



## FIELD REPORT 2010 - Discovering Italy's Ancient Roman Coast

**Project scientists:** Dr. Andrea Camilli; Dr. Carolina Megale

**Country:** Italy

**Research site/region:** Poggio del Molino, Populonia, Piombino, Leghorn

**Date field report completed:** 27 Dec 2010

**Period covered:** 3 May 2010 to 29 Oct 2010

**Report completed by:** Carolina Megale

Dear Earthwatch Volunteers,

First and foremost an enormous thank you from all the members of the Archeodig team (myself, Gianni, Ivana, Cristina, Daniele, Martina, Francesca, Francesco, Stefano and Matteo) for working with us with energy and passion and for helping us carry out the project and the research.

After two years of the excavation with the support of Earthwatch volunteers, we can surely confirm that for us it was an outstanding success in terms of both quality of work achieved and the quality of the people met.

Each of you in your own unique way contributed to making the 2010 season an unforgettable experience. More than seventy EW volunteers helped us to reconstruct the history of Populonia in the Roman age, sharing with us the doubts, the problems and the satisfaction that our job presents daily.

The results obtained after the second year of your support are, according to us and it is no exaggeration, extraordinary. As you know, this year we worked to understand the exact sequence of the stages of life of the villa, an ongoing project;. We'll be able to understand this only by exposing, year by year, a part of the plan of the villa, and by identifying the specific function of each part in its different stages of life. We are able to do this thanks to your passion and your collaboration.

As many of you already know, our research made great leaps forward and you will see this by reading the overview of results.

Here I want just to underline the fundamental points that for us represent the important understanding obtained:

- We discovered the second corner of the perimeter wall of the villa. Trying to interpret the inscriptions on the two blocks (discovered last year) we have opened a new area of excavation and here we found the corner of the wall. Now we know that the villa had a perimeter wall of 188 per 191 roman feet and contained an area of about 3140 square meters.

- We found the stratigraphical confirmation that there was a workshop of iron in the corridor of hospitalia dating from the Late Republican age; this confirms that before the Augustan age the area where the villa was built was indeed inhabited and there was a large workshop for the smelting of iron. Now it is vital to understand exactly when and why Romans decided to built the workshop on Poggio del Molino.
- We discovered some new walls that clarify the original articulation of the rooms in the sector of hospitalia.
- We discovered a new thermal area on the Belvedere, calidarium and praefurnium built in the late period of the villa.
- We discovered at least three pools where fish sauce was produced during the Augustan age.
- We collected many Bronze Age finds. This indicates that in the late Bronze age (1200-1100 b.C.) there was a village under the villa.
- We have revealed traces of a blacksmith's workshop dating from the late Roman Age;
- We added to the collection of the Archaeological Museum of Piombino with our blocks with inscriptions.

Wow volunteers!! An enormous amount of work for us this year...many many thanks! But in addition to the scientific aspects of our research, there is also the human side of the project: working with such responsible "citizens scientists" is an aspect not so well-known in Italy, or more specifically for the Italians, therefore you represent an example to follow for all the responsible citizens who want to contribute, to know, understand and to save our worldwide archaeological and cultural heritage.

Each of you now has a special place in our hearts:

Team I: together we found the corner of the wall and with the guys we brought the blocks to the Museum...how exciting!

Team II: we worked incredibly hard to understand if the villa continued "outside the villa"! Well I can say to you that we haven't understood yet! There's always next year! And what passion cleaning the wall...

Team IV: do you remember PdM day? Wow guys...thank you so much for all your help!

Team V: our first teen team - a great team led by two extraordinary facilitators!

Team VI: definitely one of the best teams we've had. Archaeology and wine, trowel and glass! Support support support...and sharing a fundamental experience...please, come back!

Team VII: expert and curious volunteers, a very close team, energetic and always in a good mood!

Team VIII: a lovely team...patience, precision and conscientiousness...the qualities of the perfect "citizen scientist"!

Team IX: the inscription team! Wow an extraordinary emotion! The grand final with hard work...and a little exhaustion!!

Don't forget us!

A warm embrace,

Carolina Megale  
Lead Earthwatch Scientist

## Overview of results

### *Why we decided to dig the Villa of Poggio del Molino*

The main objective of the project is to fill as many gaps as possible in our knowledge of the history of Populonia and its territory from the early Roman period to the Middle Ages, starting from an important settlement in the Tuscan coast: the villa of Poggio del Molino (PdM). We decided to focus our research on PdM villa because it gives us extraordinary evidence about a “dark period” in Populonia history: In fact the villa was built at the beginning of the 1st century CE (when the main city of Populonia started to ruin and be abandoned for unknown reasons) and it's still one of the few documents in the area about the following centuries, since the villa was continuously inhabited until the end of the 5th century CE.

At the beginning of the research we knew just a small part of the villa (which was discovered in the 80's by the University of Florence), but for a full understanding of the history of the building and the surrounding area, we need to know as much as possible about the plan of the villa and its changes over the centuries, in order to become aware of how the life inside the villa reflected the economical and social context in the Roman period.

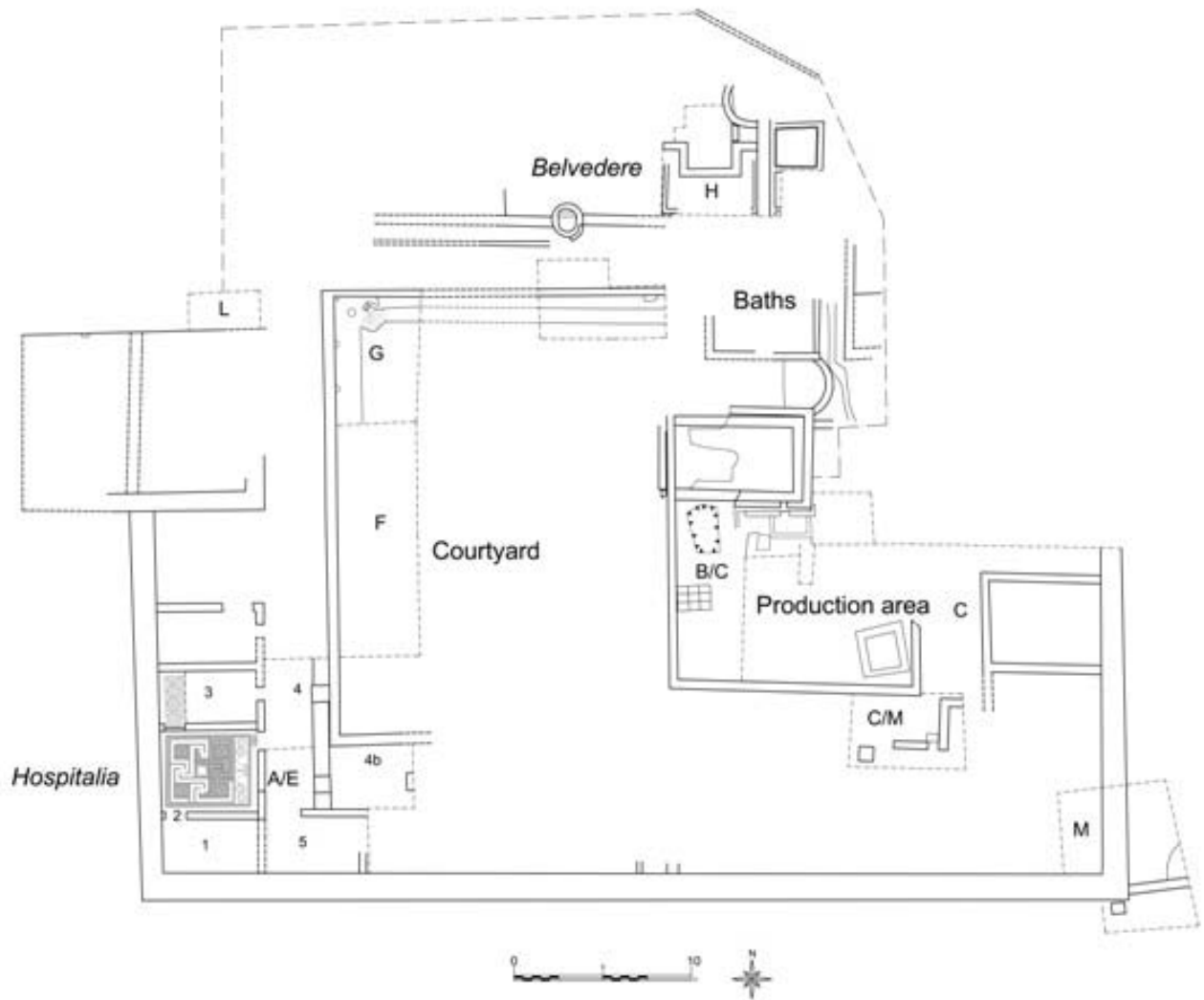
We started the excavation with some “strategic” objectives, questions and doubts:

- 1) Verifying the hypothesis about the inscriptions on the two blocks which we found in 2009;
- 2) Understanding the function of the sector South-East of the villa in all the stages;
- 3) Understanding the main phases in the history of the villa and verifying the hypothesis made by 80's archaeologists;
- 4) Understanding the characteristics and the functions of the rooms which surrounded the central square open area;
- 5) Going on with the excavation of the area which is supposed to have been the guest house (hospitalia, in a Latin word);
- 6) Verifying the conditions of some mosaic floors found in the 80's that have remained covered for more than twenty years;
- 7) Verifying if the data collected last year about the chronology of the first phase of the settlement are correct;
- 8) Understanding the plan of the villa in the north-east sector;

Thanks to everybody's hard work, at the end of this second year we exceeded our expectations and we now have a deeper knowledge of the villa. But a lot of questions are still unanswered and new ones have come out of the latest researches, which are now waiting to be answered by the next excavations.

### *Where we dug during the 2010 excavation field*

The 2010 volunteers dug in many different parts of the villa that we refer to with alphabet letters: in the South-East sector, area M, C, C/M and B/C; in the South-West sector, area A-E; in the North-East sector, area H (fig. 1).



**Figure 1:** Plan of the villa at the end of the excavation 2010. (Graphic Ivana Cerato)

### The South-East sector of the Villa Area M

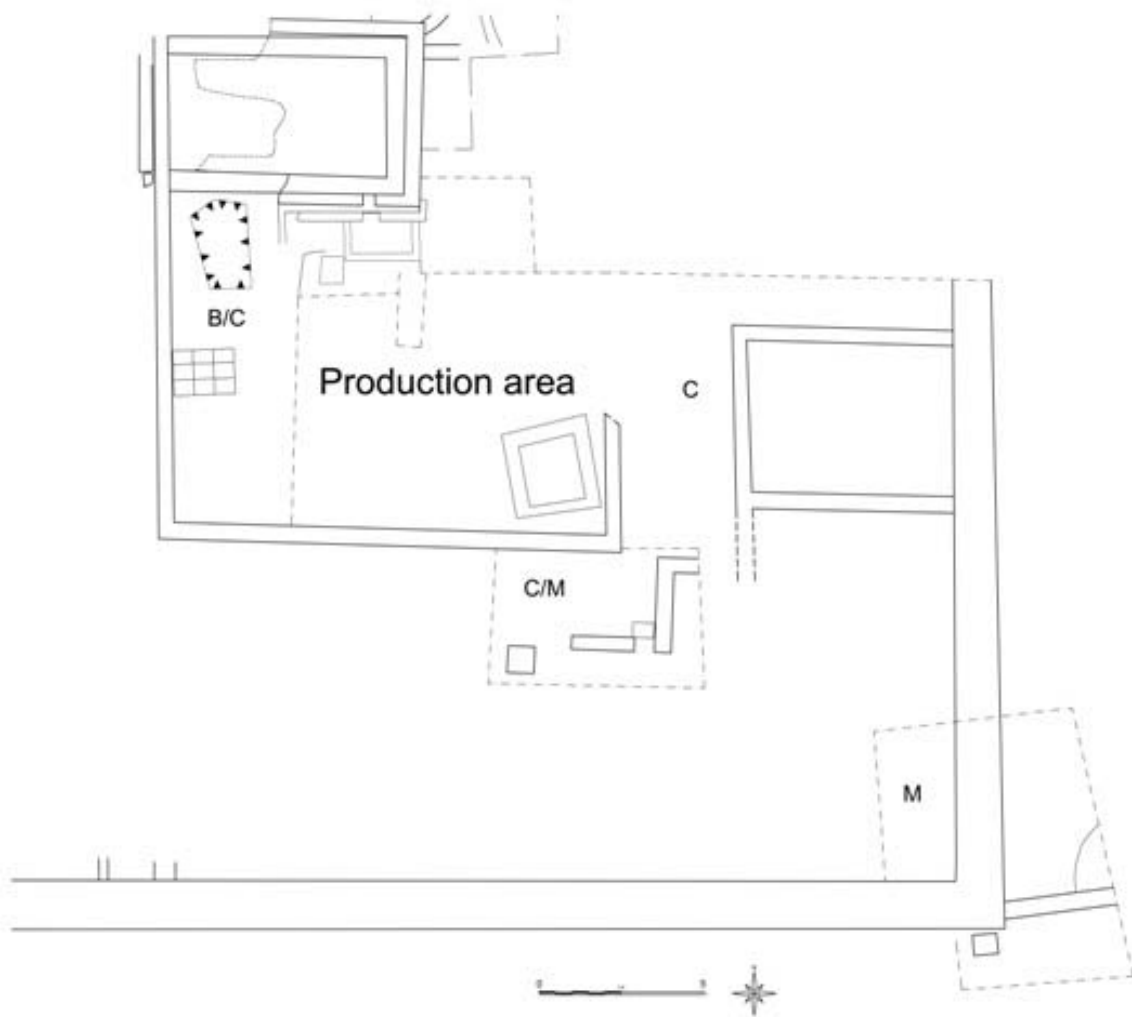
In 2009 in the north-west corner of the garden, two large stones were found with the inscriptions: P.CXCI on one and P.CLXXXVIII on the other (now at the Archaeological Museum of Piombino, figs. 02 and 03). The first hypothesis was that this data showed the particulars of linear distances, expressed by numerals (191 and 188) preceded by the abbreviation p(edes), affixed on the block that served as terminal cippus (a small, low pillar that often has an inscription and was used frequently to mark distance or boundaries in ancient times). In order to verify this hypothesis in the field, it was decided to open a new area of excavation - Area M (fig. 04) - with the belief that that the measures listed could refer to the linear measurements of the perimeter wall of the villa. As the perimeter wall had already been revealed in the south-west corner, we measured 57m from this corner to open up the new area of excavation. As we expected, at the centre of the new area the south-east corner of the wall was revealed: the distance between the two corners is approximately 55.8m and the southern wall of the villa is exactly equal to 188 Roman feet.



**Figure 2:** Carolina Megale (PI of the Project) when the blocks were brought to the Museum of Piombino. (Photo Daniele Ansaldi)



**Figure 3:** The section of Roman inscription at the Archaeological Museum of Piombino. On the right side: particular of the inscriptions on the blocks



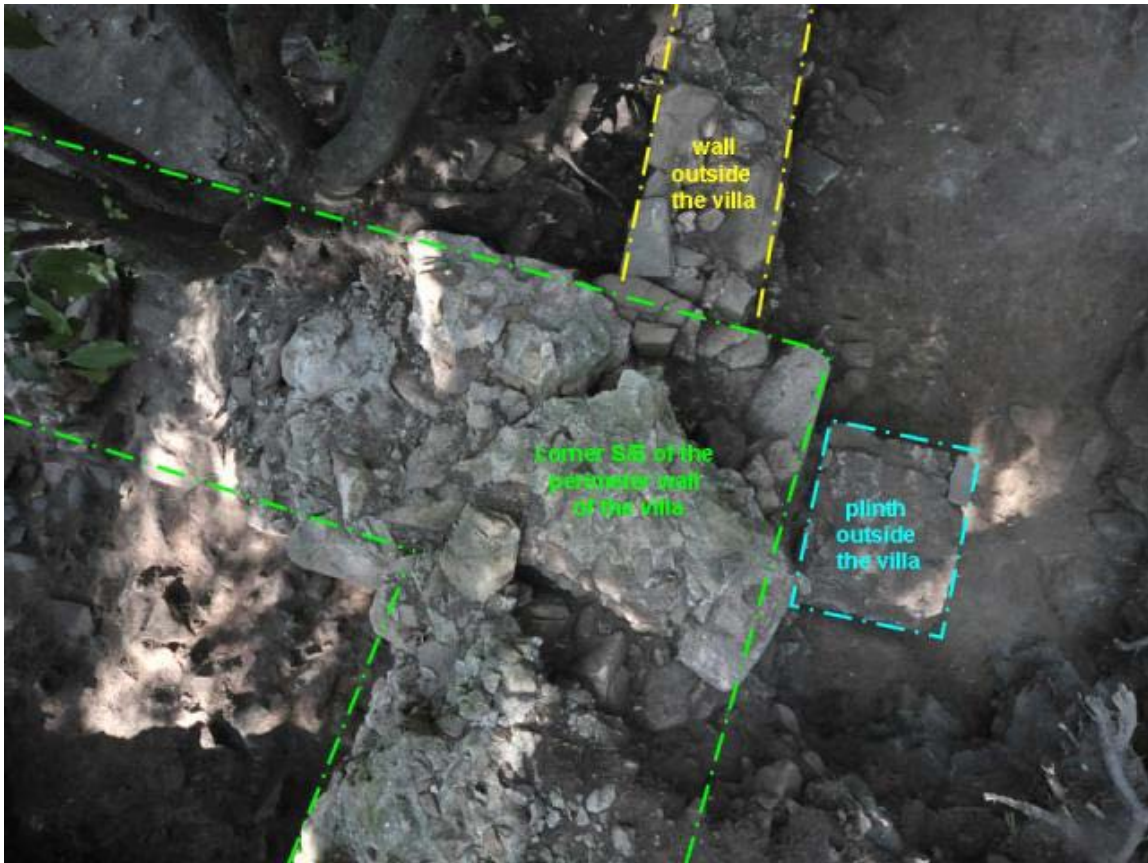
**Figure 4a:** South-East Sector of the villa. (Graphic Ivana Cerato)



**Figure 4b:** South-East Sector of the villa. (Graphic Ivana Cerato)

Unfortunately, as the northern sector of the villa collapsed into the sea, it is currently not possible to determine whether the distance between the southern boundary and the northern limit of the settlement corresponds to 191 feet. However, since at present there are no objections to this interpretation, we believe that the villa would extend over an area of approximately 3.150 square meters and that the collapsed portion is about 450 square meters in size.

The excavation of Area M, therefore, focused on the corner of the villa's perimeter wall in order to understand if this corner represented the true limit of the villa, or if it continued beyond. Outside the perimeter wall a pilaster of bricks bound with mortar, a wall constructed with recycled stones and bricks and three marble blocks re-planted in the ground has been brought to light (figs. 05 and 06). All these structures relate to the later phases of the villa. For this reason, it was decided to suspend the excavation in this area and further investigate the corner of the wall of the villa.



**Figure 5:** South-East Corner of the perimeter wall and the structures that were found outside the villa.



**Figure 6:** South-East Corner of the perimeter wall and the structures that were found outside the villa, view from South.

Below the massive collapse of the perimeter wall substantial evidence of the manufacturing of iron was found (fig. 07). This corresponds, in all probability, with the workshop of a blacksmith, working between the fourth and fifth centuries CE. The soil is heavily reddened by the continuous action of the fire. A semi-circular structure consisting of stones (also reddened) was revealed, that was likely a small refining furnace where iron was heated and then worked and forged (fig. 08). Similarly, a rectangular pit filled with brick fragments and slag connected with the activity of a forge was discovered.

As the structures relative to the iron workshop are only partially exposed, it was decided to suspend the investigation pending the expansion of the boundary of the excavation area in order to dig the workshop in its entirety.



**Figure 7:** Evidence of the manufacturing of iron found in area M.



**Figure 8:** Semi-circular structure consisting of stones interpreted as a small refining furnace.  
Reconstructive drawing of a small furnace.

However, in an attempt to obtain an absolute chronology for the perimeter wall of the villa, a deep excavation near the southeast corner was conducted that would allow us to bring archaeological material to the surface in phase with the foundation of the wall. The filling of a hole had eaten away at the layers of the forging activity in the central area of the pit. Once this filling was removed a layer of red sandy soil was revealed that has provided a large amount of pottery from the Late Bronze Age (XI-X century BC), while the presence of Roman ceramics was totally absent (figs. 9 and 10).



**Figure 9:** Area M: deepening to verify the chronology of the perimeter wall.



**Figure 10:** Cross section with the sequence of the layer cut by the perimeter wall.

This means that the foundation of the perimeter wall of the villa was built “against the ground” and intercepted some layers of previous occupation., In the late Bronze Age the area where the villa was later built, was occupied by a village of huts whose economic purpose was connected to the mineral resources of the mountains of Campiglia (processing of copper and lead) and with marine activities (trade, fishing and shellfish harvesting). When, at least a thousand years later, the trench was dug to build the wall of the villa, it intercepted the oldest layers (fig. 11). The trench was then completely filled with blocks of stone and mortar placed directly “against the ground”: for this reason no materials attributable to the time of the construction of the wall were recovered.

To summarize, the excavation of Area M has provided a lot of new and fundamental data for ongoing research, both concerning the plan of the villa and the phases of occupation. First of all, it was possible to define the perimeter of the settlement until - at least - the 3rd century CE. If in fact, if the walls which we found outside the perimeter wall were built in the later phases of the villa, it can be assumed with some degree of certainty that the villa in its first phase and up to the 4th century CE developed within the area between four big walls (the length being 188 and 191 feet respectively). Since we know that the west area of the villa, where the guest house stood, was destroyed and abandoned at the end of the 3rd century CE, it is increasingly clear that at this point the late attendance of the villa (between the 4th and 6th centuries CE) had to take place mainly in the east side of the villa.

Unfortunately, we don't know what exactly the function was of this area in earlier times. In the late phases of occupation (connected to the activities of iron smelting that preserved tracks both in Area M and in the adjacent C/M, and the phase Protostoric) and in regards to the village of huts of the Late Bronze Age, we do not have sufficient evidence to allow us to formulate hypotheses about the villa's function in these times. Only further investigation will clarify this complex situation.



**Figure 11:** Foundation of the perimeter wall.

## Area C/M

Area C/M was opened up between the southern perimeter wall of the villa (Area M) and the productive area (Area C) surveyed in the 80s. This intervention was intended to clarify the chronology of the dense sequence of layers formed by the iron works that emerged repeatedly throughout the area (fig. 12).

The excavation has proven more complicated than expected because the tracks revealed were weak and chaotic. At the end of the session it was possible to highlight all the layers related to occupation during later phases which were connected to activities related to the iron smelting process (fig. 13) and at the same time to the forging activity that emerged in area M (the chronology is confirmed by a coin of the 4th century CE connected with a fragment of iron slag, fig. 14).

Since this area appears to expose the late antiquity phase, it was decided to unify the excavation with the adjacent Area M and dig (using the stratigraphic method of excavation for large areas where we study rock layers and layering) all together to have an overview of the activities concerning the manufacturing of iron carried out between the 4th and 6th century CE in the south-east section of the villa.



**Figure 12:** Area C/M at the beginning of the excavation.



**Figure 13:** Area C/M at the end of the excavation 2010.



**Figure 14:** Bronze coin of the Emperor Costantius (348-350), together with an iron slag.

## Area B/C

During the 2009 excavation campaign we focused on a rectangular basin, which had to receive water from the adjacent tank through a lead pipe (found in the walls of the tank) and emptied, on the east side, through a second pipe that had to allow the water to escape from the tank. As the function of this structure had not been fully clarified, this year it was decided to investigate the area immediately east of the basin. The presence of the tube in the east wall, in fact, let us postulate the existence of at least one basin adjacent to the first, that the water went into; on the basis of this hypothesis, the function of the structures had to be linked to productive activities (fig. 15).

The first stratigraphic units removed, were connected with pavement made of white conglomerate spread after leaving the basin, around the 4th century CE. The pavement covered a layer of debris, rich in ceramic material, testament to the phase of destruction and abandonment of the basin (fig. 16). If we did indeed find a second basin, it is only evidenced by the traces of its destruction. In the area concerned, we have not found either walls or floors. The destruction layer directly covers the virgin rock., The floor, specially levelled in some places, consists of pieces of tiles, indicating, perhaps, the pavement of the second basin (fig. 17).



**Figure 15:** Area B/C at the end of the excavation 2010.



**Figure 16:** Fragments of amphoras found in the layer of destruction of the basin.



**Figure 17:** Area B/C, excavation in progress.

## Area C

Further important data emerged in the adjacent Area C (fig. 18). Here, a thorough cleaning was carried out in order to clarify the relationship between the layers highlighted last year and those which emerged in the 1980s. Thanks to this intervention it was possible to understand the various layers of soil which identified the manufacture of iron (consisting of a huge accumulation of burnt hematite, which also covers the virgin rock still red from the fire). In this area, these activities are to be linked, not to the late activity as supposed in the 80s, but with the late Republican phase, namely with the activities highlighted in the corridor of Area A/E.



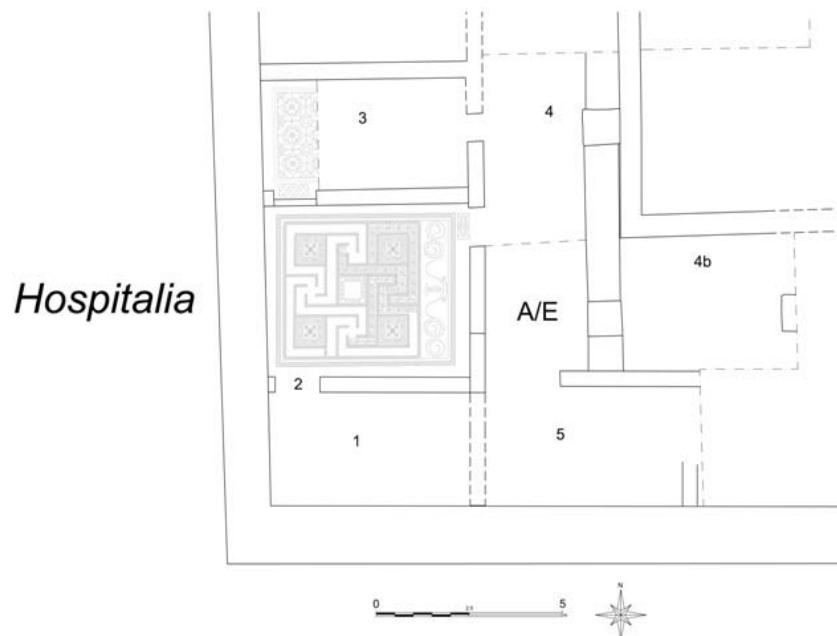
**Figure 18:** Area C.

## The Guest House: Area A-E

Area A-E (fig. 19), located in the southwestern corner of the site, corresponds to a part of the villa which is generally identified as the guest house, called *hospitalia* by Romans (the rooms where the owner lodged friends and also travellers who paid, as in a modern motel). The guest house of the Poggio del Molino (PdM) villa was a row of small rooms facing a corridor which surrounded an open space, perhaps a garden. During the 2010 session we continued last year's research, focusing our attention especially on Room 1 and on another section of the western corridor.

### *Rooms 1 and 2: The rediscovery of a mosaic and new observations*

During Spring 2010, we resumed excavation in Room 1 (fig. 20), where in the 1980s, the University of Florence had discovered a large mosaic floor with a geometrical pattern, unfortunately badly damaged by looters. The room is on the southern side of Room 2, where last year we unearthed the mosaic with a central image of a Medusa head.



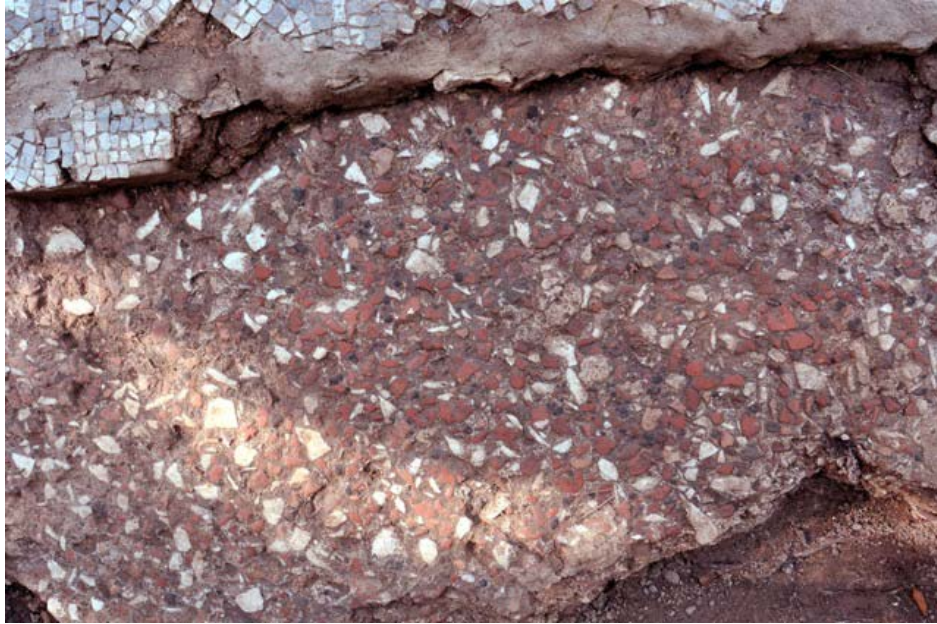
**Figure 19:** South-East Sector of the villa. (Graphic Ivana Cerato)



**Figure 20:** Area A/E: mosaic floor in room 1.

We proceeded in the same manner as we did for the mosaic in Room 2: after removing most of the soil and sand dumped here by the archaeologists in the 1980s, we cleaned each of the tiles in the floor with brushes, wooden sticks and wet sponges, being very careful to avoid scratches. Within a couple of weeks we were able to perceive the design of the mosaic which was composed of grayish-black tiles (tesserae, in Latin) on a white tile background: the general pattern was composed of octagons and squares filled with different decorative motifs, among which was the design of Solomon's knot. The surface of the mosaic is in good shape and, comparing it with the photographs taken in the 1980s, the mosaic seems to have suffered no further damage during the ensuing 25 years. Unfortunately a large part of the mosaic had already disappeared due to people passing through in the 1980s who stole pieces of the floor and dug a deep hole in the western side of the room. Due to this loss, we can't be certain of the original appearance of the central part of the mosaic. It's possible that, just like the mosaic of Room 2, this floor had a central pattern with figures, perhaps of colored glass tiles; unfortunately, a square hole in the middle of the mosaic seems to have been dug to remove precisely that portion.

Unearthing the mosaic, we discovered important clues about the first phase of the room. Under the layer of mortar holding the mosaic tiles, we noticed remains of another layer of mortar and pieces of brick (known as "cocciopesto"). This layer was thick and with a surface so well refined as to lead us to think that it could be a previous floor over which the mosaic was built (fig. 21). If this is true, it would be the first evidence of how this section of the villa appeared prior to the second half of the 2nd Century A.D. when the hospitalia sector was restored and the mosaic floors built. In any case, this type of floor tells us much about the nature of the room: the floor was coarser and cheaper than the luxurious pavement built later; it is therefore possible that Room 1 originally had a different function.



**Figure 21:** Area A/E, room 1: Pavement in cocciopesto covered by the mosaic.

The walls of the room are very badly preserved: the southern and western walls, corresponding to the large retaining wall of the villa, have been damaged by tree roots, while the eastern and northern walls (between rooms 1 and 2) appear to have been extensively looted in ancient times, perhaps to collect building material for the tomb discovered in the southwestern corner of Room 3. Due to the poor conditions of the wall, it's impossible to be certain of the presence of a door between rooms 1 and 5.

We exposed the doorway between rooms 1 and 2. We found more traces of fire and charcoal, difficult to explain, but similar to the traces of fire and burnt materials found last year in the layers that accumulated after the abandonment of the villa.

At the end of the cleaning process, we were able to take high-definition photographs of the mosaic and to make a new drawing of it.

In Room 2, where we also worked last year, we had the chance to more thoroughly clean the surface of the eastern wall. At first we assumed this to be one structure, but soon noted that it appears to consist of two different walls standing next to each other but obviously built at different times. More specifically, the northern wall must have existed first with two passages open to the corridor; later the southern wall was closed with roughly-cut stones fixed together with earth only. This new find leads us to believe that the second wall was built at the same time as the mosaic floor, probably belonging to the second half of the 2nd Century A.D. phase, while the more ancient wall may belong to the first phase of the villa. The wall is therefore important in understanding the general layout of the settlement during the different periods of its life.

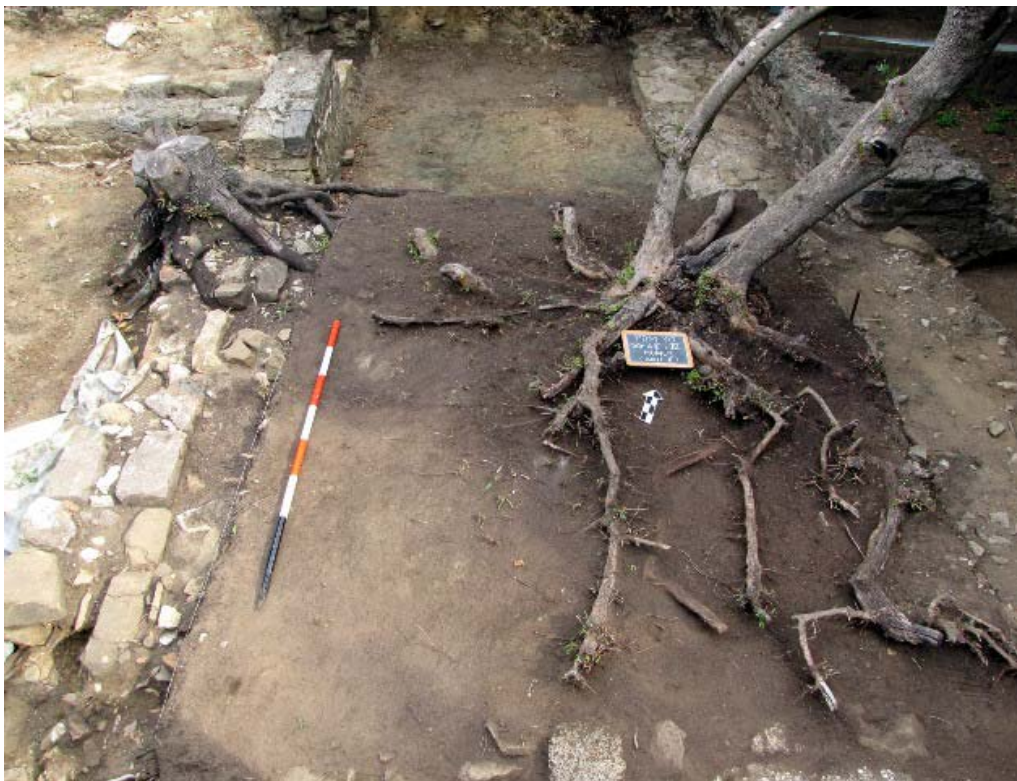
#### *Room 4: A new sector of the corridor*

Room 4 is the western portion of the corridor which runs around the central courtyard and from which doors lead to rooms 2 and 3. Last year we excavated a sector of it, more or less in front of Room 3, but we left a portion at the southern end due to the presence of a large tree. Many of the layers associated with iron smelting activities found last year appeared to continue

toward the south. This year we decided to remove the remaining section, which we call the "Southern Addition", in order to expose the entire remains of the smelting processes and to excavate them all at the same time (fig. 22).

In this area, we found a succession of layers quite similar to the layer exposed last year. Although tree roots had partially disturbed the evidence and made the work in this area slow and difficult, we collected clues and information which made us change some aspects of our previous reconstruction of this part of the villa. We discovered new walls which transformed the internal passageways, new fragments of wall decoration, additional parts of the first building which stood here prior to the guest house, and additional layers connected to the iron smelting workshop. Thanks to the 2010 excavation, we obtained clearer hints as to the succession of different phases of the villa, and, more importantly, we obtained proof that the iron smelting activities occurred before the construction of the rooms of the hospitalia.

Under the topsoil, we found a layer of debris comprised of stones, bricks, roof-tiles and mortar, probably belonging to the collapsed walls of the western side of the corridor. After the removal of this layer, we discovered that the doorway we believed to have been leading into Room 5 from southern wall of the corridor was closed off with a wall sometime during the life of the villa. The technique is quite similar to the wall which closes off the doorway to Room 2; we can assume that both doorways were closed off during the same period - the second half of the 2nd century CE - when this wing of the villa was restored to create a luxurious guest house. Unfortunately, just as in the section of corridor excavated last year, there were no remains of a floor which must have existed at the same time as the mosaic floors in rooms 1, 2 and 3. No clear traces of the floor remain, and the floor may have disappeared due to planned removal of the entire pavement.



**Figure 22:** Area A/E, room 4: "Southern Addition".

We now know more about the decoration of the western walls of the corridor, which were covered by painted frescoes. Small portions of the frescoes still cover the faces of the walls, but due to erosion little color remains except for traces of pale red paint. Along the western side of the area under a layer of debris, we found many collapsed fragments of frescoes (especially red, yellow and bluish-green) which we are trying to clean and combine in order to reconstruct the original pattern.

Another important discovery in this section of excavation came from a layer totally comprised of pieces of roof tile, a portion of which we had already removed during the previous field session in northern sector of the corridor. Although only a small part of the layer remained to be excavated, among the fragments of roof tiles we found a special one bearing part of a stamp on its surface, a stamp which fits perfectly with that of another roof tile we found in 2008 in the northern section. We are now able to reconstruct the entire stamp and to complete the name of the person who probably owned the workshop that made it; this seems to confirm our hypothesis based on the first half found. We hope that this will help in identifying the owner of the PdM villa, since rich owners of large mansions of this type frequently produced bricks, tiles, etc. on their own lands.

Under the layers of debris and roof tiles, we found more of the foundation structure we had discovered last year, which must have been covered by a floor during the 2nd Century phase of the villa. This foundation structure seems to belong to the first phase of the villa which we are dating to the 1st century B.C. It appears to be made of three square bases, two of which are connected by three walls made of stone and mortar, and since nothing new arose to change our opinion, we continue to regard it as the foundation for the columns of a porch not yet discovered. The three bases would form the southwest corner of the porch. Most likely, the porch would belong to the first phase of the villa, which we don't know much about yet.

On the western side of this foundation wall we discovered new traces of iron smelting which must have occurred before the guest house had been built. We found many layers full of iron slag of different types, fragments of ore, charcoal, ashes and layers of burnt clay. These layers cover a layer of rock and surround a small square structure, full of iron slag, which abuts to the western side of the foundation square base. The presence of a red patch, due to the heat, on the rock around this structure and elsewhere, leads us to believe that it could have been a furnace used during the smelting process, but we need more comparisons or proof to be certain. We don't know exactly when these iron-working activities occurred, but thanks to this new evidence we are quite sure that smelting activities took place after the bases had been built, possibly using the hypothetical porch or a portion of it as a shelter (fig. 23).



**Figure 23:** Area A/E: traces of iron working and remains of the porch in the corridor (room 4).

During the 2010 excavation we also discovered evidence that the "villa phase" happened after this area was used to smelt iron, since we can now confirm that when the western and southern sides of the corridor were built, the layers of hematite, charcoal and clay were already present. In fact, the southern wall of corridor was built over these layers, and the foundation trench for the eastern wall of Room 2 was dug into the layers.

At the end of this session we collected much information and now know more about the guest house area. We had the chance to change the reconstruction of the phases of the villa and the sequence of occupancy in our site: we know that originally there was a big structure here (perhaps a porch or something similar), around which (maybe when the structure was still standing) an iron workshop was settled, which left many layers of hematite, burnt clay, ore etc. Later the area was radically changed and a row of rooms was built surrounding an open space in the middle, covering the remains of the smelting activity. During the second half of the 2nd Century A.D., the rooms were restored by putting mosaics on the floors and closing off some doorways. A phase of further restoration and changes ensued, followed by a period of abandonment and looting of the ruins of the villa.

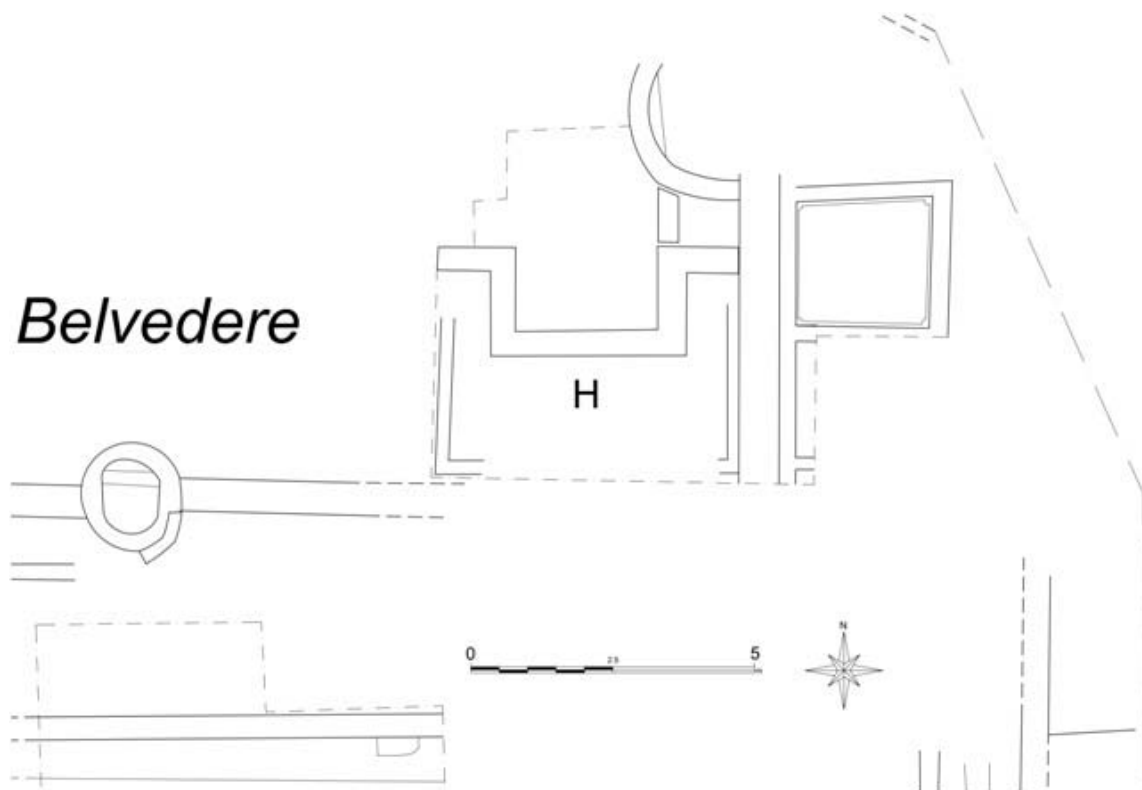
The 2010 excavation allowed us to collect new information about the first settlement of the building and the activities which took place there. After this session, a lot of evidence of the smelting activities was finally exposed; we are ready to remove and study them, in order to understand the nature and the organization of the workshop, and the period when it was in use.

### *The Belvedere: Area H*

In order to better understand the topographical and chronological breakdown of the area between the northeast corner of the garden (investigated during the excavations of 2009) and the spa quarter (already investigated by the University of Florence in the 1980s), it was decided to open a new area of excavation, Area H, which connects the two areas previously surveyed (fig. 24).

The excavation revealed three areas, each with a different function:

- the northern sector, corresponding to a heated room (caldarium) appropriate to a spa facility (Room 1);
- the southern sector, which is the room used as a furnace (prae-furnium) that ensured the heating of a room through the hypocaust system; and
- the eastern sector, characterized by the presence of a system of rectangular basins coated with hydraulic mortar (called *cocciopesto*), perhaps used for salting and the production of fish sauce.



**Figure 24:** North-East Sector of the villa. (Graphic Ivana Cerato)

*Northern sector (room 1)*

Room 1 occupies the northern sector of Area H, located immediately behind the escarpment overlooking the sea. Different building phases indicate that the function of the area has changed dramatically over time.

The earliest phase of the plant is most likely attributable to the Republican Age. Above the virgin rock layer are twin rectangular basins whose exact function we cannot currently ascertain - possibly water basins or processing basins. Two *cocciopesto* floors remain in this area, corresponding to the bottom of the basins (fig. 25).

The aspect of this area changed during the Imperial Age when a thermal bath complex was built here. A new wall consisting of 5 segments of wall bound together to form a U-shaped space was set directly on top of the floor of the Republican-Age basins. The building technique used for the entire structure is characterized by the presence of two external facings comprised of stone blocks of various kinds (beach rock, rhyolite, granite, sandstone), hewn on the visible side and bound with mortar. The inner space is filled with stones of the same lithotypes, but of smaller size.

An arch, located in the southern wall of the room, allowed access to the hot air emitted from the wood fires on the other side of the wall; workers in the thermal plant directed the air through the arch with bellows (a device used to deliver pressurized air). The tentative identification of Room 1 as a heating area (*calidarium*) was confirmed by the discovery of a pavement made of mortar and suspended on small pillars. The heated air passed below the floor and through the pillars, warming the room.



**Figure 25:** Area H: on the bottom it's possible to see the *cocciopesto* pavement of the first basin.

The pillars (*pilae* in Latin) are made of 21 cm square bricks and recycled blocks of tuff and sandstone; these elements are bonded with clay only, a practice typical in spas. At the time of the excavation, it was possible to identify three rows of six pillars each running west to east; a fourth row is visible below the edge of the collapsed floor of mortar (fig. 26).

Between the end of the 2nd and middle of the 3rd centuries CE, there was a change in the organization of the room: some new structures were added on the northeastern side. At the northern end of the east-west wall a new brick wall was added, to which was attached a circular structure with a step inside. This structure, made of broken roof-tiles bonded with mortar and coated with *cocciopesto*, was brought to light in the 1980s and interpreted as a fountain. Since then, data from the new excavations has revealed that the structure is related to the thermal bath complex; it is therefore far more likely that the circular basin was not a fountain but a small swimming pool, and that a new heated room was added at a later stage in the construction of the bath (*balneum*).

### *Southern sector*

In this sector exists the oldest structure in the entire area H: a wall running north-south, primarily composed of blocks of beach rock and sandstone bound with mortar. This building technique leads us to believe with little doubt that the structure pertains to the same building phase as the large outer wall of the villa, and to the first phase of the settlement around the 1st century B.C.

The twin basins found inside the heating room, attributable to a previous phase of the villa, extend beyond the walls of the room to the south and east. In the southwestern part of the area, the remains of the western basin are found: the eastern and southern walls, both coated with *cocciopesto*. In the southeastern section lie the remains of the eastern basin, consisting of its eastern and southern walls, also coated with *cocciopesto*, and its floor, the western portion of which has already been identified with the heating room, Room 1.



**Figure 26:** Area H: caldarium and praefurnium built in the second phase of this area.

As we anticipated, this system of basins built of the Republican Age was partially destroyed during the construction of the bath. A supply channel was built immediately to the south of the wall dividing the room from the praefurnium. The channel consists of two parallel curtain walls of reused tufa blocks, not bound with mortar, and reinforced by other structures built with a similar technique. Among the reused blocks, a fragment of an inscription may be read, [---] A. Min [---] / C. Ca [---] (fig. 27). (The inscription is one of the most important discovered this year, and in general one of the most important discovered in the villa of Poggio del Molino and in Populonia. Before ruling on the interpretation of the inscription – perhaps the owners of the villa? - we decided to spend the winter studying the inscription!).

In the southwestern part of the area, the walls of the western basin were cut in order to erect a structure built with roof-tiles bound with mortar, perhaps as an indication of access to the underground portion of the praefurnium. The eastern basin, however, is filled by two layers of clay mixed with building materials (roofing tiles, stone, mortar) and abundant pottery fragments. The period of abandonment of the structures of praefurnium is attested to by several layers of clay, containing in various amounts structural elements of the thermal bath complex (stack bricks, tubes, bricks, roof-tiles, building stones, mortar).

Extensive, compact layers of structural collapse were found in the southern sector of Area H (Fig. 27), in turn covered by a layer consisting of humus.



**Figure 27:** Area H: roman inscription found re-used in the wall of the praefurnium.

*Eastern sector*

In the eastern sector of Area H we investigated a complex of two square basins (2.7m each side); the basins face each other and lean on the western side of the north-south wall, which forms part of the first phase of the settlement (figs. 28 and 29).



**Figure 28:** Area H: system of basins for the salting of the fish.



**Figure 29:** Area H: system of basins for the salting of the fish.

The south basin, of which only the eastern portion is now visible, consists of three walls about 25-27 cm wide; the construction technique involves the use of small blocks of beach rock bound with mortar. The inside of the walls is also coated with a layer of cocciopesto. Only a small portion of the southern basin was excavated; the rest will be dug in the next excavations. This year's excavation focused on the northern basin, located on the edge of the slope of Poggio del Molino.

The northern basin is formed by four walls coated with cocciopesto and provided with pulvinaria along the corners of walls and between the wall and floor. At the center of the basin is a circular depression for collecting waste. At this stage of study, our hypothesis is that this system of basins may have been used for the salting of fish, an activity widely attested to in the territory of Populonia, both by written sources and archaeological evidence.

This system of basins ceased to be used between the end of the 1st century BC and the beginning of the 1st century CE, when it became a trash pit. Three layers of clay belong to this stage, one layer of which consists of a substantial accumulation of various materials, including fragments of pottery, roof tiles, floor bricks from the work rooms, building stones, artifacts and iron slag.

The use of the pool as a dumping ground was interrupted when, in its northeastern corner, an oil amphora from Spain was buried; the function of this amphora is currently unknown. Then the basin was once again --and for the final time --abandoned; new layers of clay accumulated, combined with a layer made up exclusively of bricks, perhaps due to the collapse of the roof. In this section of Area H, archaeological stratification was later covered by a shallow layer of humus.

## **SECTION TWO**

### **REPORTING AGAINST RESEARCH OBJECTIVES**

**Objective 1:** Archaeological excavation

#### **Progress toward/against Objective 1:**

Volunteers have worked for 17 weeks side by side with field archaeologists, geologists and conservators. The staff taught them the stratigraphic method of archaeological research and after lessons and briefings they led volunteers in the excavation and the other activity on site.

##### *Excavation:*

After one theoretical lesson on the principles of archaeological stratigraphy, the volunteers worked side by side with the staff using a pick, shovel and trowel. The work was organized in three-people teams that, in turn, pickaxe the soil, shovel it and remove it with a wheelbarrow, generally the team was composed of one man and two women. The volunteers who preferred less physical activity cleaned with smaller instruments, such as trowels and brushes, the wall of the villa, highlighting every single brick and stone of the walls. This is a necessary operation before undertaking the graphic documentation.

##### *Written documentation:*

The volunteers, after removing a layer of soil, completed the written documentation filling out the US sheet record, with the help of archaeologists. They also completed the daily diary of excavation, very useful for ensuring continuity in the work when the team changes.

##### *Visual documentation:*

The volunteers, particularly those with a passion for photography, took photos, both layers of soil and finds, according to the rules of archaeological photography.

##### *Drawing documentation:*

After one theoretical lesson and one practical lesson on the techniques of archaeological drawing documentation, the volunteers learnt how the total station works (with the help of the archaeologist) to realize plans, sections and prospects of the structures. The volunteers, particularly those with drawing skills helped the archaeologists to carry out and to realize the drawing documentation of the walls and the structures (such as the late antique tomb) brought to light during the excavation.

##### *Scientific deepening:*

After one theoretical lesson, the volunteers collected samples of different stones (such as limestone, sandstone, tufa) used in masonry, with the help of geologist. The samples have to be analysed by the geologist to realize the petrographic forms and to build a catalogue of stones used at the villa.

**Objective 2:** Record and analysis

#### **Progress toward/against Objective 2:**

##### *Pottery Lab:*

The volunteers, with the help of the pottery lab supervisor, cleaned the pottery artefacts with a brush and running water. After they dried under the sun, the volunteers marked them with a permanent pencil, according to the rules of cataloguing finds of the Ministry of Cultural Heritage.

Then, the volunteers classified the finds according to specific productions: “sigillata”, coarse ware, kitchen ware, amphoras, bricks, coins, metals, and bones.

Volunteers helped the archaeologist to reconstruct about 12 roof tiles found in a layer. This work is very important to start to understand the different types of roof tile used in the construction of the villa and the different phases of the settlement.

Volunteers also helped the archaeologist to draw a particular type of amphora “anfora di Empoli” in order to prepare a presentation for a conference in October which was attended by some staff members.

#### *Stones:*

The volunteers, with the help of the geologist, collected some loose tesserae of the two mosaics brought to light this year (the one in the room 2 and the new one in the room 3). The geologist, now, has to analyse the samples and recognize the stones, in order to identify the original quarries, in this case probably located in the Populonia territory.

#### *Database:*

In order to organize the written documentation in the best way (US, USR and USM sheets, find's sheet) we decided to create a database. For this we ordered BraDypUS.net (Communicating Cultural Heritage), a new society founded by archaeologists of the University of Bologna, to create our database (actually in the pipeline), under our indications and requirements. Volunteers this year have helped the archaeologist to fill the database with the data from the US sheet and pottery sheet.

### **Objective 3: Conservation and restoration**

#### **Progress toward/against Objective 3:**

##### *First aid for finds*

##### *Pottery:*

After the operations of cleaning, marking and cataloguing, the volunteers tried to reconstruct the shapes of artefacts in better conditions, particularly the roof tile. They also drew the most important pieces (the one with the traces of potter's fingers and animal footprints).

##### *Mosaics:*

The volunteers collaborated in cleaning the mosaic with a geometrical pattern discovered in the 80's. It is necessary to check its status of conservation and to plan the necessary and suitable operations of restoration.

After a slow and very gentle removal of the dirt, and the cutting of the biggest roots, the volunteers cleaned the mosaic surface, just with sponges and water, according to the rules of first aid for finds. To avoid scratching the surface of the mosaic, they removed the earth with brushes and wooden stakes and then they cleaned it with sponges and water; some parts were covered by thick incrustations that we decided to leave for the moment and are waiting until we can afford a complete restoration of the floor.

## **Objective 4:** Cultural dissemination and public exploitation

### **Progress toward/against Objective 4:**

#### *Seminars and scientific conferences:*

To increase the cultural value of the site, to publicise the Project in progress at Poggio del Molino and to disseminate the result obtained, we (Carolina Megale, Francesco Ghizzani Marcia, Giandomenico De Tommaso, Cristina Mileti and Stefano Genovesi) participated in:

- 6rd June 2010, "Seminars on Populonia" at National Archaeological Museum of Florence, La villa di Poggio del Molino: la campagna di scavo 2009; Multimedial presentation (followed by acts).

- 6rd August 2010, Piombino "Notti dell'Archeologia", Archaeological Museum of territory of Populonia, La villa romana di Poggio del Molino: nuove indagini in corso; Multimedial presentation.

- 15th October 2010, Conference: L'anfora di Empoli: produzione e diffusione in età romana; our contribute: Pisa, Volterra, Populonia: l'anfora di Empoli da contesti inediti della costa nord-etrusca; Multimedial presentation (followed by acts).

- 11th November 2010, Il Salone dell'Arte e del Restauro di Firenze, Un progetto per la protezione temporanea dei mosaici; Multimedial presentation.

#### *Scientific publication:*

1. G. De Tommaso, F. Ghizzani Marcia, C. Megale, La villa romana di Poggio del Molino e il Progetto Archeodig: un nuovo approccio all'archeologia sul campo, in G. Baratti, F. Fabiani (a cura di), *Materiali per Populonia 9*, Pisa c.s.

2. G. De Tommaso, F. Ghizzani Marcia, C. Megale, Piombino (Li). Populonia, Villa di Poggio del Molino: nuove indagini, le campagne 2008 e 2009, «Notiziario della Soprintendenza per i Beni Archeologici della Toscana», 5/2009, 2010, pp. 352-356.

3. The text discussed in the seminar of Florence, La villa di Poggio del Molino: la campagna di scavo 2009, will be published on the scientific series "Materiali per Populonia 10", at the end of 2011.

4. We are also preparing a report to publish on the scientific series of Superintendence of Archaeological Heritage in Tuscany, "Bollettino della Soprintendenza per I Beni Archeologici della Toscana", 2011.

5. La campagna di scavo 2010, Report submitted to the Superintendence of Archaeological Heritage in Tuscany.

#### *Local newspaper:*

April 2010, "Piombino Oggi 1.10", L'eredità del passato. La nuova stagione di scavi archeologici sul territorio. La villa romana di Poggio del Molino, pp. 16-17.

21st June 2010, "Il Corriere di Livorno", Alla scoperta dell'antica villa roman;

#### *Database:*

In order to organize the written documentation in the best way (US, USR and USM sheets, find's sheet) we decided to create a database. For this we ordered BraDypUS.net (Communicating Cultural Heritage), a new society founded by archaeologists of the University of Bologna to create one. This database will be useful to check the progress of the research. This year volunteers started to fill the database; we are able to give you a password to check the progress; but just the staff members will be able to insert and modify the data.

#### *Tour guide at the villa (connection with local community):*

To increase the cultural value of the site, to publicise the Project in progress at Poggio del Molino and to make the local community and the public in general aware, we organized some guided visits at the villa:

The 20th of June 2010, we held an Open Day of the excavation of PdM. The archaeologist from the University of Florence who began digging at the villa in '80 was present. Also present

were members of the Association “Amici di Populonia” and “Associazione Archeologica Piombinese,” the archaeologist of Superintendence of Archaeological Heritage in Tuscany, the police in charge of the Archaeological heritage of the territory of Val di Cornia, and members of the Municipality of Piombino.

During the month of September Mr. Gianni Anselmi, the Major of the Municipality of Piombino came twice to the site. During his visit he decided to ask the members of the Council of Municipality to buy the land where is located the roman villa.

**Objective 5:** Training course Employment opportunity

**Progress toward/against Objective 5:**

*Training course for high school students:*

Four classes of Liceo Classico “Niccolini-Palli” of Livorno, one class of Liceo Classico “XXV Aprile” of Pontedera (Pisa) and some students from the Liceo of La Spezia “Costa” participated for 5 days in the excavation. These schools conduct an archaeological address of study and students must do 5 days of practical work. At Poggio del Molino, with archaeologists, students helped to clean the productive and thermal area of the villa, in order to help the archaeologists to realize the drawing documentation.

*Training course for undergraduate students:*

1. Work experience for students who have to sustain an exam for the admission to University (i.e. Oxford, Cambridge, Durham).
2. Work experience for foreign students in order to give them the opportunity to dig in a classical settlement applying the methods and the principles of archaeological stratigraphy.
3. Work experience for Italian students to get experience in the archaeological excavation and research and also obtain academic credits (in particular students of University of Florence, Milano, Torino and Genova).

## **REPORTING AGAINST MEASURES OF SUCCESS**

### **Partnerships**

The most important partnerships of our project are the Superintendence of Cultural Heritage in Tuscany, Earthwatch Institute and Associazione Culturale Past in Progress.

The Superintendence supports our research both from a legal and a scientific point of view. Legal because the land where the villa is is private (and for sale) and the owner doesn't look after the villa and its precious finds. Every year to dig and to save the villa, we need a special temporary permission to stay there. The Superintendence work to have all the necessary documentation every year. The land where the villa is, since 1988, has the Archaeological bond, for its extraordinary importance. The guardians of Superintendence supervise the villa during the autumn and the winter. Andrea Camilli (Archaeologist Director for the Superintendence at Populonia, Director of our excavation and PI with me) follows our research from a scientific point of view.

The success of our research is to the merit of EW volunteers who in the past two years have helped the staff in every step of the research. Numerous archaeologists in Italy don't understand how big the support of volunteers is and the great quality of its work. Our aim is to demonstrate to them that it is possible to carry out scientific research with volunteers (and archaeologists that teach them how to do the work).

The archaeologist of the staff of the Archeodig Project decided to found a cultural association, called Past in Progress, to look for funds to carry out our archaeological research. The funds will be used to increase the research on Poggio del Molino and in other archaeological sites in Tuscany.

University of Florence has signed an agreement with the Superintendence so the students in archaeology could participate in the excavation and receive academic credits.

Municipality of Piombino: during the month of September Mr. Gianni Anselmi, Major of the Municipality of Piombino, visited the excavation and decided to ask the board of the Municipality to buy the land. Mr. Anselmi organized the purchase of the land for next year.

The Associazione Archeologica Piombinese, in particular Luciano Giannoni and Fabio Fedeli, supports our research and helps us to publicise our Project to the local community and to have the support of the Municipality of Piombino.

Institute für Historische Werkstoffe in Leoben, Austria with Professor Emeritus Gerhard Sperl starts a new relationship with our Project. The Professor is a chemical engineer, one of the most important scholars of iron slags. He has taken some iron slags from different areas of the excavation to do a chemical analysis of the iron. We are waiting for the results at the beginning of the next year.

### **Contributions to conventions, agendas, policies, management plans**

#### *International*

See partnerships and dissemination

#### *National or regional*

See partnerships and dissemination

#### *Local*

See partnerships and dissemination

### **Dissemination**

#### *Printed*

1. G. DE TOMMASO, F. GHIZZANI MARCÌA, C. MEGALE, La villa romana di Poggio del Molino e il Progetto Archeodig: un nuovo approccio all'archeologia sul campo, in G. BARATTI, F. FABIANI (eds.), *Materiali per Populonia 9*, Pisa i.p.
2. G. DE TOMMASO, F. GHIZZANI MARCÌA, C. MEGALE, Piombino (Li). Populonia, Villa di Poggio del Molino: nuove indagini, le campagne 2008 e 2009, «Notiziario della Soprintendenza per i Beni Archeologici della Toscana», 5/2009, 2010, pp. 352-356.
3. The text discussed in the seminar of Florence, La villa di Poggio del Molino: la campagna di scavo 2009, will be published on the scientific series "Materiali per Populonia 10", at the end of 2011.
4. We are also preparing a report to publish on the scientific series of Superintendence of Archaeological Heritage in Tuscany, "Bollettino della Soprintendenza per I Beni Archeologici della Toscana", 2011.
5. La campagna di scavo 2010, Report submitted to the Superintendence of Archaeological Heritage in Tuscany.

#### *Meetings and conferences:*

- 6rd June 2010, “Seminars on Populonia” at National Archaeological Museum of Florence, La villa di Poggio del Molino: la campagna di scavo 2009; Multimedial presentation (followed by acts).
- 6rd August 2010, Piombino “Notti dell’Archeologia”, Archaeological Museum of territory of Populonia, La villa romana di Poggio del Molino: nuove indagini in corso; Multimedial presentation.
- 15th October 2010, Conference: L'anfora di Empoli: produzione e diffusione in età romana; our contribute: Pisa, Volterra, Populonia: l'anfora di Empoli da contesti inediti della costa nord-etrusca; Multimedial presentation (followed by acts).
- 11th November 2010, Il Salone dell'Arte e del Restauro di Firenze, Un progetto per la protezione temporanea dei mosaici; Multimedial presentation.
- C.Megale is preparing a poster to present to the annual meeting of Archaeological Institute of America, in San Antonio Texas the 7-9 January 2011.

*Educational resources: lesson plans; resource packs etc*

We are also working to translate a useful handbook for our volunteers.

The book edited last year is: C. Megale (ed.), Fare l'archeologo per passione e per mestiere, Pontedera 2009.