

## The Punic settlement of Pani Loriga in the light of recent discoveries

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*This paper will focus on the Punic settlement of Pani Loriga starting from the review of material from the old excavations and the analysis of the recent work undertaken by ISMA. The re-examination of the published and unpublished documentation concerning the excavations directed by Ferruccio Barreca allows us to confirm that the site was probably founded at the end of the 7<sup>th</sup> century BC. The transfer of a community of people with an Eastern tradition to a hill near the modern town of Santadi must be seen within a precise program of territorial control initiated by the powerful settlement of Sulky. In this defensive system Pani Loriga occupied a strategic position of primary importance, as the settlement was to act as a link between the coastal hinterland and the internal areas of the country, rich in minerals and agro-pastoral products. This function was maintained through the following Punic phase. The importance of the settlement is shown by Carthage's strong interest in it, which has been clearly demonstrated by the recent excavations by ISMA which identified and partially revealed vast living areas, that were originally built between the end of the 6<sup>th</sup> and the early 5<sup>th</sup> century BC, that is, in the earliest phase of the north African metropolis' presence on Sardinia.*

*Keywords: Pani Loriga; Sulcis; Sardinia; Punic Settlements; Punic Architecture and Urbanism.*

### Introduction

Pani Loriga is not far from the modern town of Santadi, on a low relief bordered to the east by the Riu Mannu river. As the crow flies the site is about twenty kilometres from the coast and visible from the settlement of *Sulky* on the island of Sant'Antioco, to the west of the wide, protected Gulf of Palmas (fig. 1). Connections with the latter must have been facilitated by the course of the Rio Palmas, which in the past was navigable at least as far as the modern town of Tratalias.

Archaeological excavations around the Nuraghe Tratalias have demonstrated a probable mixed Sardo-Phoenician settlement, datable to around the end of the 7<sup>th</sup> century BC, although trading contact between the local communities and Phoenicians date back to the 8<sup>th</sup> century, judging by the ceramic material found from surveys<sup>1</sup>. The date is extremely interesting as it attests to an early interest in this part of the island by the Phoenicians, attracted by the wealth of an hospitable region renowned for its forest resources and its soil fertility, and consequently inhabited since antiquity<sup>2</sup>. The strategic location of the site should also be emphasised for

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<sup>1</sup> BERNARDINI 2007: 134-136, 144, fig. 22; DESSENA 2015.

<sup>2</sup> LILLIU 1995: 22, 26-27, for the evidence at Pani Loriga, and BOTTO 2016: 11, 21-24.



Fig. 1. Location of the archaeological area on the hill of Pani Loriga (graphic design by F. Candelato).

the north side of the hill (fig. 1 and 4, Area B). The following discussion will present this excavation which is currently underway by the *Istituto di Studi sul Mediterraneo Antico* (ISMA) created in 2013 following the merger of ISMIMA with the *Istituto di Studi sulle Civiltà dell'Egeo e del Vicino Oriente* (ICEVO).

#### Excavations by ISMA at the Punic settlement (Area B)

As anticipated, it is highly likely that the Punic settlement developed on the north slope of the hill, in relation to the site's natural means of access consisting of a deep hollow (fig. 1 and 4, "valloncello")<sup>9</sup>. The author and Federica Candelato<sup>10</sup> carried out some surveys in May 2007 near this path, leading to the identification of some wall fragments, which later turned out to be part of a large building constructed between the end of the 6<sup>th</sup> and the first decades of the 5<sup>th</sup> century BC<sup>11</sup>.

the control of the Pantaleo and Campana-sissa passes, i.e. the roads that are the natural connections respectively to the fertile plains of the Campidano and the mining areas of the Iglesiente<sup>3</sup>.

Ferruccio Barreca discovered the settlement in the mid-1960s<sup>4</sup> (fig. 2). The existence of a nuraghe (Nuraghe Diana) was already known (fig. 3), but the 1965 topographic survey revealed the existence of Punic remains suggesting a large settlement, a necropolis and a sacred area. The first explorations took place in 1968 and led to the discovery of a Phoenician cremation necropolis. The excavations continued until 1976, mainly concentrating on the Phoenician tombs of which c. 150 were identified<sup>5</sup>. The grave goods connected to these cremations attest not only the antiquity of the Phoenician foundation – it can be traced back to the late 7<sup>th</sup> century BC<sup>6</sup> – but also to the network of exchanges, probably mediated by Sulky, with imports from both the Greek and Etruscan worlds<sup>7</sup>.

Investigations at Pani Loriga by the *Istituto di Studi sulle Civiltà Italiane e del Mediterraneo Antico* (ISMIMA) of the National Research Council (CNR) started in autumn 2005 with a systematic survey of the entire hill. The first excavation of the Punic site on the southern side of the hill took place in 2007 (fig. 1 and 4, Area A)<sup>8</sup>. A new site was opened in 2008 on

<sup>3</sup> TORE 2000: 333-334.

<sup>4</sup> BARRECA 1966: 162.

<sup>5</sup> TORE 1973-1974.

<sup>6</sup> BOTTO 2008 and BOTTO 2012b: 273-282.

<sup>7</sup> UGAS, ZUCCA 1984: 121-122; TRONCHETTI 1988: 53, 107; TORE 2000: 337-338, note 33, with bibl.

<sup>8</sup> BOTTO, CANDELATO, OGGIANO, PEDRAZZI 2010: 4-11.

<sup>9</sup> BARRECA 1966: 162, pl. LXIV, 1.

<sup>10</sup> BOTTO, CANDELATO, OGGIANO, PEDRAZZI 2010: 12-13.

<sup>11</sup> BOTTO, CANDELATO, OGGIANO, PEDRAZZI 2010: 11-17.



Fig. 2. Panorama of Pani Loriga hill (photo by G. Alvito, Terravista).



Fig. 3. Hill top with view of Nuraghe Diana and surrounding buildings on the north side (photo by G. Alvito, Terravista).

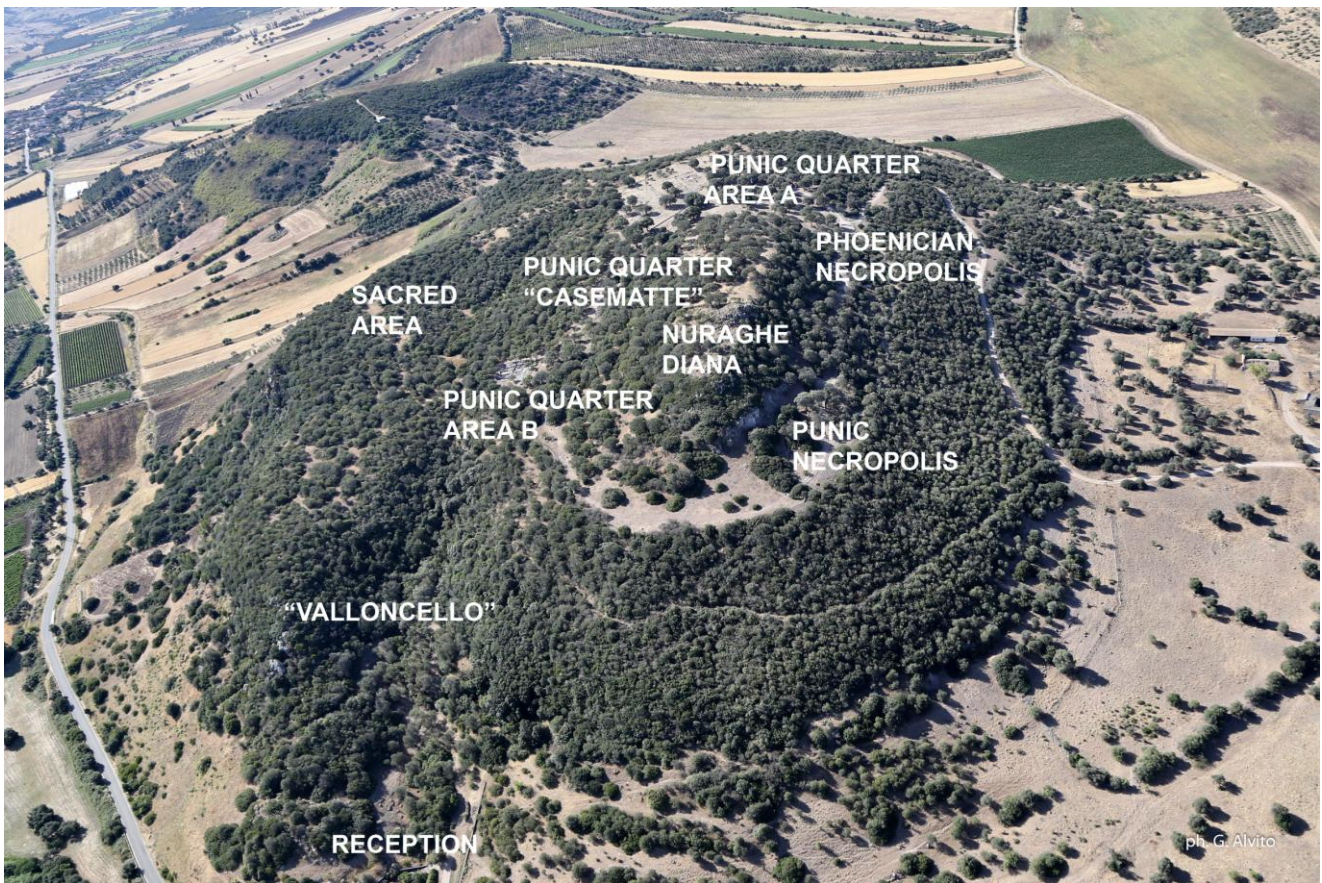


Fig. 4. Panorama of Pani Loriga hill with the main archaeological evidence (photo by G. Alvito, Terravista).

The structure comprises several different sized and oriented communicating rooms arranged on a regular layout, probably planned from the first foundation of the building (fig. 5). Currently the dimensions of the structure stand at c. 20 m NE/SW and 18 m NW/SE. However, the area where significant alignments of walls can be recognised is much larger and covers c. 33 m N/S x 30 m W/E.



Fig. 5. Plan of the multifunctional structure excavated in "Area B" (graphic design by F. Candelato and Simone Amici).



Fig. 6. Pavement made of river pebbles in room 2 near the entrance (photo by F. Candelato).

The most completely investigated area can be found downhill and is divided into five rectangular rooms (called respectively 1, 2, 4, 5, and 8), c. 8 m long and on average 2.5/3 m wide. All the rooms have been excavated down to the natural rock. The presence of a pavement made of river pebbles in room 2 near the entrance (fig. 6) suggested to us that the passageway and the corresponding pavement level are preserved; they are assumed to rest directly on the rock judging by the levels of adjacent rooms 1 and 4.

Four other rooms (called respectively 3, 7, 6 and 9), slightly shorter than the previous ones (c. 5 x 2.5/3 m) are aligned to these. Further uphill from these rooms are some walls whose direction and shape have been partially reconstructed: these are sectors 11-13 and 15. Unfortunately, the huge amount of accumulated collapse has led to a slowdown in the work, which is only expected to be finished in the next campaigns. Uphill from these sectors, the ridges of some parallel walls are clearly visible; they seem to belong to elongated square rooms interpretable as part of a much more complex than the one currently being excavated.

This hypothesis was formulated based on a comparison with the so-called "casemates" excavated by Ferruccio Barreca on the east of the "acropolis" (figg. 7-8). Despite the term, which has military connotations, it is likely that the "casemates" are multi-functional, with defensive, housing and cult purposes<sup>12</sup>. This last use seems to be indicated by the discovery of a Greek female pottery head in one of the rooms that was very likely to have been produced in the last decades of the 6<sup>th</sup> century BC (fig. 9)<sup>13</sup>. This find, besides allowing us to suggest the presence of a space reserved for cultic use, allows us to date the buildings on the western side of the "acropolis" to a period that corresponds to the supposed first Carthaginian presence on the island, in perfect synchronicity with the data from recent excavations.

The hypothesis of a cultic place at the "casemates" seems to be supported by the excavations started in 2016 by ISMA. In fact, the investigations carried out by Marco Arizza, Giuseppe Garbati and Tatiana Pedrazzi found a ritual vase and a jug in the southernmost room of the complex. This was a *kernos* with a circular sup-

<sup>12</sup> TORE 2000: 336.

<sup>13</sup> For examples from Olbia and the Nuragic sanctuary of Nurdòle (Orani) cfr. respectively: D'ORIANO, OGGIANO 2005: 175-176, 288, cat. no. 35 and MADAU 1997: 74, 248, cat. no. 98.

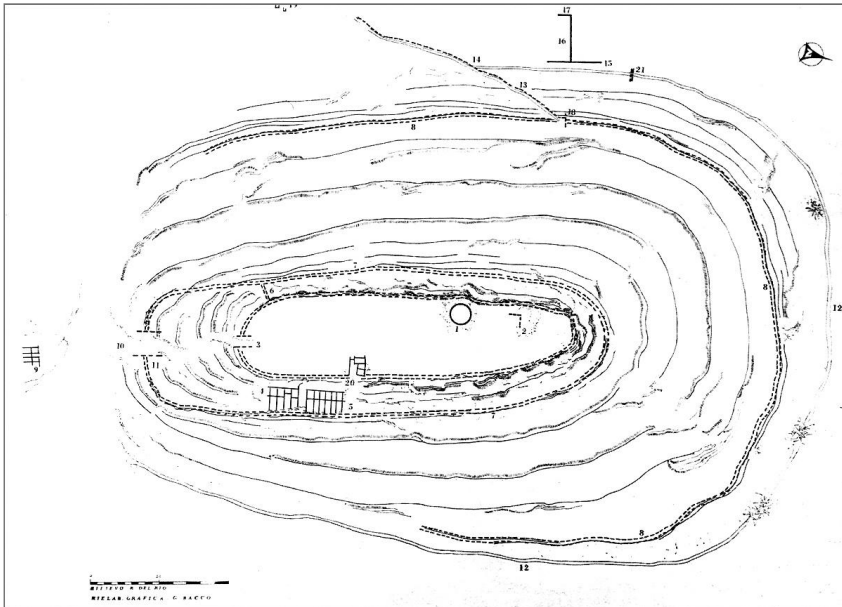


Fig. 7. Plan of Pani Loriga hill: with numbers 4, 5, 20 indicating the buildings that Barreca defined as "casemates" (from BARRECA 1986, redrawn by L. Attisani, ISMA-CNR).

port on which eight globular jars had been placed, discovered about 90 cm from the jug, which may also have been used in the rituals that took place within the room.

A multi-purpose nature has also been proposed for the building discussed here. In rooms 2 and 4 (figg. 5, 10) the presence of mostly cooking, processing and storage ware would suggest the existence of spaces used for the preparation of food and the storage of small food reserves. The analyses carried out on the contents of the vessels found during the excavations have confirmed the use of these rooms<sup>14</sup>. Some of the storage containers have evidence of heated animal fats and olive oil on them, implying that they contained cooked food.

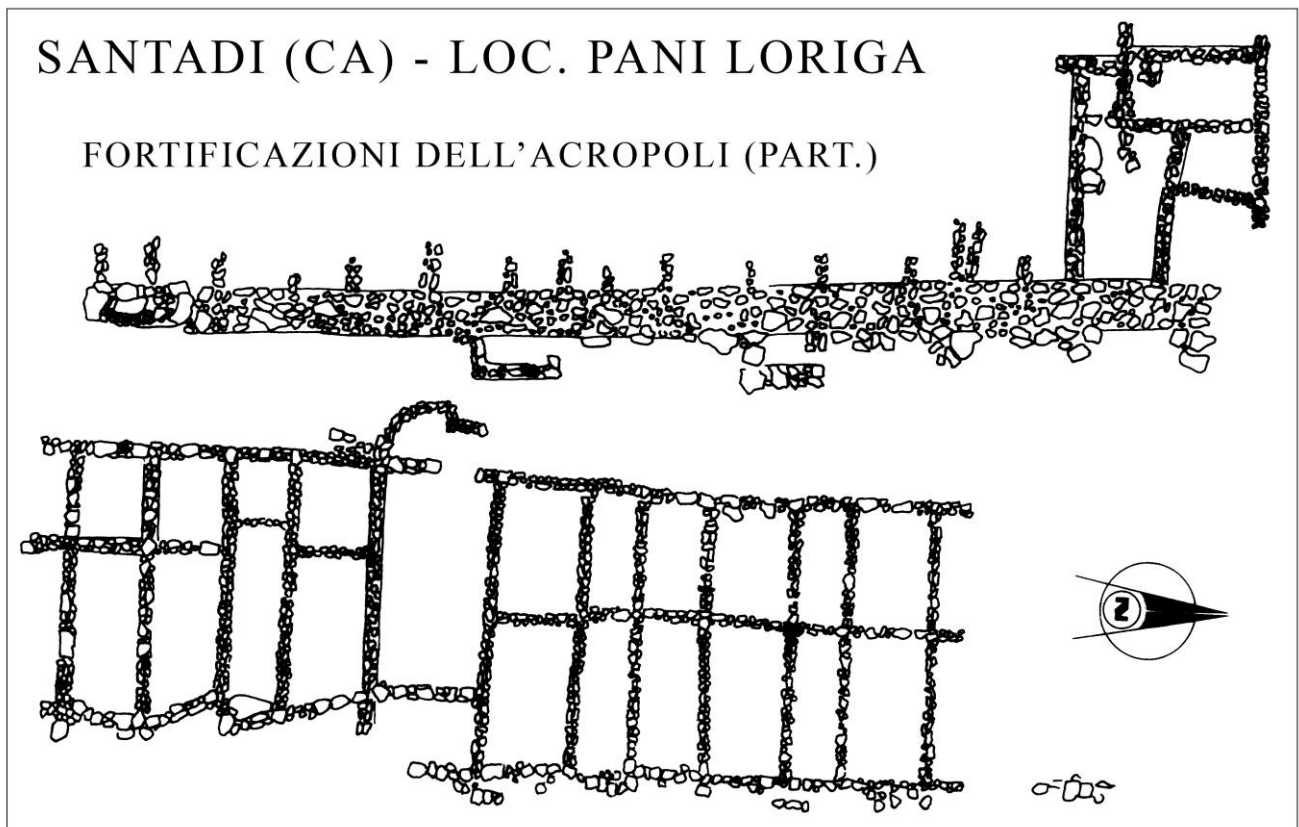


Fig. 8. Plan of "casemates" drawn during excavation (anonymous).

<sup>14</sup> BOTTO 2012a: 37-40; BOTTO, OGGIANO 2012.



Fig. 9. Female clay head of Greek manufacture probably from the so called case-mates (photo by C. Buffa, Soprintendenza Archeologia, Belle Arti e Paesaggio di Cagliari e Oristano).



Fig. 10. View from south-west of the large Punic building in Area B (photo by G. Alvito, Teravista).

On the basis of such data and seeing the off-centre location of the building compared to the nucleus of the buildings and its probable construction near a thoroughfare, we could suggest the construction of a kitchen? providing food for people leaving and entering the settlement. Moreover, the interpretation of room 1 as a shrine opens new perspectives of investigation (fig. 5, 10), since it does not exclude the possibility that in the surrounding spaces cooked dishes were made up to offer to the titular deity of the sacred area and that in the same spaces food and drink was consumed during public ceremonies.

Room 1 differs from the other parts of the complex in that it has a separate access, at the south-west, and from the provision of a bench placed against the walls of the north-east sector of the structure. Near the bench were two imported vessels: an Etruscan footed cup and an Attic *skyphos*. The first find (fig. 11), is a type of offering cup found throughout Etruria but only recorded in Sardinia at Pani Loriga. It was produced in the first half of the 6<sup>th</sup> century<sup>15</sup>. Thus, the vessel is older than the context in which it was found and was probably preserved as a relic for unknown reasons, possibly related to the “exotic” nature of the artefact. The excavation data is particularly interesting, since the cup, probably fallen from the bench on which it stood, was found lying on the ground and surrounded by a large number of animal bones, relating to a sacrifice or remains of a meal. Unpublished studies by Jacopo De Grossi show that 24 sheep bones were found in the room, from at least two individuals, one young, less

than two years old and one an adult of between 4 and 6 years old. Ox is represented only by an anklebone, whilst there are 9 pig bones, related to two individuals, an infant and an adult. Game is represented by six deer bones, from both a young and an adult individual.

The *skyphos* (fig. 12, on the left) retains a part of the decoration, made up of a dancing Maenad and a palmette with reserved heart that suggests the Haimon Painter’s workshop. Based on the comparisons identified by Carlo Tronchetti the vessel might be dated to between 500 and 480 BC<sup>16</sup>. This chronology is in line with other imported Attic fragments found in adjacent rooms<sup>17</sup> and together with the Punic material<sup>18</sup> allows us to es-

<sup>15</sup> MATTEUCIG 1951: 74, pl. XIII, 15, type 2; BARTOLONI 1972: 225, tomb VIII, 26-27; SANTOCCHINI GREG 2014: 120, pl. XXII, cat. no. 530.

<sup>16</sup> MOORE, PEASE PHILIPPIDES 1986: pl. 103, no. 1516; LOZZO 2002: 123, note 165, pl. LXXV.

<sup>17</sup> BOTTO, CANDELATO, OGGIANO, PEDRAZZI 2010; BOTTO 2012a: 36, fig. 10.

establish the date of the first foundation of the building. The details of the excavation are also interesting for the *skyphos* since a part of the vessel was found wedged inside a support known as “hour-glass” (fig. 12, on the right). We believe that the *skyphos* may have been displayed as a gift on the bench of the shrine and for motives of stability placed on the above-mentioned support.

From room 1 come other artefacts that could attest to the sacred nature of the room. These are glass paste necklaces beads and pendants, pottery sherds as well as miniature reproductions of amphorae<sup>19</sup>. An interesting item is represented by a large support, of a production not found elsewhere in the central western Punic Mediterranean world (fig. 13). It is probably a local creation, found only in the Sulcis area. At Pani Loriga, a close parallel comes from area A, whilst a similar, but more carefully-made example was found in room 5. More recently a new example comes from room 6N(orth). In our opinion a relevant comparison can be found in an example from the settlement at *Sulky* that due to its fragmentary nature has been interpreted as an incense burner<sup>20</sup>, whilst another two examples have been recently found by Michele Guirguis in the settlement at Monte Sirai<sup>21</sup>.

An element of this type of support must be highlighted: the base is finished with an almond-shaped rim identical to those found on basins<sup>22</sup>.

In the absence of a complete shape, therefore, it is difficult to distinguish one from the other, considering also that the fabrics are very similar. Moreover, as the three supports from Pani Loriga are all found in 5<sup>th</sup> century BC contexts they are the clear evidence that the productions of almond-shaped rims basins continue in Sardinia at least until the first decades of that century<sup>23</sup>.

Concerning the use of the type of support examined here, we believe that their considerable size means they were particularly adapted to holding large recipients that could have had various uses according to their place of discovery. Supposing the sacred character of room 1 the support could have held a libation vessel or a

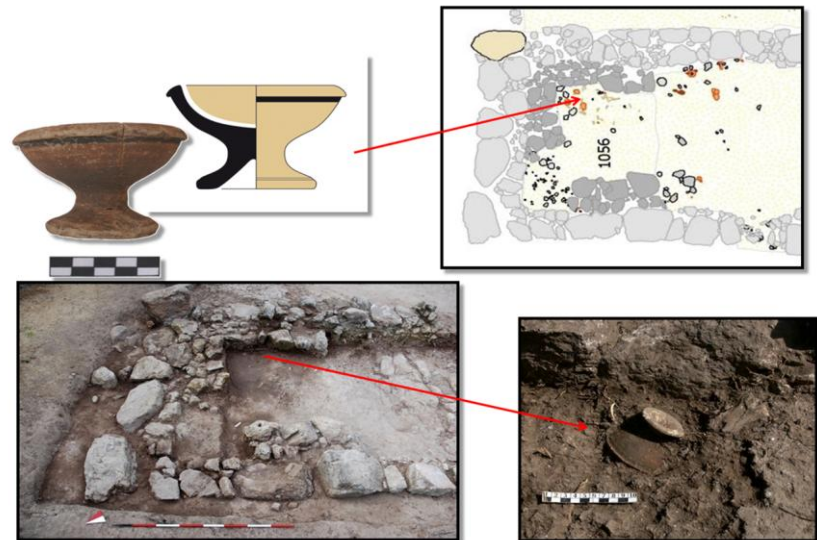


Fig. 11. Room 1: offering cup, Etruscan production (drawing by E. Sousa Barbosa, Universidad de Lisboa; graphic design and photo by F. Candelato).



Fig. 12. Room 1: on the left, skyphos, hypothetically attributable to the Haimon Painter workshop dated between 500-480 BC (drawing by E. Sousa Barbosa, Universidad de Lisboa); on the right, support known as “hour-glass” (photo by F. Candelato).

<sup>18</sup> BOTTO, CANDELATO, OGGIANO, PEDRAZZI 2010: 16-17; BOTTO 2012a: 35-40; BOTTO, OGGIANO 2012: 157-165.

<sup>19</sup> BOTTO, CANDELATO 2014: 28-30; BOTTO 2012b: 290-291.

<sup>20</sup> CAMPANELLA 2008: 227, CRON 500/291.

<sup>21</sup> These are currently unpublished supports, which were made known by the excavator.

<sup>22</sup> For this type of artefact, cfr. e.g. BELLELLI, BOTTO 2002: 282-284.

<sup>23</sup> For evidence from Carthage of this period cfr. BECHTOLD 2010: 17-18, fig. 9, 6.

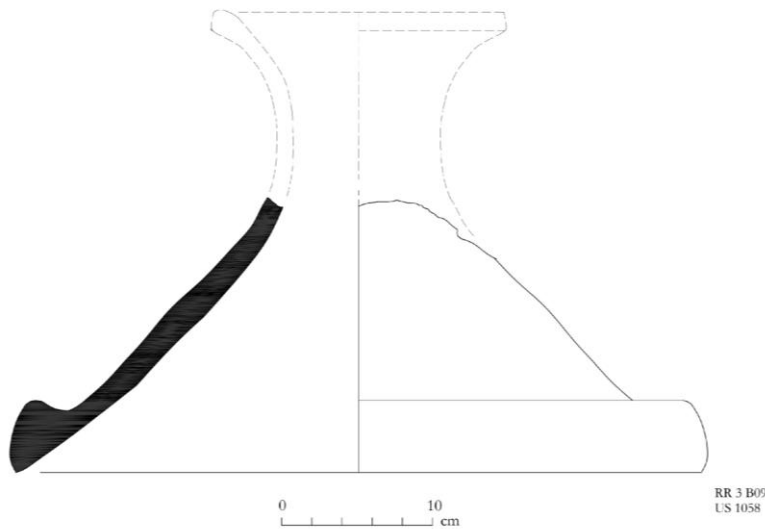


Fig. 13. Room 1: large support (drawing by M. Zinni).

lustral basin. In theory, we cannot exclude the possibility that these supports could have supported the upper part of an incense holder or trays on which food had been placed. In these cases, the support would have been placed on a certain point on the fire, specially prepared with burning embers or better still with a large heated stone. The function of the support to heat food or as a base of an incense burner would explain the shape of the support itself. Furthermore, this specific type of use of the support might find confirmation in the results of the examination conducted on some of the 'basins' that have evidence of burning along their rims and inside the bowl, suggesting a second function for these recipients as "cooking pots" or "cooking supports"<sup>24</sup> dish.



Fig. 14. Room 5 during excavation: showing the amphorae deposited in the store-room (photo by F. Candelato).

Fig. 15. Room 5 from the north-east at the end of the excavation. The three-dimensional model created from photograms, clearly shows the level of conservation of the walls and the slope of the rocky ground underneath (by F. Candelato and P. Caporali).

Regarding the supports from Pani Loriga, this type of function seems to be corroborated by the example from room 5, which shows traces of burning at the base. In effect, the room seems to have been used mainly for the preparation of cooked dishes or storage of foodstuffs. The southern part of room 5 (figg. 14-15) is very well preserved, at this point, in fact, the stone wall rises over a metre<sup>25</sup>. Such a favourable situation has allowed us to find a large amount of ceramic material, but especially has allowed us to document the structure of the walls, the upper part of which were made of mud-brick. Concerning the ceramic material, the situation is much the same as in room 2<sup>26</sup>, where it was possible to register the association between the Bartoloni D3 amphorae, considered the last production of Phoenician Sardinia, with the Bartoloni D4 amphorae, the first Punic production found throughout the island from the beginning of the 5<sup>th</sup> century BC<sup>27</sup>.

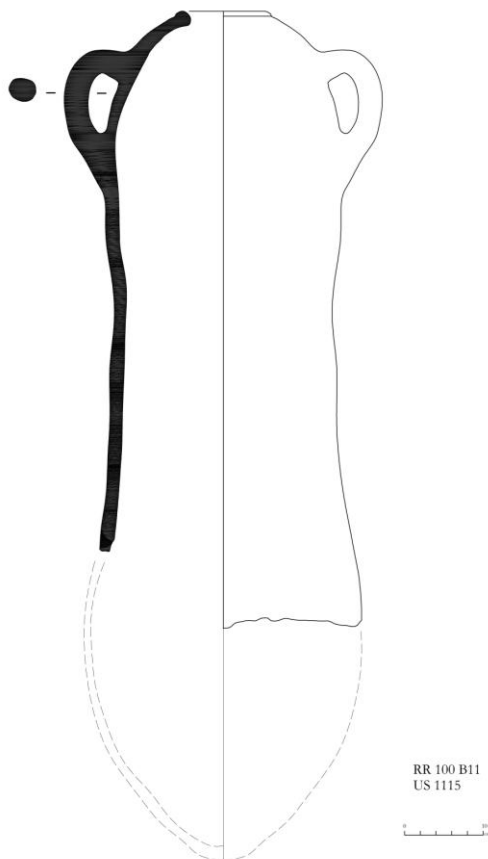
<sup>24</sup> CAMPANELLA 2008: 141, note 126.

<sup>25</sup> BOTTO, CANDELATO 2014: 31, pl. 27, at top.

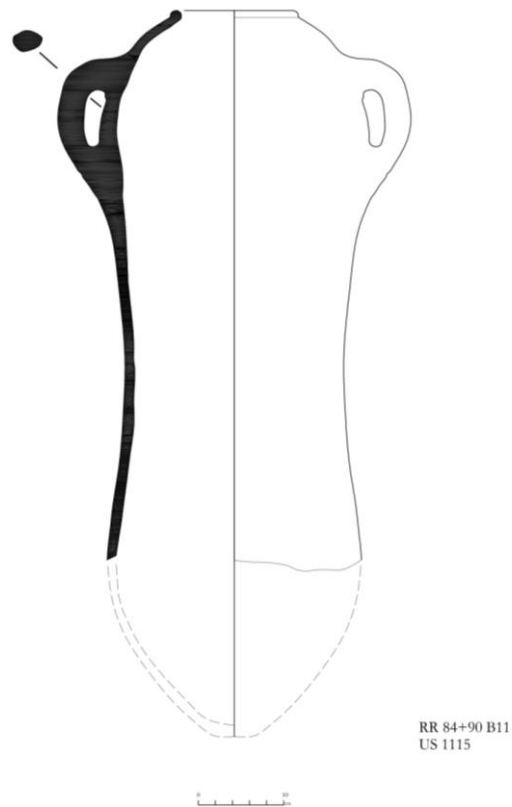
<sup>26</sup> BOTTO, CANDELATO, OGGIANO, PEDRAZZI 2010; BOTTO 2012a: 36, figg. 5-7.

<sup>27</sup> BARTOLONI 1988: 46-47. On this production cfr. RAMON TORRES 1995: 174-177, types T-1.4.2.1. and T-1.4.4.1.





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Fig. 16. Room 5: amphora of type Bartoloni D3 (drawing by M. Zinni).

Fig. 17. Room 5: amphora of type Bartoloni D4 (drawing by M. Zinni).

From the numerous amphorae found in room 5 here we present an example of the D3 type, reconstructed up to about three quarters of its original height, which was probably around 1.08 m (fig. 16), and an example of the D4 type, slightly smaller at around 85 cm high (fig. 17). The study of the capacity, conducted using AutoCAD allows us to affirm that the larger container could hold 55.6 litres, the smaller one 38.4<sup>28</sup>.

From room 5 comes pottery used in the cooking and production of food, such as pans and basins, as well as shapes that are poorly documented in the panorama of the production on the island. From this room came a support like that of room 1 (fig. 18) and a funnel that is very similar to one from room 2<sup>29</sup>.

Rooms 2 and 5 were separated from each other by room 4, with which they originally communicated through openings located in the southernmost part of both<sup>30</sup>. This latter was identified as a large open space where bread was baked inside characteristic *tannurs*, pieces of which were found during the excavation. Room 4 also had the function of connecting the row of rooms beyond, as it was connected by a monumental opening with room 7, the heart of the building<sup>31</sup>.

The situation of the excavation in room 7 (fig. 5, 10) has given us important data both for the chronology and the use of the building. In fact, a black gloss footed cup was found in the occupation layers sealed by the collapse of the structure, which, based on the comparisons established by Carlo Tronchetti with material from

<sup>28</sup> We thank Martina Zinni for the study conducted on the capacity of the amphorae found in room 5.

<sup>29</sup> For this particular type of find, cfr. BOTTO 2012a: 36-38, fig. 8.

<sup>30</sup> Later the opening between rooms 2 and 4 was sealed, following a general restructuring and reorganisation of the spaces of the whole building not long after the initial construction project: cfr. BOTTO, CANDELATO, OGGIANO, PEDRAZZI 2010: note 35 (sealing = US 1024); BOTTO 2012a: 36-37.

<sup>31</sup> BOTTO, CANDELATO 2014: 31-32.

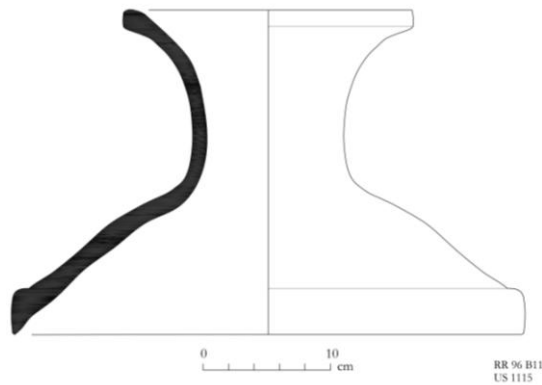


Fig. 18. Room 5: large support (drawing by M. Zinni).

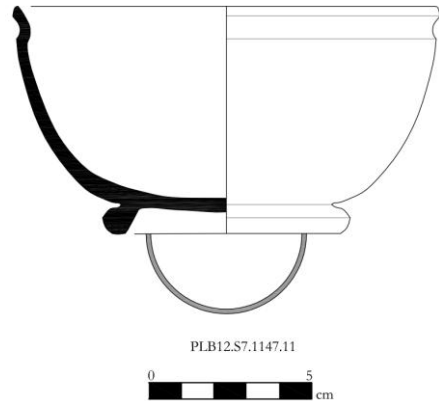


Fig. 19. Room 7: black gloss footed cup dated between 490-480 BC (drawing by M. Bonadies).

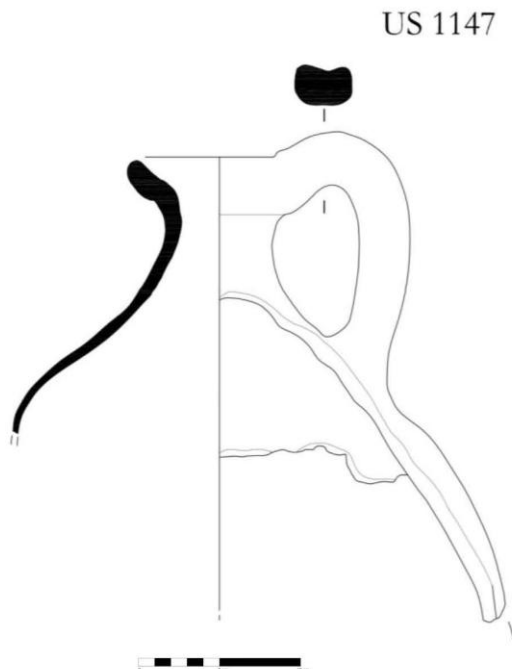


Fig. 20. Room 7: circular mouthed jug with concave-convex rim (drawing by M. Bonadies).



Fig. 21. Room 7: curved wall cup (drawing by M. Bonadies).

the Athenian Agora<sup>32</sup>, can be dated to between 490-480 BC (fig. 19). The vessel was found associated with Bartoloni type D3 and D4 Punic amphora as well as other ceramic types that can be dated to this period, such as the circular mouthed jug with a concave-convex rim (fig. 20)<sup>33</sup>, a curved-wall cup<sup>34</sup> (fig. 21) and the two-handled cooking pot with rectangular and parallel walled rim (fig. 22). Focusing our attention on this last typology<sup>35</sup>, it is interesting to note that the numerous examples from Pani Loriga, areas A and B, all from reliable stratigraphic contexts of the

5<sup>th</sup> century and as in this case from its early decades, allow us to raise the chronology of the type, previously assumed to be the beginning of the 4<sup>th</sup> century BC. Similar considerations emerge from the recent studies conducted in the necropolis of Monte Sirai<sup>36</sup>, confirming the close links that existed between the two settle-

<sup>32</sup> SPARKES, TALCOTT 1970: 109 "cup-skyphos" and 276, n. 573, pl. 25.

<sup>33</sup> CAMPANELLA 2008: 182-183.

<sup>34</sup> BOTTO 2009: 152-153.

<sup>35</sup> CAMPANELLA 2008: 105; CAMPANELLA 2009: 325-327.

<sup>36</sup> GUIRGUIS 2011: fig. 13.

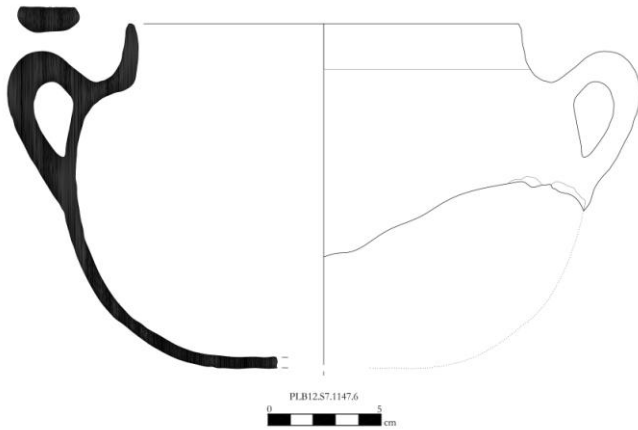


Fig. 22. Room 7: two-handled cooking pot with rectangular and parallel walled rim (drawing by M. Bonadies).

ments<sup>37</sup>.

Among the most interesting finds from trench 7 we note a fragment of a glass paste ointment jar and a scarab with a deer hunt design (fig. 23, a). This design relates to features that were particular to the Pani Loriga territory, since this animal is still present in the nearby forest of San Pantaleo. From this point of view Pani Loriga, aligns with the documentation coming from Monte Sirai and especially Nuraghe Sirai, both of which have produced a lot of deer remains<sup>38</sup>.

Deer bones appear in almost all the rooms excavated in the building examined here and from among the remains of a meal of a probable foundation rite Jacopo De Grossi has identified a fragment of a proximal radius from an adult deer. In fact, a stone-lined pit found in room 7 was found during the 2013 campaign, originally closed by a schist slab, inside which were some carefully-placed animal bones and a piece of lead (fig. 24). The structure, which is connected to the first feature of the room, had sheep/goat bones on the floor: these come from two individuals, one young, between one and two years, and one an adult of over three years of age. There was also an ox identified from three bones that refer to an individual between 42 and 48 months, and as mentioned above, a deer (fig. 25).

Fig. 24. Room 7: detail of the “small well” (photo by F. Candelato).

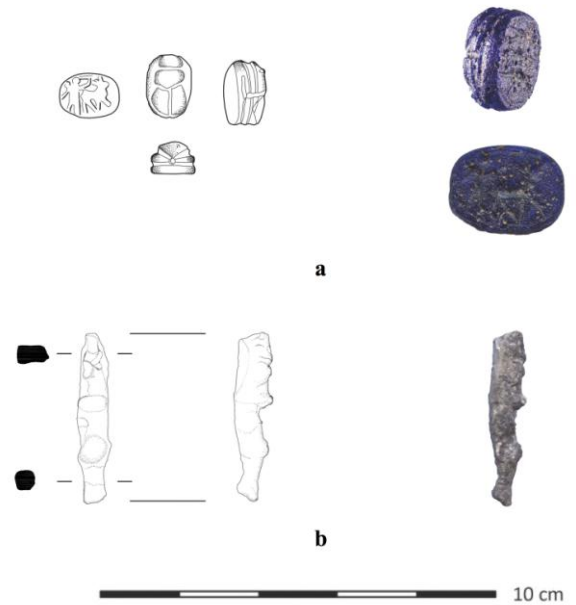


Fig. 23. Room 7: scarab with a deer hunt design (drawing by M. Zinni).



<sup>37</sup> BOTTO, DESSENA, FINOCCHI 2013: 106

<sup>38</sup> CARENTI 2012.



Fig. 25. Room 7: detail of the animal bones found at the bottom of the “small well” (photo by F. Candelato).

algarrobo” at *Lixus*<sup>43</sup>. Here, inside a stone cist, connected to the wall of the room where the deposit was found, a perfectly preserved *kalathos* was identified. This vessel, produced between 175 and 125 BC allows us to date the context, characterised also by the presence of grape seeds, pig bones (11), sheep/goat (1) and bovine (1) and two glass-paste beads.

The distinctive element here, compared to the “little well” of room 7 at Pani Loriga, is the large pottery container, whilst there are many points of contact, starting from the remains of meals, the positioning and nature of the structure that contained the deposit and the presence of artefacts which probably had a cultural value. Even this aspect needs to be carefully evaluated, since such deposits had a ritual use which functioned to preserve the structure from catastrophic destruction<sup>44</sup>. In our case the discovery of a piece of lead should be noted (fig. 23, b), which supports the ritual interpretation of the context. In fact, lead elements are often, but not

Foundation deposits are well-documented in the so-called colonial Phoenician world, with evidence ranging from Kition, on Cyprus to *Lixus*, on the Atlantic shores of Morocco, and cover a very wide period from the 9<sup>th</sup> to the 2<sup>nd</sup> century BC<sup>39</sup>. Furthermore, at Pani Loriga, from the recently-excavated building in area A<sup>40</sup>, contemporary with our own, come two foundation deposits: room I, which contained a Campanella P2B type cooking pot (end of 7<sup>th</sup>-beginning of 6<sup>th</sup> century BC, while from room II came a Campanella P5 cooking-pot (5<sup>th</sup>-first half of 3<sup>rd</sup> century BC)<sup>41</sup>.

In the first case the vessel is about a century older than the building. This is also shown by the Etruscan offering cup found in room 1 of the large building discovered in Area B. The cooking pot from room II, on the other hand, is from the building’s foundation phase, as thanks to the excavations in Area A and B at Pani Loriga, we can propose a wider dating than that of the traditional one, starting from the beginning of the 5<sup>th</sup> century BC<sup>42</sup>.

The situation in room 7 is substantially different from that of most of the colonial foundation deposits for three specific aspects: the absence of pottery, the clear signs of food remains and the construction of a structure that preserved the signs of propitiatory ritual. In our opinion the most relevant comparison, despite the geographic and chronological distance, can be found in the foundation deposit found at the “sondeo del

<sup>39</sup> The group of documents is collected by MANSEL 2003, MANSEL 2013, MANSEL 2014.

<sup>40</sup> OGGIANO, PEDRAZZI in press.

<sup>41</sup> Cf. respectively CAMPANELLA 2009: 299-300, 325. For a substantial modification in the chronology of the Campanella P5 type as observed for the example from room 7 (*supra* text note 33 and fig. 22), placed in a context dated to the 5<sup>th</sup> century BC. On this point cf also BOTTO, CANDELATO 2014: 32, fig. 8, d.

<sup>42</sup> Cf. *supra* previous note.

<sup>43</sup> ARANEGUI 2001: 46-47, 56-59, 196-197, 202, 237.

<sup>44</sup> MANSEL 2014: 1020.



Fig. 26. Room 8: view from the north-east (photo by S. Lancia).



Fig. 27. Room 8: detail of the southern sector during the excavation (photo by S. Lancia).

only, found in sacred Phoenician and Punic contexts. At Pani Loriga, for example, two pieces of lead were found during the survey carried out in 2005 by Massimo Botto and Stefano Finocchi in the so-called *s area sacra*<sup>45</sup>. We must also signal the presence of lead artefacts in many Sardinian sanctuaries-*tophets* such as Nora<sup>46</sup>, Sulcis<sup>47</sup> and Tharros<sup>48</sup>, whilst off island lead artefacts are documented in North Africa in the tophet at Sousse<sup>49</sup>. Finally drops, artefacts and lead ingots are well documented in recently investigated sacred contexts at Motya<sup>50</sup>.

\* \* \*

The excavations carried out in 2014 and 2015 mainly concentrated on the south-western sector of the building and in particular room 8, room 6 and sectors 11, 13 and 15 (fig. 5). At this point the technique of photogrammetric drawings was introduced, which allowed the three-dimensional rendering of the various phases of the excavation<sup>51</sup>.

The complete excavation of room 8<sup>52</sup> (fig. 26), the easternmost of the long rooms so far brought to light, revealed a probable northern access, while an infill in the South-eastern corner might be evidence for internal circulation: this hypothesis could be checked by excavating the adjacent room 9.

The northern half of the room is poorly conserved, while the southern portion has a larger foundation and a good part of the wall. The difference between the state of conservation is not only due to post-depositional factors, but also seems to correspond to a different use of the room's internal spaces. The northern portion can be preliminarily defined as a passageway, probably in the open. In fact, it is characterised by a beaten-earth floor which contained very few remains.

In the southern part of room 8 the floor (fig. 27) is at a higher level, because of an internal terracing created by being filled numerous times with stone blocks interspersed with levelling clay. In the living areas of this part of the room many locally made vessels were found, currently being studied, and some interesting im-

<sup>45</sup> BOTTO 2012b: 291-296; BOTTO 2014.

<sup>46</sup> ACQUARO 1976: 199; CECCHINI 1978: 131-141; MELCHIORRI 2016: 272-274, fig. 2.

<sup>47</sup> For the lead amulets from the Sulcis *tophet* cf. the considerations developed by BARTOLONI 1973: 181-182, note 5.

<sup>48</sup> ACQUARO 1976: 199, pl. LII, 1.

<sup>49</sup> CINTAS 1947: 26-27, figg. 54-55; D'ANDREA 2014: 86, fig. 3.13.

<sup>50</sup> NIGRO 2005: 86-87, "Più chiaramente attribuibili alle offerte del Santuario C3 sono una colatura di piombo (MC.04.189), una lamina (MC.04.349) e un frammento in bronzo (MC.04.183), e, soprattutto, un tridente miniaturistico di piombo (MC.04.209, tav. XLIV), che sembra confermare il culto di una divinità infera". Concerning the ingots cfr. DRAGO 2013: 181.

<sup>51</sup> Photogrammic techniques in the building in Area B was carried out by Federica Candelato and Pietro Caporali.

<sup>52</sup> This part of the article was agreed with Sara Lancia, whom I thank for the collaboration.



Figg. 28-29. Room 8: Late Corinthian kotyle from the end of the 6<sup>th</sup> century BC. (drawing by M. Zinni).

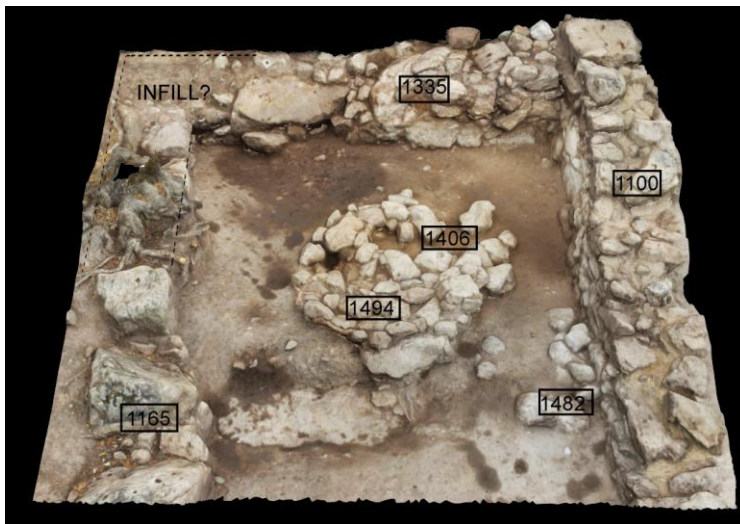


Fig. 30. Room 8: detail of the stone pseudo-circular structure (3D model by P. Caporali).

ports, among which stands out for its elegance the beautiful late Corinthian *kotyle*<sup>53</sup> decorated with lotus buds around the rim and handle, which was produced around the end of the 6<sup>th</sup> century BC<sup>54</sup> (figg. 28-29).

The floor preparation layers exploited and obliterated a pre-existing pseudo-circular structure, made of medium sized irregular stone blocks, left *in situ* (fig. 30). A preliminary hypothesis suggests that this was the base of a structure linked to production activities and then disused. Comparative investigations into artefacts of Punic tradition in the central-west Mediterranean together with biochemical analyses of some specially selected samples will hopefully provide clarification of the function of the structure and the whole room.

Unlike room 8, room 6<sup>55</sup> has only been partially investigated and for this reason it is currently not possible to suggest a reliable reconstruction of the various phases of the room's life. Following the removal of the natural increase in the levels and the level of collapse relating to its abandonment the excavation has revealed a division of the room, which after a phase of abandonment, was reoccupied and divided in two rooms<sup>56</sup> through the building of a small wall oriented east-west (US 1412) (fig. 30).

Regarding room 6N(orth), investigations were limited to uncovering a hearth which was part of the last phase of the building's use (fig. 31). Amongst the materials found, is of particular interest a large "support" (RRB261) found during the investigations to the south of the fireplace (figg. 32-33). In fact, this is different from previous examples, as the base does not have the characteristic "almond" rim, typical also of basins. Other rare shapes from the building are the lamps which appear here in two examples, one of which has two spouts and is

<sup>53</sup> N. inv: PLB15.S8.1414.1; diam: 17,6 cm; h: 12,8 cm; diam. foot: 9 cm; wall thickness 0,7 cm; ceramic body: 10 YR 8/3 (very pale brown); brown decorations: 2.5 YR 8/3 (dark reddish gray); red decorations: 2.5 YR 4/6 (red) and 2.5 YR 4/4 (reddish brown).

<sup>54</sup> BLEGEN, PALMER, YOUNG 1964: 211, nn. 250-259, pl. 35; RISSER 2001: 56, 59, n. 120, fig. 7. I thank Andras Marton for the fruitful exchange of ideas about the identification and dating of the kotyle as well as the references cited in this note.

<sup>55</sup> This part of the article was agreed with Livia Tirabassi, whom I thank for the collaboration.

<sup>56</sup> Called 6N(orth) and 6S(outh).



Fig. 31. Room 6N(orth): detail of the fireplace (photo by F. Candelato).



Fig. 32. Room 6N(ord): detail of the large support found to the south of the fireplace (photo by F. Candelato).

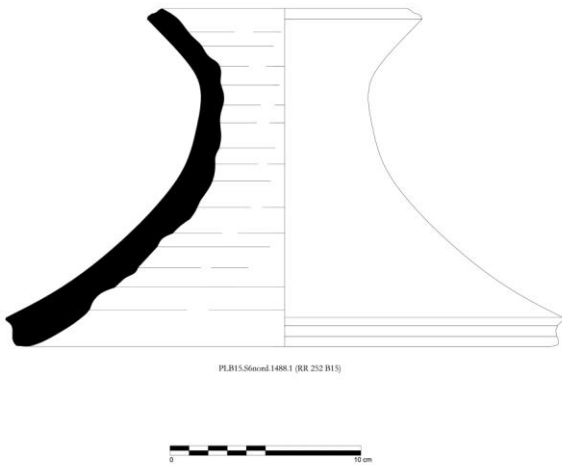
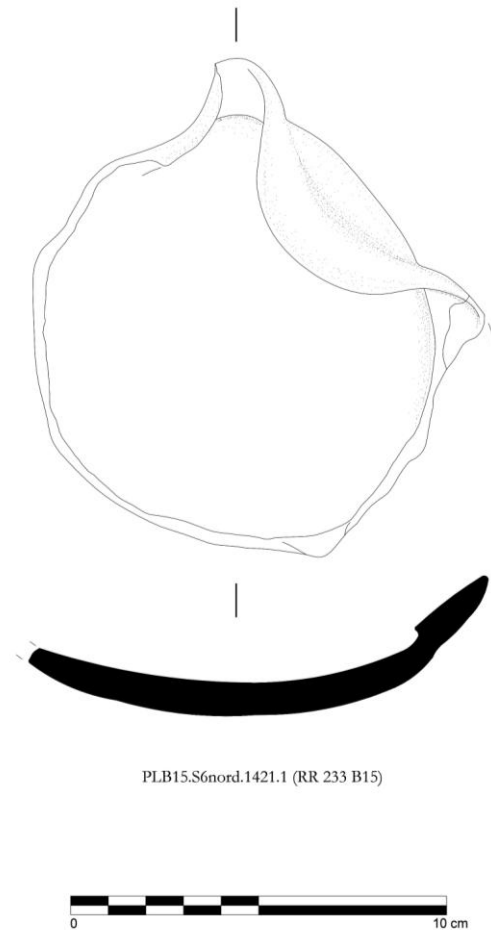


Fig. 33. Room 6N(orth): large support (drawing by M. Zinni).

Fig. 34. Room 6N(orth): double spouted lamp completely covered with Red Slip (drawing by M. Zinni).



covered with red slip (fig. 34). The rest concerns well-known types such as the Bartoloni D4 amphorae, the basins with band rims, cooking pots, carinated cups and jugs with circular mouths and thickened rims.

In the southern part, defined as room 6S(outh), after removing a series of levels from near the dividing structure, most likely due to the disintegration of the mud-brick wall, the excavation revealed a semi-circular arrangement made by reusing the stones from the earlier collapse. This was the housing for a large Punic transport amphorae (Bartoloni D4), found *in situ*, lacking bottom and both handles (fig. 35). The absence of the

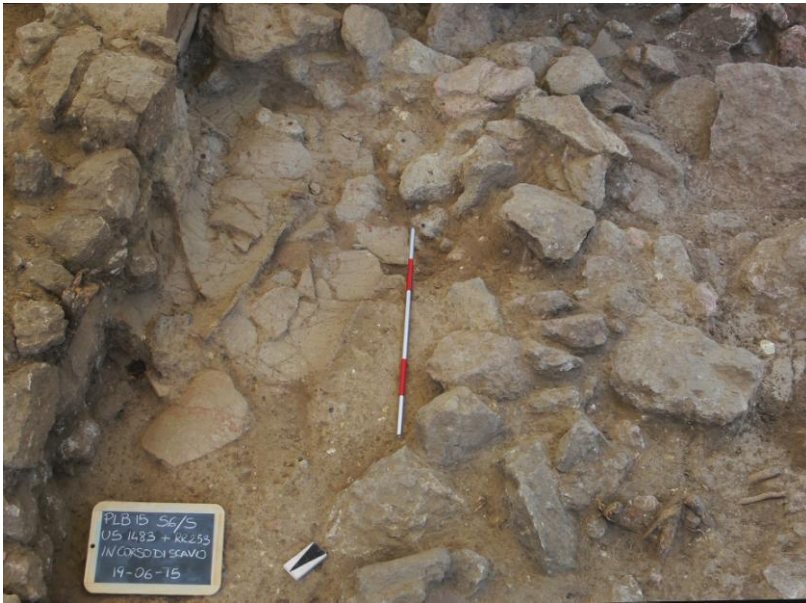


Fig. 35. Room 6S(outh): Bartoloni D4 amphora in its housing (photo by L. Tirabassi).

bottom and the reversed position of the container suggest its re-use as a vessel to hold solid foodstuffs. In effect the amphora, which had its base intentionally removed, very like fractured and was placed carefully within the room with its rim facing the floor. This situation has been widely documented in room 2, which has revealed three amphorae reused for containing foodstuffs.

The preliminary examination of the diagnostic materials from 6S(outh) confirms what was recorded in the other excavated rooms. In fact next to the ubiquitous Bartoloni D4 amphora, there were the basins for preparing food and the pots for their cooking, both in the simplest forms and in those with two handles. For the table the lack

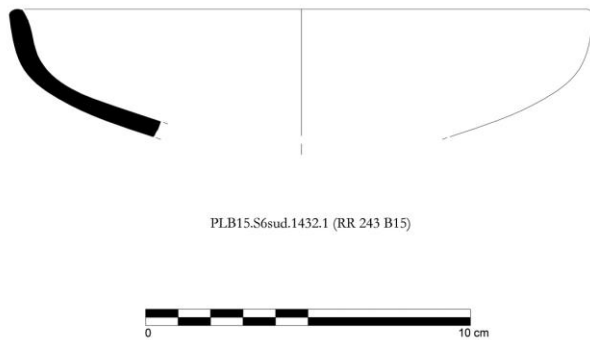


Fig. 36. Room 6S(outh): curved wall cup with thickened flared rim (drawing by M. Bonadies).

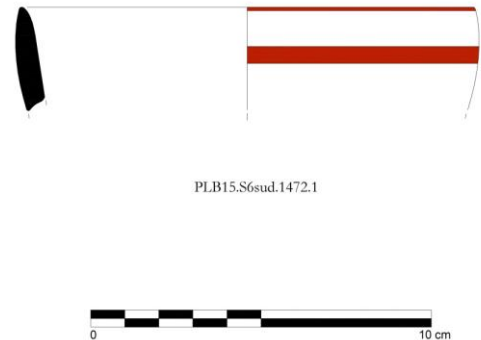


Fig. 37. Room 6S(outh): calotta cup with red bands (drawing by M. Bonadies).

of plates stand out again, perhaps substituted by the curved wall cup in the variation with the slightly flaring thickened rim (fig. 36), probably used for consuming cereal and pulse soups. On the other hand, there were many forms for consuming wine, starting with carinated cups, calotte cups both unpainted and with the characteristic red bands (fig. 37), that together with the painted and plain jugs (fig. 38) formed part of the well-matched table “service”.

Future investigations will be able to clarify whether room 7 and room 6 were originally part of a single room, or if they were two communicating rooms. However, there seems to be no connection between room 7 and 3, which, as with room 1 was isolated from the other parts of the building and with an entrance located on the south-west corner, in front of a wide-open space opposite the so-called “valloncello”, which represents one of the possible entrances to the site. The original layout of room 7 was seen to have an entrance on the southern side, later closed off. The space in front, called during the excavation “sectors 11 and 13”, probably relates to a road, which was closed at a later date of the building and affected by rebuilding work. It should be underlined that the excavations are still in progress and no definite conclusions can yet be drawn: the hypotheses formulated here need to be confirmed by future research.



The possible road flanked the entire complex to the south-west between this and another sizable building placed higher up. The most recent investigations in sectors 11, 13 and 15, in addition to freeing the path from the large amount of material from the collapse of the building, brought to light the base line of something that was not just a large terrace, considering the gradient of the ground, but also a perimeter wall of a complex building made up of several rooms. The protruding ridges of the division walls perpendicular to the perimeter walls can still be seen 20 m of this alignment has been excavated, with a monumental opening that opened directly onto the road that was later closed off.

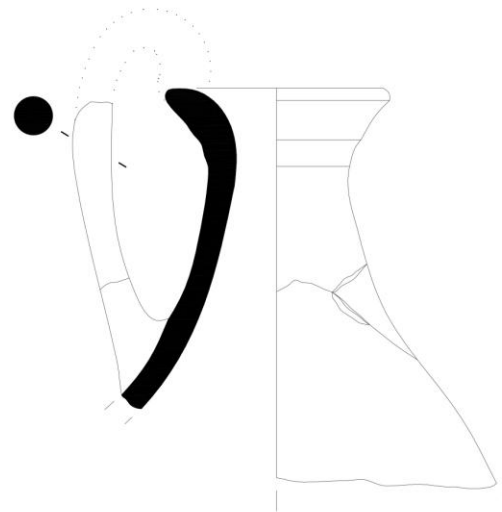
This change is likely to be linked with a series of activities that led, over a short time, to the closure of the road with the creation of an arrangement between the two buildings delimiting the test section 15 to the north-west, still being excavated.

In conclusion, the impression reached from the CNR investigations at the Punic settlement of Pani Loriga is that of a scattered settlement, with living areas arranged on a wide area across the hillside and with probably differentiated functions. In fact, there is a net difference in the internal spaces, on a structural and organizational level, between the structures on the southern plateau (Area A) and the large building on the northern side (Area B). If in the first case it is plausible to think of private houses, in the second, the dimensions and the various functions of the rooms suggest the hypothesis of a public structure.

Similar assessments should extend to structures located on the acropolis although they have only been partially investigated up to now. However, the so-called casemates, excavated by Ferruccio Barreca and now by ISMA, should be considered both as functional buildings for the defence of the settlement and areas where different productive or cultic activities took place and where all the community was involved.

It is worth noting that the large multifunctional building in Area B, which was described in detail above is part of a very complex urban system, whose importance can be understood thanks to the evidence found on the ground where the vegetation is less thick. The monumental dimensions of these structures partially supports Ferruccio Barreca, who defined Pani Loriga a veritable fortress. However, compared to the interpretation developed by that scholar, the existence of three boundary walls arranged at various levels on the hill have not been identified in recent surveys. Because of this another definition has been proposed which defines Pani Loriga as a “structurally protected site”.

According to this new interpretation the buildings on the north side of the hill, erected on artificial terraces and separated by pathways, would have created a solid and extremely efficient defence system, with the safest part being the acropolis.



PLB15.S6sud.1420-30-83.5 (RR 228)



Fig. 38. Room 6S(outh): jug with flared rim (drawing by M. Bonadies).

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