

Bonnie Etter

Poggio Civitate Excavation/Coriglia Excavations

My name is Bonnie Etter, I am an Undergraduate student at The Johns Hopkins University, majoring in Classics and Archaeology. With this degree I intend to continue through a doctoral level of education, in order to become a professor and practicing archaeologist focused in Italian and Etruscan history. To this end, it is important that in the process of my education I become trained in all aspects of excavation, from the act of digging in an archaeological field school setting to artifact restoration and protection, and finally the analyzing of data sets uncovered. This summer I had the privilege of working at two excavations renowned for and focused on the training and education of students, while undertaking unique and groundbreaking projects.

Poggio Civitate is renowned for the intensive excavations that have been undertaken since it's opening in 1966¹. The majority of work has been focused in the eastern portion of the hill, known as Piano del Tesoro². This location was originally studied because of a local legend, wherein a farmer digging a hole on the plateau uncovered a statue of a golden calf, giving the plateau its name, the Plateau of Treasure³. The studies completed on the site, due to its unusual nature, have sparked multiple debates, especially those which attempt to explain the original purpose of the site⁴.

The site, located on a hill 25km to the south of Siena and adjacent to the medieval town of Murlo, is hidden from view by dense forests⁵. In order to reach the site students and staff embark on a 30-minute hike each morning up the hill, following a path through the wheat fields. Tools are brought up

¹ Nielsen, Erik O., and Anthony Tuck. *An Orientalizing Period Complex at Poggio Civitate (Murlo): A Preliminary View*. Etruscan Studies: Journal of the Etruscan Foundation, Volume 8, 2001.

² Poggio Civitate Archive and Publication Center, <http://poggiocivitate.classics.umass.edu/research.asp>

³ ibid

⁴ Nielsen, Erik O., and Anthony Tuck. *An Orientalizing Period Complex at Poggio Civitate (Murlo): A Preliminary View*. Etruscan Studies: Journal of the Etruscan Foundation, Volume 8, 2001.

⁵ ibid

to the site at the beginning of the dig and remain there after each day of work, only to be returned to storage at the end of the season. Water, not readily available near site, is transported in jugs from the lodgings each morning. Students and staff working on the excavation site and in the conservation lab are housed in the nearby town of Vescovado, in the annex to the town's hotel.

The program itself is divided into two parts, in which the students worked on site 4 days of the week and in the conservation lab for 1 day. This is done so that students are able experience all aspects of the archaeological process. While on the hill students are taught to use the different tools of excavation and survey on a typical archaeological site. In the conservation lab students work under professionals in the fields of conservation and cataloguing to learn the skills necessary to preserve and compile the artifacts being discovered on the hill.

The archaeological conservation lab is located in a space known as the Magazzino, the Italian word for warehouse, at the base of the town of Murlo. During the rest of the year this space is used primarily as parking for the utility trucks for the towns of Vescovado and Murlo, but during the summer months the space is cleared and transformed into a laboratory.

One garage is dedicated to the conservation process. In this area tables are erected on which multiple projects can be completed during one time period, those of both the permanent staff, and those projects used to teach students the art of conservation. On days in which one was working in the magazzino, students would begin with dry-brushing the terracotta and pottery discovered the previous day. These finds were then sorted on tables which had been labeled to hold the diagnostic and unusual pieces of pottery and terracotta found in each trench. Students are then directed to enter the conservation area to clean and preserve the special finds from each day. Multiple methods are used for these finds due to the wide range of materials encountered. Metals are cleaned using scalpels, whereas other objects are cleaned using wet-brushing, more intensive dry-brushing, and variable concentrations

of alcohol or acetone. Larger sections of frieze plaques or pottery, as well as diagnostic pieces of pottery, which have been broken are pieced back together using a process of gluing, with variable formulas of glue types.

The second garage is used for cataloguing finds into the website database that has been created over the past decade. This is the area where computers are stored, on which trench masters can access previous finds and upload their trench-books. This is also the area where special finds are numbered and then taken to the storage area that is located permanently in a locked area of the Magazzino.

The Magazzino is also the area where the illustrators work. Through a program at the Rhode Island School of Design, young artists work under the tutelage of professors to specialize in the recording of archaeological artifacts, as well as the creation of models for the structures believed to have been built at the site. At the end of the season, some of the illustrators are also brought up to the site in order to record the layouts of the trenches before backfill can commence. Along with the illustrators, professional photographers are hired each year. It is their job to record catalogued artifacts for the on-line database, as well as take the opening and closing photos of the dig season. These photographers also serve as unofficial documentarians for the field school as a whole, recording both work days and weekend trips throughout Tuscany.

Days on the hill begin at 7am and last until 4pm, so as to avoid the hottest part of the afternoon. Students are divided into groups by trench and assigned a new trench each week. This is done because each trench provides its own difficulties and thus learning opportunities. Despite slight differences in the terrain of the trenches the methods for excavation remained the same. The first day of the dig season consisted of clearing brush and smaller trees from the area.

A wide variety of tools were used in the excavation process. Pick-axes were essential in breaking through the top-soil layer, then in quickly moving through layers that contained few artifacts or

features. This was one of the most difficult tools to learn to use, because of the hard work and technical skill necessary to create an even pick-pass, especially when working around delicate bulk walls. For that reason part of the first day of excavation was spent on a tutorial for the proper pick-axe technique.

Buckets were used for the collection of dirt from a pick-pass, using trowels and hands to sort the dirt as it was placed in the buckets. These buckets were then poured into wheelbarrows. These wheelbarrows were emptied in a dirt-dump, located centrally on the site and near to the trenches.

An exciting aspect of the excavation that was added this season is the inclusion of aerial photography with the assistance of drone technology. With the help of engineering and archaeology students, working through the company Arch Aerial LLC., the way in which the recording of trench layers using photography has been revolutionized. Across the field of archaeology it is common to photograph the opening of each new layer within a trench, providing a visual record of the soil, as well as interesting artifacts and features that are being uncovered. With the development of affordable drone technology, however, it has become possible to get higher resolution photographs at better angles. This is especially important when combined with the Geographic Information Systems (GIS) analyses being done using coordinates taken at each new layer and at important features. With GIS it is possible to create interactive maps and to store large amounts of spatial data into easily referenced formats. By combining high resolution overhead photographs with GIS programs, the visual record of a site is becoming far more accurate and the data stored within these images are becoming more detailed.

Upon returning for a second year, students are provided with the opportunity to become trench-masters in-training, which is the position I fulfilled this summer. This is an arrangement available to students who displayed interest and potential during their first year and who are invited to return to the excavation as junior staff. The job of a trench-master is to oversee the education of students assigned his or her trench and record the daily logs of excavation, including all artifacts uncovered. Trench-master in-training is a transitional position given to students who have already had training in

the excavation process, but still need to be taught the proper documentation methods and how best to direct students as they dig in a trench. Trench-masters in-training exist as a bridge between the senior staff members and the students, because while they themselves are still learning new concepts, trench-masters in-training are also getting practice in directing and teaching first year students. In this capacity a trench-master in-training both excavates as a student, and also assists in the recording process, even in the official trench book, when on site. At the end of the day trench-masters in-training are also responsible for assisting the trench-master in the sorting and documenting of materials, entering data into the online database and planning the next day of excavation. This is a particularly exciting opportunity, because few excavations provide the opportunity to become trained in excavation as well as leadership positions.

The excavations at Coriglia offered an entirely new set of educational possibilities and personal challenges. As this was my first year working with this excavation, I was participating as a student. Directed by Professor David George of Saint Anselm University in conjunction with Dr. Claudio Bizzarri of the Parco Archeologico Ambientale dell' Orvietano, these excavations, which began in 2006 and have rapidly expanded since, took place in three different locations.

The main site is located at Coriglia, approximately 8 kilometers northwest of Orvieto. This area is characterized by the large walls uncovered, made with a local volcanic stone known as tufa. By using the pottery uncovered in and around these walls, it has determined that the earliest construction phase in this area can be linked to the Etruscan civilization⁶. Excavation within and around these walls have revealed terraces created to stabilize the structure along the side of the hill on which it is located, as well as a kiln area and at least one large basin, known as a vasca⁷. Further excavations will demonstrate how these walls and any larger structures are connected. The second location for excavation is a series

⁶ Coriglia Excavations Website. <http://www.digumbria.com/> June, 2013.

⁷ ibid

of caves located under the city of Orvieto. Accessed through the basement of a local man's cellar, these caves have revealed many Etruscan materials and inscriptions that date to approximately the 5th century BC⁸. This year the excavations expanded once more into the town of Allerona, where a local land owner had notified the directors that part of his land near the vineyard contained multiple apsidal structures and wall remnants of what is thought to be a church structure, and that he would allow this area to be excavated. It is believed that this marks the location of a 12th century religious center dedicated to Saint Ansanus, the patron saint of Allerona.

The logistics of coordinating three sites is complicated when it comes to training students in a field school. In order to reach these sites transportation is provided in the form of 9 person vans, and the personal vehicles of staff members. This required a great deal of organization on the part of the directors and organizers, which was further complicated by the available housing locations being dispersed as well. Situated a 10 minute walk from the city of Orvieto students were housed in two locations. The first of which is a convent that is repurposed during the summer months to be used by excavations, though still actively used by the church at many other times in the year, this is where the majority of students and all of the staff members lived. The second location is a school house that is no longer used by the community, where the remaining students are set up on cots and provided with portable showers. These two locations are located a short 5 minute walk apart, so dinner takes place in the convent each night, at 7.

Dinner each night is preceded by the creation of podcasts. This is an exciting opportunity provided by the excavation, where one student or staff member from each trench or location reports on the activities of that day and any special finds uncovered. Podcasts are not only a good way for each the students to hear about the excavations in every location, but also for interested listeners anywhere in the world to become informed on the information being uncovered during the season.

⁸ ibid

It was especially important for students to listen to the activities of other trenches, because they do not rotate between trenches, but are instead assigned a single trench for the extent of the excavation. This is beneficial because students are able to track the progress of their location and follow their work through the entirety of a season. I was assigned to Trench C, which contained the kiln area as well as many interesting connecting walls that appeared to form a structure. Within these walls it was also possible to see not only the lintel for multiple entrances into the structure, but also dirt and mosaic flooring types. Students were, however, rotated between all three sites and the lab. The main site of Coriglia had three trenches that were being excavated in the 2013 season, designated as Trenches A, C, and F. The excavations in the cave were not divided into multiple trenches, as the area inside was so small, and the digging within was overseen by one person. In Allerona the excavations were overseen by one trench-master and one trench-master in-training who maintained two trenches, designated trenches A and B. There is also a conservation lab, in which a local conservation expert works to organize and conserve the artifacts being discovered.

Students rotate between these four locations, but only working in each one once or twice over the course of the entire season. This means that the majority of time during the excavation is spent in the Coriglia site. Each day begins at 7:30am when students meet to receive their site assignments for the day, then the groups divide up to arrive at their respective locations by 8am to begin digging. This season was marked by significant rain in the evenings, which though it did not affect work during the day, did mean that the trenches had to be covered with tarp each day before leaving to catch all the rain water. Then in the morning all participants in the excavation would work to bail the water that had collected and remove the tarps. Excavation took place until approximately 4:30pm, with a break for lunch at noon that lasted for an hour and a half.

An exciting addition to this season's work was a project to analyze the chemical make-up of structures within the site. Professor Mary Kate Donais, of the Saint Anselm chemistry department,

visited the excavation to collect samples and gather information that can be used to help determine the function and timelines of artifacts and features being uncovered. A portable X-ray Fluorescence spectrometer (XRF), lent to the excavation by Bruker, was used to analyze the elemental composition of mortars, ceramics, tiles, and other valuable artifacts⁹. This instrument works by exciting electrons within an element, forcing one of the inner electrons out of orbit, then measures the energy released when the location vacated by that electron is filled. The XRF instrument can be used to analyze both metals and minerals, but it becomes difficult to read when working with elements that have a lighter atomic weight than Phosphorous. This is a process that has long been used within laboratories and in other fields, such as engineering to determine cement compositions, but it is rare to use these XRF and other chemical analysis instruments in an archaeological excavation, but is quickly becoming its own field of study known as Archaeometry¹⁰.

This summer the XRF instrument was being used to work on multiple different projects, with which I was provided the opportunity to assist. The first one was the analyzing of the walls in different trenches to attempt to confirm that these walls were connected, because of their appearance in overall site maps. The second project was working in the nearby town of Castel Viscardo to analyze the mortar types on their bell tower, in an attempt to understand when they were built. Over the previous seasons, as different mortars have been compared, a general conceptualization of dates connected with types of mortars has been established. As such, it is possible to examine buildings such as the bell tower to see if the foundations were, as it is currently theorized, Roman which were partially torn down and build upon in the Middle Ages. The project that I worked most closely with was the examination of frescoes in the apsidal structures in Allerona. This was a particularly interesting project because despite their exposure

⁹ Donais, M.K., Wojtas, S., Desmond, A., Duncan, B., George, D.B. *Differentiation of Hypocaust and Floor Tiles at Coriglia, Castel Viscardo (Umbria, Italy) Using Principal Component Analysis (PCA) and Portable X-Ray Fluorescence (XRF) Spectrometry*. Applied Spectroscopy, Vol. 66, Issue 9, pp. 1005-1012. 2012

¹⁰ Donais, M.K., Duncan, B., George, D. and Bizzarri, C. *Comparisons of Ancient Mortars and Hydraulic Cements through In Situ Analyses by Portably X-Ray Fluorescence Spectrometry*. X-Ray Spectrom., 39:146-153. 2010.

to the elements, the vibrant colors and designs of these frescoes remained greatly intact. These frescoes were thus easily analyzed by color to see the elemental composition of each different color, thus showing how the pigments were made. In these projects I was trained not only to work with the XRF instrument itself, but also to run its accompanying software, and on some cases I was able to assist in the analyzing of data. This, like my opportunity to train as a trench-master in-training, is an invaluable experience, not often available at the undergraduate level.

I was very fortunate to spend the summer working with not one, but two very prestigious excavations. It is my intention to become a practicing archaeologist after completing my education, and as such it is important to experience first-hand the requirements and functions of an excavation and field school. Working at Poggio Civitate I was provided with the opportunity to learn not only basic excavation techniques, but also the leadership skills required to direct a trench. I was trained to properly document the daily work and artifacts uncovered, and to assist in processing those artifacts from conservation to cataloguing. At the Coriglia Excavation, I was able to experience a new way of excavating, in some ways very similar to the practices in Poggio Civitate, and in some ways very different. It is beneficial to experience the practices and theories of multiple directors, because it allows me to understand the choices that are made by lead archaeologists and the ways in which that translates into the archaeological record being created. I am very grateful for the funding I received from this organization because it has allowed me to work with both of these excavations, and as a result I have gained knowledge and experience not available in any other contexts.

References

Poggio Civitate Archive and Publication Center, <http://poggiocivitate.classics.umass.edu/research.asp>

Nielsen, Erik O., and Anthony Tuck. *An Orientalizing Period Complex at Poggio Civitate (Murlo): A Preliminary View*. Etruscan Studies: Journal of the Etruscan Foundation, Volume 8, 2001.

Coriglia Excavations Website. <http://www.digumbria.com/> June, 2013.

Donais, M.K., Duncan, B., George, D. and Bizzarri, C. *Comparisons of Ancient Mortars and Hydraulic Cements through In Situ Analyses by Portably X-Ray Fluorescence Spectrometry*. X-Ray Spectrom., 39:146-153. 2010.

Donais, M.K., Wojtas, S., Desmond, A., Duncan, B., George, D.B. *Differentiation of Hypocaust and Floor Tiles at Coriglia, Castel Viscardo (Umbria, Italy) Using Principal Component Analysis (PCA) and Portable X-Ray Fluorescence (XRF) Spectrometry*. Applied Spectroscopy, Vol. 66, Issue 9, pp. 1005-1012. 2012