* at Poggio Colla follows a standard procedure, described in the next section of this manual. Because of the high volume of fragments, the excavated *pithoi* are washed in the conservation laboratory with tap water, and carefully cleaned with wooden skewers and gentle fingertip pressure. Deionized water would be preferable to tap water because of the potential for tap water to introduce ions that could form soluble salts. Cycles of soluble salt efflorescence and deliquescence can cause severe deterioration of porous materials like ceramic. However, the field laboratory supply of deionized water is limited by cost. Poggio Colla has used tap water to clean the pithos fragments for several

seasons of excavation without observing an adverse effects on the artifacts. Cleaned fragments are placed in plastic *cassetti* and stored in the Museo Archeologico Comprensoriale Dicomano.

Full *pithos* reconstruction does not commonly occur at Poggio Colla because of the size of the vessels. Storage of the vessels is easiest and safest when the *pithoi* fragments can be placed in *cassetti*, in order to have adequate space for all of the excavated fragments from the first field season until now. However, to observe the process of joining heavy ceramic and confirm rim diameter measurements, two fragments from Feature 17 (Image 5) were joined to reconstruct part of a large *pithos* rim.

The process of joining large ceramics like *pithoi* requires a strong structural adhesive. To join the two *pithos* rim fragments, Poggio Colla conservators used a two-part epoxy, Hardrock Indurente Epoxy (purchased at the Italian conservation supply store *Phase*). Because epoxies are difficult to reverse, a mixture of 10% Paraloid B-72 adhesive (an acrylic adhesive used for joining smaller ceramic artifacts such as Etruscan *bucchero* and small metal pieces) in acetone was then applied to the join edges in order to prepare the location of the join. The sealing off of the edges with the B-72 provides a non-absorptive surface for the application of the epoxy, as well as makes the adhesion non-permanent. The adhesion can be undone with the application of acetone, which will solubilize the B-72 in direct contact with the ceramic surfaces and allow the fragments to be taken apart.

After the application of several coats of the B-72 mixture, the epoxy was applied to the fragments and was allowed to cure for a full twenty-four hours. Because weathering of the *pithoi* fragments had resulted in worn surfaces with poor contact between the break edges, fumed silica was added to the epoxy while it was still in a liquid state. The addition of fumed silica changed the consistency of the epoxy, making it thixotropic, or paste-like. The bulked epoxy ran less during application and better filled the small interstices on the join surfaces, creating a stronger bond.

Ethically, a conservator has to consider these questions: should the lab have attempted to reconstruct as much of the vessel as physically possible? Is it ethical to leave the *pithos* in fragments, and pick and choose the joins that the lab should make? Is it ethical to wash the fragments in tap water, regardless of the cost of supplies?

As stated previously, the storage capacity of the museum in Dicomano cannot sustain the reconstruction of all of the *pithoi* excavated from Poggio Colla. There simply is not room enough for all of the vessels. The vessels also seem to be utilitarian and functional in nature, not necessarily for ritual or sacred operations on the site. The lack of ornamentation on these vessels also suggests their occupation as domestic and commonplace rather than elevated to a unique purpose. The tap water at the laboratory has been repeatedly tested for dangerous compounds, and objects previously washed with tap water have not exhibited symptoms of soluble

salt problems. Ultimately, the labor of the conservators at Poggio Colla is guided by the overall preservation needs of the project and research goals of each field season. Labor-intensive treatment beyond basic stabilization, such as a large-scale ceramic reconstruction, is undertaken on a selected basis depending on the nature of the object and how it relates to specific research goals at the site. The *pithoi* have not yet been prioritized in this way. Hopefully they will be researched extensively in the future, and the careful documentation, storage, and maintenance of the fragments is pursued with this indefinite day in mind.

The research completed on the *pithoi* excavated in the 2012 season revealed the laborious work involved with conserving these large ceramic vessels. The counting of the fragments proves the high frequency of these types of vessels at the Poggio Colla site, and their prevalence in the Etruscan culture that once lived there. While reconstructing an entire *pithos* would be a massive undertaking for any conservator, the information that could be gathered from such an endeavor could be enormously useful to understanding the domestic life of the Etruscans at Poggio Colla. If the archaeologists could see the different *pithoi* reconstructed and placed as they would have looked *in situ*, they could better understand the role those vessels played in their architectural contexts.

## Methodology: Conservation of *Pithos* fragments



*Example of a cassette with pithos fragments from Feature 11, PC 30*

This procedure is intended to effectively and conscientiously care for *pithos* fragments, as designed by the head conservators at Poggio Colla. Please read the following instructions and complete them in order to conserve the fragments.



1. Upon receiving the fragments, check the find tag that is associated with their container. If no such find tag exists, alert the head conservator. IT IS OF ABSOLUTE IMPORTANCE THAT FRAGMENTS FROM THE SAME FIND TAG BE KEPT TOGETHER. It is very common that mass amounts of pithos fragments are delivered to the conservation lab at one time. Conservators must be cognizant of the many *cassetti* with fragments and to keep their objects organized with the correct find tag.
2. Note the identifying information written on the find tag in an official conservation record notebook as well as the date of the treatment.
3. Examine the fragments closely to assess their cleanliness and level of damage. If large areas of concern are noted, record your observations in the conservation notebook before you begin treatment.
4. Use tap water to clean excess dirt from the fragment surface and edges. DO NOT SUBMERSE THE ENTIRE FRAGMENT IN WATER, AS THIS COULD COMPROMISE THE FABRIC OF THE CERAMIC. Gentle probing with your fingertips can be used to clean the largest patches of dirt from the fragments.
5. Thoroughly clean edges and divots in the surface of the fragments with a bamboo skewer and cotton swab. Be sure to avoid marking the surface of the

ceramic fragment. Careful observation of the fragment during this process will ensure that the fragments do not further break down during the treatment.

6. After they have been cleaned, the fragments should be left out to dry.

Fragments are sufficiently dry when they are room temperature (if the ceramic is cool to the touch, the water has not yet fully dried). Take care to support the drying fragments with foam if they are particularly fragile and to avoid placing the fragments near the edges of tables as they are drying.

7. Immediately following the treatment, write down the entire treatment process in the conservation notebook next to the identifying information recorded earlier. Be sure to include all tools used (including "tap water"). This information is useful to future conservators when they study the collection and the state of the fragments to evaluate the efficacy of conservation procedures.
8. When the pithos fragments are completely dry, place them in designated *cassette* to be taken to the cataloguing lab. Be sure to keep the find tag with the *cassette* with which it belongs.

## Bibliography

Ebbinghaus, Susanne. "Protector of the City, or the Art of Storage in Early Greece."

*The Journal of Hellenic Studies* 125, (2005): 51-72. Accessed 12 August 2012.

<http://jstor.org/stable/30033345>.

All photographs taken by Sarah Montonchaikul personally during her 2012 field season internship in the conservation laboratory.