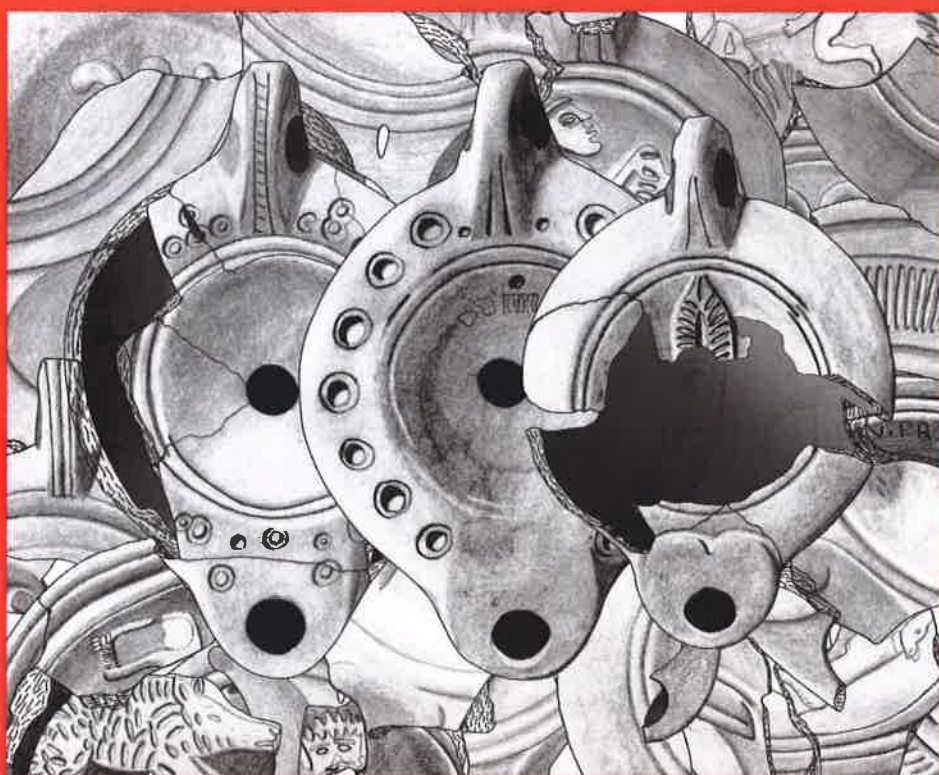


Roman Lamps of *Scallabis* (Santarém, Portugal)

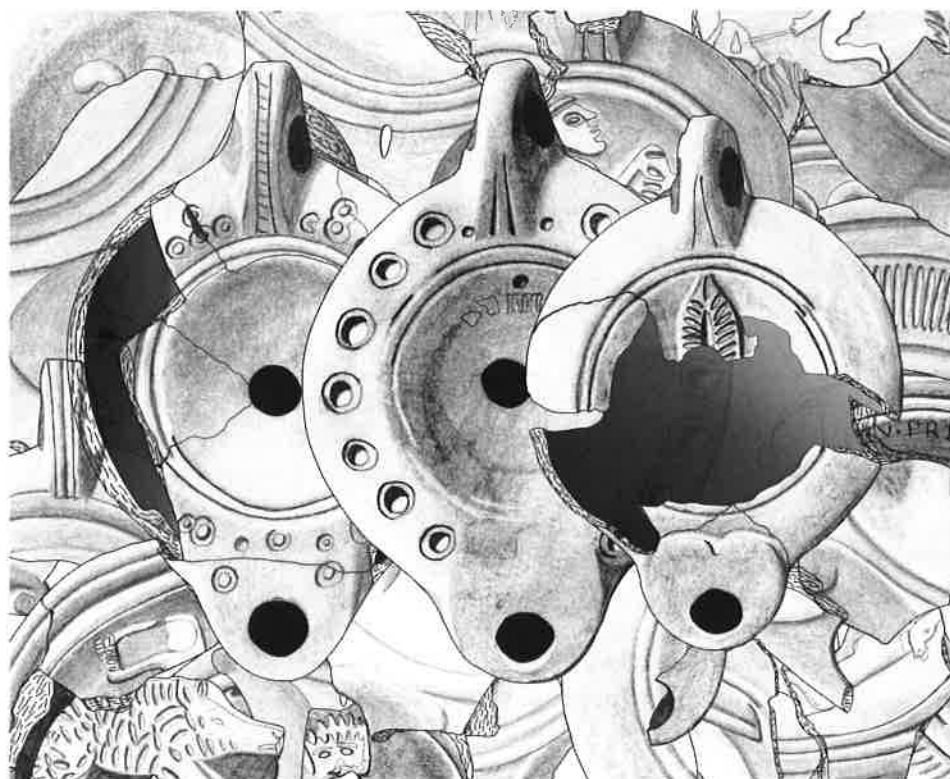
Carlos Pereira



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TABLE OF CONTENTS

Acknowledgments	iii
I. THE ROMAN LAMPS	1
Problems in the study	1
Origin and production/manufacturing	3
II. Alcáçova De Santarém	5
Geographical and archaeological framework	5
Scallabis Praesidium Iulium in its time	7
III Roman Lamps from Alcáçova De Santarém	10
Composition, methodology and preliminary matters	10
Clays and manufacturing groups	11
<i>Italic productions</i>	11
<i>Hispanic productions</i>	13
<i>African productions</i>	14
<i>Reflections</i>	14
The forms	16
<i>Lamps of Hellenistic influence</i>	20
Ricci E	20
Ricci H	21
<i>Late Republican Lamps</i>	21
Dressel 1/Ricci-Dressel 1	21
Dressel 1/Ricci-Dressel 1B	22
Dressel 2/Ricci-Dressel 2/Ponsich 1 B/Deneauve I	22
Dressel 2/Ricci-Dressel 2A	23
Dressel 2/Ricci-Dressel 2/3	23
Dressel 3/Ricci-Dressel 3/Walters 73-74/Ponsich IC/Deneauve III	23
Dressel 3/Ricci-Dressel 3A	24
<i>Imperial volute lamps</i>	24
Dressel-Lamboglia 9/Loeschcke I/Ponsich II-A1/Deneauve IV	24
Dressel-Lamboglia 9A/Loeschcke IA/Ponsich II-A1/Deneauve IVA	25
Dressel-Lamboglia 9B/Loeschcke IB/Ponsich II-A1/Deneauve IVA/Walters 78	26
Dressel-Lamboglia 11/Loeschcke IV/Ponsich II-B1/Deneauve VA/Walters 81/84	26
Dressel-Lamboglia 12/Loeschcke III/Ponsich II-B1/Deneauve VB/Walters 87	27
Dressel-Lamboglia 14/Loeschcke V/Ponsich II-B2/Deneauve VD	28
Dressel-Lamboglia 15/16/Loeschcke V/Ponsich II-B2/Deneauve VD/Walters 85	28
<i>Imperial plain nozzle lamps</i>	29
Dressel-Lamboglia 17/Loeschcke VIIIA/Deneauve VIID	29
Dressel-Lamboglia 19/Loeschcke VIIIR/Ponsich III – B1/Deneauve VIIA	29
Dressel-Lamboglia 20/Ponsich III – B1, 2/Deneauve VIIA/Walters 95	30
Dressel-Lamboglia 27/Loeschcke VIIIH/Ponsich III – C/Deneauve VIIIA	31
<i>Early Christian lamps</i>	31
Hayes I/Atlante VIII	32
Hayes IIA/Atlante X	32
<i>Fragments of difficult classification</i>	33
<i>Reflections</i>	34

Iconography	35
<i>Religion and myth</i>	37
<i>Daily life</i>	38
<i>Fauna</i>	39
<i>Flora</i>	40
<i>Geometric motifs</i>	40
<i>Decoration on the rim</i>	41
<i>Decoration on the handle</i>	41
<i>Reflections</i>	41
Marks and epigraphic inscriptions	42
<i>Anepigraphic signs</i>	45
<i>Single letters</i>	45
<i>Nominal marks</i>	46
<i>Inscriptions on the disk</i>	46
<i>Reflections</i>	47
IV. The Roman Lamps from Alcáçova De Santarém; Conclusions and Reflections	49
References	54
Plates	61
Catalogue	83

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I. THE ROMAN LAMPS

Problems in the study

The study of Roman lamps is not easy. There is a large amount of diversity and an equally large number of available typologies. These were initially described by Dressel (1899) during the last decade of the nineteenth century, and continued to be a subject of interest throughout the twentieth century.

The first problem we faced was choosing the type of typology to use. Numerous typologies have been published since Dressel first instituted a systematic method of creating typologies for this region, and each follows different elaboration criteria. Some are focused on morphological aspects, others take chronology into consideration, and in some cases, researchers have taken both criteria into consideration. There are also typologies that are based on technological or decorative criteria.

On the other hand, it also seems important to refer to the fact that the typologies were elaborated based in private collection or museum pieces (Walters, 1914; Alvarez Ossório, 1942; Bailey, 1980; 1988), which have the disadvantage of coming from various locations, thus being deprived of any archaeological or chronological context (Caetano, 2001, p. 36). Nevertheless, it is not without reason that the Roman lamps earned the designation of *fossile director*, just like the *Terra Sigillata* (red slip ware). In fact, when it comes to complete pieces in a stratigraphic context, these pieces allow for the acquisition of more detailed information, either chronological or morphological.

Despite the vast source of typologies available, researchers have frequently found pieces that defy categorization, forcing to the creation of categories that are variants of traditional forms. In the Iberian Peninsula we have, among others, the round nozzle lamps of Braga, Portugal, variants of Dressel-Lamboglia 20 (Morais, 2002; 2004), the Imperial variants of Dressel 3 produced in Andújar, Spain (Sotomayor Muro *et alii*, 1976, p. 139; Bernal Casasola, 1990-91; 1993; Morillo Cerdán & Rodríguez Martín, 2009, pp. 298-300), and the well-known type found in Riotinto-Aljustrel (Luzón Nogué, 1967; Alarcão, 1966; López Rodríguez, 1981; 1982; Morillo Cerdán & Rodríguez Martín, 2009, pp. 301-302; Pita, 1993; 1995) (Figure 1).

Besnier and Blanchet (1900), when studying the Forges Collection, used the presence or absence of handles, to add more complexity to the chronological understanding of typologies. In the same year, Fink adopted the nozzle shape as criteria, neglecting the distinction between the round nozzle types of the second and third centuries. Walters performed a vast study on the lamps of British Museum, giving preference to the nozzle, distinguishing four forms and excessively subdividing each of them (Walters, 1914).

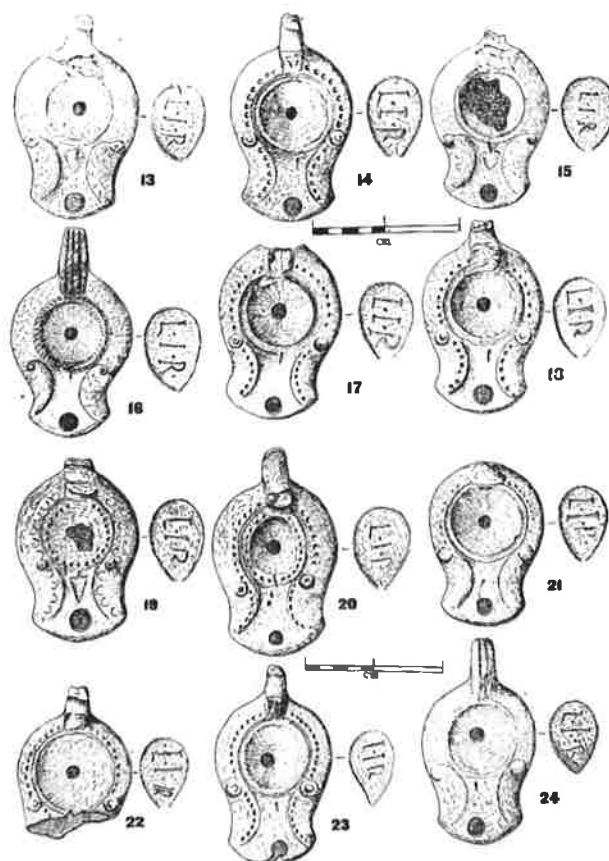


Figure 1 – Some of the Riotinto-Aljustrel type identified by Luzón Nogue (1967), with the lampmaker stamp of *Lucius Iulius Reburinus*.

In the Iberian Peninsula, the first work of this type was concluded by Alvarez Ossório (1942), who, by analysing the lamps of the National Archaeological Museum of Madrid, established four types, according to their origin and reproduction techniques, subdividing them into several groups. Bailey has also created a vast catalogue of British Museum lamps, published in four volumes, based on the shape and evolution of the lamp nozzle. In the second volume (1980) Bailey focused on italic productions, and in the third volume (1988) he focused on pieces of provincial production.

From the typologies associated with our given geographical area we highlight the work of Ponsich (1961), who examined material from the Mauretania Tingitana, and Amare Tafalla who published studies about lamps from the region of La Rioja (1987a) and Aragão (1988), in Spain. Deneauve (1969) and, more recently, Amante Sánchez (1993) have also published works of this type, the first about the lamps of Carthage, Tunisia, and the second about pieces from the region of Murcia, Spain.

Finally, many typologies based on archaeological sites or excavations were initiated by Dressel (1899) who made an initial systematisation of the pieces from his own excavations in Rome. This was later published in the *Instrumentum Domesticum* section of *CIL XV*. He was followed by Loeschcke (1919) who made a study about the lamps of *Vindonissa*, with a classification based on the morphology, without neglecting, however, the contextual stratigraphy of the archaeological site operated upon.

Later on, Broneer (1930) studied the lamps of Corinth, following Loeschcke's criteria to a certain extent, incorporating the productions characteristics of the Greek world and distinguishing the Eastern Mediterranean forms from imports coming from the West (Caetano, 2001, p. 43).

Reference should also be made to the more recent works with a more general character, which stand out for the transcendence of the questions generally associated to the evolution and chronology of the Republican lamps, the workshops internal operation or the relation between production and pottery marks. These characters are important for the identifications of clays with their correspondent *figlinae*.

For example, the study carried out by Marina Ricci (1974) concerning the chronology of Republican lamps, is of extreme importance for establishing the chronology of materials poorly known until then.

Another issue related to the Republican lamps refers to the evolution of the *Vogelkopflampen*, from the basic form to the well-known Dressel-Lamboglia 22 (Colini, 1966-68; Pisani, 1969-70; Pavolini, 1976-77 and 1981). Pavolini has done extensive work on the lamp production network of the Late Republican and Imperial Roman Italy (Pavolini, 1976-77; 1981; 1982; 1987; 1992; 1993).

Reference should also be made to the works of William Harris concerning the economy and industry during the Late Republican period (Harris, 2007). This researcher developed important advances in the understanding of the productive and commercial networks of products manufactured during the Roman period, among which the lamps are included.

One must stress however that the main objective of this research was not to report the research progress of Roman lamps. It was only intended to present an overview on the topic without depleting. We believe that there are already enough works that perform such an analysis in a much more exhaustive and precise way than could be done here.

In addition to the wide, somewhat excessive, range of typologies that one must deal with, it is also necessary to take into account the quite common practice of copying lamps, a fact that was due to their ease of reproduction, resulting in more widespread access to these items. Any small family potter (Caetano, 2001, p. 22) or pottery makers

from larger dimension production centres could easily reproduce, through the copying process, a lamp acquired in a given production centre or outlet.

In fact, the trading of copies of this kind of materials is something that is currently attested, equally proving that this was not only conducted on a local scale, as it is usually thought when dealing with replicas. This reality was already pointed out by other researchers (Caetano, 2001; Morais, 2005). If the copies of lamps from *Augusta Emerita* (Mérida, Spain) reached the Roman city of *Scallabis* (Santarém, Portugal), we should question the perimeter of the local trading of lamps.

Notwithstanding, it is possible to make a proper distinction between original pieces and copies, starting with the dimensions of each of them. The copied pieces are generally of a reduced dimension when compared to originals, a result of the drying process of the clay (Caetano, 2001, p. 24). On the other hand, the copies are of poor quality, showing various imperfections in their finishes, and sometimes there is no proper adjustment between the upper and the lower part of the lamp, giving an irregular appearance to the piece.

As to the decoration, there is also a clear reduction in quality, with the reliefs being less sharp and more coarse, even becoming illegible in extreme cases.

Finally, the slips also often qualitatively very faint, appearing to be, in most cases, more like paints than actual slips. Examples of this are found in copies originating from Mérida, Alcaçova de Santarém, which display some sort of paint, not very thick and in orange tones, applied over the typical whitish clay.

After the genuine Roman prototypes, came from Italian Peninsula, the lighting ceramics had different geographical origins which are hard to identify, even though in this work it is attempted to perform a recognition proposal. Only an extensive and elaborate study of the clays from the different archaeological sites could solve these problems, (Morillo Cerdán, 1999, p. 278). Recently there have been some studies that try to find a solution to this issue, however more work needs to be done (Pavolini, 1992; Ceci & Schneider, 1994).

Nevertheless, such study would not prove itself to be properly effective, because to do so we would need to have knowledge of the various *figlinae* of this type of materials and obtain the same type of analysis from them. Basically, it is difficult to know the clay of the products without know the clays where they were produced.

Current understanding of Roman production centres is still at an early stage. Just as the lamps were a puntual load in maritime ships in order to be marketed, also in their manufacture, the lamps sometimes constituted, alongside other materials, a type of material that was marginally produced. In other words, lamps were a small part of

the produced and transported products. Nevertheless, it must be mentioned that this pontual production has been associated with smaller productions of inferior quality, since the highest quality examples seem to indicate more specialised production, like that seen at the centre of Herrera de Pisuergra (Morillo Cerdán, 1992).

In fact, this would be common during Roman times: marginal production sites and/or small family workshops would supply a small local market, such as the production centre of Fos (Rivet, 2003). Nevertheless, we also have knowledge of production centres that seem to go beyond the mere local/regional trading, such as the mark COPPIRES.

Origin and production/manufacturing

Assigning a chronology or geographical origin to lamps is highly problematic. Presently various forms are known in different civilizations, however this is the extent of our knowledge (Amaré Tafalla, 1987b, p. 16).

This being said, there is general agreement among scholars that Roman lamps are derived from Hellenistic prototypes. Evidences of this is abundant and this connection can be explained through the trade relations between Lazio and the Hellenistic cities of Campania (Broneer, 1930). In fact, until Augustus, Rome imported a variety of Greek products that would eventually leave their mark when the Italian Peninsula became the main producer and exporter in the Mediterranean. The first production of lamps in Rome would be limited, therefore, to imitate Hellenistic models, well known from the studies of the researcher Marina Ricci (1973).

Thus, it is the Roman lamp that would eventually impose itself, replacing the previous models by presenting clear practical, functional and aesthetic advantages. It is not easy to distinguish between some Hellenistic lamps and early Roman productions, given the formal variety which, incidentally, already existed in the models of Hellenistic tradition as certain features are common to both models.



Figure 2 – Air hole located between the disk and the nozzle.

This is the case with lamps with plastic handles, which seems to have initially appeared in the bronze Hellenistic lamps (Broneer, 1930; Almeida, 1952, p. 37). The same may have happened with the lateral projections (handles), still present in Roman lamps of the Ricci type and in the early Late Republican forms of the Dressel type. The typical triangular and round nozzles also denounce such influences. The first may have appeared in Hellenistic forms, still during the time of Augustus.

Small holes present on the edges of some of these lamps (between the disks and the nozzles) also suggest Hellenistic influences (Figure 2). Their presence has provoked much discussion among experts. Some authors assume that they are a sporadic result of the manufacturing process, however this argument became unsustainable given the presence of similar holes in bronze lamps of the Hellenistic type (Almeida, 1952, p. 38). Others have suggested that they could have been used, with the help of a small needle, to pull the wick of the lamp upwards, thereby intensifying or regulating the flame (Walters, 1914, p. xiii).

Interestingly, this innovation does seem to have appeared at a time when the wick hole and the filling hole were significantly reduced on Roman lamps, preventing the easy handling of the wick. This being said, another possible explanation has also been proposed. If the filling hole was obstructed by oil, combustion would not be effective, and would require a hole at the highest portion of the lamp so that the airflow necessary for effective combustion could be provided (Amaré Tafalla, 1987b, p. 31). It is undeniable that generally this hole is found at the highest part of the lamp, especially on concave disk lamps, so this proposal makes perfect sense. However, we should not exclude the possibility that these openings could have served a combined purpose: allowing for both ventilation and easy handling of the wick.

Another feature of Roman lamps that reveals their close relationship with Hellenistic prototypes is the volute. Volute appears in both final Hellenistic models (Broneer, 1930; Almeida, 1952, p. 40) and in the earliest lamps of the Imperial period.

Differences also exist between Hellenistic and Roman lamps. These tend to involve the lamp's disk. Hellenistic lamps tend to have a small, flat disk, wherein the decoration is limited only to the rim, with conventional patterns or simple floral elements (Broneer, 1930; Almeida, 1952, p. 42). In Roman lamps, the disk is mostly concave, containing the main decorative element in relief, and the rim seems to be nothing more than a simple moulding that seeks to enhance the central decor.

Addressing now the issue of the production of such pieces, the technique used by lamp makers does not appear to have undergone major innovations, remaining constant for a long period of time (Deneauve, 1969, p. 79). Various types of raw materials were used to perform such labour. However,

we will confine ourselves to the manufacture of ceramic lamps. We are aware of two essential methods of manufacturing ceramic lamps: manually moulded or pressed, also by hand, in moulds previously treated, also made of clay or plaster.

The first method described above has been poorly documented until now (Amaré Tafalla, 1987b, p. 22). It is an extremely simple method, consisting of forming ceramic paste into a desired shape.

The use of molds to create lamps seems to have begun in the first quarter of the third century BC, becoming more widespread in the next century, reaching its peak during the Roman Imperial Age (Amaré Tafalla, 1987b, p. 22). However, it is during the Augustan Age that the quality and finishing of such materials reach their highest peak.

From the first century AD on, local Iberian workshops that imitated Italic products seem to have become the largest lamps consumed in this part of the Roman Empire, thus ending the Italic production exclusiveness. At this point it is evident the formation of these lamps had been divided into several stages of production (Amaré Tafalla, 1987b, p. 23).

The initial phase of production consisted of the preparation of a solid prototype analogous to the final product, which would have displayed all the lamps details, including the handle. The decor may, or may not, have been present on that prototype. If have been present, will faint until the final product is complete.

The second phase is characterised by the production of one or more bivalve moulds based on the initial prototype. These would have been lubricated with some kind of oily liquid that would subsequently facilitate the extraction of the end product moulded therein.

Lastly, the formation of the final product itself would have taken place (Figure 3). The lamp would have been formed from clay, which would have been manually pressed into the respective moulds, sometimes preserving the fingerprints of the potter on their inner walls. The two moulds which would have constituted a complete lamp would have been united at their junction using liquid clay, called "barbotine", which is also used in the application of the handle. After this complex process, the product would

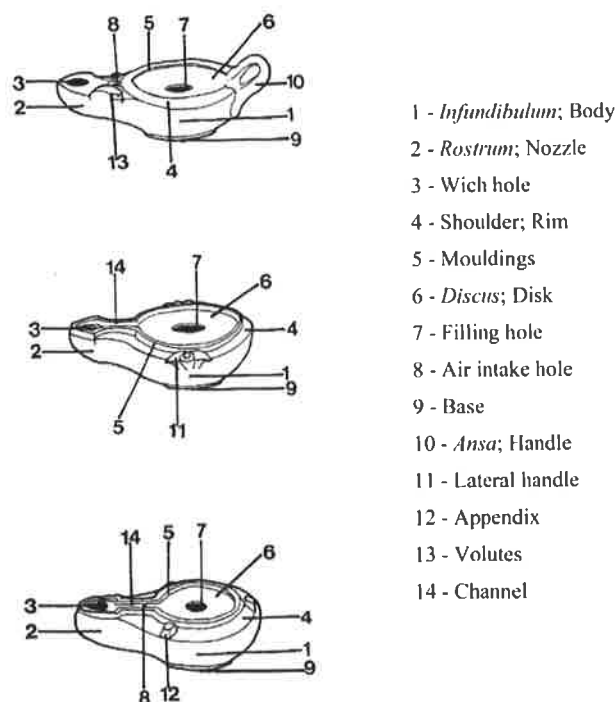


Figure 3 – Lamp parts defined by Amaré Tafalla (1987).

have been left to dry naturally. This would have facilitated the lamps removal from the mold, as well as allowing the lamp maker to further decorate the lamp. The formation of the handle and its consequent union to the lamp, the drilling of the filling hole, wick hole and vent hole, and finally the application of the mark would have been performed after the lamp was removed from the mold and decorated. The mark could also be applied directly to the mould, in relief (Walters, 1914, p. xvii).

Following the completion of the lamps form, the lamp maker would have applied a slip, which gives colour and impermeability to the piece. It is the slip that will give the lamp different tones and, sometimes, a metallic sheen. The lamp would have been baked in furnaces that do not appear to follow a pattern in the production of lamps, prior to completion.

II. ALCÁÇOVA DE SANTARÉM

Geographical and archaeological framework

The area traditionally designated Alcáçova de Santarém, named *Scallabis* in ancient times, is geographically located in the west of the Iberian Peninsula, near the Portuguese capital, on the right bank of the River Tagus in Portugal, about 80 km from its mouth (Figure 4). Geologically, it is located in the so-called Portuguese Estremadura Limestone Massif, dominating a large extent of the River Tagus alluvial plain (Arruda, 2000, pp. 6-69; Viegas, 2003, p. 17).

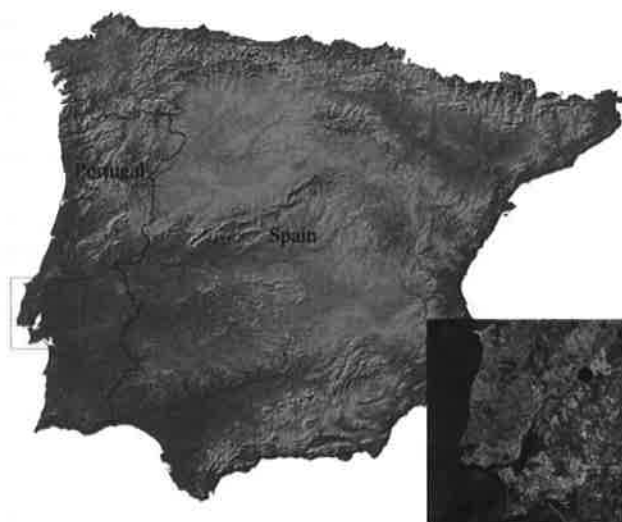


Figure 4 – Geographical location of Santarém, Portugal, in the Occident of the Iberian Peninsula.

The archaeological site of Alcáçova de Santarém, in Portugal, is implanted on a high plateau, with a maximum of 106 meters of altitude, providing extensive visual field over the surrounding territory, and especially over the River Tagus (Arruda, 2000, pp. 6-69). These conditions have favoured, since the Bronze Age and particularly from the Iron Age on (Arruda & Viegas, 2002, p. 77), the settling of population and the economic development of the site, intrinsically related to river-sea routes, given the excellent capability to control the traffic of this river.

As it has been mentioned, it had, in ancient times, a good strategic location, enabling navigation favourable to commercial contacts, most likely being a port with direct access to the ocean and, indirectly, to the interior. These commercial contacts seem to have intensified during the Late Republican Roman occupation, with imports of food and manufactured products being abundant. The wine from Italy, the *garum* from the area of Cadiz, Spain, as well as the North African, the oil and wine from the Guadalquivir river valley (southern Spain) seem to have been consumed in large quantities (Arruda & Almeida, 1999; 2000). This fact is documented in the abundant collection of amphorae from this archaeological site. During the Julio-Claudian

dynasty it is still evident the importance of the roman city of *Scallabis*, patent in the amount of imported products, as well as in the urban renovations conducted (Arruda & Viegas, 2002).

Between the Late Republic and the Early Empire, a temple is built in *Scallabis*, indicating a considerable economic and social dynamic of this city, which had a very high juridical status (Arruda & Viegas, 2002). Thus, although the city lost some of the economic importance that it held, as of the end of the Flavian period, it maintained, however, a constant and continuous occupation, accompanied by importation rhythms that authenticate an undeniable human activity and consumption of goods.

Nevertheless, the existing data indicates that the economic and political relations of *Scallabis* always favoured *Olisipo* (Lisbon, Portugal) and *Augusta Emerita* (Mérida, Spain), although this latter one had less importance. Such relationships are documented not only by epigraphy (Guerra, 2002, p. 182), but also by the Roman road network which had direct land connection to both cities via two of the major roads of Lusitania (Mantas 2002, p. 108), without forgetting that the connection to *Olisipo* also existed by river.

Scallabis was a road network centre of great importance and interest, not only for the status and functions that it held, but also for controlling, as mentioned, an important point of crossing and traffic of the River Tagus, which was abundantly used in conjunction with the road networks. It was this excellent strategic geographical location that allowed it to have a simultaneous status of store and redistribution center in the Roman province of Lusitania.

It is through the famous *Antonine Itinerary*, as well as from archaeological sources, that we find grounding for the road layout around Santarém (Figure 5). It announces *Scallabis* as the converging point of two major roads, which layout is coincident between *Olisipo* and *Scallabis*, passing through *Ierabriga*, Alenquer, Portugal (Mantas, 2002, p. 108; Mantas, 2012, pp. 7-21). One of the routes is directed to the provincial capital *Augusta Emerita*, which, running along the River Tagus until further upstream of Santarém, seems related to an axis prior to the founding of Mérida (Mantas, 2002, p. 108). The second route, coincident until *Scallabis*, heads north to *Bracara Augusta* (Braga, Portugal).

On the left bank of the River Tagus there is another route heading towards Mérida, which the *Antonine Itinerary* indicates only from a point located 38 miles of *Aritium Praetorium*, probably located in Bemposta, Portugal (Mantas, 2012, pp. 10-15). Regarding the secondary roads that had *Scallabis* as a starting point, two were headed to *Collipo* (Leiria, Portugal), while another one ran between



Figure 5 – Main Roman roads in Portugal (by Garcia, 1991).

Scallabis and the limits of the *Eburobritium* territory (Óbidos, Portugal). Heading south, starting from Santarém there was a road to the site of Coruche and from there to *Ebora* (Évora) then continuing along the right bank of the River Sorraia towards the Montargil area, meeting the route that was headed to Mérida (Mantas, 2002, p. 110).

The access to Santarém, in particular to the area of the Alcáçova, was made through extensions. *Scallabis* had a core by the river, where the road coming from *Olisipo* passed through, having an extension heading from there to the area of the Alcáçova (Mantas, 2002).

Therefore, due to its privileged geographical location, as well as to the intense road network passing nearby, *Scallabis* received by sea a vast repertoire of manufactured and food imports, part of which would be subsequently redistributed by the innermost secondary urban centres, and the *villae*. It should also be noted that the supplying of *Scallabis* was more profitable precisely because it was made through the River Tagus. This is perhaps the most plausible explanation for the scarcity of products from Mérida, when compared with the imports from the Roman province of *Baeticae* and from the Italian Peninsula, which was already

proven by the study of *terra sigillata* (Viegas, 2003) and thin-walled ceramics (Arruda & Sousa, 2003), collections where the productions from Mérida are few in number. Land transportation from Mérida to *Scallabis*, by the main route of communication between these two cities, would be too expensive to generate any income. In fact, as already noted, seaborne imports were considerably easier and more profitable, allowing a later redistribution by the nearest clusters. However, this fact is not sufficiently documented, as the archaeological interventions around *Scallabis* remain unpublished.

The first archaeological intervention performed in Alcáçova de Santarém dates from 1979 and it was performed by a local association for the defence of historical and cultural heritage (Arruda, 2000). Since then, works have been systematically succeeding (Figure 6), making known part of the local history from which we currently have a vast repertoire of information, movable and immovable goods, which allow looking at the city of Santarém and seeing more than the existing urban mesh.

Archaeological excavations in Alcáçova de Santarém focused primarily on the area occupied by *Portas do Sol* Garden but also took place in *Largo da Alcáçova*, inside the Church of Santa Maria and in 5 de Outubro Avenue.

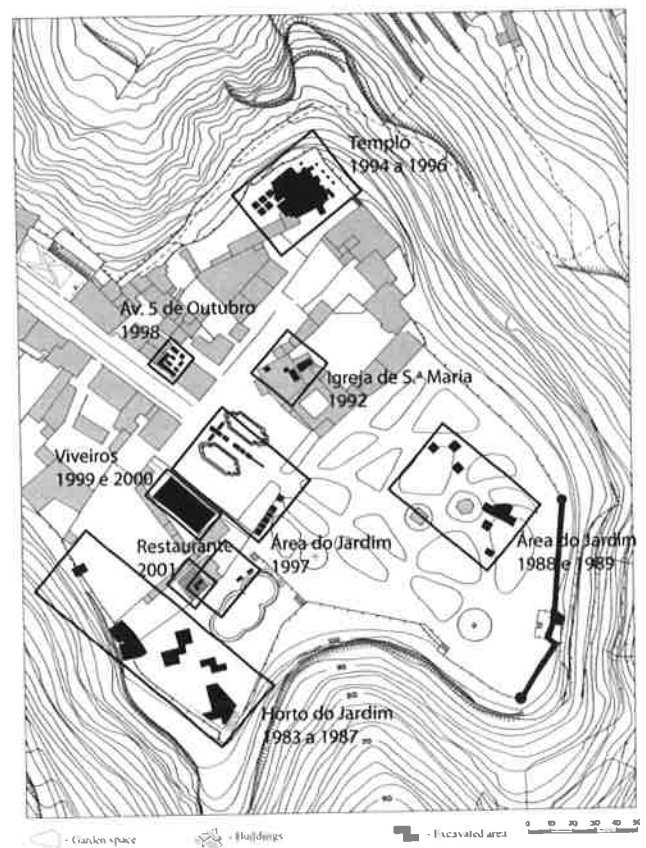


Figure 6 – Excavated areas in Alcáçova de Santarém, Portugal.

It was in 1983 that the first systematic studies began, led by Ana Arruda, which sought more than the simple protection or defence of the heritage. Effectively, such studies were ensured until 1989, having allowed the detection of archaeological strata preserved from the Iron Age until the Islamic period and even medieval and modern occupations, which irreversibly affected the layers from the oldest occupations.

In 1992, Catarina Viegas performs an archaeological intervention, in the continuity of the works that were taking place in the Church of Santa Maria da Alcáçova. The objectives of the intervention were to check the stratigraphic layers at the site and ascertain their preservation.

The archaeological works performed in Largo da Alcáçova 3-5 (1994-1996) had initially only a preventive nature. After having documented a structure identified as a podium of a temple, the purpose of the intervention was quickly changed and the South, West, North and East facades of the podium were uncovered (Arruda, 2000, p. 6-III, Arruda & Viegas, 2002). We could not fail to mention that this intervention allowed the detection of important sedimentary deposits of Republican and Imperial Roman period.

The excavations in Largo da Alcáçova, in 1997, had a preventive nature with the purpose of opening a trench for the installation of sanitary plumbing. Regarding the excavations conducted in 5 de Outubro Avenue, in the following year (1998), the purpose was the excavation of the area where the basement of a building would be set up, and a total area of 214m² was opened. Although this work suited the rhythms and conditionings of the constructive intervention, it was possible to detect reliable contexts of a dense Roman Republican occupation with abundant archaeological assets associated to them (Arruda & Viegas, 1999, pp. 4-5; Bargão 2006, p. 14).

The most widely intervened area, not only for the purpose of prevention but also with a scientific objective, was the area that was then occupied by the garden seed-plots, and it covered an area of about 350m² (Arruda, 2000, pp. 6-71). It was in this intervention that Alcáçova de Santarém experienced a new methodology of excavation, in "open area", providing a clearer notion of the contemporaneity of the structures and layers, as well as a broad overview of the urban plan. Unfortunately, as it often happens in this site, the subsequent occupations strongly affected the preservation of the Roman and Iron Age strata.

Finally, in 2001 it was intervened in an area next to the restaurant of Portas do Sol Garden, where a kitchen was going to be built. The novelty of this excavation was the identification of strata corresponding to human occupation from the Late Bronze Age (Arruda & Viegas, 2001), thickening the long occupational diachrony of Alcáçova de Santarém.

Scallabis Praesidium Iulium in its time

We have today a vast wealth of information about the archaeological site of Alcáçova de Santarém that allows having a broad knowledge of the city of Scallabis during Roman times. In fact, the association of Alcáçova de Santarém to Scallabis, referred by classical authors such as Pliny (IV, 117) and Ptolemy (2, 5, 6), as well as in the Antonine Itinerary, is today accepted without any reluctance.

Leaving aside for a moment the chronological discussion of the *praesidium* establishment (Alarcão, 1988b, p. 26; Arruda, 1993, p. 208; Bargão, 2006, pp. 16-17) and taking more account of its location, it is the area currently corresponding to the Alcáçova that best defines it. The archaeological data that appears to evidence such reality, patent in the quantity/quality of constructions associated to materials (Almeida, 2006, p. 8), is too abundant to not be taken into account. In fact, taking into account the information currently available, *Scallabis* seems to have been in all its splendour during the Republican period. The data is abundant regarding either the built-up area or the presence of archaeological materials that fit within this period.

Certainly the process of Romanization occurred at different rates and stages (Bargão, 2006, p. 15), to which *Scallabis* may have contributed significantly. Judging by the elements from the several archaeological sites along the current Portuguese territory, it is widely accepted that the process of conquest tended to take place from South to North and from the coast to the interior (Alarcão, 1988a). Thus, during the period in question, this site may have been a key point of connection, through the Tagus River, between the coast and the interior.

We believe that more than a traditional Roman military camp, with a considerable visual field over the Tagus valley, this site may have worked as a trade depot for the trading of manufactured goods to the interior and raw materials to the coast (Viegas, 2003), especially after the campaign carried out to the North by *Decimus Junius Brutus*, held in 138 BC. However, it certainly also served as a point of support for incursions carried out further north, perhaps for territory recognition. It is this location that gives *Scallabis* a great importance (Alarcão, 2002), which is maintained particularly during the High Imperial period.

Currently there is no lingering doubt regarding the political-administrative nature of *Scallabis* and it is known that it was one of five colonies of the province of Lusitania with a clear military origin (Viegas, 2003, p. 18), as well as the headquarters of one of the three juridical *conventus* (Guerra, 1995, p. 35; Almeida, 2006, p. 8).

Nevertheless, and despite some issues involving the aforementioned discussion (Alarcão, 1988b; Mantas, 1993a; 1993b; 1994a; 1994b; Ribeiro, 1994; Viegas, 2003;



Figure 7 – Lusitania province and the main cities
(in Carte, 1990).

Almeida, 2006; Bargão, 2006), it is consensual that the strategic geographical position of *Scallabis* automatically earned it an equally strategic political-economic position (Figure 7). The places occupied by Roman forts always denote a strategic selection with good visibility, defensibility and easy access by land, river or sea.

Such location gave *Scallabis* an increased prestige which is archaeographically reflected in the data collected and obtained over little more than twenty years of fieldwork. The large quantity of pottery collected and the various studies on them (Diogo, 1984; Antunes, 2000; Arruda, 2000; Arruda & Almeida, 1998; 1999; Arruda & Viegas, 2002a; Arruda & Sousa, 2003; Arruda *et alii*, 2005; Viegas, 2003; Almeida, 2006; Bargão, 2006) have provided a vast array of relevant conclusions, from which we highlight the high percentage of ceramics of good quality imported since the arrival of first military contingents, to the geographical area in question, until the end of the first century AD and the beginning of the following century.

Regarding the arrival of the first military contingents, *Olisipo* seems to correspond to the site that can provide the earliest chronology, centred in the “... third quarter of the second century BC (150-125 BC), more precisely between 140-130 BC “(*Op. Cit.* Pimenta, 2005, p. 129). The fact of being a more coastal location may let to the initial Roman occupation of the city of *Olisipo*, mandatory passage point to reach *Scallabis*. The two cities grew in parallel during the Roman Republican and High Imperial period, albeit with *Scallabis* as the *conventus* capital, but after a certain point the coastal location of *Olisipo* allowed it to surpass *Scallabis* in terms of relevance.

We verified a high capability of buying goods and products which may have allowed *Scallabis* to maintain a considerable evolutionary rhythm. In fact, the architectonic

data also indicates a great liveliness, although we note that the first structures belonging to the Roman Republican period are somewhat later than the oldest materials from the same period. In other words, we believe that the presence of older materials at this location, without any kind of structures associated to them, may be representative of a first occupation characteristic of constructions made almost exclusively of perishable materials.

From the first century BC on, the built-up area reveals a great profusion of private buildings, of considerable constructive commitment, apparently erected in conformity with a disposition of road elements (Almeida, 2006, p. 11).

Thus, we can assume that during this period *Scallabis* manifested a considerable population index, a reality that may have changed substantially after the early second century AD, as it is demonstrated by the decrease in the percentage of ceramics imported, having as examples the case of *terra sigillata* (Viegas, 2003) and the thin-walled ceramics (Arruda & Sousa, 2003), although the latter case is a ceramic type that tends to be replaced by the introduction of glasses. Nevertheless, even the presence of this type material was expected to be superior to this reality (Antunes, 2000). The architecture also proves that fact through the qualitative inferiority of the renovations in the structures and the abandonment or inactivity of some compartments or even complete buildings (Almeida, 2006, pp. 11-12).

We must not forget, however, that we are dealing with data concerning the occupied area at the top of the hill where Alcáçova de Santarém is located. Thus, this sign of reduction of the population may be no more than just a sign. Such reality may have been due to an eventual reorganization of the occupied space, urban redesign (Mantas, 1990; 1996) or even population mobility.

We recognize that the end of the first century AD and the following century represent a significant change in the reorganization of the occupied space and in the main criteria for the selection of those spaces, at least in the central and southern coastal area of the current Portuguese territory. We immediately notice the need to move the urban centres from high locations to lower and flattened places, a reality that is due to the more and more emerging need for water supply instead of visibility and defensibility.

Considering this, and giving it some thought, we also noticed a greater spreading of the clusters and their subsequent diversity, whether functional or of population. During and after times of conflict, the human reaction is of concentration. The communities tend to focus on a few but dense clusters. From the moment when an increased feeling of security is generalized, the reaction is precisely the opposite. The settlements tend to spread over a wider area, with a consequent reduction of inhabitants in each of them, exponentially exploiting the natural resources of the region.

Given the great occupational tradition of Santarém, which seems to be practically continuous to the present day, we may be facing one of these possibilities. In fact, we should not forget the status that the Roman city of *Scallabis* held during the Roman period.

The architectural reality contrasting between the Republican and Imperial period also results from the continuous occupation of the Alcáçova. In fact, the preservation of structures from the Imperial period was greatly affected by the subsequent human occupations, hindering a more precise interpretation and compelling to a more detailed and careful analysis of the materials. Nevertheless, until now, these studies have confirmed that *Scallabis* had its peak of growth and development between the beginning of the first century BC and the end of the first century or beginning of second century AD.

We stress again, however, that many of the conclusions obtained in this study are based on the data collected until now, which provide scientific support to the conclusions. It is highly risky to propose that this Roman city continued to have a high acquisitive and administrative power after

the turn from the first century to the second century AD, venturing on fields of speculative nature to sustain theories that, without being based on solid data, can be easily folded down.

Effectively, the archaeological records obtained in Alcáçova de Santarém show that, from the early second century AD on, this urban centre gradually lost its importance to the detriment of the city of *Olisipo* which was beginning to gain a larger importance as the main maritime centre of Lusitania (Almeida, 2006; Arruda & Viegas, 1999; Pimenta, 2004), without overlooking, however, that *Scallabis* had lost its functions as political-administrative centre (Ribeiro, 1994, p. 60).

From the second century AD on, there seems to be a decrement of the presence of archaeological materials, especially from the architectural point of view, a reality that seems to continue until the fifth century AD. However, *Scallabis* continues to receive late imported products, although in a smaller scale when compared to the previous centuries, from North Africa and the Iberian Peninsula itself (Viegas, 2003, p. 22).

III Roman Lamps from Alcáçova De Santarém

Composition, methodology and preliminary matters

The materials studied in this work are from 12 of the 18 campaigns of archaeological work conducted in Alcáçova de Santarém, corresponding to the total lamp fragments of this archaeological site. In addition to these interventions, a work was also made in 1979 sponsored by the Association for the Defence of Historical and Cultural Heritage of Santarém, and the materials have already been published (Diogo, 1984). For this reason, and because it is not possible to access the pieces, they will not be included here.

The entire assembly comprises 393 fragments corresponding to 60 bases, 142 rims, 79 disk fragments, 38 handles, 48 nozzle fragments and six lateral handles. It should be noted, for example, that many of the fragments found in the rim accounting are also in the disk fragments accounting. Certainly, when breaking, and given the fragility of this ceramics, they would not be separated into their constituent parts. Therefore, frequently there are fragments which have both a part of the rim and a part of the disk.

We could not fail to make reference to the total of decorated lamps, 71 pieces, 16 of them stamped with potters' marks.

The exposure of the material is organised by type of lamps. We remind you that the high fragmentation of the collection prevented the classification of many of the fragments, and some others did not allow a sure classification. Thus, it seemed appropriate to expose this artefact collection by kinds (lamps of Hellenistic tradition, Late Republican, with volutes, with plain nozzle, Early Christian), which allows an easy handling of quantitative data.

The materials that allowed graphical representation were drawn to scale of 1/1 and scanned to the same scale, and were grouped in plates according to the type and shape. In most cases, the graphical representation was obtained through drawing or photograph. For a better illustration of the collection under study, a more detailed description is also given in the catalogue.

The whole sample was unprecedented, although it has been made reference to some examples in the reports of archaeological interventions of the various campaigns conducted in Alcáçova de Santarém. Three of the pieces, however, have already been disclosed in the catalogue of the exhibition "From *Scallabis* to Santarém" (Arruda & Viegas, 2002; AA.VV, 2002). They correspond to the most complete pieces of the collection.

This study has gone through several processing stages, including the analysis of clays, the drawing and scanning, the classification of the represented fragments (even though some that did not allow representation have allowed their

classification) and the quantification. The study and description of the clays was performed macroscopically, resorting to the use of a magnifying glass with a 15 times increase, for identification and characterisation of the petrographic elements, and focused on the entire collection. The description of the manufacturing groups was based on the following set of description criteria: type of clay; nature; form and frequency of non-plastic elements; texture; hardness; colour; slip and its hue; type of baking.

This way, the macroscopic analysis of the petrographic elements was made taking into account the characteristics of the clay and slip of each exemplar, and groups and subgroups were created whenever there were differentiating elements that allowed that. The criteria followed in their descriptions were proposed by Stienstra (1986). When making reference to the hues we used the Munsell code, *Soil Color Charts* (1998).

Regarding the classification of the materials is not easy to choose the best typology to use. As mentioned in a previous chapter, the vast wealth of lamp typologies, coupled with the fact that they take different individualisation criteria, hinders their morphological characterisation. Nevertheless, and even though it corresponds to the first work being elaborated on this particular type of material, we believe that the typology of Dressel (1899) remains a compelling work, even with the constraints it imposes on the analysis of these materials. On the other hand, the lamp assembly presented here does not demonstrate an overly wide formal variety and can be generically included in this typology. We necessarily also had to take support in the typology of Loeschcke (1919), since its assortment is based on the stratigraphy of *Vindonissa*, classifying the pieces according to the general form.

Thus, for the samples of Hellenistic tradition we rely on the typology of Ricci (1973), author who also maintains Dressel's Late Republican types, giving them a new chronological impetus based on excavations carried out in meantime. Dressel's typology (1899), subsequently revised by Lamboglia (Lamboglia & Beltrán, 1952), was adopted for the Late Republican and Imperial lamps. It seems relevant to note that we have also made equivalences between the various existing typologies for either the forms identified in Alcáçova de Santarém, or for the general forms of this type of material (Plate I to IV).

However, whenever necessary, we resort to the remaining typologies to classify exemplars exceeding the morphological characteristics of the forms of the typology of the latter author. Having been one of the major difficulties of this study, we sometimes need to rely on other works that enable the classification of fragments of small dimensions. It is certain that among the developed typologies not all

follow a general morphological criterion of the piece, referring, in most cases, to the characteristics of the nozzle or another constituent part of the lamp.

Another issue that arose when selecting the typologies to use is related to the geographical and/or chronological legitimacy. We wondered to what extent one can extrapolate, in a study of this type of materials in the peninsular far west, chronologies of a typology developed based on the samples, for example, from Corinth (Broneer, 1930), without encountering major chronological disagreements.

We recognise that pieces of specific morphology often appear, characteristic of a region, which do not find parallels in traditional typologies, as we can see with the Riotinto-Aljustrel types (Bernal Casasola, 1995a), also called "mining lamps" (Luzón Nogué, 1967).

Moreover, we should always take into consideration the production/distribution/consumption factor. Please note that unfortunately the current knowledge about production centres is still at a preliminary stage, although prone to change. Nevertheless, the production and distribution of lamps exhibit, as a general rule, a distinct time of commercialization. Let's take as example, the lamps of type Dressel 12-13 (Loeschcke III) with a plastic handle, well recognised and dated in *Haltern* between 11 and 9 BC (Loeschcke, 1919, p. 35). Their arrival to the peninsular west seems to have occurred only in the second quarter of the first century AD, judging from the information obtained in Herrera de Pisuergra (Morillo Cerdán, 1992, p. 92) or in Conímbriga (Alarcão *et alii*, 1976, p. 96). In North Africa this type seems to be documented still during the entire Flavian period (Ponsich, 1961, p. 25; Deneauve, 1969, p. 149) rejecting the end of this lamp at the beginning of this dynasty.

Thus, it becomes more important to associate the artefact collections under analysis to stratigraphic contexts that allow corroborating the proposed chronologies, although the lamps have been successively called *fossilium directoribus*.

Regarding the analysis and quantification of the minimum number of individuals (MNI), no result is presented. Actually, we do not intend to say that there has been no testing. Quite simply, given the fragmentation of the collection, those tests proved to be invalid in obtaining conclusions.

Indeed, the lamps are not the best type of archaeological material to obtain conclusions of that nature. In order to acquire the minimum number of individuals, according to the protocol established at the roundtable held in Mont Beauvray (Arcelin & Tuffreau-Libre, 1998), we should take as base one of the constituent parts of the analysed piece, either in its context (stratigraphic layer) or in the manufacturing group to which it belongs. Thus, the rim seems to be the part of lamp that may better provide data on that. However, which constituent part of the lamp allows obtaining the minimum number of individuals?

The body fragments of the lamps do not seem to be the more appropriate option, as the MNI would be excessively high. On the other hand, the nozzles, or *rostrum*, and the handles would present a very scarce MNI. We also thought that the volutes could be a criterion to take into account. However, we noticed that we could make the mistake of counting the volutes of the same lamp from both sides of the *rostrum*.

Thus, it is not easy to come up with a quantification of MNI with a collection of lighting ceramics, especially if its state of fragmentation is high. Such analysis is not impossible but, given the conditions of the collection, we chose not to risk presenting results that, in our view, may be wrong. We recognise, however, that weighing may be the way to establish the MNI. But we should also take into account that not all the lamps have the same weight, even those of the same type.

The fact that no data relating to the MNI was presented did not prevent dealing with other quantifications that will be evaluated, namely those relating to the quantitative analysis among different contexts, campaigns or different archaeological sites.

Clays and manufacturing groups

Italic productions

The Hispanic market was dominated, from the beginning of the period of Roman occupation to the first century AD, by the Italic products, which were imported by sea across the Mediterranean and thence across the peninsular coast. However we do not claim that those imports ceased at that moment. Everything indicates that the Italian peninsula remained as the main supply centre of such products in the centuries that followed. On the other hand, we stress that it is neither our intention to claim that during the Republic and the Julio-Claudian dynasty there were no Hispanic marginal productions. We are currently aware of places where the production of lamps, originals or copies, gained special relevance. However, we should not assume that just because overmoulded pieces were collected in a given archaeological site, they have been produced there. An example of that is the overmoulded piece from Mérida identified in this work.

Effectively, today there is not any doubt about the existence of small lamp manufacturing centres in Hispania, as is the case of Herrera de Pisuergra, one of the oldest known (Morillo Cerdán, 1993). We could not fail to mention as well that the local/regional productions are a reality well documented (Morillo Cerdán & Rodríguez Martín, 2009), which aims, in most cases, to reproduce pre-existing prototypes in an attempt to meet the demand from a less privileged part of the population. The lamps were not an exception, because, since they are a material easy to reproduce, it is common to verify the existence of marginal productions that alter the overall picture of the imports.

Unfortunately, identifying local productions is extremely difficult, inasmuch as the traces left by that production may not be clear enough. Nevertheless, the Italic productions are the most abundant in archaeological sites with an occupation from the first century AD.

We could not fail to emphasise that the individualisation of productions that was performed in this study, well as the origins proposals, can only be confirmed or refuted with chemical analyses. However, the impossibility to resort to these analyses forced to perform a preliminary separation that cannot be taken as granted and is merely a proposal.

In this collection of artefacts, it was possible to identify some groups in which the clays present characteristics that allow us to assume that they are Italic productions. We are referring to groups IA, IB, IIA, IIB, IIIA, IIIB, V, VI, VIIA and VIIB. The samples from the different groups present refined and compact clays in which the degreasers, when identifiable, are very small and not macroscopically perceptible. The slip is of good quality and quite adherent to the pieces, often assuming strong metallic reflections, characteristic of the Italic productions. Thus, the Italic productions represent 50.4% of all the pieces studied in this work.

GROUP IA

The clays are poorly refined and compact, displaying a colour that varies between greyish beige (Munsell 10YR 7/2) and beige (Munsell 10YR 8/2). The slip is thin and adherent, with a predominantly brownish hue (Munsell 7.5YR 4/3), acquiring sometimes an orange brown colour (Munsell 5YR 5/6). The non-plastic elements are small, composed essentially by some micas, quartz and grog. It is common to encounter run-offs of the slip. Twenty-four fragments were included within this group, corresponding to 6.1% of the entire collection.

GROUP IB

The clays are poorly refined and compact, displaying an orange beige colouration (Munsell 7.5YR 7/3), often with a darkened core. The slip is thin and adherent, showing a predominantly brown hue (Munsell 7.5YR 4/3), acquiring sometimes an orange brown colour (Munsell 5YR 5/6). The non-plastic elements are of reduced dimensions corresponding to some micas, quartz and grog. Thirteen fragments were included here, corresponding to 3.3% of the entire collection.

GROUP IIA

It includes refined and compact clays, which tones vary between yellowish grey (Munsell 2.5Y 8/2) and grey (Munsell 2.5Y 7/1). The slip is relatively thick and displays a dark hue varying between brown (Munsell 10YR 4/2) and black (Munsell 10YR 2/1). The small dimensions of the degreasers do not allow for their distinction with a

magnifying glass with a 15 times increase. Nine fragments were included here, corresponding to 2.3% of the entire collection.

GROUP IIB

The clays are refined and compact, displaying a beige tone (Munsell 10YR 8/2). The slip is relatively thick and displays a dark hue varying between brown (Munsell 10YR 4/2) and reddish brown (Munsell 2.5YR 4/4). The small dimensions of the degreasers do not allow for their distinction using only a magnifying glass with a 15 times increase. A fragment was included here, corresponds to 0.3% of the entire collection.

GROUP IIIA

The clays are refined and compact, displaying a greyish tone (Munsell 2.5Y 7/1). The slip is thick and displays a black hue (Munsell 10YR 2/1). The small dimensions of the degreasers do not allow for their distinction. Two fragments were included here, corresponding to 0.5% of the entire collection.

GROUP IIIB

This group includes clays averagely refined, displaying a greyish beige tone not too homogeneous (Munsell 10YR 7/2). The slip is relatively thick and displays a dark brownish hue (Munsell 10YR 4/2). The non-plastic elements are of small dimensions and are composed essentially by some micas, quartz and grog. One fragment was included here corresponding to 0.3% of the entire collection.

GROUP IV

It includes porous clays, displaying a homogeneous orange tone (Munsell 2.5YR 5/6) without any coating. The non-plastic elements are of small dimensions and are composed essentially by some micas, medium size quartz and grog. One fragment was included here, corresponding to 0.3% of the entire collection.

GROUP V

The clays are averagely refined, displaying a homogeneous black tone (Munsell 2.5Y 3/1) without the existence of any type of coating. The non-plastic elements are of small dimensions, not being possible to identify them. One fragment was included here, corresponding to 0.3% of the entire collection.

GROUP VI

The clays are well refined, displaying a homogeneous yellowish beige tone (Munsell 7.5YR 8/2). The slip is relatively thick and displays a dark brownish hue (Munsell 10YR 4/2). It was not possible to identify the non-plastic elements due to their small dimensions. One fragment

was included here, corresponding to 0.3% of the entire collection.

GROUP VIIA

It includes refined and compact clays, which tones vary between yellowish grey (Munsell 2.5Y 8/2) and grey (Munsell 2.5Y 7/1). The slip is relatively thick and displays a dark hue with a frequent existence of discoloured spots and traces of fingerprints from the pottery maker, varying between brown (Munsell 10YR 4/2) and blackish brown (Munsell 10YR 2/1). Once again, the small dimensions of the degreasers did not allow for their distinction with only a small magnifying glass. Ninety-six fragments were included here, corresponding to 24.4% of the entire collection.

GROUP VIIB

This group includes refined and compact clays, displaying an orange beige tone (Munsell 5YR 7/4). The slip is relatively thick and displays a brownish hue (Munsell 5YR 4/6). Once more, the small dimensions of the degreasers did not allow for their distinction. Fifty-one fragments were included here, corresponding to 13% of the entire collection.

Hispanic productions

The existence of production of lamps in the Iberian Peninsula is currently not a puzzle to be solved. The growing findings of furnaces designed for this production, as well as the exhumation of moulds and samples with production defects, confirm the presence of several lamp fabrications in that region (Luzón Nogué, 1967; Morillo Cerdán, 1993; Bernal Casasola & García Giménez, 1995; Morais, 2002; 2004; 2005; Morillo Cerdán & Rodríguez Martín, 2009).

These productions tend to appear in the interior, destined to respond to local needs. This reality was probably due to the fact that the cost of land transport was too high (Morillo Cerdán & Rodríguez Martín, 2009, p. 291). These production centres quickly began to conquer markets that were hitherto dominated by the Central Italic products. Certainly, this phenomenon was not uniform and the innermost areas of the northern region seem to be the ones that initially produce their own lighting ceramics (Pavolini, 1987, pp. 148-149). The locations supplied by inland waterways and sea should correspond to those that were most dependent on the Italian markets, although also these would eventually loosen up from that influence.

These productions are not only attested by the collecting of production moulds, such as in Braga (Morais, 2002; 2004) or Lisbon (Vieira, 2011), but also furnaces designed for this production have already been identified, namely in Andújar, Spain (Sotomayor Muro *et alii*, 1976; 1981).

Nevertheless, the study of data referring to the workshops infrastructures does not always transpire a production specialised only on lamps. The manufacture of such materials appears, in most cases and as an example, associated to the production of *Terra Sigillata* or common ware, with the production of lamps becoming secondary. The productions from the area of Cadiz seem to be an example of this reality, which are associated to the common ware productions and generally assume the same clay characteristics. Most of these workshops correspond to facilities of small dimensions owned by a family or several families, but that demonstrate a clear importance proven by their mark in the archaeological record. Braga seems to be a similar case, although it does not seem to reach the same degree dissemination of products (Morais, 2005, p. 390).

This fact allows us to raise some pertinent questions without easy answers. Certainly, this kind of reality makes it possible to mention Hispanic productions, in which the local/regional productions can also be inserted. However, we think that the lamps locally manufactured and identified herein are not notable enough for us to speak of a production or even of a production centre. They are rather sporadic fabrications made by any one individual.

Despite this reality, we have included in this production the local/regional fabrications identified in Alcáçova de Santarém. It had importance for this decision the little expressiveness of referred fabrications that fall within what is considered the Hispanic geographical area. However, we emphasise that these are not productions. The case of *Olisipo* seems to be a different reality, which would actually have produced lighting ceramics of the type Dressel-Lamboglia 20 (Vieira, 2011, p. 116), besides the identification of a mould of a lamp of the type Deneauve VG (*Ibidem*, pp. 72-73). Until other data shows the contrary, we confirm that the coastal Romans sites come off the Italic commercial network at a later stage.

The productions of High Imperial Roman volute lamps are attested in the Iberian Peninsula in Tarazona, Spain (Amaré Taffala *et alii*, 1983; Amaré Taffala, 1988, p. 110), Braga, Portugal (Morais, 2002; 2004), Herrera de Pisuerga, Spain (Morillo Cerdán, 1992, pp. 88-90; 1999, pp. 65-66), Mérida, Spain (Rodríguez Martín, 1996, pp. 143-144), Los Villares de Andújar, Spain (Sotomayor Muro *et alii*, 1976, pp. 132-140), Itálica, Spain (López Rodríguez, 1981, p. 19), Tarragona, Spain (Bernal Casasola, 1993, p. 82), Córdoba, Spain (Amaré Taffala, 1988-89, p. 108; Bernal Casasola & García Giménez, 1995, p. 178) and San Fernando in Cádiz, Spain (Corzo Sánchez, 1982). None of these lamp production centres, with the exception of Herrera de Pisuerga, must have worked before the middle of the first century AD (Morillo Cerdán & Rodríguez Martín, 2009, p. 294).

The plain nozzle lamps, although we know that they were abundantly produced especially in the central and southern area of the Iberian Peninsula, remain with no

proof supported by archaeological data. Nevertheless, we can find cases of specific types of proven manufacturing in certain locations, such as Braga (Morais, 2002; 2004) and Lisbon (Vieira, 2011, p. 116) that produced models of the type Dressel-Lamboglia 20, to which it can be added the manufacturing of the type Dressel-Lamboglia 28 in Tarraco, Spain (Bernal Casasola, 1993, p. 74). Surely, the area of the bay of Cadiz may have also produced these series.

For the Alcáçova de Santarém, we were able to identify groups that can be inserted in the Hispanic productions, based on the analysis of other kind of materials which are perfectly documented, as is the case of amphorae and common ware. It was also possible to differentiate the productions from Mérida and Hispania *Baetica* (current area of Andalusia, Spain). However, please note once again that this preliminary separation can only be confirmed by chemical analysis. The clays are refined and compact, with non-plastic elements of reduced dimensions. The slip is of good and medium quality in some pieces, with an average adherence. The groups identified with this type of production are groups VIIIA and VIIIB, which corresponded to productions from Hispania *Baetica*, and group IX, which correspond to a production from Mérida. The Hispanic production is thus represented by 44% of the total samples.

GROUP VIIIA

It includes clays averagely refined without non-plastic elements visible to the naked eye and very compact, displaying a beige tone (Munsell 10YR 8/1). The slip is thin and adherent, displaying an orange hue (Munsell 5YR 6/6). The non-plastic elements of this group, for being of too small dimensions, were not possible to enumerate. Twenty-two fragments were included here, corresponding to 5.6% of the entire collection.

GROUP VIIIB

Group VIIIB includes highly refined clays, without non-plastic elements visible to the naked eye, and very compact, displaying a yellowish beige tone (Munsell 10YR 8/2). The slip is thin and adherent, displaying a yellowish hue with metallic reflections (Munsell 10YR 7/6) or an orange brown hue (Munsell 5YR 4/6). The non-plastic elements of this group, for being of too small dimensions, were not possible to enumerate. One hundred and twenty-eight fragments were included here, corresponding to 32.5% of the entire collection.

GROUP IX

This group consists of samples that exhibit highly refined clays, without non-plastic elements visible to the naked eye, and very compact, displaying a whitish beige tone (Munsell 10YR 8/1). The slip is thin and displays an orange hue (Munsell 5YR 7/8) with run-off marks present on them. The degreasers within this group are of small dimensions and are

composed by some micas, ferruginous elements and grog. Eighteen fragments were included here, corresponding to 4.6% of the entire collection.

African productions

The African productions would eventually impose themselves in the Iberian Peninsula, alongside the African red slip ware, being documented in several sites. Its low expressiveness in Santarém can easily be explained by the fact that it is a ceramic of late import.

The groups identified as African imports correspond to groups X, XIA and XIB, characterised by poorly refined and averagely compact clays, with abundant non-plastics elements, from which we highlight the calcite. They feature a thin watercolour with low adherence to the piece. Sometimes they demonstrate stylised figurative decorations, characteristics of African productions. This production corresponds to 3.1% of the total number of samples analysed in this study.

GROUP X

The clays are poorly refined, with limestone elements macroscopically visible and a slightly porous texture. It displays a reddish orange tone (Munsell 2.5YR 6/6). The surface is covered by a thin reddish brown watercolour (Munsell 2.5YR 4/4). In this group it was possible to observe non-plastic elements of small dimensions, from which we have identified calcite in considerable quantities and some quartz. Four fragments were included here, corresponding to 1% of entire collection.

GROUP XIA

It includes well refined clays, displaying a homogeneous orange tone (Munsell 5YR 6/6). The slip is very thin, resembling watercolours in some cases, equally displaying an orange hue (Munsell 5YR 5/8). The small dimensions of the degreasers did not allow for their distinction. Six fragments were included here, corresponding to 1.5% of the entire collection.

GROUP XIB

It includes averagely refined clays, displaying a homogeneous reddish brown tone (Munsell 2.5YR 4/6). The slip is very thin and displays an orange brown hue (Munsell 5YR 5/6). The small dimensions of the degreasers did not allow for their distinction. One fragment was included here, corresponding to 0.3% of the entire collection.

Reflections

Unfortunately the lighting ceramics constitute a kind of material whose productions are still poorly known. Although we are aware of the existence of some lamp production centres, of which some have been listed, the

same cannot be said in relation to the clays, and their general characteristics, of the lamps that were produced in them.

Indeed, we often come across works that generically describe the clays and assign an origin to the different pieces. However, in practice, the researcher who tries to match the clays of the samples that he is working with with those of published collections is faced with the difficulty and high risk of committing a mistake or attributing incorrect origins.

Nevertheless, such publications are frequently subjected to a variety of conditioning factors, where the space factor obliges to a careful selection of the content. Nevertheless, they constitute an added value in the study and analysis of the lighting ceramics clays, when it comes to associating manufacturing groups to productions and productions to origins.

When we think of lamps of Hellenistic tradition or Late Republican lamps we automatically assign them an Italic origin. However, it is curious to note that this may not always be the case. In fact, we were able to identify a fragment of lamp of Hellenistic tradition (Ricci H, Plate VIII, No. 3), which presents a typically local clay. We do not know, however, whether this piece was actually locally manufactured, or produced in another geographical area nearby. In fact, the data obtained does not ensure a production in *Scallabis*.

During the Roman Republican period the Italian Peninsula assumes itself as the main producing and exporting centre of this type of materials. Nevertheless, we must bear in mind at all times that the Roman domain is undergoing a period of expansion, with the Senate being perhaps more concerned with territorial recognition and its dominion, than with market growth. On the other hand, the lighting ceramics were not the Italic material of choice to be exported. For this reason, in the inventories of archaeological sites with a chronology correspondent to the Roman Republican period these materials are always few in number when compared to the other ceramics.

The lamps are mostly found in archaeological sites of imminently military nature or in locations early Romanised with a high presence of genuinely Roman individuals, which appeal to Romanising habits. We must also remember that the military contingents disembarking in the Iberian Peninsula are accompanied by crowds of people who survive at their expense, including potters who bring with them the manufacturing knowledge. Indeed, this may be the reason why *Scallabis* had a sample of Hellenistic tradition locally manufactured. Thus, it would be a piece produced by Italic agents, with Italic techniques and knowledge, but with raw materials from the region.

The comparative analysis between the percentages of the different productions of the lamps from Alcáçova de

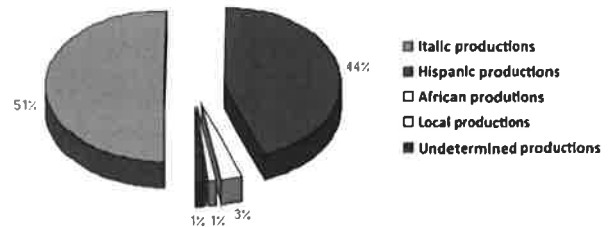


Figure 8 – Percentage distribution by productions of the Roman lamps identified in Santarém.

Santarém (Figure 8) determines a predominant presence of Italic productions characterised by samples of very good technical and productive quality, exposing a greater preference for products of this origin. Certainly, this greater preference is due to two main factors. On the one hand the conquest of the territory and the consequent imposition of the products of the conqueror. On the other hand an increasing presence of genuinely Roman individuals.

Nevertheless, the collection of artefacts under study also shows a large number of products of Hispanic production, although these do not outweigh the Italic exemplars. This high percentage of Hispanic products, especially those from the Roman province of Hispania *Baetica*, must be due not so much to their technical quality (even though we have analysed pieces of good quality), but to the fact that they are low-priced products when compared to the Italic products, which must be due to their lower quality and the inexistence of transportation costs.

In the lamp collection of Alcáçova de Santarém there are also exemplars of African production. Indeed, the North African products are also on the list of manufactured products imported by the people of *Scallabis*. However, its weak expression may have its justification not in the routes or costs but, in the chronology of the occupation of the site.

The collection under study presents itself formally varied and expressive until about the middle of the second century AD. However, from this period on we verified a significant drop in imported products, which may explain the low expression of the North African lamps that are considerably late (Figure 9). As it was already stated, this apparent drop may be due to various factors that are not exclusively related to the population reduction or loss of purchasing power.

Finally, we could not fail to mention that during the analysis of this collection we have encountered some fragments of difficult integration into the manufacturing groups attributable to specific production areas. These are fragments which did not fit into any of the individualised groups, nor allowed their inclusion in any of the productions, and have therefore been integrated in the group we called “undetermined productions”. However, these correspond

	Italic Productions	Hispanic productions			African productions
		From the area of Cadiz	From the area of Merida	Locales	
Ricci E	2				
Ricci H				1	
Ricci-Dressel 1	1				
Ricci-Dressel 1B	1				
Ricci-Dressel 2	11				
Ricci-Dressel 2A	11				
Ricci-Dressel 2/3	2				
Ricci-Dressel 3	2				
Ricci-Dressel 3A	3				
Dressel 9	13	28			1
Dressel-Lamboglia 9A	3	4			
Dressel-Lamboglia 9B	1	4			
Dressel-Lamboglia 11		3	1		
Dressel-Lamboglia 12	2	1			
Dressel-Lamboglia 14		2			
Dressel-Lamboglia 15/16		2	1		
Dressel-Lamboglia 17		1			
Dressel-Lamboglia 19			1	1	
Dressel-Lamboglia 20	10	5			2
Dressel-Lamboglia 27	2				1
Hayes IB					1
Hayes IIA					1
Undetermined	132	102	15	2	5

Figure 9 – Morpho-tipological distribution of the Roman lamps by the different productions identified.

to a small percentage of the analysed collection, not being representative in its total.

The forms

We could not start the morphological analysis of the Roman lamps of Alcáçova de Santarém without some brief comments about the type of material under study, either in what concerns to the evolutionary morphology or to the production. First of all, it should be stressed that the

evolutionary process is not linear in the distinct morphology of the lamps. Many of the different existing types have certainly mutually coexisted in the same geographical and chronological space during the transition stages, though each form has differentiable characteristics.

Effectively, the data obtained in fieldwork with safe contexts, as in the case of the archaeological site of Lomba do Canho, Arganil, Portugal (Nunes *et alii.*, 1990), currently allow verifying that the latest types of lamps of Hellenistic

tradition have coexisted with the earliest forms of Late Republican lamps. Similarly, we notice that the coexistence of Imperial samples with volutes and plain nozzle covers a relatively wide period, a reality that Heinrich Dressel had already observed and documented (1899).

With regard to the criteria that have been used for the definition and classification of the lamps, they essentially boil down to two: form and chronology. However, other characteristics (lamp dimensions, nozzle shape and disk diameter) are determinant in the establishment of the main groups and subgroups. The second norm uses the chronology as classification criteria, even though it is always associated to the form in order to materialise an evolutionary sequence (Morillo Cerdán, 1999, p. 54). We cannot fail to mention once more that we cannot always apply the same typological definition criteria, since the pieces can also show a different morphology. They may vary according to the geographic norm, either in the essence of the form or in the chronology. It is not acceptable that the same data from an archaeological site, either chronological or contextual, is applied to another site of totally different characteristics with the objective of analysing these materials.

The Republican lamps are, in our view, those that best characterise the technical and formal evolution of these materials, to the extent that they change in a short period of time, both formally and aesthetically. In addition to what has been mentioned, the Republican lamps are those that mark the transition from the Hellenistic tradition prototypes to the genuinely Roman pieces (Beltrán Lloris, 1990).

The typology developed by the researcher Marina Ricci (1973, p. 207-227) is one of the most well elaborated for the lamps of Hellenistic influence, combining the morphological and chronological evolutions. This typology (Ricci A to H) concentrates pieces with a rather wide filling hole, and all of them with a rounded body. Only the types E and G of this typology exhibit a peculiar gripping element that consists of a circular handle in the part opposite to the nozzle. The forms B, D and H of Ricci show underdeveloped characteristics of what would come to be recognised as lateral handles. The remaining forms do not display any gripping element.

Although the current knowledge about Late Republican lamps is quite restricted in the Portuguese territory, we believe that in the future this may change with new findings or new studies. Nevertheless, this difference in knowledge between the Late Republican and the Imperial lamps may be due to the greater interest in collections of lamps decorated with volutes, figurations and pottery marks that have achieved a larger geographic dispersion. For this reason we find a mixture of typologies for the Imperial lamps, in contradiction with the Late Republican Roman lamps that are merely referred by some authors.

Heinrich Dressel (1899) was the first researcher to develop a typological evolution of the Late Republican lamps, later revised by Nino Lamboglia (1952) and, more recently, by Marina Ricci (1973).

The group of lamps characterised by the peculiarity of possessing volutes constitutes the primordial Imperial production par excellence. All the types of volute lamps are evidenced by their high technical and artistic quality. This reality led to a refinement and careful choice of the motifs that decorated the disk, to which the use of mould in the production greatly contributed, and to the consequent spread of these lamps, driven by the economic prosperity of the Augustan period and the *pax romanorum* (Morillo Cerdán, 1999, p. 67).

The volute lamps are documented in all the archaeological sites that encompass a chronological period between the reign of Augustus and the middle of the second century AD, where they often assume a role of *fossile director*. Within the vast repertoire of Roman lamps they are the best known and mostly documented, constituting the type of lighting ceramic par excellence during the High Imperial period.

Regarding their morphology, they transpire a profound change compared to the last Late Republican Roman productions. The use of the mould allowed making the most out of the disk, which dimensions increased significantly. It denotes a fairly concave shape and a vast ornamental repertoire with representations varying between human, animal, plant or simply geometric figurations (Morillo Cerdán, 1999, p. 67). The rim is separated from the disk by the presence of two or more mouldings which resulted in its clear narrowing, almost completely disappearing in some cases, mainly in the form 9 of Dressel (1899) or Loeschcke type I (1919). However, these pieces styling feature is the presence of decorative elements in the form of volutes flanking the *rostrum*.

The morphology of the nozzle can vary between triangular and round nozzle, wherein each of these particularities has a specific temporal diachrony well defined by Loeschcke (1919). This researcher established five essential groups of volute lamps, Loeschcke I, III, IV, V and VI, based on the typology of Dressel, forms 9 to 16.

The existence of productions of these lamps in the Iberian Peninsula does not present any doubts today (Morillo Cerdán & Rodríguez Martín, 2009). The growing findings of furnaces designed for this production (Sotomayor Muro *et alii*, 1976), as well as the exhumation of moulds (Morais, 2005, p. 372) and samples with production defects, confirm the presence of several lychnological manufactories (Morillo Cerdán, 1999, p. 99). We highlight the data obtained in *Asturica Augusta*, Astorga (Amaré Tafalla & García Marcos, 1994), in Tricio, La Rioja (Solovera San Juan *et alii*, 1993), in Herrera de Pisuergra, Palencia (Morillo Cerdán, 1992) and in *Colonia Patricia*, Córdoba (García Giménez & Bernal Casasola, 1995) in the current Spain.

These materials appear, for the most part, related to the production of other ceramic types leaving the manufacture of lamps in the background, which limits their manufacture. As already mentioned, most of these workshops corresponds to facilities of small dimensions owned by a family or several families.

In the Iberian Peninsula, the most common types during the Roman High Imperial period comprise the pieces originated from the form Dressel 3, Andújar production, from the form Dressel 9, known as "Mining Lamps" (Castro, 1960) or Riotinto-Aljustrel type, and imitations of the form Dressel 11-14 with the "Minotaur" represented on the disk (Beltrán Lloris, 1990, pp. 266-267; Morillo Cerdán, 1999, p. 99).

The plain nozzle lamps mark a new kind of lighting receptacles quite distinct at morphological level. However, we are faced with some similarities to the later volute samples (Morillo Cerdán, 1999, p. 107), specifically the round nozzle ones, which coincide chronologically. The production of this type of materials appears to have started in the same Italic workshops that manufactured volutes (*Ibidem*).

Although the plain nozzle lamps, which follow the volute series, were the least studied group in comparison to the volute lamps and *firmalampen*, this is currently a reality that tends to significantly change. It is a very complex collection of pieces and hard to define typologically and chronologically, with the existence of very individualised samples and types from several origins (Morillo Cerdán, 1999, p. 107).

They display a circular body with a wide convex rim bent inwardly, disk of reduced dimensions and short rounded nozzle. The rim can present itself plain or decorated with geometric or vegetal elements. The decoration of the disk also changes substantially, presenting itself with bigger and cruder figurations. In some types the disk ornamentation even ends up disappearing.

The diversity of the plain nozzle lamps was established through the nozzle structure and also by its junction to the body of the lamp. Once again, it was Dressel (1899) who first established the main groups of this type of material, confirmed and expanded by Loeschcke (1919). Nevertheless, the typology developed by the pioneer shows a more complete and yet simple organisation, as well as an evident clarity.

The growing evolution of this type of pieces is well documented not only by the morphological changes of the nozzle, but also by changes on the decoration. The progressive increase of the pieces allowed the introduction of decoration on the rim, in contrast to the disk. The handle size increases in parallel to the body of the piece, with a tendency to verticality, eventually becoming some sort of massive appendix, a feature observed at a quite later period (Morillo Cerdán, 1999, p. 108).

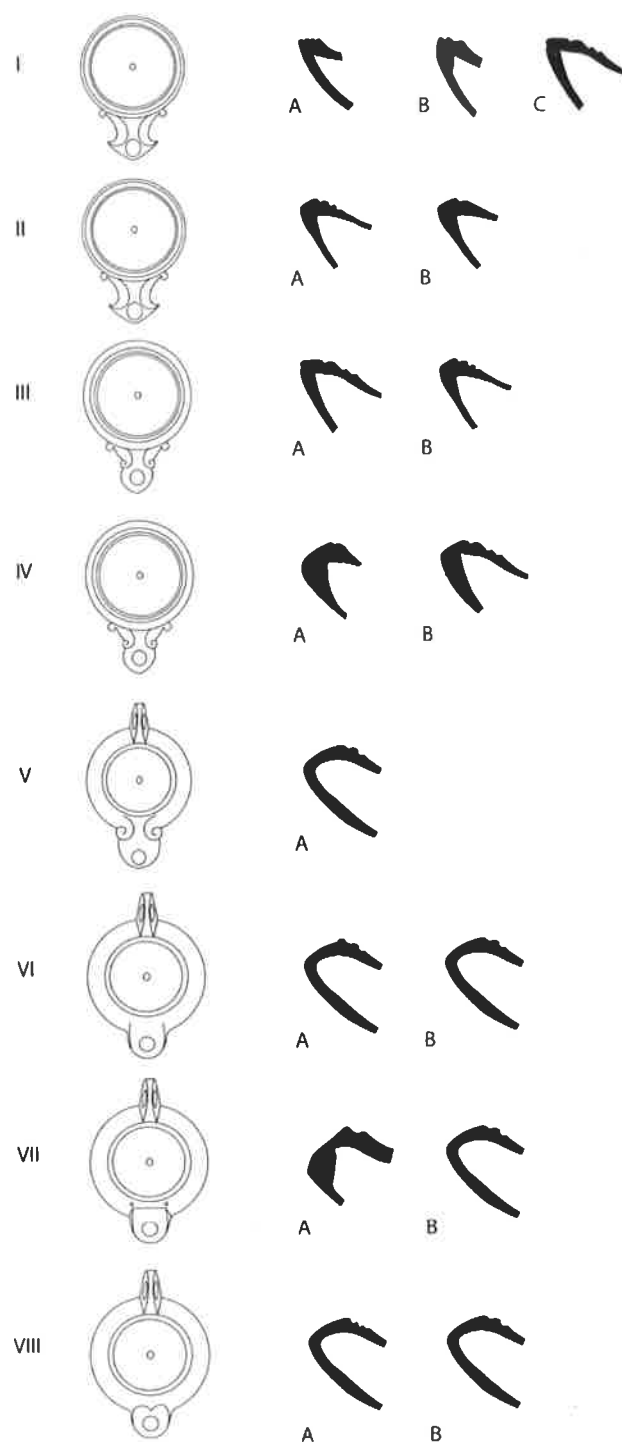


Figure 10 – Proposed evolution of the shoulders of the High-Imperial samples in Scallabis.

The production of plain nozzle lamps presents a significant technical quality displaying clays of different colours and characteristics, showing the presence of varnishes and/or slips of a clear hue. However, this technical quality continuously fades from mid or late second century AD on.

The central region of Italy seems to have been the production area par excellence, at least in the initial phase. Quickly, the plain nozzle models were to be imitated by the

small workshops of Proconsular Africa that progressively develop their own formal and decorative repertoire creating a totally distinct and individualised production (Deneauve, 1969). An identical reality would eventually happen in Hispania as well, although to a lesser extent, complicating the technical and typological panorama of the plain nozzle lamps.

Relying on existing work and field contexts of recent archaeological work, it was possible to propose a formal evolution of the High Imperial lighting ceramics of *Scallabis* based on the morphology of the nozzle and rim. We remind you that the vast wealth of existing typologies already addresses this issue and, in our opinion, the work developed by Leibundgut is the best (1977). However, the evolution of the Roman lamps rim is still somewhat problematic because the typologies developed so far are based on complete samples, which allows a general characterisation taking into account the nozzle and body of the piece.

The panorama of the lamps collected in most of the archaeological sites corresponds to small fragments of difficult classification, which not always allow a minimally reliable chronological framework, a fact that we ourselves faced. Thus, we believe that this decomposition may elucidate the chronologies proposed for the small fragments with which we frequently deal, especially in the west of the Iberian Peninsula. We intend only to assist in the analysis of the artefact collection of *Scallabis*, mainly at chronological level, simplifying the study of the Roman lighting ceramics.

Currently, the volute lamps undoubtedly correspond to the better characterised type of lamps and can be divided into five distinct groups, displaying different types of rims (Figure 10).

In group I, we distinguish pieces with triangular nozzle adorned with simple volutes, short and flat rims, horizontal or bent slightly inwards, presenting three or more mouldings. They mostly correspond to form 9 of Dressel-Lamboglia, Loeschcke I, Ponsich II, Deneauve IV, Provoost IV, Leibundgut V and Szentleky b - 4, fitting chronologically between the reign of Augustus and the Flavian period.

In group II, we included pieces with triangular nozzle adorned with simple volutes, short and slightly convex rims with one or two mouldings. They mostly correspond to form 9 of Dressel-Lamboglia, Loeschcke I, Ponsich II, Deneauve IV, Provoost IV, Leibundgut V and Szentleky b - 4, fitting chronologically between the reign of Tiberius and the reign of Trajan.

In group III, we distinguish pieces with round nozzle adorned with double volutes. The rims can be short and flat, bent slightly inwards or convex, presenting two or more mouldings. They mostly correspond to forms 11-14 of Dressel-Lamboglia, Loeschcke IV-V, Ponsich II-B1 and

B2, Deneauve V and Provoost IV, fitting chronologically between the reign of Claudius and the reign of Trajan.

In group IV, we included pieces with round nozzle adorned with double volutes, rather wide and convex rims with one or more mouldings. They mostly correspond to forms 11-14 of Dressel-Lamboglia, Loeschcke IV-V, Ponsich II-B1 and B2, Deneauve V and Provoost IV, fitting chronologically between the reign of Claudius and the reign of Antoninus.

In group V, we distinguish pieces with round nozzle adorned with double volutes facing the side of the nozzle. The rims are usually rather wide and convex, presenting one or more mouldings. They mostly correspond to forms 15-16 of Dressel-Lamboglia, Loeschcke V, Ponsich II-B2, Deneauve VD, Szentleky b - 8, Walters 85 and Provoost IV, fitting chronologically between the end of the reign of Claudius and the reign of Trajan.

For plain nozzle lamps we distinguish three groups. In group VI, we included pieces with round and short nozzle, rather wide and convex rims with two or more mouldings. They mostly correspond to forms 17-18 of Dressel-Lamboglia, Loeschcke VIIK, Ponsich II-B1, Deneauve VII, Provoost IV and Leibundgut XX, dated between the reign of Trajan and the reign of Antoninus.

In group VII we differentiated pieces with round nozzle, delimited by a small linear moulding with two circular depressions on each side of the nozzle. The rims are quite large and convex, presenting one or more mouldings. They mostly correspond to form 20 of Dressel-Lamboglia, Ponsich III, B-1,2, Deneauve VII A, Provoost IV - 3,3,1, Leibundgut XXI - XXII, Szentleky b - 11 and Walters 95, dated between the reign of Hadrian and end of the reign of Antoninus.

Finally, in Group VIII we included pieces with round and short heart-shaped nozzle, generally broad and convex rims with two or more mouldings. They mostly correspond to forms 27-28 of Dressel-Lamboglia, Loeschcke VIIIC, Ponsich III C, Deneauve VIII, Provoost IV - 3,5 and Leibundgut XX, fitting chronologically between the end of the reign of Antoninus and the reign of Severus.

This subject deserves some further comments regarding the analysis of the rims. Observing the table (Figure 10), we realise that the volute lamps seem to be the ones displaying a greater diversity of rims, allowing an easy identification of the type. However, with the latter type of volutes appears a variant of the rim which remains in the subsequent types. Such reality makes it difficult to identify the form to which the fragments must correspond, a difficulty which we have also encountered.

With regard to the bases unfortunately it is not possible to propose a morphological evolution. On the one hand, its variety is too limited, restricted to flat or highlighted foot bases. On the other hand, we verify their presence in the various identified forms.

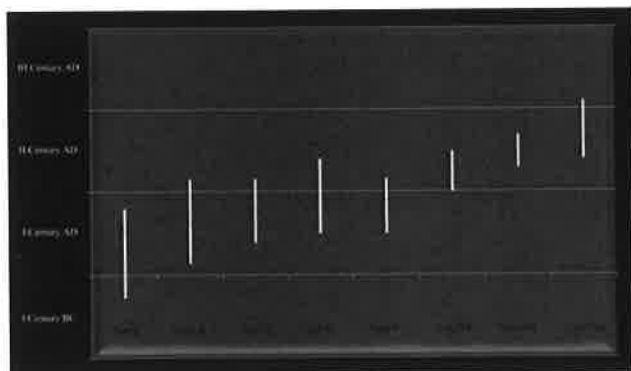


Figure 11 – Chronologies of the different kind of lamp shoulders.

Nevertheless, we dare to say that there seems to be a greater trend of highlighted foot bases in volute lamps, and flat bases, with a groove or circular moulding that delimits it, in plain nozzle lamps. The bases with multiple mouldings seem to be related with the heart-shaped nozzle lamps (Dressel-Lamboglia 27 or 28). Nevertheless, we emphasise that both types of bases appear indiscriminately in the two types of lamps and therefore we should not risk their inclusion in one type or the other, when faced with only that part.

Chronologically speaking, by analysing the evolution proposed for this type of materials (Figure 11), we immediately notice that there is a clear distinction between the volute and plain nozzle series. The former seem to have been produced especially during the first century AD and the first half of the following century, while the plain nozzle prototypes predominate throughout the entire second century and first half of the third century AD. It should be noted that the analysis made relates only to the lighting ceramics comprised between the first and third centuries AD.

We believe we can say without any reservation that the volute lamps with triangular nozzle thrived throughout a large part of the first century AD. Nevertheless, we are faced with subsidiary productions, which we believe do not show a long temporal diachrony of usage, but introduce a novelty, the round nozzles and the wide and convex rims. The inventories of archaeological sites with a chronology limited until the middle of the second century AD, usually exhibit the entire repertoire of the volute lamps, showing few samples of plain nozzle lamps. This reality is well attested in the archaeological site of Monte Molião in Lagos, Portugal, with a chronology belonging to the end of Roman occupation during the first half of the second century AD (Arruda *et alii*, 2008) and, although the lighting ceramics are not yet published, we were able to analyse the collection which has around 104 fragments, noting that it displays the whole repertoire of volute lamps and only two samples of plain nozzle lamps. This constituted an important factor for the chronologies proposed,

substantiated by the archaeological contexts, particularly as regards to the transition from the volute types to the plain nozzle prototypes.

Effectively, these new features would ultimately impose themselves on the Roman society preferences, reaching its peak with the said plain nozzle prototypes. We notice that the types VI and VII have a relatively parallel production perhaps due to the high similarity. However, the type VII may be extended chronologically until the early third century AD, although it is not evident in the graph shown (Figure 11).

However, we should carefully consider the chronology to be given to the different samples. We must keep in mind that during this period there are already abundant lychnological productions in the Iberian Peninsula, either imitations of the Italic prototypes or approximate productions that deserved a differentiation. In these cases, we believe that the chronology assigned should mandatorily present a longer amortisation period. Certainly, the Italic productions were not initiated in parallel with the imitations manufacture, having the imitations been made later.

The increasing discovery of producing centres has been changing the merchant scene of the lamps in Imperial Roman period.

Lamps of Hellenistic influence

Ricci E

This formal type corresponds to lamps elaborated on a potter's wheel, with features that transpire ascendancy of the Hellenistic prototypes. They possess a truncoconical body, broad and deep circular disk and a circular flat base with a depression at the bottom of the body. The wick hole is quite broad, a characteristic that is also found in the Hellenistic samples. The rostrum is short and broad at the tip, forming a small projection on each side. This type of pieces also presents a gripping element, a rather scarce characteristic on lamps of Hellenistic influence, which results in a small ring handle, with two grooves not too accentuated.

This form seems to be well documented and widespread in the Mediterranean, accompanying the Roman military contingents. We are faced with the presence of this type of pieces in the shipwrecks of Madrague de Montredon (Ricci, 2002, pp. 325-326), dating from the second half of the second century BC, and Chrétienne A (Ricci, 2002, pp. 329 -330), dating from the end of the second century BC and the beginning of the following century. Of equal importance for obtaining a reliable chronology, stand the necropolis of St. Rémy (*Apud in Ricci*, 1973, p. 216), which allowed the dating of a sample of this form from the second century BC, and *Albintimilium* (*Apud in Ibidem*), where it was obtained a dating demarcated between 170 and 50 BC.

In the current Portuguese territory, the publications of this type of lamps are rather scarce with only a few samples of this form in Cabeça de Vaíamonte (Fabião, 1998, p. 432).

In *Scallabis* it was possible to collect two fragments of this formal type (Plate VIII, No. 1 and 2). The first sample (No. 1) presents a flat base highlighted in the lower body, where the handle starts. It displays grey refined clay with the potter's lines quite visible on the inside and the presence of a black slip over the entire outer surface. It should also be mentioned that the fragment's clay presents small grains of sand of volcanic origin, which strengthens the Italic origin. This is, as we know, a very common characteristic in wine amphorae of identical origin. The inclusion of this fragment in this formal type was possible due to its morphological characteristics, but especially due to the macroscopic specificities of the clay and to the manufacturing technique used in its production. The second sample (No. 2) corresponds to a wide and convex rim, and a deep disk with a small moulding.

The first sample mentioned was collected in an archaeological stratum dating from the first century BC, in a preserved context of occupation, associated with amphorae of type Dressel 1 of identical origin. However, taking into account the parallels identified, it seems evident to assign a chronology to this form demarcated between the end of the second century BC and the first half of the next century.

Ricci H

This form corresponds to the last production of lamps of Hellenistic tradition, also produced on a potter's wheel. It features a cylindrical body with high walls, broad and concave disk and slightly lengthened and rounded nozzle, with laterals thoroughpaced. The base is flat and without any foot. Another feature of this form is the presence of a small underdeveloped lateral handle that will appear again in Late Republican lamps.

Samples of this form were collected in *Albintimilium* (*apud in Ricci*, 1973, p. 225), which allowed a precise dating between 80 and 70 BC. Even more precise was the dating obtained in Rome, in the Caesarean *forum*, dated between 48 and 46 BC (*apud in Ibidem*). The shipwreck of Colónia de Sant Jordi (Mallorca, Spain), dating from the first quarter of the first century BC corresponds to one of the vessels carrying pieces of this type (Cerdá Juan, 1980; Colls, 1987).

In Spain we can find samples of this form deposited in the Archaeological Museum of Seville (García de Leaniz, 1991) and in the Municipal Museum of Cáceres, gathered from the Roman camp of Cáceres el Viejo (Hubert, 1984). In this last site, relying on the high similarity of the phallic decoration between the various samples collected, Ulbert proposes that this type was produced locally by mould technique (Ulbert, 1984, p. 157, Nos. 485 to 491).

In the current Portuguese territory, we can find this form at the archaeological site of Alcácer do Sal (Almeida, 1953, p. 149), Cabeça de Vaíamonte, Monforte (Fabião, 1998, p. 431) and in Lomba do Canho, Arganil (Nunes *et alii*, 1990, pp. 74-75, No. 1 and 2). Unlike the sample from Santarém they show traces of slip and internal fingerings, which forced the authors to refer their production as being made by mould (Nunes *et alii*, 1990, p. 81), confirming the technique put forward by Hulbert for the lamps of Cáceres el Viejo.

In Alcáçova de Santarém it was collected a sample of this form (Plate VIII, No. 3). It features a slightly lengthened nozzle, with abundant traces of combustion / usage, rounded and thoroughpaced. The classification of this fragment was possible thanks to the existence of an analogue in the typology of Ricci (1973, p. 225). It presents a quite refined orange clay, without apparent traces of any kind of slip. It is this feature, together with the type of clay that it presents, that allows proposing a local/regional production for this sample. Currently, no hesitation seems to be shown in referring that the Roman military contingents brought with them all the means and knowledge to manufacture such products. Indeed, this piece seems to be one of those cases of local production of goods that were needed to the permanence of the Roman military contingents in peninsular territory.

This sample was collected in a Roman stratigraphic layer in association with Campanian ware from Cales (Lamboglia 1), Campanian ware of type A and amphorae of type Dressel 1, despite the existence of materials from the Iron Age.

With the type H of Ricci, the productions of lamps of Hellenistic influence appear to have ceased. We are faced then with the first pieces of genuinely Roman manufacturing, the Late Republican Roman productions. The introduction of the bivalve mould manufacturing technique, apparently already used in the Hellenistic prototypes, allows distinguishing between the Late Republican lamps and the Hellenistic tradition lamps, which have always been thought to be produced on a potter's wheel (Morillo Cerdán, 1999, p. 57).

Late Republican Lamps

Dressel 1/Ricci-Dressel 1

This form has biconical body with a stylised lateral handle, resembling more to a small appendage. In the rim it generally shows a decoration linear or with beads. In this form sometimes it is also possible to find heart-shaped decoration in the same area of the lamp. The disk has now a filling hole of reduced dimensions delimited by small mouldings, with the farthest one usually made of beads. The nozzle is lengthened with stylised decoration on the sides forming a small channel. This decoration is, according to Marina Ricci (1973), the predecessor of the type Dressel 4 (*Vogelkopflampe* type). The lower part of the body is

smooth and may present various types of base, ranging between flat and convex or presenting a small highlighted foot. The handle is annular presenting two or more vertical ribs.

This type is documented in the grave VII of the necropolis of Saint-Remy in a context that allowed centring the dating in the second/first century BC (*apud in Ricci, 1973, p. 174*). The Roman shipwrecks documented also offered samples of this type, being well known the Grand-Congloué 2, dated from 170-150 BC (*apud in Ibidem*). With the contexts presented by M. Ricci, which also count with a sample from *Albintimilium* (Ricci, 1973, p. 176), the author does not hesitate to date the production of this form between the middle of the second century BC and the middle of the following century.

In Alcáçova de Santarém it was possible to identify a fragment of this form that, unfortunately, did not allow its graphical representation. It corresponds to a fragment of rim and disk, presenting the typical linear decoration in relief, as well as the beads that are characteristic of it. However, it presents a fracture in the area where the main moulded ring would be, which seems to be too thick. Nevertheless, it clearly demonstrates the presence of an area made of beads which allows the inclusion of this fragment in the form 1 of Dressel.

Dressel 1/Ricci-Dressel 1B

This formal type corresponds to a variant of the form 1 of Dressel displaying, as expected, the general lines of the form described above. The difference between the two types is centred on the decoration. In the previous form it corresponded to the disposition of beads in the space corresponding to the rim, in this variant the decoration may be described as small groove disposed along the entire rim, giving it a "streaked" look. The disk remains with a reduced diameter and with a small filling hole.

The variant B of the type 1 of Dressel does not seem to correspond to a very common type. Nevertheless, the samples, and their contexts, presented by M. Ricci allowed her to propose a production that begins not long after the previous form, in the middle of the second century BC, but that is extended throughout the next century, during which it reaches the peak of its production.

It was possible to recognise a fragment of this form at the archaeological site of the urbanisation of Monte Molião (Lagos, Portugal) coming from the excavations carried out in the vicinity of that site which corresponds to *Laccobriga* referred in the classical sources. This intervention allowed concluding a chronology demarcated between the end of the second century BC and the beginning of the next century (Sousa & Alves, 2006), which corroborates the chronology proposed.

In Alcáçova de Santarém we have identified a fragment of this type corresponding to the rim and part of the disk (Plate VIII, No. 7). Although the fragment is small, it presents the typical decoration with grooves and a rim rather tilted, denouncing a biconical form. Once again, we may not be facing pieces locally produced, but exogenous prototypes imported by sea.

The stratigraphic contexts are now starting to show evidence of the destruction of the stratigraphic layers made by the continuous occupation of the city, a topic already addressed in this work. The vast amount of materials collected in association with this fragment is highly diverse, both as regards the type of materials or the chronology they offer. Thus, we cannot advance a more precise dating for this sample besides the one that has been generally proposed for this form.

Dressel 2/Ricci-Dressel 2/Ponsich 1 B/Deneauve 1

The form 2 of Dressel presents as formal characteristics a biconic body and the presence of a lateral handle. The lateral handles, not very functional as gripping elements, should correspond to decorative elements. At the top of the wide disk there is a concentric moulded ring around the filling hole. The nozzle is wide extending to the sides. The base is circular and generally shows a small foot not too highlighted. The main feature corresponds to the presence of decoration with beads on the upper and lower body. The handle has, in most cases, the presence of two depressions or vertical ribs. This form sporadically features abstract or figurative decoration in the rim, between the moulded rings and the nozzle.

It seems to be quite spread throughout the Mediterranean denouncing a very intense commercialisation proven by the presence of these pieces in frequent shipwrecks. We highlight Madrague di Giens dated from the second quarter of the first century BC, Fos 2 with the same chronology, Plane A dated from 50 BC, Planier 3 with a chronology demarcated between the years 57 and 40 BC, Dramont A dated between the years 50 and 47 BC, San Ferreol dated between the years 40 and 20 BC, and finally, the sinking of Valle Ponti dated from the end of the first century BC and the beginning of the next century (Ricci, 2002, pp. 337-346). It should also be noted that the findings from *Albintimilium* and from the *forum* of Caesar in Rome confirmed and allowed thus to narrow down the chronology (*apud in Ricci, 1973, pp. 185-187*).

In Portugal we can find this type in the archaeological site of Lomba do Canho, Arganil, where three samples were collected (Nunes *et alii*, 1990, fig. 3, 4 and 7). One of them presents figurative decoration between the disk and the nozzle that looks like a stylised frog. However, the fact that this sample seems to be an overmoulding did not allow the authors to make a secure assertion on this theme (Nunes *et alii*, 1990, p. 82, fig. 3). We have also found a sample in the museum of Torres Vedras (Sepúlveda & Sousa, 2000,

p. 43, No. 1) dated between the middle of the first century BC and the first decade of the next century.

In *Scallabis* it was possible to collect eleven fragments susceptible to this classification. However, two of them did not allow graphical representation due to the reduced dimensions. From these, six correspond to long and thick nozzles (Plate VIII, No. 8, 9 and 10), one corresponds to the rim, and another corresponds to the base with beads represented (Plate VIII, No. 11) and, finally, a sample also corresponding to the base, body and start of the handle (Plate VIII, No. 12). The latter also presents beads, although quite faint, which leads us to believe that it is a copy. This is a reality with which we should take great caution because an overmoulded piece may not correspond to the origin of the original. The clays range between orange and rosy, and the slip is present in all the fragments mentioned, varying between reddish and black. Added to these fragments is the sample published by Dias Diogo from the excavation carried out in 1979 (Diogo, 1984, p. 116, Est. I, No. 5).

Regarding the tone of the slips or varnishes we should be cautious when we refer to some pieces of Hellenistic or Late Republican tradition as Campanian ware. Although several authors classify lamps with black slip as Campanian ware, the clays do not correspond at all to this ceramic category.

The Campanian ware from this period present well refined clays of reddish, rosy or yellowish tones. The lamps with black slip present clays of greyish tone, different in terms of composition. If the lamps with such features were produced on the same production centres as the Campanian ware, they would certainly present the same clays. For this reason we do not name the black slip samples from *Scallabis* as "Campanian lamps."

Once again the excavation contexts are inconclusive. A large part of the material collected is found in mixed strata from later periods.

Dressel 2/Ricci-Dressel 2A

As a variant of the form 2 of Dressel, Ricci presents the form 2A, which has in common with the form 2 the presence of the typical decoration with beads distributed only in the upper body, i.e. the rim. It also has in common the lateral handle, the clay characteristics and the slip. The main difference lies in the presence of a wide channel that makes the connection between the disk and the nozzle (Ricci, 1973, p. 187).

This formal type is only attested in *Albintimilium* (*apud in* Ricci, 1973, pp. 389-390) dating from 30 BC. Unfortunately, this type of pieces is also not attested in shipwrecks, which would allow corroborating the chronology proposed.

In the current Portuguese territory, we are faced with the presence of a possible sample of this form in the military camp of Lomba do Canho, in Viseu. The authors themselves

classify the sample with some caution, stating that this piece may be inserted in the form 2 or 2A of Dressel (Nunes *et alii*, 1990, p. 77, No. 6).

In Alcáçova de Santarém, it was possible to collect eleven fragments of this variant, of which only nine were able to be graphically represented (Plate IX). From these, two seem to belong to the same piece for their morphologic and macroscopic characteristics, although they could not be glued together (Plate IX, No. 21), corresponding to the base, body and nozzle. The nozzle still retains traces of combustion. No fragment shows the presence of decoration with beads in the lower body, a feature that allowed distinguishing this variant. The remaining fragments correspond to six bases which also denote this lack of decoration (Plate IX, No. 19, 20 and 22 to 24) and a base that still present part of the fuel chamber and the lateral handle (No. 18). We should also make reference to a rim fragment with decoration with beads, a decoration that ends at the shoulder of the lamp (Plate IX, No. 25).

Dressel 2/Ricci-Dressel 2/3

This form corresponds to the transition between the types 2 and 3 of Dressel. It has in common with form 2 the typical decoration with beads and, with form 3, the presence of two lateral handles (Ricci, 1973, p. 193). The top of the nozzle is flat, widening as it approaches the body.

This form is present in the shipwreck of Fos 1, dated from the end of the Republican period (Ricci, 2002, p. 346). In Lusitania, we do not find the presence of this formal type in the different sites with which we establish parallels.

In *Scallabis* it was possible to collect two samples of this form, one of which has allowed its graphical representation (Plate X, No. 27), one corresponding to the part of the nozzle and disk, the other corresponding to the lateral handle. The first shows the top of the nozzle flattened, widening as it approaches the fuel chamber. One of the main characteristics of this form is the fact that it presents a disk of reduced dimensions which prevents the presence of decoration, a characteristic that can be seen in the fragment mentioned. It merely displays two grooves and the filling hole in the centre.

In the contexts in which these fragments were exhumed they are found alongside a considerable amount of Campanian ware of type A and of Cales, Ancient Tripolitanian amphorae and a high amount of amphorae of Dressel 1 type. Given the complete absence of Greco-Italic amphorae, which could assign an oldest dating to the stratum, it seems possible to advance a chronology centred on the first century BC.

Dressel 3/Ricci-Dressel 3/Walters 73-74/Ponsich IC/Deneauve III

This formal type is characterised by the presence of two lateral handles, thick and decorated. The nozzle ends in a

wide shape in the lateral extremities and the disk is quite broad and concave. Although this form presents the lateral handles which are characteristic of it, it also shows the presence of a ring handle, located on the opposite side of the nozzle. For this reason, the lateral handles are more like decorative elements than gripping elements. This form is documented in the shipwrecks of Madrague di Giens, dating from the second quarter of the first century BC, Fos 2, with the same chronology, Titan dating from 50 BC and Valle Ponti dating from the end of the first century BC and the beginning of the next century (Ricci, 2002, pp. 337-347). Thus, the chronology proposed falls into the first century BC.

In Portugal we noticed the presence a sample of this type in the military camp of Lomba do Canho, showing characteristics very similar to those of Santarém (Nunes *et alii*, 1990, p. 78, No. 8).

In Alcáçova de Santarém, two fragments were exhumed (Plate X, No. 28 and 29), both corresponding to the lateral handle. The upper part of the lateral handle displays a rather simple decoration of small stylised leaves. One of the lateral handles (No. 28) has a grooved semicircle in the middle. In the centre of each tip of the lateral handles is a small groove or linear moulding. This fragment was collected in an archaeological stratum together with amphorae of Dressel 1 type, with a coeval chronology.

Dressel 3/Ricci-Dressel 3A

This formal type corresponds to a variant of the form 3 of Dressel differentiated by the presence of stylised volutes between the nozzle and the disk (Ricci, 1973, p. 199). It is with this form that we find the first pieces with the presence of volutes. It features a quite wide disk sometimes containing decoration or a simple radial moulding. The rim is practically non-existent, being denoted the presence of a thick moulded ring in relief which separates the disk from the body of the lamp. Another feature of this type, which will be found quite frequently in the High Imperial samples, is the punctual presence of the air intake hole. In this form we can still be faced with the presence of circles printed on the base corresponding to pottery marks.

According to the Italian researcher, this is the type that marks the transition from the Late Republican prototypes to the Imperial pieces (Ricci, 1973, p. 200). The samples that she presents are mainly from *Albintimilium*, having been collected from layers dating from 90-30 BC. Yet, Marina Ricci centres the production of this type during the entire first century BC.

The shipwrecks that have been identified have also offered samples includible in this variant, of which we highlight the shipwrecks of Madrague de Giens, dating from the second quarter of the first century BC, Fos 2 with the same chronology, and Titan, dating from the middle of that century (*apud in* Ricci, 2002).

Three samples were collected in *Scallabis* which present the same formal characteristics of the variant A of the form 3 of Dressel. Two of them (Plate X, No. 30 and 31) show the typical coarse moulding that separates the disk from the body of the piece and also decoration that could not be identified. The sample No. 30 also denotes the presence of the radial moulding on the disk. In this variant we have integrated another fragment which, however, did not allow its graphical representation. Despite being severely deteriorated we believe that it shows part of the lateral handle and the volute stylised next to the nozzle.

Once again, the amphorae of Dressel 1 type are those that accompany the samples of this form, coeval in what regards to chronology.

Imperial volute lamps

Dressel-Lamboglia 9/Loeschcke I/Ponsich II-A1/ Deneauve IV

These are lamps with a triangular nozzle, flanked by volutes, where the absence of a handle is denoted. The rim or shoulder is short and horizontal or slightly tilted inwards, separated from the disk by a variable amount of mouldings, usually three.

Chronologically it is evident a certain evolution of the variants of this type, as it has already been established by S. Loeschcke (1919), although later data has come to slightly change that reality. In fact, the variant C of this typology presents a chronology demarcated between Nero and Vespasian, however, the collecting of this type in contexts dated from the beginning of the second century AD currently allows to extend the dating of this variant (Bisi Ingrasia, 1977, p. 81).

It is not easy to distinguish between the three variants of the form 9 of Dressel-Lamboglia, type I of Loeschcke, especially if we are facing a highly fragmented set of lamps, as it is the case. This is why we propose an evolution of the rims of the Imperial lamps in order to enable obtaining a more reliable and concrete chronological context of the set.

Although the original production centres of this series of lamps are located in Lazio and Campania, this form in concrete would quickly be reproduced by Hispanics production centres scattered throughout peninsular territory (Morillo Cerdán & Rodríguez Martín, 2009, p. 294). Herrera de Pisuerga (Morillo Cerdán, 1992, pp. 88-90), Mérida (Rodríguez Martín, 1996, pp. 143-144), Los Villares de Andújar (Sotomayor *et alii*, 1976, pp. 132-140), *Italica* (López Rodríguez, 1981, p. 19), Córdoba (Amaré Tafalla, 1988, p. 108; Bernal Casasola & García Giménez, 1995, p. 178) and San Fernando in Cadiz (Corso, 1981-82; 1982) are just some of the Spanish locations proven to have manufactured High Imperial volute lamps.

The form 9 of Dressel-Lamboglia seems to be one of the most widespread types throughout the Iberian Peninsula during the Roman High Imperial period. Indeed, it is rare for an archaeological site with that chronology to not present it in its inventory. In Alcáçova de Santarém we have also found a considerable amount of lamps of this type that, not being possible to conclude what is the variant to which they belong, are generally classified in this form.

41 samples were identified, mostly corresponding to rim fragments, presenting morphological characteristics that allow their inclusion in this type (Plate X, No. 33 to Plate XI, No. 61). However, we could not fail to mention that the horizontal rims with three moulded rings may also occur in the round nozzle volute lamps, although in these the rims begin to gain a more accentuated convexity.

We have also included in this form some fragments of volutes or nozzles that, given the impossibility of knowing their real dimensions, did not allow a more specific classification within one of the variants.

The vast majority of the fragments seem to correspond to productions from the *Baeticae* province, namely 28 fragments, demonstrating a greater preference for shipping imports, which were surely cheaper. For this reason the capital of the Roman province, *Augusta Emerita* (Mérida, Spain), seems to have exported few materials to Santarém. The Italic imports are obviously also present, though in smaller numbers, proof that the Iberian Peninsula was already producing a lot of what it was consuming.

Dressel-Lamboglia 9A/Loeschcke IA/Ponsich II-A1/Deneauve IVA

This form is characterized by possessing a triangular nozzle which displays two volutes that flank it. It features a wide disk, concave and deep, forcing to an evident setback of the rim which loses amplitude. Samples are frequently found with a small channel between the disk and the nozzle that interrupts the mouldings. This characteristic has been interpreted functionally as a conduit for the fuel of the lamps that, expelled through the nozzle, would return again to the filling hole (Morillo Cerdán, 1999, p. 72). Nevertheless, the little functionality of this channel causes its conversion into a merely decorative element and, later on, its disappearance. Effectively, the various authors seem to agree about this element demonstrating a clear evolution, with the older lamps displaying that small channel fully open (Bailey, 1980, p. 128; Fitch & Goldman, 1994, p. 99).

Still with regard to their morphological characteristics, it does not present any kind of gripping element, displaying a vast iconographic repertoire ranging from figurative, geometric and vegetal decoration. Regarding the chronology of this form, the different authors often date it from the first half of the first century AD.

This variant does not appear to have been widely spread when compared to the variants B and C above (Morillo Cerdán, 1999, p. 72). However, we could not fail to mention that this type is present in the shipwreck of Dramont D, dating from the first half of the first century AD (Ricci, 2002, pp. 354-355), and also in the shipwreck of Grand Bassin (Ricci, 2002, pp. 365-366).

In the current Portuguese territory, although we do not find manufacturing sites for this type of lamps, we did find the presence of this type in Santa Bárbara de Padrões (Maia & Maia, 1997, p. 32, Lu 186, 245 and 190) represented by three samples, and in Braga (Morais, 2005, p. 319, Nos 3 to 11). In Mérida, once capital of the province of Lusitania, there are plentiful lamps of this type (Rodríguez Martín, 2002, p. 23, Lám. I No. 1, 2 and 3) which, as mentioned, is a result of this city having assumed itself as one of the lamps producers. In *Conimbriga* (Condeixa-a-Velha, Portugal), lamps of the Dressel-Lamboglia 9A type were also recovered in strata related to the construction of the Flavian *forum* and to the surrounding streets paving (Caetano, 2001, p. 78, No. 2). The sample from this site was dated from the time of Augustus - Tiberius. In Lisbon we verified the presence of three fragments of this type from the excavations of the Roman theatre, dated from the second half of the first century AD (Diogo & Sepúlveda, 2001, p. 228, No. 11, 12 and 13).

In *Scallabis* it was possible to collect seven fragments of this form, three of them (Plate XI, No. 64 and Plate XII, No. 65 and 67) corresponding to the nozzle, another corresponding to a fragment of the nozzle, disk and fuel chamber (Plate XII, No. 66), another one corresponding to the disk (No. 68) and two corresponding to part of the volute and the rim (Plate, XI, No. 62 and 63). The first three only preserve part of the right or left volute, displaying greyish clays. The fragment No. 66 clearly transpires the typical volutes of this form, with two moulded rings present on the rim. The slightly concave disk denotes the presence of figurative decoration that will be discussed in another chapter. However, it is curious to observe that this sample corresponds to a copy. Nevertheless, it appears to be a copy of average quality with the fragment revealing some flaws in its manufacturing process, but nonetheless its decoration and ornamentation is well defined.

We must also make reference regarding the fragments corresponding to the space located between the nozzle and the disk. Although of small dimensions, they allowed to observe the presence of a small open channel which connects the two parts of the lamp mentioned above. Indeed, taking into account what various researchers have written on this subject, these two fragments correspond to pieces with a slightly earlier chronology, being consensual a chronology from Augustus-Tiberius for these cases.

With regard to the collecting contexts of these last fragments, it is worth noting their association to a

considerable amount of Italic red slip ware that corroborates the dating mentioned.

The productive scenario that we found for the lamps of the series 9 of Dressel-Lamboglia is also identified in the variant A of this category. Although fewer in number, it is the Hispanic *figlinae* that begin to gain preponderance in the production of lamps.

*Dressel-Lamboglia 9B/Loeschcke IB/Ponsich II-A1/
Deneauve IVA/Walters 78*

In comparison to the previous form, this variant of the form 9 of Dressel-Lamboglia displays as differences a wider nozzle, strangling as it approaches the body of the piece, being similar in the remaining characteristics.

The researchers seem to agree about the chronology of this variant, having the start of production been attributed to the reign of Tiberius. Everything indicates that it reached its peak in the middle of the first century AD when it progressively started being replaced by the variant C. In fact, we find this form in the first phase of Hofheim, assigned to the time of Claudius (Ritterling, 1912, p. 81), just like in *Vindonissa* (Loeschcke, 1919, p. 30). This form is indeed abundant at any site that shows occupation from the first century AD, although in the archaeological sites of Pompeii and Herculaneum, its presence seems to be merely residual (Bisi Ingrassia, 1977, p. 53), which does not invalidate the chronology that has been assigned to it. We must also stress the fact that samples of this form have been collected in Pannonia in contexts of the early second century AD (Szentleky, 1969, p. 71). However from the middle of the first century on the main lamps used belonged to the type Dressel-Lamboglia 11, especially in Hispania.

The type 9B seems to have reached a higher diffusion compared with the type 9A, introducing itself in the eastern and western provinces of the empire. For this reason its overmoulding on small production centres started sooner, as it seems to be the case of Montans (Berges, 1989). In fact, this collection corroborates the rapid production of this form in other areas of the Roman Empire, namely the *Baetica* province from where most of the identified samples come from (*Videm* Figure 8).

Nevertheless, we can also observe this reality in the Iberian Peninsula, in the production centres of Mérida (Rodríguez Martín, 1996), Tarraco (Tarrats, 1993) and Herrera de Pisuergra (Morillo Cerdán, 1992, p. 168; 1999, p. 76), although for the latter, the author himself expresses his discretion.

In Alcáçova de Santarém it was possible to collect four fragments characteristic of this form belonging to two nozzles (Plate XII, No. 69 and 70), a disk, part of the body and base (No. 71) and also a fragment corresponding to the base, rim and part of the disk and nozzle (No. 72). The samples No. 69 and 70 display a wide nozzle with volutes

of considerable dimensions and present three mouldings in the preserved part of the disk. The remaining fragment included in this form (No. 71) shows a slightly concave disk with figurative decoration. Regarding the clays, the first two fragments exhibit a rather homogeneous clay, of a greyish beige tone. The other fragment displays a yellowish clay. The slips vary between reddish orange and dark brown.

The fragment No. 72, corresponding to a production from the area of Cadiz, equally presents a rather wide nozzle, horizontal rim with three mouldings poorly delimited and relatively deep concave disk. On the outer surface, it denotes the application of a simple watercolour of an orange tone.

*Dressel-Lamboglia 11/Loeschcke IV/Ponsich II-B1/
Deneauve VA/Walters 81/84*

This formal type features salient volutes in the round nozzle, a characteristic that distinguishes them from the triangular nozzle lamps. This form does not have a handle despite being, from the morphological point of view, identical to the type Dressel-Lamboglia 14 which has a handle. In fact, the types 11 and 14 are strictly identical, distinguishing themselves only by the presence or absence of the handle. For this reason the samples from Santarém may correspond either to the form 11 or to the form 14. The small dimensions of the fragments did not allow verifying if the samples had a handle or not. Only one fragment could be unquestionably included in the form 14 of Dressel, and such classification was due to the iconography and not to the morphology.

In this form, the morphology of the nozzle cannot be taken as chronological criterion, unlike the triangular nozzle forms which show a considerable reduction from the older to the latest samples (Bailey, 1980, p. 153). The disk is concave and surrounded by several mouldings. The rim has a narrow and horizontal profile, quickly evolving to a slightly convex profile, as it happens with the samples with triangular nozzle.

The evolution of this type has been problematic, potentiated perhaps by the high morphological and chronological similarities with the forms Dressel-Lamboglia 12, 13 and 14. Even so, some authors advocate two separate productions, the first being characterised by a narrow rim with moulded rings, with the nozzle flanked by two long and thin volutes, and sometimes presenting a small channel similar to the Augustan samples with triangular nozzle (Loeschcke, 1919; Bailey 1980). An Augustan chronology is assigned to this production, which corresponds to a time when these samples are minority.

Slightly different pieces appear later on, with a shorter nozzle, reduced and compact volutes and simplified rim (Belchior, 1969; Lamboglia-Beltrán, 1952). A chronology corresponding to the second and third quarter of the first

century AD is assigned to these pieces, and it may be extended up to the Flavian dynasty.

Effectively, we may make a clear distinction between the two variants, though it seems a bit risky to assign such an earlier chronology to the first samples, which puts them alongside the first prototypes with triangular nozzle. Nevertheless, we admit that the peculiar characteristic of the channel between the nozzle and the disk, when present, may point to a more antique chronology. We also cannot forget that this type was exhumed in archaeological sites such as the Haltern camp (Stieren, 1943) or Oberaden (Albrecht, 1943).

Although we often come across authors who assign a different chronology to the beginning of production of this form, it is agreed that its peak seems to have happened in the middle of the first century AD, just as it seems safe to state that the end of this production occurred at the end of that century and beginning of the next.

Although an allusion to this reality is not always made, this distinction does not seem to have gone unnoticed to H. Dressel. In fact, by closely analysing the forms 11 and 14 we notice that their similarities and inequalities may correspond to the two distinct productions that have been advocated.

The referred dating has been accepted for this type of pieces, especially in the far west of the peninsula where they are more and more identified in contexts with that chronology (Viana & Ribeiro, 1957; Franco, 1959; Amante Sánchez, 1992; 1994; Figueiredo, 1974-77; Belchior, 1974; López Rodríguez, 1981; Rodríguez Martín, 1993; 1996; Bernal Casasola & García Giménez, 1995; Rodríguez Martín & Alonso Cereza, 2005; Pereira, 2012; Pereira, 2013).

In Alcáçova de Santarém, four samples of this form were recognised, three corresponding to disk fragments and one fragment of part of the disk and volutes. The classification of these fragments was possible due to the typical decorations that they display. However, we could not fail to mention that such iconographic characteristics, upon which we take support for the classifications, imply a high risk of mistake.

Thus, the fragment No. 118 (Plate XVIII) was included in this form due to the characteristics of the rim, besides the iconography. The horizontal rims generally correspond to the older samples and, therefore, to the form 11 of Dressel-Lamboglia. One of the samples corresponds to a copy from Mérida and the remaining three come from the area of Cadiz. The existence of productions in the Spanish Andalusian coastal area seems more and more evident, where places like Córdoba (Bernal Casasola, 1990-91, p. 151), Andújar (Sotomayor *et alii*, 1976, p. 132) and *Italica* (López Rodríguez, 1981, pp. 19-20) assume themselves as some of the main *figlinae* (Morillo Cerdán & Rodríguez Martín, 2009, p. 296). Taking into consideration most of

the clays, we believe that the coastal area of Cadiz may have also contributed to the production of these Hispanic prototypes, competing with their inland rivals.

*Dressel-Lamboglia 12/Loeschcke III/Ponsich II-B1/
Deneauve VB/Walters 87*

The main differences of this form, in comparison with the previous, reside in the volutes, nozzle and handle. The volutes of this type are now refolded at both ends, both next to the disk and next to the wick hole. To the handle, still able to maintain the characteristics of a ring handle, it is added a "reflector" (plastic handle). Despite the name, its presence in the *lychnology* may have been merely aesthetic, although the slip with metallic reflections that it sometimes displays constituted an added value to their function. The nozzles are round.

The rarity of this form with the presence of this peculiar handle and two nozzles did not make it possible until the present day to assign a chronology with a short temporal space. Its appearance in different archaeological sites and in different contexts has demonstrated a wide period of use. Nevertheless, the different authors do not hesitate to assign it a dating from the first century AD. The wide chronology of use of this lamp is not strange if we bear in mind that the unique feature that it displays achieved a great notoriety within the Roman society.

In Mérida we verified the presence of this type of pieces with plastic handle (Rodríguez Martín, 2002, p. 27, Lám. I, No. 10 and 11). Unfortunately, the samples from this site do not preserve the entire handle. In Portugal we found samples of this type in Braga (Morais, 2005, p. 322, N° 13 to 18) dated from the first half of the first century AD, some of local/ regional production. In certain museums, we observe the existence of some samples with plastic handle, corresponding to form 13 of Dressel and not to the form 12, as in the case of the sample from the collection of the Municipal Museum of Torres Vedras (Sepúlveda & Sousa, 2000, pp. 57 and 62, N° 11 and 14).

In this form it was possible to include three fragments collected in *Scallabis* corresponding to the part of the handle and "reflector", or only part of the "reflector" (Plate XII, No. 73 and 74). In the sample No. 74, the handle, located at the lower part of the plastic *ansa*, displays a ring shape and the "reflector" is triangular with rounded ends, just like the other two fragments.

The high fragmentation of the collection was the main factor that prevented a secure classification of pieces of this type. In fact, it is not impossible that some fragments we have classified as Dressel-Lamboglia 11, 14 or even 9, may have belonged to lamps of the type that we are now addressing. In fact, the plastic handle whilst classification criterion is not the best characterisation model when we are facing a collection of lamps this fragmented. The high similarity of this form with others already mentioned does not allow its identification when the handle is not preserved.

*Dressel-Lamboglia 14/Loeschcke V/Ponsich II-B2/
Deneauve VD*

We have already analysed the morphological characteristics of this form when we addressed the type Dressel-Lamboglia 11, where we simultaneously exposed the form 14, given the morphological and chronological similarities. For the decision of separating the forms 11 and 14 in this work it weighed the fact that two fragments from Alcáçova de Santarém can be integrated in the form 14. We stress, however, that the classification of one of them was due to the iconography, since its dimensions did not allow for a safe incorporation in either form.

The remainder sample (Plate XII, No. 75) corresponds to a fragment of disk. Although the different investigators of these materials often associate this type of disk decoration to the form 14 of Dressel, we find it strange that the fragment dealt with herein presents a rim with three mouldings, apparently horizontal. That being the case, we may be facing a fragment corresponding to the form 11 and not to the form 14. These characteristics of the rim allow conjecturing that this is an older sample. Yet, in our view, the sample No. 76 transpires all the characteristics of the form 14 of Dressel-Lamboglia. It presents a quite convex rim with a single moulded ring which, associated to the start of a volute allows such a classification.

*Dressel-Lamboglia 15/16/Loeschcke V/Ponsich II-B2/
Deneauve VD/Walters 85*

This formal type, which is often suggested to derive from the type 11/14, is characterised by the presence of volutes which have a substantial difference compared with the forms previously addressed. The volutes from Dressel-Lamboglia 15/16 lamps are folded only in the part closest to the nozzle. On the side of the disk they extend up to the mouldings forming a small channel that connects it to the nozzle. Generally this form has a small ring handle of triangular section. However, this feature does not seem to be a requirement. They often display decoration on the rim, a feature that allowed Dressel to individualise the form 16, with the form 15 being similar but without any kind of decoration on the rim.

Dealing with fragments of small dimensions, as is the case, and being impossible to make a sure classification we should classify the fragments as belonging to the form 15/16 of Dressel-Lamboglia. In these cases it seems to be the proper attitude to take since both forms do not exhibit any differences at a morphological level, with the differences only existing in the iconography of the rim. Only when dealing with fragments that allow such distinction should both forms be separated.

The data from *Vindonissa* allowed S. Loeschcke to chronologically delimit this form to the second and third quarter of the first century AD (Loeschcke, 1919, pp. 43-44), a dating which seems to have remained for some years

(Menzel, 1954). However, Bailey would eventually change this proposal to a chronology centred between the reigns of Claudius and Trajan or even Hadrian (Bailey, 1980, pp. 184-185), contradicting other researchers who attributed this form a chronology from the second half of the same century and beginning of the next century (Ivanyi, 1935; Broneer, 1930).

The collection of this type in contexts from the second half of the first century AD is abundant, including Neuss (Vegas, 1965-66, p. 118, No 224-227) and Cosa (Fitch & Goldman, 1994, pp. 130-132, N° 653 -662). In the Agora of Athens, this form is found in layers from the second half of the first century AD and the first half of the next century (Perlzweig, 1961, p. 117; 1963), proving its chronological longevity. Contrary to what one would expect, in Pompeii only one sample of this form was found (Cerulli, 1977, p. 60, No. 25) which has led to believe that this type of lamps was beginning to be introduced to Roman society in this period.

This form also seems to have been widely disseminated into the Western and Eastern area of the Empire. However, when observing the work of Palanqués (1992), who made a list of the main sites where the form appears and its repertoire, to which we can add other studies, such as Montans (Berges, 1989), Cosa (Fitch & Goldman, 1994) and Gulf of Fos (Rivet, 2003), we are faced with a considerable discrepancy when comparing the dissemination network with the number of pieces disseminated.

The copy of this form, contrary to what some researchers thought (Morillo Cerdán, 1999, p. 92), is also fully attested in the Iberian Peninsula. In fact, the collection from Alcáçova de Santarém has a complete sample corresponding to a copy made in Mérida. Although the Hispanic production of this type is only documented in the province of Gallaecia, specifically in Braga, Portugal, where *Lucretius* had a local manufacture (Morais, 2005, p. 372), we cannot rule out that these pieces may have also been produced in the South, specifically in the Spanish Andalusian coastal area from where the other two samples come from.

In the current Portuguese territory we can recognise lamps of this type in Santa Bárbara de Padrões (Maia & Maia, 1997, p. 34, Lu 4 and 514), Conímbriga (Alarcão *et alii*, 1976) and Braga (Morais, 2005, p. 322, N° 58 to 67), which we have already mentioned. Two samples of this form were found in Mérida (Rodríguez Martín, 2002, p. 29, Lám. I, No. 12 and 13).

Three samples of this form are present in the inventories of *Scallabis* and one of them is almost complete (Plate XII, No. 79). This is precisely the lamp that is a copy of poor quality, in which the characteristics of the piece are not visible at first sight. It does not present any kind of handle but the deformations that it shows on the body wall, on the side opposite to the nozzle, indicate that it was reproduced from a prototype with a handle. The poor quality of the copy

does not allow perceiving if the original had mouldings or other details. Nevertheless, it displays figurative decoration. The volutes, although not very noticeable, are present and very faint. The nozzle is round and thick, showing signs of combustion. The clay is homogeneous and with a whitish gray tone, also displaying a poor quality watercolour with an orange tone. It unmistakably corresponds to a production from Mérida.

It is curious to note that the sample from Santarém is a piece exactly analogous to a sample from *Augusta Emerita* (Plate XVI). It is possible to propose that the sample from *Scallabis* is a copy of the lamp from Mérida, Spain, although only a more detailed analysis of the two samples may confirm it. This piece presents the same deformation that results from the suppression of the handle performed in the mould and the decoration of the disk and the volutes are a lot fainter. The author manages to perfectly describe the motif present on the disk (Rodríguez Martín, 2002) while the sample from Santarém only allows realising that it is a figuration. Unfortunately, the author does not present the dimensions of the sample from Mérida which would be useful to argue that we are facing a copy of that piece. However, we believe it is clear that we are facing a second-generation copy. The fading of the decoration, the deformation from the wing extraction and the fact that the wick hole and, especially the filling hole, are located in the same area, are reliable arguments for this statement.

Besides this sample, it was also possible to include two fragments of rim in this form. The fragment No. 78 (Plate XII) does not create major doubts, given the presence of heart-shaped decoration on the rim, followed by a highlighted moulded ring in relief, which, given the iconographic characteristics, may correspond to form 16. The fragment No. 77 created bigger problems but, despite the presence of a moulded ring in relief and a short rim, it can be included in the same form.

Imperial plain nozzle lamps

Dressel-Lamboglia 17/Loeschcke VIIIA/Deneauve VIID

The form 17 of Dressel-Lamboglia presents a perfectly circular body and a broad and convex rim. Generally this form does not exhibit any type of decoration, nor on the rim or on the disk. The disk is concave, with the filling hole separated from the rim by one or two mouldings. The nozzle is short and round, separated from the body of the lamp by a small incised curved line. Finally, the handle is characterised by being high, comparatively to the body of lamp, and thin.

This form had a limited diffusion which has hindered a better chronological framework for these lamps. Nevertheless, some authors propose a chronology demarcated in the second half of the first century AD (Loeschcke, 1919, p. 51). However, the absence of these materials in the archaeological sites of Pompeii (Cerulli,

1977) and Herculaneum (Bisi Ingrasia, 1977) has led to a consideration of the chronology assigned, advancing it to the first half of the next century (Bailey, 1980, pp. 293-294). In fact, if the beginning of production of this form was in the second half of the first century it certainly would have been documented in the locations mentioned, which leads us to consider the most recent dating as the most plausible.

In the current Portuguese territory the form is documented in Faro (Lyster, 1958, pp. 174-175, No. 39 and 40) and Conímbriga (Belchior, 1969, pp. 52-53, No. 109, lam. XIII; Alarcão *et alii*, 1976, p. 99, No. 57 and 58, lam. XXVI). We can also find samples of this type of lamps deposited in the Ducal Palace of Vila Viçosa (Alarcão, 1976, p. 82, No. 15 lam. II).

In Alcáçova de Santarém it was possible to collect a fragment of this formal type (Plate XIII, No. 80), with a round body and convex rim, separated from the disk by a set of mouldings. The disk does not display any kind of decoration, which also allowed for the classification proposed. The fragment retains the circular handle with a slightly triangular section with three ribs on the top.

Dressel-Lamboglia 19/Loeschcke VIIIR/Ponsich III – B1/ Deneauve VIIA

The lamps Dressel-Lamboglia 19 have a circular body and a broad and convex rim. Generally the rim is decorated with vegetal or simply geometrical motifs. The disk is concave, with the filling hole separated from the rim by one or two mouldings. The nozzle is short and round, separated from the body by a small straight line resulting from the difference in the orientation of the nozzle and rim, a characteristic which has allowed the several authors to differentiate it from the following form in which this same line is incised. In fact, the high similarities often potentiate the disorder in the classification of plain nozzle lamps.

Chronologically, the form seems to be coeval with the types 17 and 18 of Dressel-Lamboglia (Loeschcke, 1919, p. 51; Broneer, 1930, pp. 83-87; Bisi Ingrasia, 1977, pp. 88-95). However, Bailey alters its emergence to the Flavian period (Bailey, 1980, p. 303), while Deneauve expands its duration until the middle of the second century AD (Deneauve, 1969, p. 165).

The form 19 of Dressel, in parallel with the form 20 of the same researcher, seems to have reached a higher diffusion in comparison with the forms 17 and 18, a diffusion that is most clearly verified in the Atlantic and Mediterranean coast, certainly following the maritime commercial routes.

The initial production centres are relatively well documented in Campania or in the centre of the Italian Peninsula (Pavolini, 1977, p. 38; Cerulli, 1977, pp. 62-63). However, provincial production centres were also attested such as Montans (Berges, 1989, p. 46). A sample of this type was also identified in Braga, corresponding to an Italic

import (Morais, 2005, p. 330, No. 74). But, as proposed for the type 17 of the same typology (Morillo Cerdán & Rodríguez Martín, 2009, pp. 296-297), we can also assume that lamps of the type 19 must have been produced in the Iberian Peninsula although no manufacture is confirmed.

In Alcáçova de Santarém two complete samples were recognised (Plate XIII, No. 81 and 82), which have the rim decorated with circular geometric motifs. It is curious to note that these are two overmoulded pieces, one of them (No. 81) of good quality and it was the complete absence of slip that alerted us to this possibility, besides presenting the potter's mark practically unrecognisable.

As for the other sample, although it shows the application of a watercolour with an orange hue, it shows quite a few manufacturing defects resulting from the moulding technique. Furthermore, it has an epigraphic inscription in the disk, which unfortunately does not allow any reading or interpretation.

Both these samples come from the same stratum, which allows some conjectures. Firstly, we draw attention to the fact that they were collected in the excavations of 1994/1995, right during the work that led to uncover the temple of *Scallabis*. On the other hand, their great state of preservation and the little signs of use that they show allow assuming that they may have been some kind of votive offerings.

This context allows proposing a more precise chronology for the samples collected from it. The association of these two pieces to a sample with heart-shaped nozzle (Dressel-Lamboglia 27), with a somewhat later chronology, confirms the coexistence of both types. In fact, taking into account that the two samples of the form 19 of Dressel-Lamboglia correspond to pieces that were copied, it can be argued that they have a later chronology coeval with the sample of the form 27 collected in the same stratum. Thus it seems wise to proceed with a dating centred in the second half of the second century AD for the samples collected in this context. This is a period during which the forms with heart-shaped nozzle have been documented and the imitations of the plain nozzle forms of the types 17 and 18 of Dressel-Lamboglia still persist.

Dressel-Lamboglia 20/Ponsich III – B1, 2/Deneauve VIIA/Walters 95

This form includes pieces with a short nozzle, flat at its top, rounded and slightly oblique, usually separated from the truncoconical body of the lamp by a straight line on the above, and by oblique lines on the sides. The main characteristic that distinguishes this form from the other lamps of the plain nozzle series is the fact that the nozzle is at a slightly lower level in relation to the rim and the mouldings. It presents a small ring handle and one or two mouldings separating the disk from the rim, which is now quite broad. The decoration of the disk is smaller and of lower quality compared to the pieces of the volute series.

The authors seem to agree on the appearance of this type of pieces by the end of the first century, a chronology attested in Pompeii and *Vindonissa* (Denauve, 1969, p. 165), and also agree on the end of its production during the second half of the next century. Nevertheless, in the Iberian Peninsula it seems to be observed only from the early second century AD on, being the most frequent form of plain nozzle lamps.

Although we have no knowledge of production centres in the area of the Roman province of Baetica, it is agreed that such manufacture existed (Morillo Cerdán & Rodríguez Martín, 2009, pp. 296-297). So far Braga is the only known production centre that replicated regional variants of this type, some signed by the manufacturer *Lucrecius* (Morais, 2004; 2005, pp. 341-342 and 366-375). Recently, besides the productions from Braga, other productions were also identified in Lisbon through the study of the Roman grave goods of this city (*Olisipo*). It was possible to identify technical characteristics of certain samples that allow arguing a local/regional production of this type (Vieira, 2011, p. 116), besides the identification of a mould of a type Deneauve VG lamp (*Ibidem*, pp. 72-73).

However, not all the samples produced in the *ager olisiponensis* may be incorporated into the type 20 of Dressel-Lamboglia. As we have already mentioned (Pereira, 2013), some of the samples have characteristics that bring them closer to the type defined by Angel Morillo, i.e., the lamps referred to as "derived from disk". We do not intend to contradict the production of the form 20, we merely want to demonstrate that besides that type these lamps were also produced there. The author himself assigns a chronology excessively late for some pieces, which are easily confused with the types 27/28 and 30 (Vieira, 2011). Thus it is proven the existence of three new Hispanic productions from the province of Lusitania.

The parallels for this form can be found in any archaeological site that had a relative purchasing power during the second century AD. Without wanting to exhaust the examples, we must mention places like Santa Bárbara de Padrões (Maia & Maia, 1997, pp. 36-37, Lu 538, 574 and 580), Conímbriga, where they were assigned a dating from the middle of the first century (Alarcão *et alii*, 1976, p. 99, No. 57 and 58), and Braga (Morais, 2005, p. 330, 336 and 337). Two samples were also found in Mérida (Rodríguez Martín, 2002, p. 33, Lám. II, No. 22 and 23).

During the excavation campaigns carried out in Alcáçova de Santarém 17 fragments were collected, to which this classification can be assigned (Plates XIII, No. 83 to Plate XIV, No. 94). These are five pieces that still retain the ring handle or its inception, three also retaining the disk and the fuel chamber (Plate XIII), one presenting part of the nozzle, disk and rim (No. 83), and the remaining ten corresponding to fragments of rim. All of them have one or two mouldings more or less deep that separate the disk from the convex and wide rim. Out of the five fragments which still retain part of the disk, four of them display figurative decoration.

Regarding the classification assigned to the fragments analysed here, those that still retain the nozzle and/or handle offered no doubts about their inclusion in the form 20 of Dressel-Lamboglia, since it is in those parts of the lamps that we find their main features. As regards to the rim fragments, we admit that we were not always sure about the classification. However, these fragments present an accentuated convex rim that, associated with the deep and well defined moulded rings, allow corroborating such classification.

*Dressel-Lamboglia 27/Loeschcke VIIIH/Ponsich III – C/
Deneauve VIIIA*

The lamps of this type have a perfectly circular body, wide and convex rim, containing a rather elaborated decoration. The disk is concave, separated from the rim by one or two mouldings that reduce its size, forcing the disappearance of the disk decoration. The most peculiar characteristic is the separation between the nozzle and the body of the piece performed by two curved lines giving it the shape of a small heart.

For the lamps with these characteristics H. Dressel established two variants, form 27 and form 28, distinguishable by the presence of decoration on the rim, especially in the second case. This was the only criterion used to differentiate the two morphological variants and even today it is still unclear whether there are also differences between them at a chronological level. Nevertheless, it seems clear that both initiate a second generation within the plain nozzle lamps (Morillo Cerdán, 1999, pp. 119-120).

Likewise, it is not easy to identify the production in the samples of the forms 27 and 28 of Dressel. Their origin seems to be in Central Italy (*Ibidem*), but we quickly witness the appearance of imitations from North Africa and even peninsular local/regional productions. The copies are actually a well-documented reality in later periods, especially in regions farther away from the commercial routes and where the products that arrived certainly reached high costs. Dário Bernal Casasola has already proved the reproduction of this form in Tarraco, Spain (1993, p. 74) and more recently it was published that also the pottery maker *Lucretius* has produced local variants in the province of *Gallaecia*, specifically in Braga (Morais, 2005, p. 375).

Concerning the chronology, it seems evident its frequent documentation in contexts of the second half of the second century AD and the end of this production is still unclear. Provoost establishes a chronology that also encompasses the entire third century AD (Provoost, 1976, p. 557), but Bailey proposes the middle of that century as its lower limit (Bailey, 1980, pp. 336-376). Ponsich presents only that century as the timeframe of these samples (Ponsich, 1961, p. 35).

In *Scallabis*, it was possible to identify three fragments of this form, of which two are presented (Plate XIV, No. 95

and 96). Although they seem to correspond to Italic (two fragments) and African imports (one fragment), we are not sure about their origin. The current state of knowledge on the technical production of these prototypes is not yet sufficient to determine the origin by analysing the clays. The tendency, however, is for a greater existence of African and Peninsular productions.

Early Christian lamps

The Early Christian lamps, also called Paleochristian lamps of African production, are the last large group of Roman lamps (Morillo Cerdán, 1999, p. 146). The main difference of this group lies in the origin of its production located in North Africa, being characterised by their manufacture with African red slip ware identical to the manufactures C and D.

They are pieces with an ovoid body and a large truncoconical profile. The nozzle is quite wide and finished in a rounded form, thus differentiating itself from the body of the lamp, and generally it is united to the disk by a broad open channel. The disk is of reduced dimensions and concave, and may sometimes present decoration. The rim is wide and horizontal or slightly convex, also often presenting decoration used as one of the main elements of typological differentiation. The handles are massive and projected backwards. The base is flat or slightly annular.

From the ornamental repertoire present on the disk we highlight the geometric and vegetal motifs, also being possible to find figurative motifs (animals, lions, horses, rabbits and also some human representations). The symbols that these lamps most represent are motifs of Christian symbolism, as it seems to be the case of the well-known *crismon* and the cross pattée (Morillo Cerdán, 1999, p. 147).

The clays and slips are one of the most peculiar aspects of these lamps, seeming to correspond exactly to the characteristics of the Late Roman C and D ware, of identical production. The clay is porous and well refined, of orange red or only orange tones. The slips seem to be quite dense and brilliant with an orange tone. Despite their emblematic characteristics, we can also often come across imitations that faithfully reproduce the Africans samples, making their identification difficult.

After the third century AD is when prototypes morphologically distinct from those known until then start begin produced. It seems to be a period of productive experimentation that ultimately gives place to new types of lamps (Morillo Cerdán, 1999, p. 147), later appearing the first samples in *terra sigillata*. Among the last plain nozzle types and the samples of *terra sigillata* we find some samples produced in common ware, already considered Late Roman ware or Early Christian lamps (Anselmino & Pavolini, 1981; Pavolini, 1980).

The first productions of lamps made in *terra sigillata* appear in the central region of Tunis, Tunisia, during the

first decades of the fourth century AD (Anselmino, 1983). Still regarding the production centres of this type of lamps we should make reference to the fairly active role that Carthage played in the production and commercialisation framework of *terra sigillata* lamps, as well as the production centre identified in El-Djem (*apud* in Morillo Cerdán, 1999, p. 147). Certainly, production centres located in close proximity to major seaports would market their products easier and in greater numbers, achieving a greater geographic longevity. In fact, we can observe that the Early Christian lamps are abundantly present across the North African coast, Italian Peninsula, southern Gaul, Iberian Peninsula and Eastern Mediterranean (Pavolini, 1983, fig. 1 and 2).

Hayes I/Atlante VIII

This type has an oval and compact body, of truncoconical profile with short and round *rostrum*, separated from the body by an open channel between the wick hole and the disk. The disk is concave, and may have one or two filling holes and sometimes decoration. The rim is wide and slightly convex, ornamented with stylised palmettes that may simply look like oblique incisions. The handle is massive and projected upwards, forming a simple appendage. The base is usually annular.

Within type I, Hayes distinguished two distinct subtypes, type IA and IB, which are distinguished by the shape of the handle. Unfortunately, the fragment collected in Alcáçova de Santarém included in this type did not allow a more precise classification. Chronologically there seems to be a certain discrepancy from one type to the other, with the subtype B corresponding to the later samples, which fit in the fifth century, and the subtype A fitting in the fourth century AD.

The lamps of this type are also called “Henchir el Srira” for their abundance in this archaeological site and for the fact that it corresponds to the place where this form was first identified (Salomonson, 1968, p. 87). Salomonson dates the appearance of this form from the second or third quarter of the fourth century AD, and it remained in use until roughly the middle of the next century (Anselmino, 1983, p. 34).

The frequent documentation of samples of this form with the pottery mark “*Navigius*”, within the archaeological site of Henchir el Srira, forced Salomonson to associate the origin of this type with this producer and consequently with the place in question (Salomonson, 1969, p. 97). Nevertheless, the high numbers of variants of this type that Pavolini and Anselmino identified (form VIII of Atlante) caused them to suspect such a reality (Anselmino-Pavolini, 1981 p. 195).

These pieces are widespread throughout the North African coast, Sicily, Italian Peninsula, southern France and also in the Iberian Peninsula. In this last area we can find lamps of this form in Pollentia (Palanqués, 1992, pp. 45-46),

Empúries (Palol, 1948-49, p. 49), Merida (Gil Farrés, 1947, p. 48; 1947-48), Conímbriga (Alarcão *et alii*, 1976, p. 107) and La Rioja (Amaré Taffala, 1987a), among other places.

In Alcáçova de Santarém we have identified a sample of this form (Plate XIV, No. 97), although, as it was already mentioned, it did not allow its inclusion in one of the subtypes. This is a fragment of small dimensions which retains only part of the rim with the typical decoration of this form. This is a fragment much analogous to the samples of the type A of Hayes, fitting chronologically in the fourth century AD.

Hayes IIA/Atlante X

This type has an ovoid and compact body with a broad and round *rostrum* united to the body of the piece by a broad open channel between the wick hole and the disk. The rim is wide and flat, with a large moulding adorned with a vast variety of imprints, such as flowers, rosettes, squares, triangles, cordiform elements and horseshoes, among others. The disk is slightly concave with the presence of one or more filling holes, decorated with motifs of Christian representation, such as crosses pattée, *crismon* or fish. The handle is massive and pedunculated. The base is generally annular.

Anselmino and Pavolini distinguished five variants within their type X, which corresponds to the form IIA of Hayes (Hayes, 1972, p. 311). From those variants, the most common seems to be the first, Atlante XA (Anselmino-Pavolini, 1981, p. 199 and 200). The chronological and productive relationship of this type of lamps with the Late Roman ware is well documented through the use of the same production technique that originates quite refined orange clays, covered with bright slips with the same tone (Morillo Cerdán, 1999, p. 151). The comparative analysis of the decorative stamps applied either in the lamps or in the Late Roman ware, led Salomonson to date this type from end of the fourth century AD (Salomonson, 1969, p. 83). However, presently these lamps have been assigned a chronology centred in the last years of that century and beginning of the next century (Anselmino, 1983, p. 34). Nevertheless, this dating has been recently questioned due to its high dissemination put together with the issue concerning a difficult distinction between the origin and chronology of the pieces. Fitting such an abundant and widespread production in such a precise temporal space seems forced, which led other authors to put forward typological and evolutionary proposals for this type far more complex than the one presented by Anselmino and Pavolini (Bonifay, 2004, Fig. 202b).

The distribution of this form, as other authors have already observed, is directly related to the Late Roman ware which, from North Africa, was distributed over the entire North African coast, Egypt, Aegean coasts, Italy, Sicily, Sardinia, southern France and also the Iberian Peninsula. Indeed, this type seems to be well represented in the Iberian Peninsula

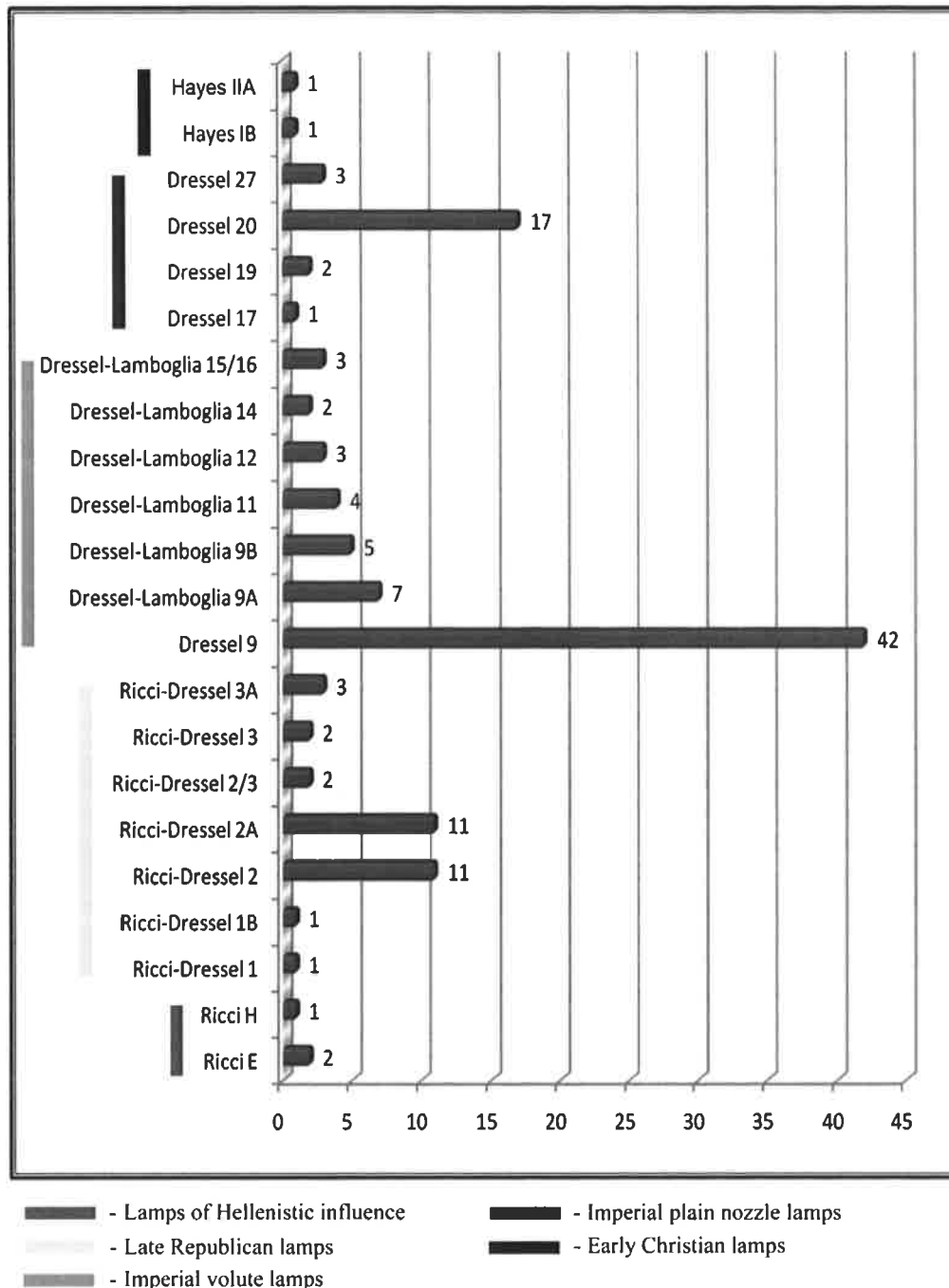


Figure 12 – Typological distribution of the Roman lamps of Santarém.

having been documented in *Pollentia* (Palanqués, 1992, pp. 46-47), Tarragona (Bernal Casasola, 1993, p. 208) and Conimbriga (Belchior, 1969, pp. 76-77), among others.

In *Scallabis* only one fragment was identified (Plate XIV, No. 98) which retains part of the rim and the handle. In fact, the rim still retains the typical decoration characteristic of this form, which made it easier for us to classify it.

Fragments of difficult classification

In this chapter we decided to include three fragments of rim and disk which, given the circumstances, do not allow for a

secure classification (Plate XIV, No. 99 to 101). These are fragments with a broad and convex rim with two shallow mouldings. On the rim they display radial decoration with oblique or corrugated grooved lines.

The existence of this type of rim decoration on these fragments seems to corroborate their origin. The analysis of the clays and the development of manufacturing groups allowed concluding that these seem to correspond to North African productions. The decoration of the rims seems to be a major characteristic of this type of productions, in which the radial decorations are strongly present. However,

we should not forget that the Hispanic local/regional productions also provide the same decorative motifs.

Nevertheless, and given the small size of the fragments, it was not possible to firmly conclude the form to which they belong. We often come across analogous samples, bearing the same decoration, in forms Dressel-Lamboglia 20 / Deneauve VIIA, Dressel-Lamboglia 28/Deneauve VIIIB or even in form Dressel-Lamboglia 30. The part constituent of the lamp which allows discerning a differentiation between these forms is the nozzle or the handle. Since none of these parts is present in these fragments it is not possible to come up with a more concrete morphological proposal.

Reflexions

From the entire collection of Roman lamps exhumed in Alcáçova de Santarém, consisting of 393 fragments, 123 were possible to be classified. Even though only 31.3% of the materials have allowed a typological integration, it was possible to draw some conclusions from this collection that we consider relevant.

When analysing the formal distribution (Figure 12) we notice the predominance of four forms. They are the forms Dressel-Ricci 2 and 2A, Dressel-Lamboglia 9 and Dressel-Lamboglia 20. In this context it should be noted that the great predominance of the form 9 of Dressel is due to the fact that most of the fragments did not allow their inclusion in one of the variants. As we said, this reality is due to the high fragmentation state of the collection, although this form seems to be the one which is generally the best represented in the High Imperial Roman archaeological sites.

Despite the great superiority of these forms, we have found a wide morphological variety of lighting ceramics in *Scallabis*. Nearly all the known forms of Late Republican Roman lamps are present, except from the form 4 of Dressel-Ricci, also called "*vogelkopflampe*". Despite the lack of this form in the inventory, it was the form 2 of Dressel that seems to have had the most success in *Scallabis*.

From the Imperial Roman lamps the forms 9 and 20 of Dressel-Lamboglia stand out, which curiously correspond to two distinct types of lamps, the first corresponding to lamps from the volute series and the second to lamps from the plain nozzle series. Besides being morphologically different their chronology is also different, with the volute lamps fitting in the first century AD and beginning of the next century, and the plain nozzle lamps fitting in the second century AD.

Although we have already observed a large formal variety throughout the chronological period during which the lighting ceramics are imported to *Scallabis*, there is a preference for a particular form within each series of lamps.

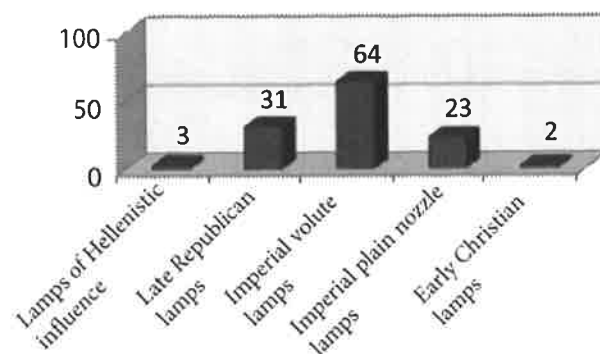


Figure 13 – Series distribution of the Roman lamps of Santarém.

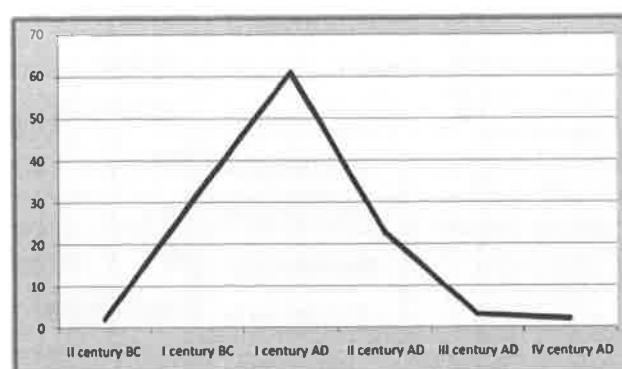


Figure 14 – Evolution of import of Roman lamps to the city of Scallabis.

When we analyse the collection taking into account the types of lamps (Figure 13) it is possible to observe importation rhythms. Although in scarce number, the lamps of Hellenistic influence are present and, from the moment these prototypes are received, the importation of lighting ceramics gradually increased up until the Imperial volute lamps. This last type defines the peak of the importation of lamps to the city of *Scallabis*, after which we observe a fall in lamps marketing, reducing significantly in number.

The collection of lighting ceramics from Alcáçova de Santarém may be fit chronologically between the end of the second century BC and beginning of the next century, having persisted until the end of the fourth century and beginning of the fifth century AD. By observing the rhythm of importation by type of lamps between the different centuries (Figure 13) we notice that it is coincident with the quantitative evolution (Figure 14).

The importation to Alcáçova de Santarém began during the second century BC and initially it was not very significant. Until the first century AD we notice a continuous and stable evolution in the quantity of lamps that are introduced in the city of *Scallabis*, moment which corresponds to the peak

of use of lighting ceramics in this place. From this moment on, the lamps seem to lose some of the importance in the lives of the people of *Scallabis*, resulting in the significant reduction of their imports. In the second century AD, we notice that the amount of lamps present in this place is even inferior to the number of lamps that existed there during the first century BC, and from the third century AD on they no longer seem to correspond to a product extensively used. Between the first century BC and the first century AD is when the highest use of these materials is verified. But this allows some questions to be raised.

First of all, we must relate the materials from the first century BC, though only those that fit into the first half of that century, with the eventual presence of military contingents in this place. Taking into account that we are talking about a period of clear Romanisation, it does not seem unreasonable at all to consider this possibility, because, as it was concluded in the analysis of the clays of this collection, the presence of a lamp of clear local/regional production associated to a high technical quality of production allows proposing that this would be a military production, as they also carry the knowledge of production for self-consumption. Nevertheless, the local/regional productions may also be due to a greater preference and an increased demand from indigenous, which leads to the appearance of marginal productions copied from the original pieces and promoting the overmoulding.

Certainly, the lamps of Hellenistic influence and the Late Republican lamps are often associated with the presence of military contingents or in sites of strong military nature. However, they may also correspond to places early Romanised, where a high number of genuinely Roman individuals appeal to their habits. By performing a closer analysis, both to the materials and to the stratigraphic layers where they were collected, we can notice that they appear in strata mostly associated to an architecture that may indicate a clear settlement of the population.

The possibility that the population that was in the current Alcáçova de Santarém during the first century BC may still correspond to the deployment of any military contingent raises some questions difficult to answer. However, there is no doubt that during the following century *Scallabis* already corresponded to a fully Romanised urban centre. The Imperial volute lamps should not be associated to any reality of military nature, but on the contrary, they are found in any archaeological site coeval with that chronology. Even though this type of lamps is not only documented in housing units, this seems to be the case of *Scallabis* that, except from the fragments collected in the temple, clearly corresponds to a population settlement.

After the end of the second century AD and beginning of the next century *Scallabis* seems to lose much of the purchasing power that it showed until that moment, a reality which is reflected in the importation of manufactured products and that can already be perceived in the study of other materials

from this site, as it is the case of *terra sigillata* (Viegas, 2003).

The lighting ceramics are not an exception to the rule, also demonstrating the fall in imports which becomes evident and that can perhaps be directly related to the growing importance that *Olisipo* (Lisbon) was acquiring. Nevertheless, we cannot attribute exclusively to *Olisipo* the reason for the decrease of importance that is denoted in the city of *Scallabis*. However, the data obtained in both archaeological sites, when compared, leads to propose that the growing influence of one of them corresponds the weakening of the other.

On the other hand, and taking into account that also the city of *Olisipo* demonstrates a large occupation during the Roman Republican period (Pimenta, 2004), it has to be considered that these two cities may have functioned simultaneously as sites of reception and redistribution of imported products.

Iconography

During the classical period, in Greece, the lamp seems to have been an object of functional nature and the aesthetics was practically non-existent. Nevertheless, the manifestation of an artistic taste characteristic of the Hellenistic period and the growing technical evolution of the lamps manufacturing process led to their deep conceptual transformation, allowing merging the functionality with the ornamental aesthetics (Morillo Cerdán, 1999, p. 163). However, it is during the Roman High Imperial period that this process reaches its peak.

Up until the emergence of the lamps of Hellenistic tradition the pieces were extremely simple. The filling hole was quite wide and did not allow the ornamentation of the disk. In fact, the decoration was on the wide rim. After the beginning of the first century BC the introduction of the bivalve mould in the production of lamps enabled substantial changes in their morphology, including the reduction of the filling hole, expansion of the disk, and reduction of the rim. With the Late Republican Roman forms these changes start to become more significant and, with the volute lamps, they reach their morphological and aesthetic peak. With the wide acceptance of lamps as lighting pieces, an extensive network of *oficinae* was quickly created, some having branches spread across the Empire (Morillo Cerdán, 1999, p. 163).

Regarding the iconography, in the earliest volute types we are faced with the representation of one or two characters isolated or inserted in a more elaborated context (Morillo Cerdán, 1999, p. 163). During the first century AD the artistic quality of the representations found on the lamps reaches the vastest specialised iconographic compilation. From the Flavian period on, this artistic quality decays gradually, impoverishing in the variety and treatment of

the decorative motifs. The pieces of great quality are now more rare and sporadic.

This iconographic decay in the lamps is perfectly documented by their general evolution (Morillo Cerdán, 1999, p. 163), in which they are converted back into pieces with a large rim and a disk with a tendency to retract. This regression culminates, after the middle of the second century AD, with the ornamentation of the rim, which persists throughout the following centuries.

In the third century AD we denote the absence of separation between the rim and the disk, with the ornamentation being restricted to a brief and merely geometric terminology (Morillo Cerdán, 1999, p. 163). The later North African productions introduce a renewed iconographic repertoire substantially different from that which was used throughout the High Roman Empire (*Ibidem*).

The lamp manufacturers do not seem to have been innovative with regard to the iconography, limiting it to Hellenistic influences. It is not easy to discover the origin of each of the various representations present in these pieces. However, one must point out the work of the researcher Amaré Tafalla who, more than just getting to the origin deals with some of the different lamp representations (1985).

According to some authors, it seems more evident that the producers of this type of materials have taken advantage of iconographic models in sculptural reliefs in order to elaborate their ornamental repertoires (Morillo Cerdán, 1999, p. 164). Nevertheless, simple scenes from the daily routine could be decalé in the lamps (Carretero Vaquero, 1989; 1991).

There may have been "manuals" among the different producers, which constituted the compilation of the scenes designed to feature in the lamps. Such "manuals" would be intended to circulate among the artisans, who would choose and collect the scenes they wanted to put in their pieces. Although remote, such a possibility should not be set aside, as well as the potential circulation of the moulds themselves.

What has led researchers of this type of material to think of this possibility was the existence of iconographic repertoires quite similar between the lamps and the Roman *terra sigillata*. Some of the representations seem to repeat themselves in both productions, of which we highlight the fauna, flora and also some mythological and erotic scenes (Morillo Cerdán, 1999, p. 164). It should be mentioned, however, that the representation of *ludi gladiatorii* is merely occasional in the South Gaulish *terra sigillata*, while in the lamps these figurations developed in a rather artistic fashion

The same coincidence was also observed with numismatics. Some researchers have noticed that the circular support, along with the relief ornamentation technique, is similar

and common to both materials (Amaré Tafalla, 1986, p. 851). However, such correlations require more effective arguments, as well as more direct relations. On the other hand, we should not forget that monetary issuance should meet the propagandistic intent of the state that did not coincide with the lychnological iconography.

The criteria used to select the figurations should follow the tastes of the society to which these pieces were designed (Morillo Cerdán, 1999, p. 164). Such themes would be incorporated into a compilation of themes and ornaments that varied chronologically and geographically. However, the lack of a complete monograph concerning the lychnological theme hinders a more detailed and thorough study about its chronology, as well as about its corresponding geography. Such research may also contribute towards differentiating production centres.

The most complete classification of the iconography of the lamps that we know of was created by the researcher W. Deonna (1927), who divided it into mythological characters and their attributes, objects of worship, daily life, transposition to the mythological world of religious motifs, grotesque scenes and literary themes. Later these groups were re-analysed by Amaré Taffala (1985) who added the historical theme, fauna, animals mimicking human actions, vegetable motifs, objects, celestial signs and geometric ornaments.

Nevertheless, as Angel Morillo Cerdán noted, this iconographic typology showed some practical problems due to the fact that some scenes can be fit into different groups (1999, p. 166). These interrelations are verified mostly in religious and mythological themes. To the Spanish researcher, the classification presented by Loeschcke (1919), and subsequently updated by Bailey (1980, p. 88), presents a more advantageous and easy to handle thematic division. Besides these features, it is well elaborated and structured having a shorter and incised division.

Nevertheless, the presence of ornamentation is not only seen on the disk of the piece, and it may also be present on the rim and handle. The decoration of the rim usually appears when it is broad and convex, displaying restricted thematic ornaments reduced to vegetable and/or geometric elements of a simplified composition.

Only a few types present such ornamental characteristics figured, in relief, on the handle (Morillo Cerdán, 1999, p. 270). Called "plastic handles", specific from the types 12 and 13 of Dressel and type III of Loeschcke, they adopt triangular or crescent moon features and, less frequently, the form of the female vulva. The ornamentation of the triangular handles is mostly constituted by vegetable elements, and there may also be animal or human figurations.

Generally, no decoration is found on the plastic handles with crescent moon shape, and they are only moulded.

The handle fragments collected in Torres Vedras, Portugal (Sepúlveda, 2000, p. 62, Fig. 14), in Mérida, Spain (Rodríguez Martín, 2002, Figure XIX, No. 10) or even in Empúries, Spain (Casas-Genover & Soler-Fusté, 2006, p. 119, Lámina XII, G136 and G138) are examples of that.

As for the chronology, the researchers seem to agree regarding the absence of an overly extended temporal diachrony of the ornaments, as well as of the different plastic handles. This type of handle is exclusive of the volute lamps, frequent during the reigns of Tiberius and Claudius.

Religion and myth

JUPITER TRIUMPHANT WITH EAGLE (volute lamp, Dressel-Lamboglia 11)

The representations of Jupiter, accompanied by the eagle with its wings outstretched, constitute a fairly common theme in the iconography of Roman lamps during the entire first century AD and the beginning of the next century (Morillo Cerdán, 1999, p. 168; LIMC, 1997 VIII/1, p. 428, VIII/2, Pl. 233, Zeus 324). Nevertheless, this theme may appear in two variants which are distinguished by the presence or absence of cedar (Bailey, 1980, pp. 8-9).

The sample from Alcáçova de Santarém (Plate XV, No. 114), although of reduced dimensions, allowed the identification of part of the eagle's body, corresponding to one of the legs.

MARS (volute lamp, Dressel-Lamboglia 15/16)

Mars, naked, with his head facing right and his body facing left. His left leg is positioned slightly further than the right, appearing to be walking. He holds the helmet with his left hand, looking as if he is putting it on his head, and with the right hand he holds the shield and spear (LIMC 1984, vol. II/1, pp. 532-533, vol. II/2, Pl. 401, Mars 266).

Mars, god of war, constituted one of the iconographic themes most acclaimed by the Roman potters. But this deity, represented sideways, is not very common in the iconographic repertoire of the lamps. Nevertheless, it is documented in the form VD of Deneauve and 15/16 of Dressel-Lamboglia, chronologically delimited between the middle of the first century and the end of the reign of Trajan.

The fragment from Santarém is complete but the fact that it is a copy does not allow any kind of iconographic interpretation. However, the establishment of a parallel with a piece from Mérida (Plate XVI, No. 79) allowed a detailed description of the representation (Rodríguez Martín, 2002, p. 54, Fig. III, No. 31). We believe that the copied piece from the capital of Lusitania may have been the one used to create the sample from Alcáçova de Santarém. The lamp from *Scallabis* has the typical clay from Mérida which demonstrates that it was a third generation copy, since the

lamp from Mérida itself corresponds to a copy. Also curious is the fact that both pieces exhibit the same defect in the place where the handle would be found, which corroborates the copy of one from the other.

WINGED VICTORIA (undetermined type)

Although the decor is not well preserved, it was possible to find an analogous iconographic parallel (Plate XVI, No. 115) in a lamp from León (Morillo Cerdán, 1999, p. 183, Fig. 138, No. 27). This type of decoration represents winged Victoria from the front, with the wings elevated to the head level. With the left arm she sustains a palm branch and with the right arm extended she holds a laurel wreath (LIMC 1997, vol. VIII/1, pp. 244-245, vol. VIII/2, Pl. 172, Victoria 68). The fragment from Santarém retains only part of the deity's body and part of the arms which allow perceiving her disposition.

We come across this decorative motif also represented in Roman denarii issued in the year 29 BC (Morillo Cerdán, 1999, p. 183). The popularity of this decorative motif in lamps seems to have been enormous presenting, however, small iconographic variants that are distinguishable by the disposition of the arms or by the shape of the wings.

In the Iberian Peninsula this representation is well evidenced and samples are known in Mérida (Rodríguez Martín, 2002, p. 74, Fig. VI, No. 76), in the Machado de Castro Museum of Coimbra (Oleiro, 1952, p. 18, lam. I, No. 2), in Alcácer do Sal, Portugal (Cabral, 1977), in Peroguarda, Portugal (Nunes, 1959, pp. 81-83, lam. I and II, No. 2 and 12), in Lisbon (Diogo & Sepúlveda, 2001) and in Córdoba, Spain (Rodrigues Neila, 1978, No. 17), among other sites.

The forms on which this type of decoration is represented are mainly the initial forms of Loeschcke IA, B and C (Dressel-Lamboglia 9), III (Dressel-Lamboglia 12/13), IV (Dressel-Lamboglia 11) and V (Dressel-Lamboglia 14). Chronologically they cover a period between the beginning of the first century BC and the first decades of the second century AD. Surely, the lamps with these motifs were abundantly produced in the Iberian Peninsula, especially in the south. This is corroborated by the extreme abundance of these representations on lamps with Hispanic production features, also very abundant in sites of the *Baetica* and *Lusitania* provinces (Almeida, 1953; Franco, 1959; Figueiredo, 1974-77; Belchior, 1974; Lopez Rodriguez, 1981).

EROS (undetermined type)

Representations of Eros are frequent in the iconographic repertoires of lamps. The wide variety of representations of this deity varies between his representation as a child, adolescent or adult in different occasions and holding different objects or animals (LIMC, 1986, vol. III/1, p. 1031).

In the sample from Santarém (Plate XVI, No. 116) Eros is represented from the front, seated on a goat. With his hands he holds on to the reins of the animal. This representation of Eros does not seem to be very common, although this deity appears frequently. Based on the few parallels that we were able to identify, a chronology centred on the first half of the first century AD seems to be the most appropriate (Bailey, 1988, Q996; Bussière, 2000, No. 19; Casas-Genover & Soler-Fusté, 2006 Lámina XXX, G436).

BACCHAE (volute lamps, Dressel-Lamboglia 9)

Representation of a bacchae, also known as maenad or *thyiade* (LIMC 1997, vol. VIII / 1, p. 23), covered with a large mantle, legs slightly apart with the left one further ahead giving a feeling of motion, arms outstretched and the head facing upwards and backwards. It seems to give the feeling of walking in uncoordinated movements, apparently drunk. On her right hand she holds what appears to be a small animal and on the left a knife or dagger (Casas-Genover & Soler-Fusté, 2006, p. 19, Lámina VI, G72).

The fragment from Alcáçova de Santarém (Plate XVII, No. 48) preserves only part of the bacchae's body and the right arm that sustains the said animal.

The lamps that have been associated to this type of representations always correspond to the volute type, mainly the forms Dressel-Lamboglia 9/Loeschcke I, Dressel-Lamboglia 11/Loeschcke IV and Dressel-Lamboglia 12/13/Loeschcke III (Casas-Genover & Soler-Fusté, 2006, Lámina VI, G72; Amaré Taffala, 1988, No. 105; Bailey, 1980, Q787; Loeschcke, 1919, No. 28). According to this data we can assume that this type of representations is quite common during the entire first century AD, with a higher incidence in the first half (Casas-Genover & Soler-Fusté, 2006, p. 19).

Daily life

SLAVE STOPPERING AN AMPHORA (plain nozzle lamp, Dressel-Lamboglia 20)

A bearded male figure, facing right with a rounded cap on the head (Plate XVII, No. 84). Naked torso, bare feet and some sort of skirt hanging from the waist. With his right hand he touches the mouth of an amphora that he holds with the left hand. The sample from *Scallabis* preserves only the head of the slave and the mouth of the amphora, which the worker plugs with his right hand.

Although the scene is not fully preserved, the parallels for this scene are very abundant, namely in Santa Bárbara de Padrões, in Beja, Portugal (Maia & Maia, 1997, pp. 93-94, Lu 302). This type of representation can also be found in Peroguarda (Nunes, 1959), corresponding to a piece analogous to the fragment collected in Alcáçova de Santarém.

These scenes are well documented in the form 20 of Dressel-Lamboglia and VIIA of Deneauve, covering a chronological period centred in the first half of the second century AD (Casas-Genover & Soler-Fusté, 2006, p. 44, Lámina LX, G946). It seems important to mention in this context that these representations are common in the far west of the peninsula (Almeida, 1953; Franco, 1959) where they were certainly produced, probably in the coastal area of *Baetica* from where they come from.

ARMED GLADIATOR (undetermined type)

A gladiator represented from the front with his head turned slightly to the right side and his legs open, standing firm. With his left hand he holds a curved small rectangular shield, the *parma*, and with his right hand he holds the *sica* that he raises above the head covered with a rounded metal helmet. The combatant wears the *subligaculum*, protects his legs with *ocreae* and his right forearm with the *manica*, an articulated metallic guard. The authors often interpret this gladiator as a Thracian (Morillo Cerdán, 1999, p. 208). The fragment from Santarém, although of reduced dimensions, allowed an interpretation thanks to the iconographic parallels found (Amaré Taffala, 1982). It preserves the head of the gladiator, the right arm and the *sica* in the hand (Plate XVII, No. 47).

This motif appears frequently in Roman lamps and may present small variations that stand out mainly in the fighter's helmet. As for the parallels, they are seen a bit all over the Empire in the forms IA, B and C, and IV of Loeschcke, defining a wide chronological space between the beginning of the first century BC and the entire century that followed. This liking was boosted by the abundance of military contingents and by the frequent holding of circus fights. In the Iberian Peninsula, we can find this type of representation in Alcácer do Sal, Portugal (Almeida, 1952, p. 113, lám. XXX, No. 13) and in Cordoba, Spain (Moreno Jiménez, 1991, p. 506, lám. CCXI, No. 1147; Rodríguez Neila, 1978-79).

GLADIATOR IN ATTACK POSITION (undetermined type)

We did not obtain any kind of parallel for this iconographic representation and therefore we will confine ourselves to describe what has been preserved in the sample from Santarém. We can see the upper body of a gladiator in attack position. He is facing right, along with the shield and the spear, which suggests an attitude of assault. In his right hand he holds a rounded shield, possibly a *parma*, and in his left hand he holds the spear which is facing forward and horizontally. His left arm is protected with the *manica* (Plate XV, No. 104).

The representation of gladiators and combats between gladiators is one of the most common themes since the first volute lamps. The fact that we did not obtain parallels for this representation, the reduced dimensions of the fragment

and, consequently, the impossibility of classification, made it impossible to propose a chronology for this representation.

AXE (volute lamp, type Dressel-Lamboglia 9)

We cannot say much about this fragment (Plate XI, No. 44). On the small area of the disk that was preserved it is only visible part of what seems to correspond to an axe. The representation of weapons in Roman lamps is well known, almost always going along with the iconographic repertoire of gladiators. The fact that the weapons have not been documented, until now, in another type of representative context led to the interpretation of this sample as such. Nevertheless they may appear isolated in the disk without any warlike context.

The fragment from *Scallabis* containing this representation corresponds to the form 9 of Dressel-Lamboglia, thus corresponding to the first century AD.

EROTIC SCENE (undetermined type)

Representation of a couple in bed. The man is on his knees and behind the woman, who is also on her knees, leaning on her arms and with her head turned to the bed (Plate XVIII, No. 117).

The erotic scenes are one of the representations that achieved a higher popularity during the first century after the turn of the era. They often appear in paintings, reliefs and objects of everyday use, as is the case of the lighting ceramics. These representations in *terra sigillata*, mainly those of Italic production, achieved a great variety and exceptional quality (Morillo Cerdán, 1999, p. 223).

According to some authors, during the first half of the twentieth century the "puritanism of scholars and researchers resulted inclusively in the removal of the descriptions and illustrations that may have been considered obscene in the catalogues..." (*Op. Cit. Ibidem*). In fact, it was in the second half of that century that the descriptions of such scenes were made in greater depth from the purely professional point of view.

Unfortunately, the fragment from Alcáçova de Santarém did not allow any kind of classification, making it impossible for us to include and confirm this scene within the iconography of the lighting ceramic from the first century AD.

COMIC MASK (undetermined type)

A theatrical mask with an open mouth, in where the filling hole is located, occupying the centre of the disk (Plate XVIII, No. 118). In Roman theatre the light and prosaic representations are clearly evident in the grotesque and burlesque masks, with which the characters are ridiculed (Morillo Cerdán, 1999, p. 221). This type of mask seems to

be a fairly common motif in Roman lamps, having a very significant presence in the *Firmalampen*.

However, that does not seem to be the case of the sample from Alcáçova de Santarém which seems to correspond to the form 11/14 of Dressel-Lamboglia, fitting chronologically in the second half of the first century AD.

ALTAR (undetermined type)

A small circular altar, on top of which a flame burns. It is flanked by two stylised bushes. Roughly at middle of the body of the altar there is some sort of floral decoration (Plate XVIII, No. 119). This small altar may be the representation of an *ara*, where incense and oils are burned to the local or supreme deities.

The fragment from *Scallabis* preserves the upper part of the altar. However, our interpretation of this scene was facilitated by the presence of a sample from Mérida with the same decoration (Rodríguez Martín, 2002, p. 120, Fig. XIV, No. 199). Although not very common, these representations are starting to be recognised in peninsular Roman sites.

Fauna

DOG (volute lamp, Dressel-Lamboglia 9)

A dog running to the right, possibly in pursuit of a rabbit or hare. From the scene, only part of the dog was preserved (Plate X, No. 40). The description of this representation was made possible through parallels established with lamps from the current Spanish territory (Morillo Cerdán, 1999, p. 233, Fig. 149, No. 125).

The sample No. 54 (Plate XI) also shows the same animal with the same characteristics that give it the illusion of movement. This type of representations appears generally on the form IA of Loeschcke and on the form 9A of Dressel-Lamboglia with Augustean-Tiberian chronology.

The scenes of hunting with dogs are perfectly documented on lamps from the first century AD. The public was familiar with animal fights among themselves, thanks to the *venationes* of the amphitheatre. However the scenes of dogs attacking or running alone constituted a motif of easy reproduction, present in lamps or red slip ware.

HORSE (undetermined type)

Representation of a horse, or a possible winged horse (Plate XIV, No. 99). The small dimensions of the sample only allow realising that it is a horse. From the scene, only its rear is preserved, corresponding to the legs and tail. It seems to be galloping, reason why the correspondence to a winged horse cannot be discarded. This fragment also displays decoration on the rim that does not permit any interpretation.

Since early on, the horses were a privileged theme in the lamps figurative representations, either in amphitheatre scenes or in daily life scenes. However, although this motif appeared early, we may be dealing with a later representation. The data indicates that we are facing a sample of African import, assigning it a more advanced dating, since the production in North Africa is only documented from the beginning/middle of the third century AD on.

BEAR or BOAR (undetermined type)

Representation of an animal running to the right, centred on the disk, showing a great technical quality which allows the fur and muscles of the animal to be seen quite clearly. The representations of bears may frequently be confused with those of boars and, indeed, it is not evident in this representation. The apparent absence of tusks and the presence of thick fur point out, in our view, to the bear (Plate XVIII, No. 120).

The representations of bears, although scarcer compared to the representations of boars, are quite diffused throughout the Roman Empire. In the Iberian Peninsula we can find the presence of this type of representations, either bears or boars, in Empúries, Spain (Casas-Genover & Soler-Fusté, 2006, pp. 61-62) in Mérida, Spain (Gil Farrés, 1947), in *Balsa*, Torre d' Ares, Portugal (Almeida, 1952), in Conímbriga, Portugal (Belchior, 1969), in Granada, Spain (Moreno Jiménez, 1991) and in Murcia, Spain (Moreno Jiménez, 1991).

These scenes are documented in a vast typological variety ranging from the type Dressel-Lamboglia 9/Loeschcke I to the form 20 of Dressel-Lamboglia. Thus, it can be fit chronologically between the end of the first century AD and the middle of the next century.

From all the scenes that we have decided to insert this field, this is the only one that can arguably be considered fauna. We are aware, through the parallels mentioned, that this animal is generally found isolated in the piece. On the other hand, regarding the previous scenes we agree that they could be part of more elaborated and complex representations. For that reason, and taking into account the high fragmentation of the pieces, they could certainly be inserted in other fields, such as the scenes of daily life.

Flora

OAK WREATH (volute lamp, Dressel-Lamboglia 14)

Representation of an oak wreath in which the leaves and an acorn can be seen. This motif would be seen in the area all around the disk of the lamp (Plate XII, No. 75). The vegetable wreaths are one of the main themes in the floral iconographic representations. We can find wreaths of ivy, vine, olive, laurel or oak, as in this case.

The fragment from Alcáçova de Santarém corresponds to the form 14 of Dressel-Lamboglia with a chronology centred in the second half of the first century AD. Nevertheless, this motif seems to be characteristic of the whole century, as it is demonstrated by its documentation in lamps of type Dressel 9A/Loeschcke IA.

LAUREL WREATH (volute lamps, Dressel-Lamboglia 9)

Representation of a laurel wreath arranged around the disk of the lamp (Plate XI, No. 49). The reduced dimensions of the fragment collected in the current Alcáçova de Santarém allows no more than identifying the motif.

Geometric motifs

ROSETTES (undetermined types)

The rosettes are simple decorative schemes, semi-vegetal, semi-geometric, that fit well to the disk format of the Roman lamps. Numerous variants are frequent in this type of representation.

In Alcáçova de Santarém it was possible to identify three fragments with this type of decoration, although their dimension did not permit determining the number of petals. We realise that we are dealing with three different types. The fragment No. 77 (Plate XII) is constituted by rosettes of rounded petals with a flat surface, while the fragment No. 102 (Plate XIV) is constituted by petals which surface presents a moulding that follows the shape of the petals.

The piece number 95 (Plate XIV) shows a rosette with four toothed leaves with a large groove in the middle. Only one of the petals was preserved from the sample displaying this decoration. However, it was certainly a cross layout, which is quite frequent in this type of motif.

With regard to this last fragment, and even though it does not correspond to a very common motif, we believe that it appeared later in comparison to the motifs that have been presented in this study. This motif is present in an almost fully preserved lamp that leaves no doubt in the classification. It corresponds to a sample of type 27 of Dressel-Lamboglia dated from the third century AD.

GEOMETRIC DECORATIONS (undetermined types)

The samples from Santarém with geometric iconographic representations feature incised lines extending, on the disk, between the mouldings and filling hole, forming a radial decoration. However, even being of the same type, they display some substantial differences.

The fragments No. 121 and 122 have the abovementioned incised lines disposed in groups of three, leaving a small space between the various groups of lines. These lines do not extend up to the filling hole, being separated from it by two mouldings disposed in the centre of the disk. The

fragment No. 86 (Plate XIII) presents the same incised lines, however, they are isolated from one another with a small space between them. This sample also displays a moulding disposed around the filling hole, separating it from the geometric decoration. Finally, the fragment No. 68 (Plate XII) has short lines isolated from one another. In this sample, the decoration is separated from the filling hole by two mouldings.

Decoration on the rim

IVY LEAVES (volute lamp, Dressel-Lamboglia 15/16)

Representation of ivy leaves with a heart-shape, printed and disposed on the entire the rim, immediately after the mouldings of the lamp. They are also circumvented by a moulding with the same form (Plate XII, No. 78).

This iconographic motif does not seem to be very common in Roman lamps, even though there is knowledge of some samples, with this type of decoration, of the forms 20 and 27 of Dressel-Lamboglia and also of the form 66 of Walters. Nonetheless, the fragment collected in *Scallabis* seems to correspond to the form 14/15 of Dressel-Lamboglia. Chronologically, this motif may be delimited between the end of the first century AD and the entire next century, during which it is preponderant.

INCISED LINES (undetermined type)

The representation of incised lines, disposed radially along the rim, seems to have been one of the most common decorative motifs of the rim. It was possible to identify four samples with this type of decoration, ranging between straight lines, slightly oblique lines or mere wavy lines (Plate XIV, No. 99 to 101).

The fact that we are facing a very common motif hinders an accurate chronological framing. Nevertheless, taking into account the analysis of the fragments collected in *Scallabis*, we believe this motif is frequent only from the second century AD on. During the previous century the typical short horizontal rim did not allow for any type of decoration in that space.

PRINTED CIRCLES (plain nozzle lamps, Dressel-Lamboglia 19)

Printed circles of medium dimension located on the rim around the disk. Surrounding each of these circles there is a small moulding. The sample is complete and, besides corresponding to a production from Mérida, it also corresponds to a copy of poor technical quality. This motif does not seem to be very common (Plate XIII, No. 82).

Another sample displays small circles printed irregularly. They are quite concentrated near the outer moulding forming a continuous line, but thickening in the widest part of the rim (Plate XIII, No. 81).

Decoration on the handle

PALMETTE WITH VINE LEAVES (volute lamp, Dressel-Lamboglia 12)

A palmette in relief with a large leaf centred in the plastic handle and two leaves on each side (Plate XII, No. 74). There also seems to be a fourth vine leaf at the bottom. Small shoots come out from the lateral leaves, which branch out and wrap themselves around the triangle vertices.

The palmettes are an extremely common motif on these handles, perhaps because they have a large and flat area. Chronologically, and considering that this type of handle is an exclusive feature of the lamps of form 12, these motifs can be delimited to the first century AD. This motif is represented on a single sample from the collection studied.

INCISED LINES (volute lamp, Dressel-Lamboglia 12)

Representation of small wavy incised lines disposed along the entire handle. We have found no parallel for this type of decoration on this peculiar type of handle, being present on only one fragment (Plate XII, No. 73).

SCALES (volute lamp, Dressel 12)

Representation of small triangles in relief disposed on the whole area of the plastic handle and apparently intended to resemble scales. Around the handle there may be a moulding also in relief. Once again we have found no parallel for this motif, which, just like the previous ones, is documented only in the collection exhumed in *Scallabis*.

Reflections

Exposing the raw data, we were able to identify a total of 66 fragments displaying decoration. However, iconographic correspondence was only possible in 35 of those fragments, with the remaining 31 corresponding to undetermined decorations. About the latter, we may refer that generally they presented a badly preserved decorated area which prevented their identification.

Nevertheless, the fragments that allowed their thematic identification exceed half of the total decorated fragments (Figure 15). It should be noted that we only expose the data concerning the motifs present on the disks of the lamps, excluding those fragments that presented decoration on the rim or on the handle, which correspond to a total of ten samples.

By observing the quantitative data concerning the different themes we are immediately faced with a clear predominance of representations of Roman daily life and of geometric motifs. This fact is not surprising since the geometric motifs constitute a very common and abundant theme in the iconography of the Roman lamps, and perhaps also the one that remains in use for a larger time period.

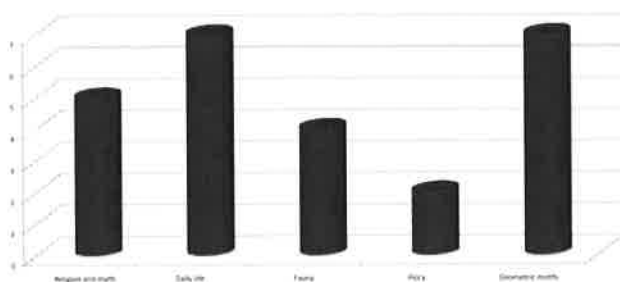


Figure 15 – Iconographic distribution of decoration of the Roman lamps.

Certainly, the decorations present in the lighting ceramics are strongly conditioned to the taste of Roman society, and the figurations seem to have a much shorter period of use. In fact, the geometric decorations are those that were able to maintain themselves in the tastes of this society, maybe because they were not connected to any concrete reality, such as the daily life, politics or propaganda. On the other hand, they do not allow a very precise dating.

The representations of daily life and of religion and myth are themes that are subject to a greater discretion from the Roman society, as it was already mentioned. However, if we carefully analyse the data that the lamps decorations provide us, we notice that these themes are also the most requested. We mean to say that the themes mentioned are consumed in large scale, but in a shorter time period. In fact, we give as an example the theme of religion and myth which is present almost exclusively in the volute lamps as the theme most acclaimed by the Romans. Given its supremacy in this series, we can accurately fit this theme chronologically during the first century AD and the beginning of the next century.

The fauna and flora are motifs that do not seem to have been very common in Alcáçova de Santarém, corresponding to a small percentage of the fragments that allowed the identification of their thematic developed.

Marks and epigraphic inscriptions

The study of the pottery marks is one of main priority lines of research in the study of Roman lamps. Despite being present in the "*Corpus Inscriptionum Latinarum*", which is an excellent starting point, they did not raise such a wide interest to the researchers, as it happened in the study of other materials among which we highlight the red slip ware.

In fact, the abovementioned priority is not in vain. The epigraphic marks present in the Roman lamps provide a great diversity of data that allow verifying chronological indicators that are quite reliable. However, this diverse information may be distorted by a multitude of problems that researchers often encounter.

The possibility to recognise workshops and producing areas, based on the analysis of the dispersion of certain lamp marks, boosted the definition and composition of long and varied lists of marks based on the epigraphic component (Morillo Cerdán, 1999, p. 277). From the studies carried out concerning the Iberian Peninsula we highlight, among others, those of Balil (1968-69). This author seems to have spent a lot of effort in an attempt to associate primary lamp marks with their respective producing workshops.

The vast lists of lamp markers elaborated by A. Balil were updated in the late 80's by the Spanish researcher Amaré Tafalla. Nevertheless, the work of Balil never ceased to be a work of reference for any study of Roman lamp marks. The recent studies directed towards the analysis of lamps and based solely upon these recompilations of marks have proven to be ineffective (Morillo Cerdán, 1999, p. 277), since their geographical dispersion is not a factor decisive enough in determining the location of production centres.

According to some authors, of whom we highlight Angel Morillo Cerdán, it has been given too much value to the research of the marks as a decisive tool in distinguishing and defining *oficinae* and their distribution and commercialisation of this type of materials. However, we cannot put aside the various problems behind this reality.

Since the lamps were a type of material produced almost exclusively through moulding, this allowed the reproduction of identical pieces that also included the stamp of the lamp marker from the piece originally copied (Amaré Tafalla, 1987b, p. 56). This mark, despite belonging to a piece made in a specialised and exclusive workshop, could therefore be copied with all the decoration and the mark in a different place by another lamp producer. Thus, the geographical dispersion of marks may be quite distorted due to the existence of overmoulded marks that do not correspond to their real manufacturer. The copy of lamps was a cheaper technique, used mainly in the local and regional production and it was intended to support an equally local market of customers with a more restricted purchasing power, being also documented in the current Portuguese territory (Nunes *et alii*, 1990, p. 82).

Some researchers think that the local productions were also original productions, but of lesser quality, which would not present stamps (Balil Illana, 1969), and the overmoulding was rare. In fact, such a possibility does not seem completely unlikely. Just like the overmoulded lamps may arrive to the market at reduced prices, a secondary or family production may also manufacture lamps through more rudimentary techniques that bequeathed a low quality to the pieces and consequent lower prices. Nevertheless, sometimes we have to question to what extent a greater or lesser manufacturing quality can, by itself, be an indicator of an evident overmoulding.

This issue has led some researchers, particularly those of French nationality, to correlate not only marks and form,

but also decoration (Bonnet, 1988). However, some others answer by stating that we should not give too much value to the innovation advanced by the French researchers, because only an elaborate chemical and physical analysis to the clays performed in the different archaeological sites, as well as the fulfilment of an international database, could solve the issue (Morillo Cerdán, 1999, p. 278). There is also the issue related to the lamp marks within the general evolution of lamps. However, it is not easy yet to create the referred database and therefore such objectives are still difficult to achieve.

We should interpret the data relating the dispersion of lamp marks only as guidance lines to come up with some proposals. This data only gives us the knowledge of the production area of a potter, as well as of his period of operation, aided by the forms and decoration of the lamps found there.

As already mentioned, in the investigation of these pieces we must always take into account the inseparable relationship of the lamp marks with the decoration and with the typological form. Some of the stamps are associated to a specific typological and decorative set, allowing obtaining more precise chronological conclusions. Examples of that are the stamps FORTIS, documented in *Conímbriga* (Alarcão *et alii*, 1976), and STROBILI always associated to *firmalampen* (Morillo Cerdán, 1999, p. 278). These marks are an example almost certain and exclusive to the type in which they appear (Morillo Cerdán & Rodríguez Martín, 2009).

The lamp marks always encompass a larger and more complex study in comparison to the *figlinae*. Along with the names that constitute the bulk of the lamp markers there is knowledge of a wide group of stamps that consist of simple single letters, connection of several letters, monograms, anepigraphic signs or abstract symbols. Jacqueline Bonnet was one of the pioneering researchers in the identification of this type of differences, as well as in their definition. We may divide the lamp marks into three analysis groups. These groups include anepigraphic signs or symbols, single letters or groups of unconnected letters and nominal marks corresponding to stamps that constitute an identifiable name.

The anepigraphic signs appear frequently during the first century BC in Late Republican Roman lamps. We are referring to the forms Dressel-Ricci 2, 3 and 4, in which these signs achieve a high development. Nevertheless, they seem to continue up until the earliest forms of volutes, with which they start becoming rare due to the appearance of the first nominal marks. The form of the signs is quite varied and abstract, although the most usual consist of printed circles, either isolated or as part of combinations in linear contexts, or of single letters forming very complex monograms (Morillo Cerdán, 1999, p. 278). Some researchers have posed the possibility of these signs representing the level of quality of the piece

where they are found (Bonnet, 1988). However, we cannot ascribe as certain a proposal where abstract signs without connection are associated to the quality of the piece. This proposal should be regarded with relative caution in so far as the arguments given provide little consistency to such a possibility. Recently, other authors have proposed that these signs could be components controlling the production of the lamps (Morillo Cerdán, 1999, p. 279).

These signs seem to reappear during the Late Antiquity, albeit with a significantly different morphology. Even though some interpretative proposals for these signs have been advanced, their meaning and interpretation is yet to be clarified.

As regards the group of the single letters or set of letters without connection (Figure 16), there seems to be the same interpretation problem (Balil Illana, 1982 p. 166). Little can be said about this group, except that sometimes they present themselves with archaic spellings. These lamp marks seem to have been used since the first century BC until the first century AD, reappearing again during the fourth century AD (Morillo Cerdán, 1999, p. 279). Remember, for example, that this group of stamps is documented in the military camp of Lomba do Canho (Nunes *et alii*, 1990, Fig. 3, No. 3).

The epigraphic mark containing a name is the most usual and common in the compilation of traces of Roman lamps production. The forms of the gentilics vary according to the period and provenance. The stamps found in Italic productions of the volutes series and *Firmalampen* present only the *cognomen* of the lamp maker. When it comes to the productions of plain nozzle lamps, they display more complete and complex onomastic forms, showing the *praenomen* and *nomen*, or *nomen* and *cognomen* (Balil Illana, 1969, p. 12). In some rare cases even the typical Latin *tria nomen* appears in abbreviated form. That is the case of the form C.OPPI.RES, exhumed in Conímbriga, Portugal (Alarcão *et alii*, 1976), and Santa Bárbara de Padrões, Portugal (Maia & Maia, 1997), which corresponds to the Latin name *Caius Oppius Restitutus*.

These epigraphic marks appear mostly in a straight line without any base. In some occasions they appear inserted in a rectangular tablet. Circular or half-moon-shaped marks are quite rare (Balil Illana, 1982, pp. 6 -13). Sometimes the epigraphic marks appear on the body of the piece, on the rim, on the handle or even on the disk. Some researchers believe that, in this latter case, the texts expressed therein can be more than simple marks (Balil Illana, 1969, pp. 9-10).

Chronologically, the characteristics of the epigraphic marks vary. In the Late Republican Roman lamps of the volutes series they are drawn in cursive writing while the clay is still fresh. With regard to the small circles, well documented in the work of Ricci (1973, p. 229), they are printed directly over the fresh clay. As the large-scale production develop,

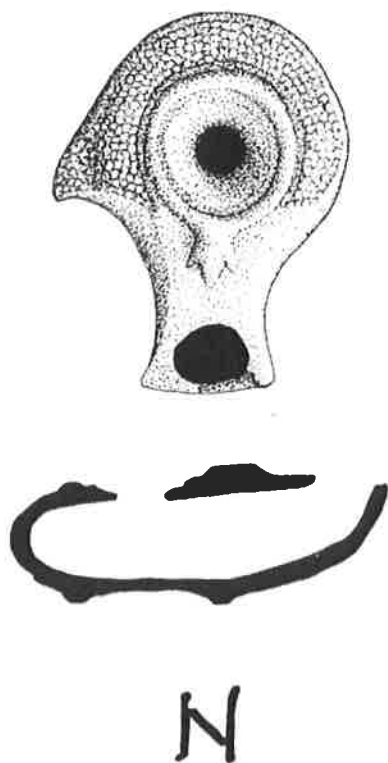


Figure 16 – Late Republican lamp from Lomba do Canho, Viseu, with isolated letter stamp (in Nunes et alii, 1990).

approximately from the Flavian dynasty on, the habit to include the mark on the lower mould propagated, avoiding the custom of marking each piece individually (Morillo Cerdán, 1999, p. 279). With this technique the mark could appear either in positive or negative relief.

By observing marks that denote similar potter names, it has been thought about the existence of *officinae* that would accommodate entire families engaged in the production of these materials throughout generations, or even about the possibility of the same family carrying out a simultaneous production at different locations. OPPI, C.O.R. and C.OPPI. RES are stamps that may indeed be an example of this reality, produced at different moments by the same potter (Morillo Cerdán, 1999, p. 279) or more accurately by the same *gens*.

Next to the large lamp production workshops, which exported a wide range of high quality materials, there would surely be small craft centres governed by small families confined to the local needs of a city or region. Unfortunately, several aspects of this limited production are yet to be defined.

Sometimes we find names of Greek or servile origin in the epigraphic marks, as in the example of *Fabricius* or *Alexi*, both documented in Santa Bárbara (Maia & Maia, 1997), or *Lucretius*, a producer documented in Braga (Morais, 2005), which seem to indicate the presence of freedmen in the production of lamps. These marks often

appear associated to countermarks, interpreted as control systems for payments made to free workers (Balil Illana, 1969, pp. 9-10). More problematic are the single letters that can correspond to the owner, an employee or even a slave.

The presence of marks on the base of the Roman lamps is not a generalised phenomenon during its existence. Its origin is documented in Greece during the Hellenistic period (Balil Illana, 1969, p. 7). It is during the second century BC that this custom appears in Rome, in the Late Republican forms Dressel-Ricci 1, 2, 3 and 4. These would be simple anepigraphic signs, monograms or single letters (Morillo Cerdán, 1999, p. 280). They may correspond to small family workshops aimed at supplying the markets of the *urbe* and of the peripheral zone, documented approximately until the year 20 BC.

From this date onwards the epigraphic marks featuring the *cognomen* of the potter in genitive, written in italics, start gaining weight. These marks appear still in the Late Republican forms, as is the case of the form Dressel-Ricci 4 (Morillo Cerdán, 1999, p. 280).

In the first productions of the volute series, centred on the Augustan period, the epigraphic marks seem to suffer a decline for reasons that cannot yet be explained. Nevertheless, it is certain that the habit of using a mark in this type of pieces ceases to be a requirement and thus we observe a production characterised by numerous small workshops, which manufactured samples of great technical and artistic quality (Morillo Cerdán, 1999 p. 280). During the Julio-Claudian dynasty the single letters and the anepigraphic signs resurface, but the marks are still not very common.

From the middle of the first century AD on, the number of lamps with marks increases significantly, although only during the Flavian period they reach their peak once again. We automatically notice changes in the *officinae*, which maintain a production concentrated in a small number of large workshops that produced high amounts of lamps with little artistic quality (Morillo Cerdán, 1999, p. 280). This production in large scale allows the inclusion of the mark in the mould, thus spreading the use of the mark as form of identifying each workshop in a time of great competition for the markets. Therefore, we witness a chain of decentralisation of production from Rome to its provinces. Consequently, known potters and their products loom large, which does not imply the disappearance of the small local workshops (Morillo Cerdán, 1999, p. 280).

In the early second century AD, the Italic production rapidly decreased faced with the North African plain nozzle lamps, which had their core in Proconsular Africa, and with the Hispanic and Gallic ones. The provinces of the Roman Empire start to become self-subsistent, forcing the Italic production to a market limited to its own peninsula. In what concerns to the marks, this period is characterised by the appearance of typical *tria nomina*, some of servile

origin. In the second half of the same century, this reality is accentuated and the Italic production and trading confines itself to the Tyrrhenian area. The production of the workshops reflects, among other things, the changes brought about by the socio-economic circumstances (Morillo Cerdán, 1999, p. 280). The existence of restricted markets drives each producer to try to identify his workshop with those subordinated to him, as well as to try to distinguish himself from his nearby competitors.

In the middle of the third century AD the socio-economic change of the Empire, as well as the ruin of the urban middle classes, stimulate the disappearance of the large workshops that produced lamps. Accompanying this reality is the almost absolute decentralisation of production. Consequently, with the reduction of the number of manufacturers of this type of material, the mark disappears very quickly due to the significant reduction of the major monopolisers of the market. Nevertheless, some marks with single letters, signs or monograms remain.

Anepigraphic signs

INCOMPLETE MARK WITH LINES IN RELIEF (Dressel-Ricci 2)

The physiognomy of the mark consists of a small tablet made with small lines in relief that had, in the centre, beads of reduced dimensions also in relief (Plate VIII, No. 11). The fact that the mark is incomplete makes it impossible for us to know if in the centre of the tablet there was only one bead or a set of beads in connection.

The impossibility of establishing parallels in the Iberian Peninsula does not allow us to risk proposing a chronology for this mark. However, it should be noted that the fragment from Santarém allowed its integration in the form 2 of Dressel-Ricci.

SIX PRINTED CIRCLES (Dressel-Ricci 2A)

Six concentric circles of small dimension printed on the base, disposed in star shape. In the centre there is another circle (Plate IX, No. 21).

We often come across this type of mark in the Late Republican Roman samples, identified by the researcher Marina Ricci (1973), which allowed identifying an analogous mark. The pieces where they are most common are restricted to the forms 2 and 3 of Dressel-Ricci, allowing supposing and suggesting a chronology demarcated between the middle of the first century BC and the end of that century.

INCOMPLETE MARK WITH CIRCLES IN RELIEF (Dressel-Ricci 2A)

Mark made by composing small circles in relief, of which only one was preserved (Plate IX, No. 22).

Since this is the same form as the sample previously analysed, we believe that it may correspond to the same type of mark, even though they show a considerable difference in their elaboration.

INCOMPLETE MARK WITH CIRCLES IN RELIEF (undetermined type)

Anepigraphic mark made by composing small circles in relief, of which three were preserved (Plate VIII, No. 6). The small dimensions of the fragment do not allow advancing any reading or interpretation for this mark.

INCOMPLETE MARK WITH CIRCLES IN RELIEF (undetermined type)

Incomplete mark composed of small circles in relief (Plate XVIII, No. 123). In the preserved fragment there remains only one circle, located at one of the ends of the base. It is its decentralised location on the base that leads us to suppose that it must have been composed of more circles. Generally, when these marks are composed of a single circle, the circle is located at the centre of the base.

The fact that this mark is not present in a Late Republican lamp but rather in an Imperial lamp is quite curious. Effectively, the various authors who dedicate themselves to this subject tend to associate the anepigraphic marks to the Late Republican Roman lamps, as it has been mentioned. Nevertheless, and given that we are facing a clearly High Imperial mark, we believe that this type of marks may still have been applied in the first Imperial samples of the volute series, as it may be the case of the form Dressel-Lamboglia 9. Angel Morillo Cerdán has already mentioned the possibility of this type of marks still remaining in use in the first imperial samples, extending its use until the middle of the first century AD (Morillo Cerdán, 1999). It remains to unveil whether there is any chronological distinction between the circles printed and those in relief, or if both coexist.

PRINTED BEAD (plain nozzle lamp, Dressel-Lamboglia 19)

Representation of a small bead printed in the centre of the base of the piece (Plate XIII, No. 82). A mark of difficult reading because it corresponds to a copy that deeply distorted the transfer of the mark. For this reason, we do not rule out the possibility that we may be facing a mark in *planta pedis*, quite common in the epigraphic repertoire of the Roman lamps. They may appear without any inscription, but also with the presence of marks inside.

Single letters

INCOMPLETE "S" IN RELIEF (undetermined type)

This mark seems to correspond to the letter "S" in relief, slightly decentralised on the base of the lamp (Plate XVIII,

No. 124). It could be the letter "C" but, however, there is no knowledge of any kind of marks with this letter so far. On the other hand, the letter "S" in relief is well documented all over the Empire. It appears mainly in the forms 9A and 11 of Dressel-Lamboglia, as well as in the form V of Loeschke. However, this type of mark also appears occasionally in the form 31 of Dressel-Lamboglia (Morillo Cerdán, 1999, p. 288). Although the fragment from *Scallabis* does not allow classification, this mark predominates in the oldest volute forms.

Nominal marks

"IVNIALEXI" (plain nozzle lamp, Dressel-Lamboglia 27)

We do not know, until the present, the *praenomen* of the individual who made such marks. We know he was named *Ivni(us) Alexi(us)* (Maia & Maia, 1997, p. 135), however, some researchers propose that the same individual may have signed CIVNALEX, thus concluding that his *praenomen* would be *C(aius)* (Balil Illana, 1969; Amaré Tafalla, 1989-90; Almeida, 2008; Fernandes *et alii*, 2012). Yet others relate this form with the variant C.IVNIVS.AL, confirming his *praenomen* (Amaré Tafalla, 1989-90).

The cognomen Alexi suggests a Greek origin, indicating that we may be facing an individual of servile status or a freedman. However, among the various pieces marked by this individual we have only found one in which the formula is accompanied by a subsidiary mark or countermark. This fact may indicate that he was a freedman who, along with the mark of the producer, would place a small sign allowing the owner to account his production so that he could pay him for his work. This seems to be the case of the sample from Alcáçova de Santarém (Plate XIV, No. 95).

A Proconsular African origin has been suggested for the exporter workshop that had these marks, demarcated chronologically between the end of the first century and the year 285 AD (Maia & Maia, 1997, p. 135). The reproductions of North African prototypes in the Baetic coast, current Andalusia, Spain, do not currently raise any doubts, especially concerning the forms 20, 27 and 28 of Dressel-Lamboglia (Morillo Cerdán & Rodríguez Martín, 2009, pp. 296-297), as it is proven by prototypes copied in that area and exported to Alcácer do Sal, Portugal (Pereira, 2013).

MARK OF DIFFICULT READING (plain nozzle lamp, undetermined form)

Epigraphic mark of difficult reading (Plate XVIII, No. 125). The various techniques for obtaining the characters in this mark were proven ineffective, making it impossible for us to present a secure reading. Nevertheless we are risking a possibility that seemed credible, to which the identification of some characters has contributed.

We are referring to the letters "M[...]N[...]R[...]P" which allow supposing that this was the lampmaker *Lucius*

Mun(atius) (Th)rep(tus). This is one of the marks that is best documented in the *Corpus Inscriptionum Latinarum*, and that sometimes appears in the variant LMVNTHRE (Maia & Maia, 1997, p. 140). Although we are facing a Latin *tria nomen*, the name of the individual reveals a Greek origin. The presence of the "h" gives away a servile or freeman status.

This mark is present all over the Roman Empire. In the current Portuguese territory it is worth mentioning five samples from Santa Bárbara de Padrões (Maia & Maia, 1997) which contain this signature as well as variants, all of them belonging to the same manufacturer.

Most researchers seem to be in agreement concerning the geographic allocation of this producer to the area of Rome (Bailey, 1980, p. 98; Bonnet, 1988, p. 149). However, Balil assigns this mark to a North African workshop (Balil Illana, 1969). The application of this type of mark is also documented in Montans (Bergés, 1989, p. 110), even though it was obtained through the overmoulding technique. The reality documented in Montans seems to correspond, to some extent, to that of Braga, where moulds of lamps with the presence of that mark were exhumed (Sousa, 1965-66, p. 165; 1669, p. 309; 1966; Morais, 2002, p. 181; 2005, pp. 361-362).

As for its operating period, it seems to have been between the end of the Flavians' dynasty and the beginning of the reign of Antoninus (Bailey, 1980, p. 98).

MARK OF DIFFICULT READING (undetermined type)

Epigraphic mark of difficult interpretation of which only half has reached us. The fragment corresponds to a base and part of the fuel chamber and is broken in half, which led to the loss of half of the mark (Plate XVIII, No. 126). The fragment does not allow unveiling if it corresponds to a copy, which could explain the presence of such an irregular epigraphic mark. Given its characteristics, we do not risk any reading.

UNREADABLE MARK (plain nozzle lamp, Dressel-Lamboglia 19)

Unreadable epigraphic mark (Plate XIII, No. 81). The sample where it is found clearly corresponds to a copy that does not allow the identification of the mark. Nevertheless, it corresponds to a copy that denounces some attention in the treatment of the surface, which contrasts with the faded look of the mark.

Inscriptions on the disk

INCISED "C" (volute lamp, undetermined type)

Single and incised letter located on the disk of the piece (Plate XVIII, No. 127). The mark must not have been in the mould, as it seems to be a small incision, light and quite

thin. It must have been made before the baking and the actual application of the slip.

The fact that we did not obtain any type of parallel for this mark, combined with the impossibility of classifying the fragment, does not allow suggesting a chronology. It surely corresponds to a mark that was ordered, intended for a particular person, either for the buyer himself or to be offered, which makes it a unique mark.

MARK OF DIFFICULT READING (volute lamp, Dressel-Lamboglia 9)

Epigraphic mark of difficult reading of which only a part was preserved (Plate XI, No. 50). The fragment corresponds to a disk of a volute lamp of the form 9 of Dressel. Although we cannot guarantee it, we believe that the inscription would be around the entire disk, corresponding to a more complex inscription.

The inscriptions on the disk are quite common and generally allude to the name of the characters that are represented, or to dedications. They seem to be quite common in the representation of gladiator, sparring or circus scenes (Morillo Cerdán, 1999, p. 307).

UNREADABLE MARK (plain nozzle lamp, Dressel-Lamboglia 19)

Unreadable epigraphic inscription located around the disk of the lamp, which has no decoration. The sample clearly corresponds to an overmoulding that does not allow the transcription of the inscription (Plate XIII, No. 82).

We are often faced with not so clear inscriptions present on the disks of the lamps, a fact which is due to the use of the overmoulding technique in the production of lamps, which, in turn, does not allow the exact reproduction of the reliefs. Thus, and in this case, such reality hinders and can even prevent obtaining a reading of these inscriptions.

Reflections

Although the Roman lamps exhumed in Alcáçova de Santarém have not provided a wide range of information concerning the epigraphy, it is possible to draw some conclusions that we deem relevant.

First of all it should be noted that, out of the 17 fragments identified that presented a mark, only 14 have allowed their identification or description. The remaining three correspond to areas adjacent to tablets that would contain the epigraphic mark. However, we did not obtain a single letter that would allow drawing some sort of illation from this mark.

The anepigraphic signs (Figure 17) are the most represented in this collection, corresponding to nearly half of the samples. They frequently appear during the first century

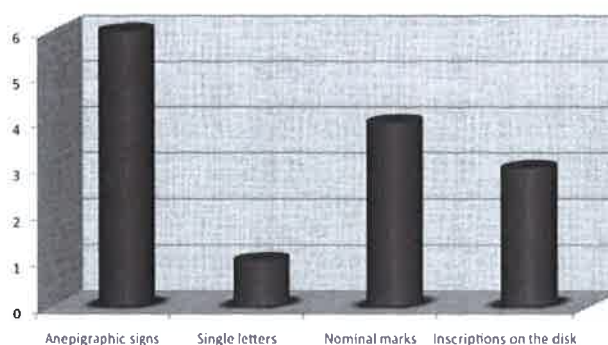


Figure 17 – Distribution of the lamp stamps of Scallabis by series.

BC, in Late Republican lamps. Nevertheless, they seem to persist until the earliest forms of volutes. The form of these signs is quite varied and abstract, although the most usual one consists of single printed circles (Morillo Cerdán, 1999, p. 278). Some researchers have put forward the possibility of these signs representing the level of quality of the piece where they are found (Bonnet, 1988). Recently, some others have proposed that they could be components of the pieces, made to control the production of the lamps (Morillo Cerdán, 1999, p. 279).

Effectively, and as it can be seen in the morphological analysis of this collection, the Roman Republican period is very well represented in Alcáçova de Santarém. For this reason we have also found a greater presence and variety of anepigraphic signs on Late Republican lamps, mostly from the forms 2 and 2A of Dressel-Lamboglia. We can thereby observe the chronological and morphological correspondence that has been attributed to these marks, predominant during the first century BC.

The epigraphic analysis becomes more complex when we look at the table (Figure 18) of the marks corresponding to single letters, nominal marks or inscriptions on the disk, not for its absence but for the difficulty in the transcription.

We were able to recognise the presence of four epigraphic marks in this collection. However, only one of them has allowed a clear and concise reading, corresponding to a mark made on a lamp of the form 27 of Dressel-Lamboglia imported from North Africa, corresponding to the individual *Ivni(us) Alexi(us)*. A Proconsular African origin has been suggested for the exporter workshop with these marks, which goes against the origin proposed for the sample from *Scallabis* "signed" with this mark.

Despite the difficulties encountered in the epigraphic analysis of the lamps from Alcáçova de Santarém, the overall picture is as expected. There is a clear predominance of anepigraphic signs and there are also marks with single letters and inscriptions on the disk. In any archaeological site from the West of the Iberian Peninsula with a Roman

Stamp	Lampmaker	Type of the lamp	Origin of the stamp	Chronology of the stamp	Production of the lamp
IVNIALEXI	Ivni(us) Alexi(us)	Dressel 27, Loeschcke VIIIH, Deneauve VIII A, Ponsich III C	African Proconsularis ?	End of the I century until middle of the III century AD	African
M[...N[...JR[...P	Mun(atius) (Th)rep(tus) ?????	Plain nozzle lamp, undetermined type	African Proconsularis ?	II century AD	Baetica

Figure 18 – Lamp stamps which allowed reading.

chronology, the overall picture of the epigraphic analysis generally corresponds to what we observed here.

IV. The Roman Lamps from Alcáçova De Santarém; Conclusions and Reflections

In this work, we have provided descriptive analyses of the lamps from Alcáçova de Santarém, highlighting their main typological, chronological, epigraphic and iconographic characteristics. This collection is of important value, both for its diversity and for its quality. It includes 393 fragments from lamps of Hellenistic influence, Late Republican lamps, Imperial volute lamps, Imperial plain nozzle lamps and Early Christian lamps.

The lamps are *fossilius directoribus* in any excavation of the period to which they belong, and they do not mandatorily require stratigraphic contexts (Morillo Cerdán, 1999, p. 309). As we have seen, in Santarém was impossible confirm the datation os these lamps with stratigraphic contexts. Even though the stratigraphy assumes a role of confirmation and chronological refinement. It is increasingly evident that the chronology proposed in the tipologies for the various lamps is not absolute and may vary significantly from region to region, besides some disparities that may exist between dates of production and use. In addition to these problems we may add the use of the overmoulding technique which can significantly distort the chronology of lamps.

Copies are more temporally recent than originals. Between the manufacture of the original and the copy there must have been processes that delayed the appearance of the copy. First, the original needs to be produced in order to be marketed according to the distinct tastes of the society or community where that product is introduced. Only after this whole process it was sought to imitate an imported product, in response to its high demand. This may be the case with fragment No. 90 of the collection from *Scallabis*, which corresponds to a second generation copy of another copy that we were fortunate to find in Mérida.

We admit, however, that the chronological period separating the production of the original lamp and the copied lamp may be so small that it did not leave any traces in the archaeological record, although it seems evident, if not obvious, that there was a difference between the appearance of a product that was highly sought and the emergence of copies purchased at a lower price. This is a reality which is still clearly visible in the present day.

When establishing dates for the lamps, we must always take into account their association to other materials included in the same stratum. Specficly we highlight red slipware, numismatic evidence, amphorae and campanian ware which, just like the lamps, play an important role in assigning dates to strata. Therefore, the chronological assignment must be supported by the information available from the stratigraphy where they are found.

Unfortunately, the stratigraphic contexts of the excavations carried out in Alcáçova de Santarém did not allow, in

most cases, for the acquisition of secure contexts to corroborate the chronology of the Roman lamps proposed in the tipologies. The Roman layers, especially those of the Imperial period, have been significantly disturbed by the occupational continuity of the site. The expansion or alteration of the urban network of this place caused the destruction of previously existing strata that explain the high amount of stratigraphic layers revolved and, some times, completely destroyed.

Despite these obstacles, this study of Roman lamps contributes to a credible historiography of the archaeological site where they were exhumed. For example, with their integration into the large and complex Roman world, certainly, in times of economic crisis the purchasing power of the population reveals a decrease in the acquisition of material goods, as it may be the case of *Scallabis* as from the end of the High Empire. In this case, we surely have less lamps in a determined moment. Otherwise, we may come across strata rich in certain archaeological materials. These materials, on the other hand, may also allow a better understanding the process of Roman conquest, when they reports a republican chronology, through the adoption of new daily habits, and the consequent Roman phase.

The current knowledge about Roman lamps in Portugal is still at a fairly rudimentary stage, mainly the Roman Republican lamps. This phenomenon may be due, on the one hand, to the fact that researchers have given primacy to Imperial samples, as they are more elaborate and aesthetically more complex. On the other hand, it may also be due to the fact that Portugese Roman lamps are associated with a rather complex and not very developed period, in a geographic area where three distinct traditions - Punic, Hellenistic and Roman - of manufacturing lighting ceramic converge (Fabião, 1998, p. 426).

Through the lamps of Hellenistic influence and the Late Republican Roman lamps we can assimilate this new data with the historiography of Roman conquest (Plates XIX and XX).

The transition and/or introduction of lighting ceramics in the peninsular territory has to be necessarily addressed using a supra-regional perspective. Indeed, in the Iberian Peninsula, we are faced with a number of heterogeneous cultural communities that cannot be considered as a single group. In the southernmost areas, the tradition of lighting ceramics dates back to the Orientalising period, specifically to the eighth century BC, according to the traditional chronology, resulting in the import and also in the production of lamps of common ware and red slip ware. The use of lamps is maintained throughout the first millennium BC in this geographical area, where the introduction of the Roman

models of lamps reflects a situation of continuity of an existing tradition.

However, as we move to areas further north, the appearance of lamps is scarce, making their study difficult in this region. This fact does not necessarily imply absence of lamps, if we consider the possibility of them being made of perishable materials. In this area, the arrival of the Roman lamps must have been an innovation that surely changed the habits in daily life.

Regarding the western area of modern day Portugal, the situation appears to be slightly different. The estuarine areas of the rivers Mondego, Tagus and Sado were included in the Phoenician colonisation process of the Iberian Peninsula, during which they experienced the import of lamps with one and two nozzles. However, after the middle of the first millennium BC these areas seem to have disconnected themselves from the Mediterranean commercial world, judging from the sudden drop of imports registered in the various sites occupied during this time period (Arruda, 2002). It seems that these areas only retake their place in the commercial circuits with the arrival of Romans agents. Given the great absence of data on the material culture of the second half of the first millennium, it is also unknown whether the lighting ceramics continued to be produced or if this practice was only reintroduced with the arrival of the Roman military contingents.

From the imperial period onward, we are faced with an obvious increase and diversification of residential areas due to a Romanisation and urbanisation policy started by Augustus, culminating in the respective consolidation of this policy during the Flavian dynasty. One should also not forget the organisation and development of rural areas, structured, at least initially, around those urban cores. The territorial reorganisation that occurs after the adoption of the municipalising policy is reflected in several centres created in this period, embracing epithets of its founders. Some examples of those centres are *Bracara Augusta* and *Aquae Flaviae*, among others.

This is a period characterised by the consolidation of the housing areas of the previous period (Morillo Cerdán, 1999, p. 338). However, the proliferation of urban centres automatically implies the development of an intense commercial network of food products and manufactured goods that have to be introduced in those new cities in order to meet the demand.

The Roman lamps appear to be of utmost importance in understanding changed in consumer taste. The aesthetical and formal variation of this type of material has an evolution that is governed by socio-cultural preferences. For example, in the South West of Iberian peninsula, during the third and fourth century AD, is clear an change in the consumption of Roman lamps because the Christians refused to by lamps with pagan scenes (Pereira, in press).

The tychnological collection of the Roman city of *Scallabis* corroborates much of what has been written about this site. We immediately notice that the Republican period is very well represented either quantitatively or in morphological variety. The Roman Late Republican lamps correspond to 13.7% of the entire collection, distributed between samples of Hellenistic influence and Late Republican Roman samples. The data obtained, together with the remaining materials and coeval architecture (Diogo, 1984; Arruda & Almeida, 1998; Arruda & Sousa, 2003; Almeida, 2006; Bargão, 2006), indicates that *Scallabis* was of considerable importance during this period. Nevertheless, and even though earlier samples have been identified, that importance seems to be evident mainly after the beginning of the first century BC, when a period of increasing prosperity seems to have began in this metropolis. Before an effective and architecturally visible occupation, this site certainly was the scene of territorial explorations, made through more or less sporadic contact, and perhaps even of an initial occupation characterised by a perishable architecture. This occupation has left evident traces in the material culture but not so much in the architecture. On the other hand, perhaps the oldest samples do not express real urbanism which, during the second century BC, could be displaced from the points where the archaeological interventions were performed.

	Cabeça de Vaiamonte	Lomba do Canho	Alcáçova de Santarém
Ricci E	1	-	2
Ricci F	1	-	-
Ricci G	2	-	-
Ricci H	1 or 2	2	1
Dressel 1	-	-	2
Dressel 2	1	3 or 5	22
Dressel 2/3	-	-	2
Dressel 3	-	1	5
Other types	3	5	-

Figure 19 – Comparative analysis of Late Republican lamps from Scallabis with too other important archaeological sites of Portugal.

By performing comparative analyses with other collections of Republican lamps from modern Portugal, we notice that the collection from *Scallabis* denotes a greater compatibility with the lychnological collection from Lomba do Canho, in Viseu (Figure 19). The similarity between these two collections, both of which belong to the first half of the first century BC, is not surprising.

Nevertheless, we should not forget that two samples of the type E of Ricci were also identified in *Scallabis*, retreating the beginning of the importation of lamps to a chronology similar to that observed at the site of Cabeça de Vaiamonte, Monforte, Portugal.

The main difference to note between these three archaeological sites, aside from variation in morphology, is the difference in the quantity of identifiable lamps present. A considerably higher number of lamps have been identified in *Scallabis*. This difference may be due to the fact that Santarém presents a longer occupational continuity when compared to Lomba do Canho and Cabeça de Vaiamonte Roman Republican occupation, but also due to its location which grants direct access to the Atlantic Ocean, thus facilitating the reception and introduction of imported manufactured products and the sale of raw materials exploited in the region.

We should also take into account that the excavated area at each of these sites is not equivalent. We can affirm that Alcáçova de Santarém has the greatest excavated area in comparison with Cáceres el Viejo, Spain (Ulbert, 1984), Lomba do Canho or Cabeça de Vaiamonte, Portugal (Fabião, 1998). This likely contributes to the existence of a larger number of samples in *Scallabis*.

The functionality of these three sites in antiquity also allows us to obtain relevant conclusions, more specifically about *Scallabis*. Concerning this issue, it is important to note the relationship of this data with an eventual presence of Romans military contingents at this site, a subject already addressed. The lamps of Hellenistic influence and the Late Republican lamps are often associated to the presence of military contingents or to sites of strong military nature. This being said, *Scallabis* may also have been an early Romanised site where there were a considerable number of Roman individuals. If we take into account the large quantity of Dressel-Ricci 2 type lamps, it is possible that this military occupation corresponds to a time of greater economic and social stability that allowed, a short time later, a development well documented by the architecture of Roman Republican occupation. Indeed, this type seems to have been abundantly distributed during the second and third quarter of the first century BC (Fabião, 1998, p. 434).

The volute lamps are the Roman Imperial production par excellence. They have a high technical and artistic quality, and they were increased and widespread due to the economic prosperity registered during the Augustan period (Morillo Cerdán, 1999, p. 67). They are documented

in all the archaeological sites dated between the reign of Augustus and the end of the first century AD, and Alcáçova de Santarém is no exception.

Although these lamps are not only documented in housing units, that seems to be the case of *Scallabis*, which clearly corresponds to a population settlement. They can appear in other contexts, reason why these contexts are of the utmost importance when assigning function to these items. Perhaps the lamps collected in stratum 04 of square 14/17 from excavations taking place between 1994 and 1995, during which the city temple was uncovered, may correspond to *ex votos* placed in that local with a ritual function. This possibility is supported by the absence of traces of usage.

From the end of the second century and the beginning of the following century onwards, *Scallabis* begins to lose the purchasing power that it had demonstrated until that time, a reality that was reflected in the manufactured products imported during this period and that was already observed in the study of other materials, specifically red slip ware (Viegas, 2003).

As was the case with other imported goods, lychnological collection from Alcáçova de Santarém reflect a clear fall in quantity imports from the beginning of the second century AD onward, possibly related to the growing importance of *Olisipo*. The question of whether or not the loss of importance of *Scallabis* was in fact due to *Olisipo* remains unanswered (Alarcão, 1987; 1990a; 1990b).

Data suggests that the growing influence of *Olisipo* corresponds to the weakening of *Scallabis*. We stress that such a theory still lacks corroboration. The data currently available to us compels us to take this possibility into account, but the absence of other data advises us to be cautious when making statements. This apparent fall of the purchasing power of *Scallabis* may be due to the reorganisation of the occupied space in the West of the Iberian Peninsula, an urban redesign (Mantas, 1996) or even to population mobility.

According to data from other archaeological sites, such as Castro Marim (Viegas, 2003), Monte Molião (Arruda *et alii*, 2008) or Alcácer do Sal (Cabral, 1974; 1974-77; Pereira, 2013), the end of the first century AD and the following second century mark a significant change in the reorganisation of this occupied space. Criteria for the selection of those spaces (Castro Marim, Monte Molião or Alcácer do Sal), at least in the central and southern regions of current Portuguese territory, changed. During this period Roman urban centres are relocated from high places to lower and flatter locations, a shift which reflects an increasingly emergent need for water supply rather than a need for visibility and defensibility. It is yet to be confirmed if this reality is extended to other sites with the same chronology and identical characteristics, particularly in the interior of the country, or if it is only true of sites on the Atlantic coast.

Although other cheaper and more accessible forms of lighting were available (torches and fires), the importance of lamps in the life of the common Roman citizen should not be taken for granted. It is understandable that most tasks would be carried out mainly during the day, whether work or leisure. Certainly, only a small percentage would dedicate themselves to nighttime activities. Such activities were likely a feature of cities, rather than smaller settlements, where work would be done from dawn to dusk (Caetano, 1993).

Another aspect that this collection allows us to highlight is the comparative analysis between the percentages of the various productions of lamps. The samples from Alcáçova de Santarém denote a predominant presence of the Italic productions, characterised by samples of very good technical and productive quality, exposing a major preference for the products of this origin. Nevertheless, this collection also features a large number of Hispanic products, although these do not outweigh the Italic samples. This high percentage of Hispanic products, especially those from *Baetica*, may be due not so much to their technical quality, but to the fact that they are products of lower value compared with the Italic products. This price reduction would surely be due both to its lower quality and to the lower costs in transportation. We should also remember that, after a certain point, Hispania had a lamp production network capable of supplying most of the needs of the Iberian population. Small provincial productions, which initially appeared in order to meet the needs of the surrounding population (Morillo Cerdán & Rodríguez Martín, 2009, p. 291), quickly began to dominate markets previously commanded by Italic productions.

The transport of products to the city of *Scallabis* would have been achieved by boat, on the sea and through the river Tagus. Both the Italic lamps and the Hispanic lamps from the Roman province of *Baetica* could easily reach this location via cheap and easy transportation. In contrast, only a small number of lamps reached *Scallabis* from Merida. This is likely due to the difficulties involved in land transportation (Amaré Tafalla, 1992), Land transportation did not allow for a high number of products and was still subject to plundering.

In the lychnological collection from Alcáçova de Santarém there are also samples of African production, although less in number. Effectively, the North African products are also on the list of products imported by the people of *Scallabis*. Nevertheless, its weak expression is not justified by the routes or costs, but instead due to the decrease of the acquisition of lighting products of which we have been speaking throughout this work. The productions from North Africa are considerably later in the framework of the importation of lamps to the Iberian Peninsula. Until the third century AD the volume of lamps coming from Proconsular Africa is quite small and, only with the abundant imports of African red slip ware, do North African lamps begin to be introduced in the Hispanic markets in a more visible

way. Until then, their expression was limited and must have accompanied the importation of African common ware.

In the collection of lighting ceramics from *Scallabis* we were faced with a considerable amount of copied pieces from *baeticae* province, corresponding to 6% of the entire collection. However, we have also found the presence of samples with calyxes of difficult reading that may correspond to local/regional productions, which we have included in the group of the undetermined. It is not always easy to establish whether or not a lamp is part of a first wave of production based on a prototype or whether it is a later copy. Obviously, the introduction of the bivalve mould considerably boosted the production of copies.

The reality documented in this archaeological site with the study of lamps is similar to that of the importation of red slipware (Viegas, 2003). Like studies of slipware, lamp analyses suggest that lamp importation peaked at the beginning of the Imperial period, suggesting a similar market for these two wares. Regarding the presence of thin walls ceramic, this comparison becomes a bit more complex when compared with lamps. Thin wall pottery (Arruda & Sousa, 2003) is most commonly associated with the Late Republican period, although a low percentage of thin walled pottery is also found at sites dating to the Imperial period. The peak of import of this type of materials appears to be during the Late Republican period. This is untrue of thin walled Roman lamps from the same sites. The authors state that this discrepancy may be related to the presence of Roman glass in Santarém, which became common at this location by the middle of the first century AD (Antunes, 2000; Arruda & Sousa, 2003, p. 285).

Concerning the importation of amphorae, the data allows giving consistency to what has been advanced to lamps. The typical amphorae Dressel 1, Class 67 and Class 32 are perfectly documented in Santarém during the first century BC (Arruda *et alii*, 2005, p. 294-295; Bargão, 2006; Almeida, 2006). Nevertheless, the peak of the amphorae imports is delimited between the beginning of the principality of Augustus and the reign of Tiberius (Arruda *et alii*, 2005, p. 295), coinciding to some extent with the beginning of a greater import of lamps which surely accompanied the amphorae during their transport.

Effectively, it is possible to suppose that the import of objects intended for lighting accompanied the mentioned materials, which present a peak of import compliant to the type of materials studied here. Only the thin walls ceramic refute this idea, being poorly represented during the High Imperial period, but this may be explained, as already mentioned, by their replacement by glass. Still regarding the analysis of the amphorae import, a certain correlation is evident in the origin of both materials present in the clay, we refer to Italic peninsula. During the Roman Republican period, the Italic imports prevail alongside the amphorae of type Dressel 1, while during the High Empire the emergence of the products from the *Baetica*

province commercialised in a large scale creates parallel markets of other products, such as the case of lamps. In this sense, perhaps we should review the frequent designation of "parasitic loads" attributed to the maritime transport of lamps.

We hope that old and new collections of lamps, closed in museums, must be published in the future, especially those

that have remained unpublished for a long time, as they will undoubtedly contribute to the data obtained via analyses of the Roman lamps from the city of *Scallabis*, changing or accentuating the landscape of their geographical distribution in the current Portuguese territory and offering new contexts that may allow tuning chronologies. We must, above all, insist on the technological analyses of clay, an essential tool in determining the origin of each piece.

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Consulted Links

- Endovélico: Base de dados de sítios arqueológicos portugueses [Em linha], Lisboa <<http://www.igespar.pt>>

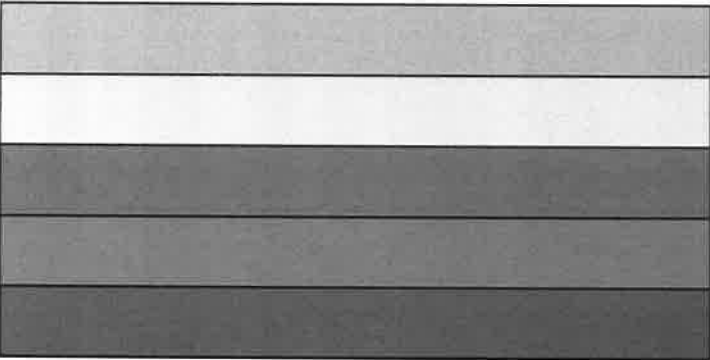
PLATES

Lamp type	Equivalences	Lamp type	Equivalences
Dressel 1	Ricci – Dressel 1	Dressel 6	Loeschcke XK
	Ricci – Dressel 1A		Dressel – Lamboglia 6
	Ricci – Dressel 1B		Ponsich V B
	Provoost III – 1,3		Provoost IV – 5,2,2
Dressel 2	Dressel – Lamboglia 2	Dressel 7	Leibundgut XXXII
	Ponsich 1B		Szentleky b – 10
	Deneauve I		Deneauve VI A
	Provoost III – 1,2		Walters 65
	Ricci – Dressel 2, 2A, 2/3	Dressel 8	Deneauve VI A
Dressel 3	Szentleky b – 1		Walters 65
	Dressel – Lamboglia 3	Dressel 9A	Loeschcke I A
	Ponsich 1C		Dressel – Lamboglia 9A
	Deneauve III		Ponsich II, A-1
	Provoost IV – 1,2,1		Deneauve IV A
	Leibundgut II		Provoost IV – 2,1,1
Dressel 4	Ricci – Dressel 3, 3A	Dressel 9B	Leibundgut V
	Dressel – Lamboglia 4		Szentleky b – 4
	Ponsich 1C		Loeschcke I B
	Deneauve II		Dressel – Lamboglia 9B
	Provoost IV – 1,2,2		Ponsich II, A-1
	Ricci – Dressel 4, 4A		Deneauve IV A
	Leibundgut I		Provoost IV – 2,1,2
Dressel 5	Szentleky b – 2		Leibundgut VI
	Loeschcke X		Szentleky b – 4
	Dressel – Lamboglia 5C		Walters 78
	Ponsich V A		
	Deneauve IX A		
	Provoost IV – 5,2,1		
	Leibundgut XXVI - XXX		
	Szentleky b – 10		
	Walters 90/91		

Lamp type	Equivalences	Lamp type	Equivalences
Dressel 9C	Loeschcke I C	Dressel 15	Dressel – Lamboglia 15
	Dressel – Lamboglia 9C		Ponsich II, B-2
	Ponsich II, A-1		Deneauve V D
	Deneauve IV A		Szentleky b – 8
	Provoost IV – 2,1,3		Walters 85
	Leibundgut VII	Dressel 16	Loeschcke V
	Szentleky b – 4		Dressel – Lamboglia 16
	Walters 80		Deneauve V D
Dressel 10	Dressel – Lamboglia 10		Provoost IV – 3,1
	Deneauve IV C		Leibundgut XIV – XV
Dressel 11	Loeschcke IV		Szentleky b – 8
	Dressel – Lamboglia 11	Dressel 17	Walters 85
	Ponsich II, B-1		Loeschcke VIIIK
	Deneauve V A		Dressel – Lamboglia 17
	Provoost IV – 2,2,1		Deneauve VII D
	Leibundgut XII		Provoost IV – 3,4,2
	Szentleky b – 7	Dressel 18	Leibundgut XX
	Walters 81/84		Loeschcke VIIIK
Dressel 12 / 13	Loeschcke III		Dressel – Lamboglia 18
	Dressel – Lamboglia 12 / 13		Ponsich II, B-1
	Ponsich II, B-1		Provoost IV – 3,2,1
	Deneauve V B		Leibundgut XX
	Leibundgut X - XI	Dressel 19	Szentleky b – 11
	Szentleky b – 3		Loeschcke VIIIR
	Walters 87		Dressel – Lamboglia 19
Dressel 14	Loeschcke V		Ponsich III, B-1
	Dressel – Lamboglia 14		Deneauve VII A
	Ponsich II, B-2		Provoost IV – 3,2,3
	Deneauve V D		Szentleky b – 11
	Leibundgut XIV – XV		
	Szentleky b – 8		

Lamp type	Equivalences	Lamp type	Equivalences
Dressel 20	Dressel – Lamboglia 20	Dressel 28	Loeschcke VIIIH
	Ponsich III, B-1,2		Dressel – Lamboglia 28
	Deneauve VII A		Ponsich III C
	Provoost IV – 3,3,1		Deneauve VIII B
	Leibundgut XXI – XXII		Provoost IV – 3,5
	Szentleky b – 11		Leibundgut XX - XXII
	Walters 95		Szentleky b – 11
Dressel 21	Dressel – Lamboglia 21	Dressel 30	Walters 98
	Provoost IV – 3,3,3		Dressel – Lamboglia 30
	Walters 95		Provoost V – 4
Dressel 22	Provoost V – 1,1	Dressel 31	Dressel – Lamboglia 31
	Leibundgut XXVIII		Ponsich IV C
Dressel 23	Provoost IV – 1,2,3		Provoost V – 9,2
Dressel 24	Dressel – Lamboglia 24		Leibundgut XXVII
	Ponsich III B, 2		
	Provoost IV – 3,2,3		
	Szentleky b – 12		
Dressel 25	Dressel – Lamboglia 25		
	Ponsich III B, 2		
	Provoost IV – 3,2,3		
	Szentleky b – 12		
Dressel 26	Dressel – Lamboglia 26		
	Deneauve VII A		
Dressel 27	Loeschcke VIIIH		
	Dressel – Lamboglia 27		
	Ponsich III C		
	Deneauve VIII A		
	Provoost IV – 3,5		
	Leibundgut XX		
	Szentleky b – 11		

Lamp type	Equivalences	Lamp type	Equivalences
Deneauve IV D	Loeschcke II	Deneauve VII A	Loeschcke VIII L
	Provoost IV – 2,1,4		Leibundgut XX
	Szentleleky b – 6	Deneauve VII D	-----
Deneauve IV B	-----	Loeschcke IX	Dressel – Lamboglia 5 A-B
Deneauve IV E	-----		Ponsich V B
Deneauve V E	-----		Deneauve IX A
Deneauve V G	-----		Provoost IV – 5,1
Deneauve V C	-----		Leibundgut XXIII
Deneauve V F	-----	Deneauve VI B	-----



- Late Republican lamps
- *Firmalampen*
- Imperial volute lamps
- Imperial plain nozzle lamps
- Early Christian lamps

PLATE IV

PLATE V

Chronology of Late Republican lamp types by Ricci (1973)

Lamp type	Chronology	Lamp type	Chronology
A	End V century – III century BC	Dressel 1A	100 – 50 BC
B	II century BC	Dressel 1B	110 – 50 BC
C	II century – beginning of I century BC	Dressel 2	100 BC – 10 AD
D	II century BC	Dressel 2A	50 BC - 0
E	II and I century BC	Dressel 2/3	I century BC
F	II and I century BC	Dressel 3	I century BC
G	Middle of II century – I century BC	Dressel 3A	I century BC
H	I century BC	Dressel 4	20 BC – 10 AD
Dressel 1	II and I century BC	Dressel 4A	10 BC

Chronology of Roman lamp types by Dressel (1899)

Lamp type	Chronology	Lamp type	Chronology
5	60 – 100 AD	20	II – III century AD
6	II century AD	21	II – III century AD
9	Tiberius - Vespasian	22	II – III century AD
10	Vespasian	23	II – III century AD
11	40 – 70 AD	24	II – III century AD
12	Vespasian	25	II – III century AD
13	Vespasian	26	II – III century AD
14	40 – 70 AD	27	II – III century AD
15	40 – 70 AD	28	II – III century AD
16	40 – 70 AD	29	-----
17	II – III century AD	30	III – IV century AD
18	II – III century AD	31	IV century AD
19	II – III century AD		

Chronology of Roman lamp types by Loeschke (1919)

Lamp type	Chronology	Lamp type	Chronology
IA	Augustus - Tiberius	VIII	1. Half of I century AD
IB	Tiberius - Claudius	IX	From 75 AD on
IC	Nero – Flavian Dynasty	IXD	From 75 AD on
II	After - Augustus	X	75 – III century AD
III	After - Augustus	XK	75 – III century AD
IV	After - Augustus	XI	1. half of I century AD
V	1. Quarter of I century AD	XII	3. quarter of I century AD
VI	2. half of I century AD	XIII	End of I century – II century AD
VII	Middle of I century AD	XIV	1. half of I century AD

PLATE VI

Chronology of Roman lamp types by Deneauve (1969)

Lamp type	Chronology	Lamp type	Chronology
I	I century BC	VII B	125 – 150 AD
II	I century BC	VII C	100 – 150 AD
III	I century BC	VII D	125 – 150 AD
IV A	Augustus - Tiberius	VIII A	75 AD
IV B	1 – 50 AD	VIII B	125 – 150 AD
IV C	1 – 50 AD	VIII C	200 – 250 AD
IV D	1 – 50 AD	VIII D	250 – 300 AD
IV E	1 – 50 AD	IX A	75 – 100 AD
V A	Augustus - Claudius	IX B	100 AD
V B	1 – 50 AD	X A	150 – 200 AD
V C	1 – 50 AD	X B	200 AD
V D	1 – 50 AD	XI A	250 – 300 AD
V E	25 – 50 AD	XI B	250 – 300 AD
V F	50 – 100 AD	XI C	300 AD
V G	50 – 100 AD	XII	300 AD
VI A	25 – 50 AD	XIII	225 AD
VII B	50 – 100 AD		
VII A	50 – 100 AD		

Chronology of Roman lamp types by Ponsich (1961)

Lamp type	Chronology	Lamp type	Chronology
IA	I century BC	III B2	50 – III century AD
IB	I century BC	III C	70 – 150 AD
IC	I century BC	IV A	250 – 375 AD
II A1	Augustus - Flavian Dynasty	IV B	310 – 450 AD
II A2	Augustus - Flavian Dynasty	IV C	390 – 600 AD
II B1	Augustus - Flavian Dynasty	VA	Flavian Dynasty – end of III century AD
II B2	Augustus - Flavian Dynasty	VB	Flavian Dynasty – end of III century AD
II B3	50 – 100 AD	VC	Flavian Dynasty – end of III century AD
III A1	50 – 125 AD	VIA	100 – 400 AD
III A2	50 – 125 AD	VIB	100 – 400 AD
III B1	50 – III century AD		

Chronology of Roman lamp types by Atlante (1981)

Lamp type	Chronology	Lamp type	Chronology
I	230/240 – 310 AD	VIII D5	2. half of V century AD
II	2. half of III century – IV century AD	VIII D6a	2. half of V century AD
III	2. half of III century AD	VIII D6b	-----
IV A	2. half of III century – IV century AD	VIII D7	-----
IV B	300 – 3. quarter of IV century AD	IX A1	-----
V	290 – 320 AD ?	IX A2	-----
VI A	-----	IX A3	V century AD
VI B	-----	IX B	-----
VII A1	325 – 350 AD ?	IX C	-----
VII A2	325 – 350 AD ?	X A 1a	End of IV to end of V century AD
VII B	325 – 350 AD ?	X A 1b	-----
VIII A1a	IV – V centuries AD	X A 1c	-----
VIII A1b	2. half of V century AD	X A 1d	-----
VIII A1c	2. half of IV century - 2. half of V century AD	X A 1e	-----
VIII A2a	1. half of V century AD	X A 2	End of IV – V centuries AD
VIII A2b	3. quarter of IV – middle of V century AD	X B 1a	End of IV – VI centuries AD
VIII B	V century AD	X B 1c	-----
VIII C1a	IV – V centuries AD	X B 2	-----
VIII C1b	End of IV – V century AD	X C	-----
VIII C1c	-----	X D 1	-----
VIII C1d	2. half of V century - 2. Half of VI century AD	X D 2	-----
VIII C1e	-----	X E	End of IV – VI centuries AD
VIII C1f	-----	XI A 1a	Middle of V century AD
VIII C2a	Middle of VI century AD	XI A 1b	-----
VIII C2b	-----	XI A 2	Middle of IV – middle of V century AD
VIII C2c	-----	XI B 1	V century AD
VIII C2d	-----	XI B 2	-----
VIII C2e	-----	XII	-----
VIII C2f	2. half of V century AD	XIII	IV – VI centuries AD
VIII D1	End of IV century – VI century AD	XIV	-----
VIII D2	2. half of V century AD	XV	365 – end of IV century AD
VIII D3	2. half of V century AD	XVI	V – VI centuries AD
VIII D4	2. half of V century AD		

PLATE VIII

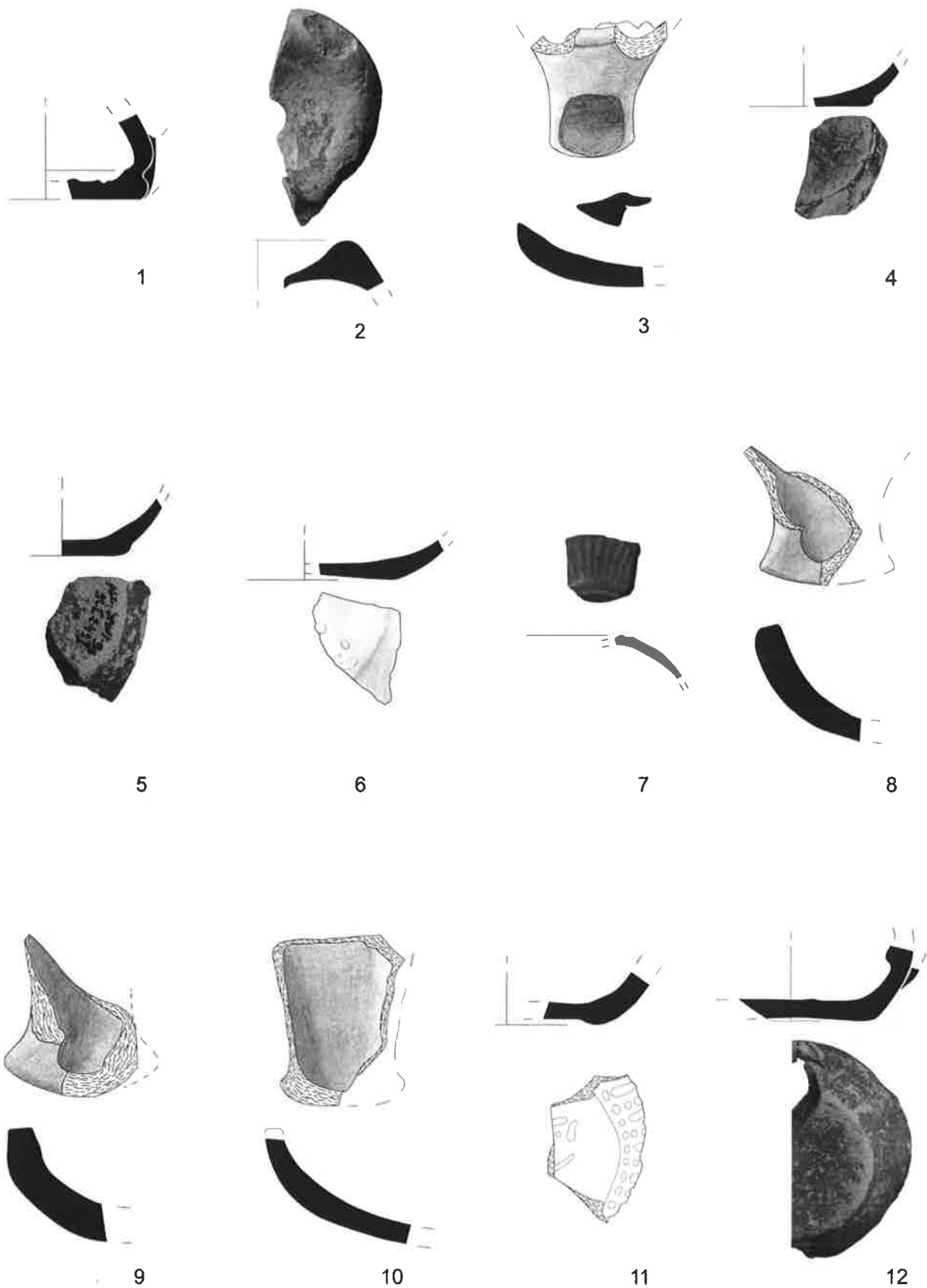


PLATE IX

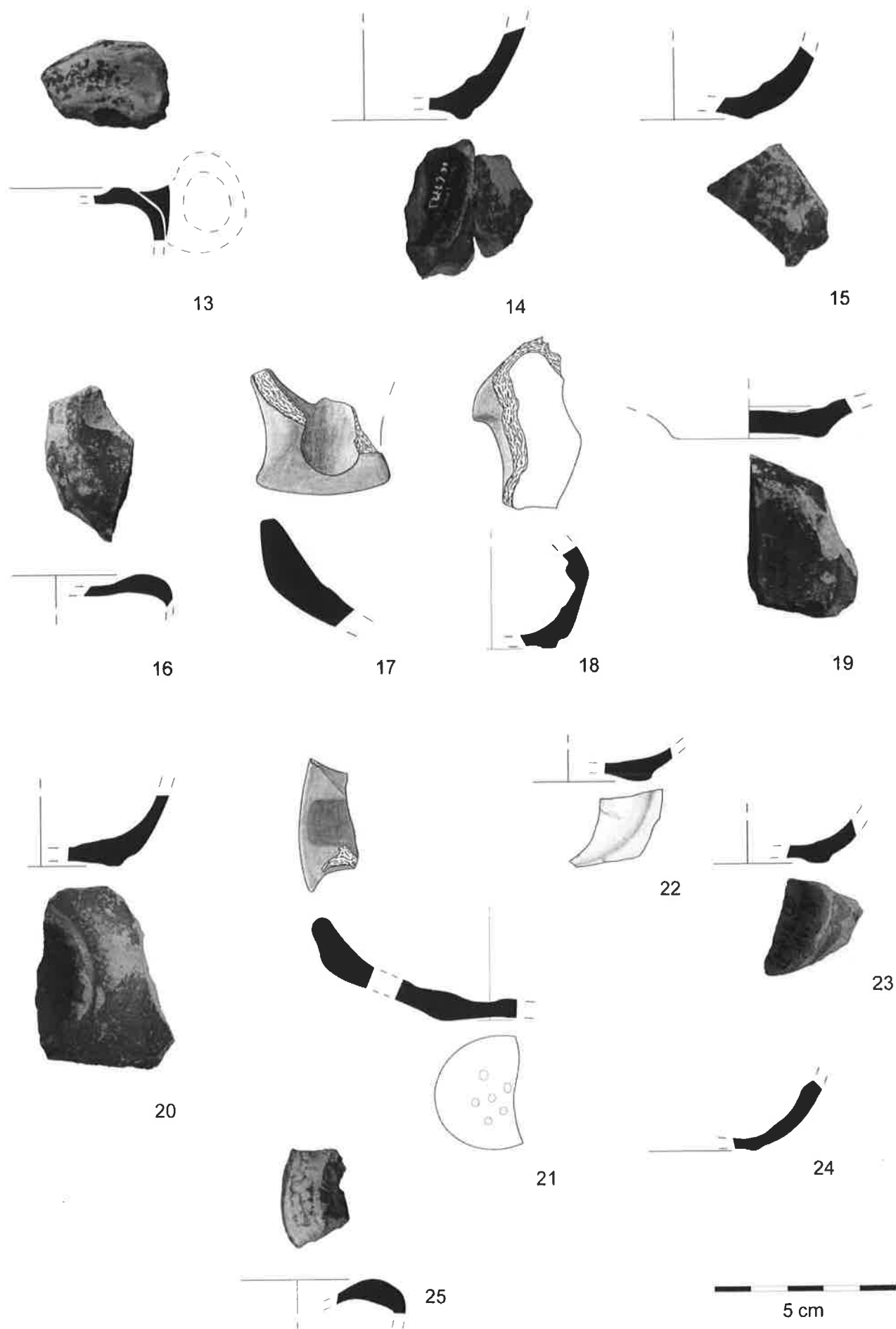


PLATE X

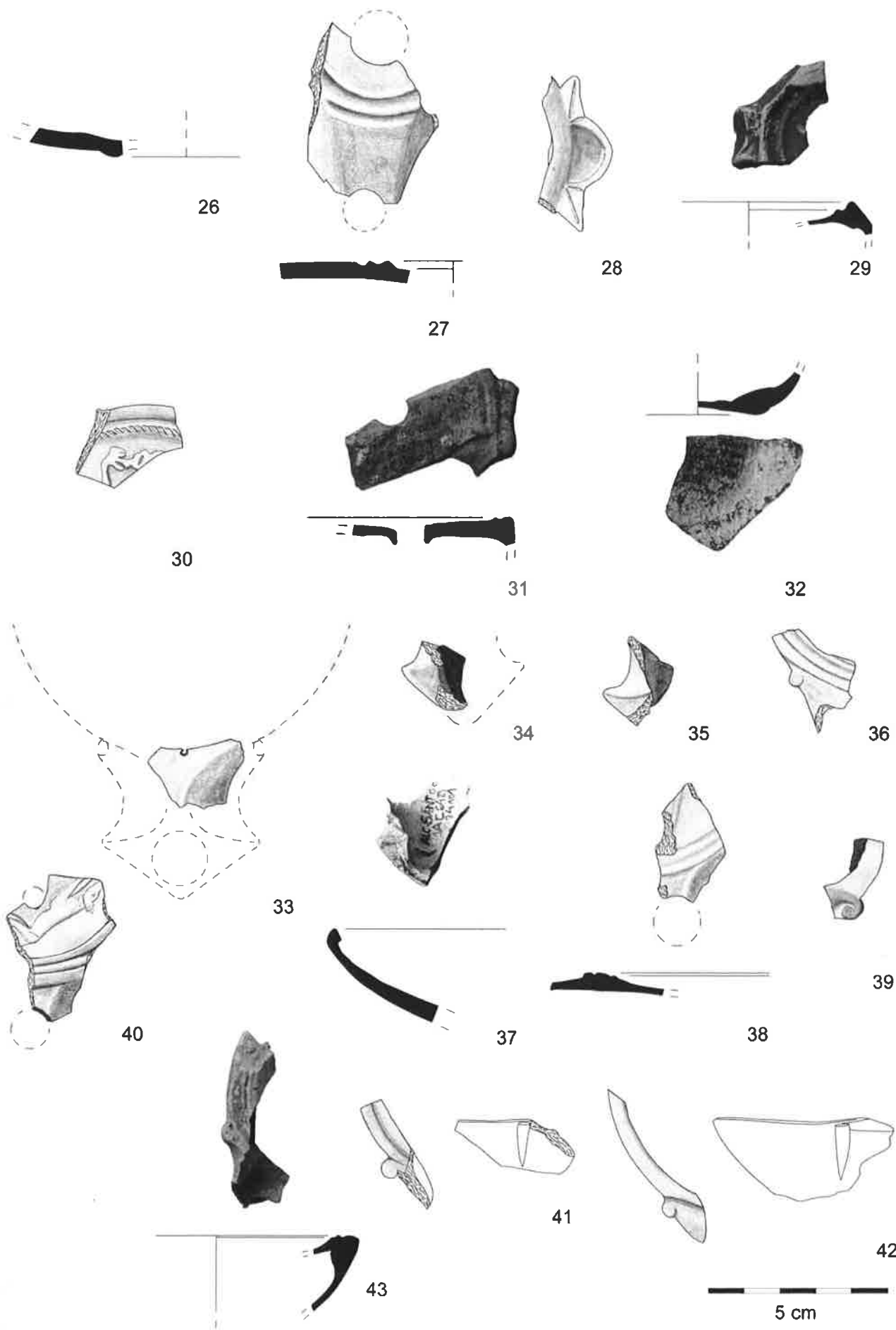


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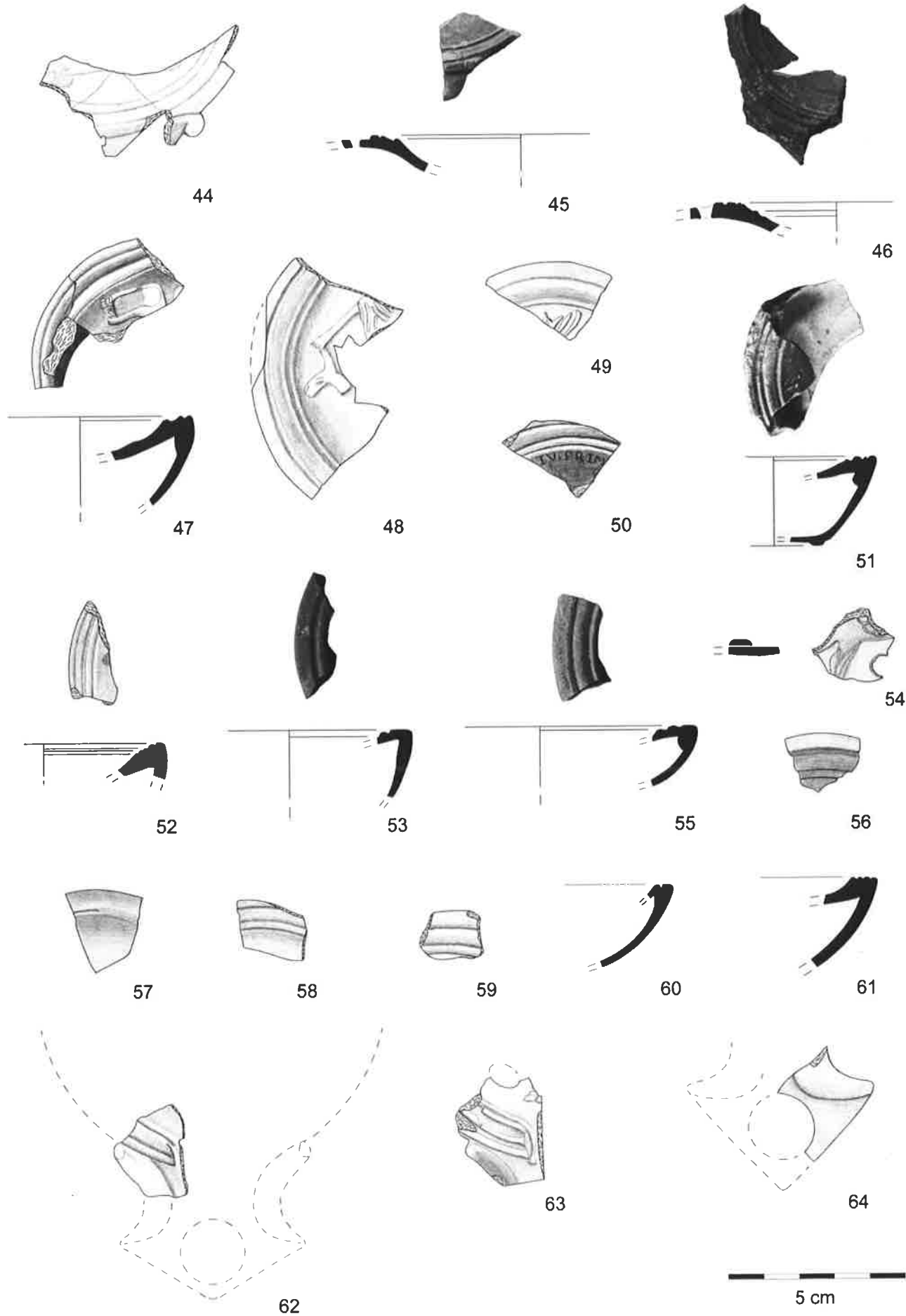


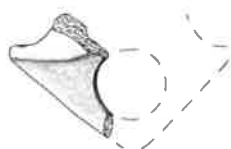
PLATE XII



65



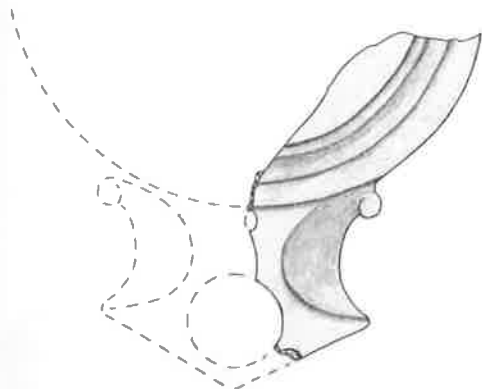
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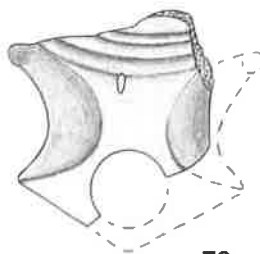
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68



69



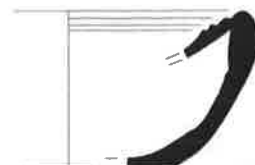
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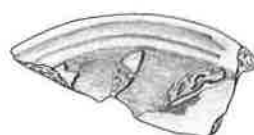
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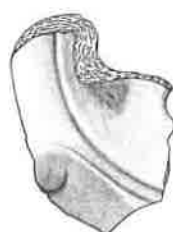
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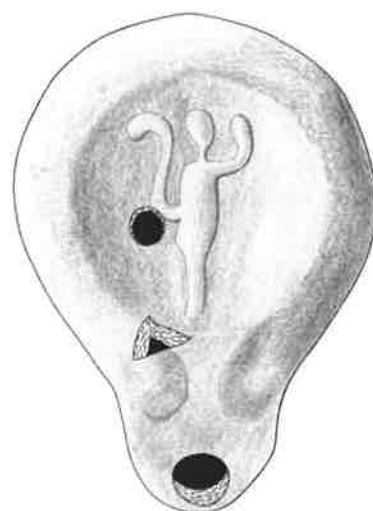
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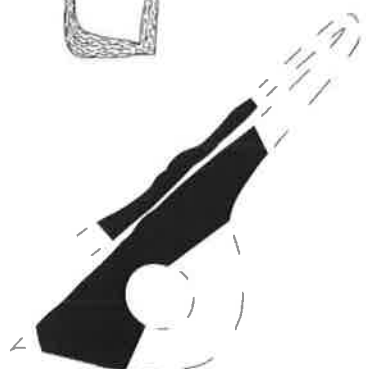
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76



79



74



77



78



5 cm

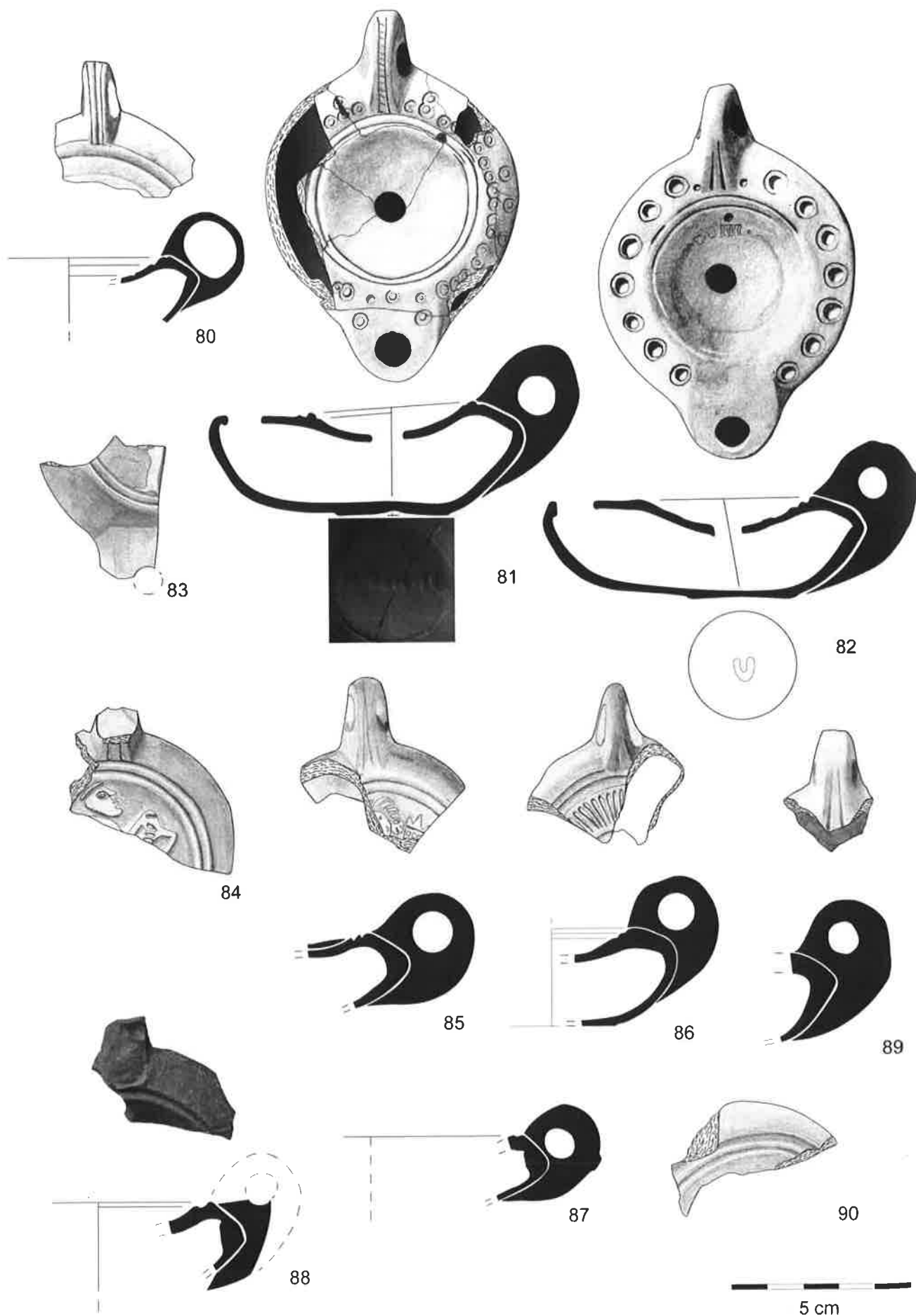


PLATE XIV

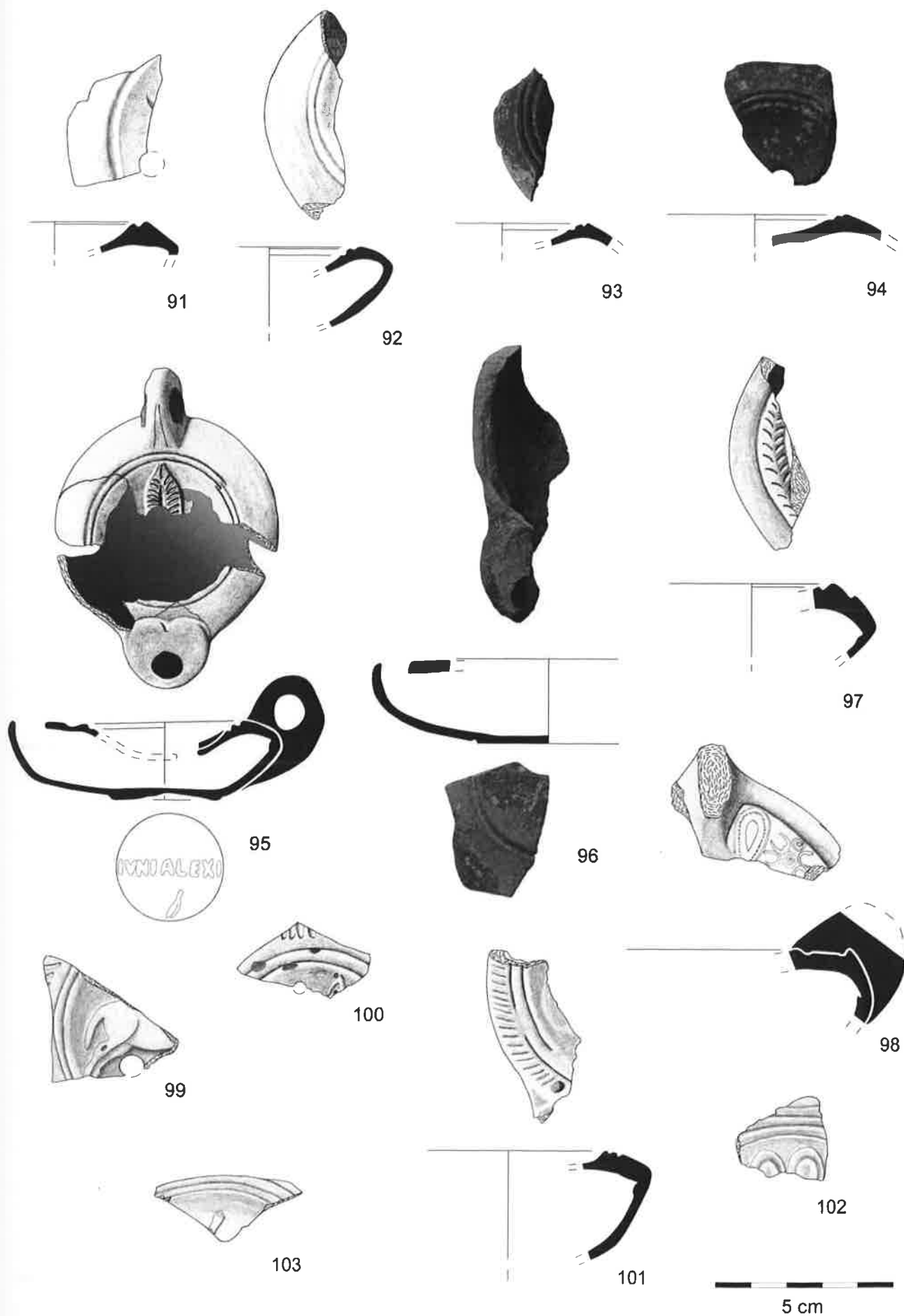
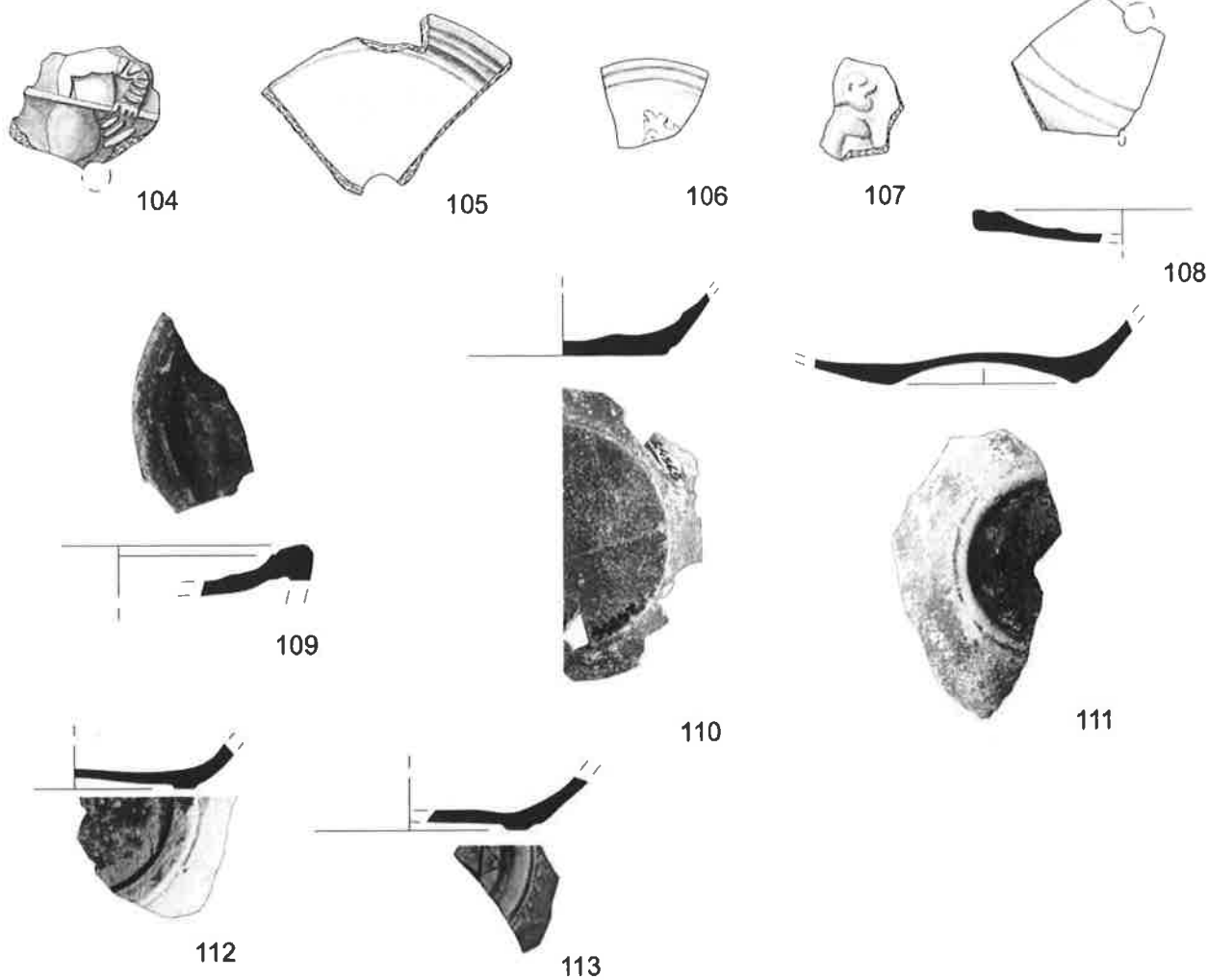


PLATE XV



5 cm



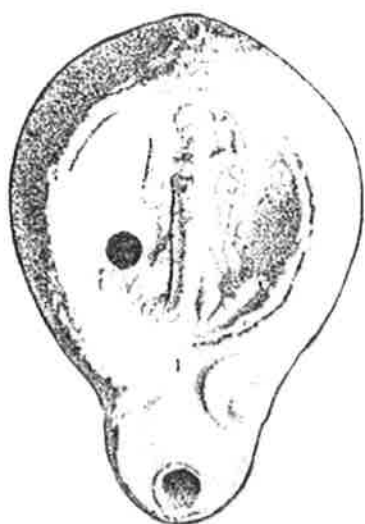
Identical sample from Golfe de Fos, France (Rivet, 2003)



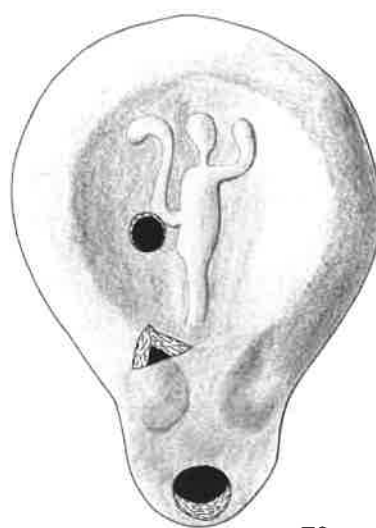
114

5 cm

PLATE XVI



Identical sample from Merida, Spain (Rodríguez Martín, 2002)



79



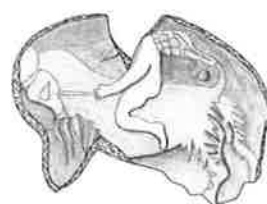
Identical sample from León, Spain (Morillo Cerdán, 1999)



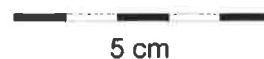
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Identical sample from Empúries, Spain (Casas-Genover & Soler-Fusté, 2006)



116

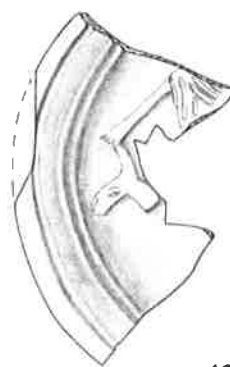


5 cm

PLATE XVII



Identical sample from the British Museum
(Bailey, 1988)



48



Identical sample from Santa Bárbara de
Padrões, Beja, Portugal (Maia & Maia,
1997)



84



Identical sample from León, Spain (Mo-
rillo Cerdán, 1999)



47

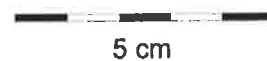


PLATE XVIII



Identical sample from Golfe de Fos,
France (Rivet, 2003)



117



118



119



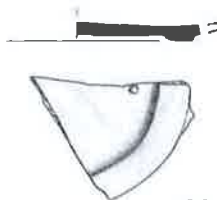
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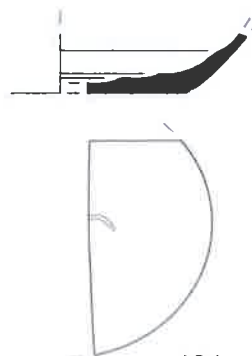
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122



123



124



125



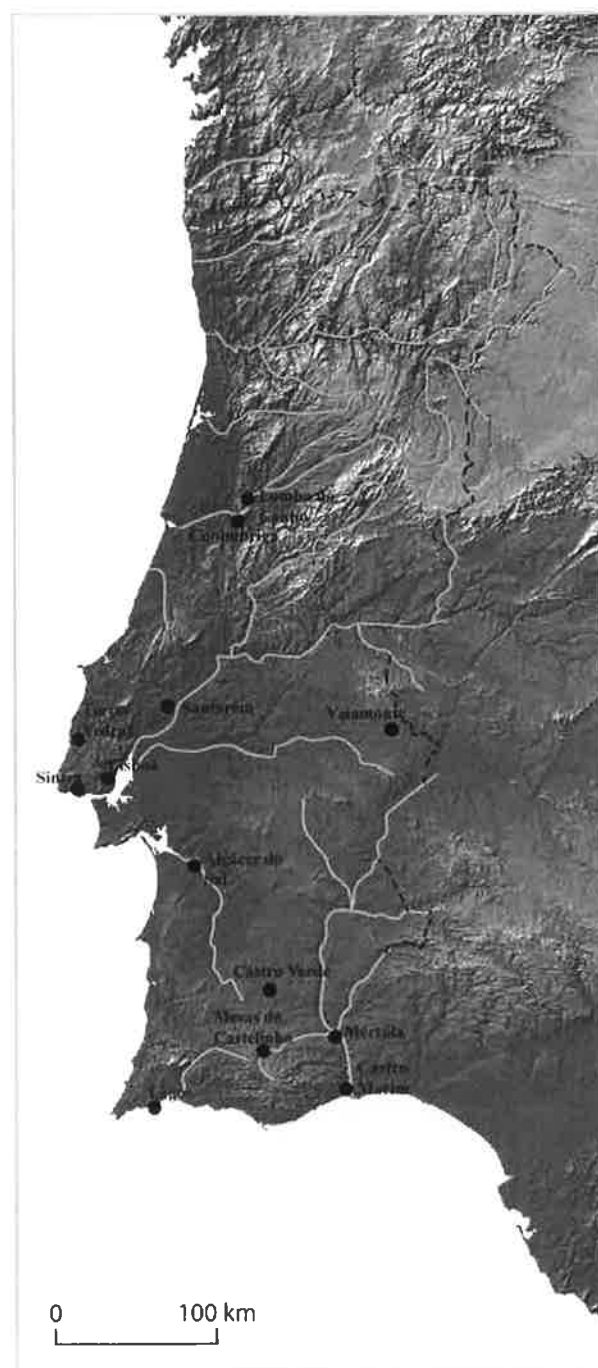
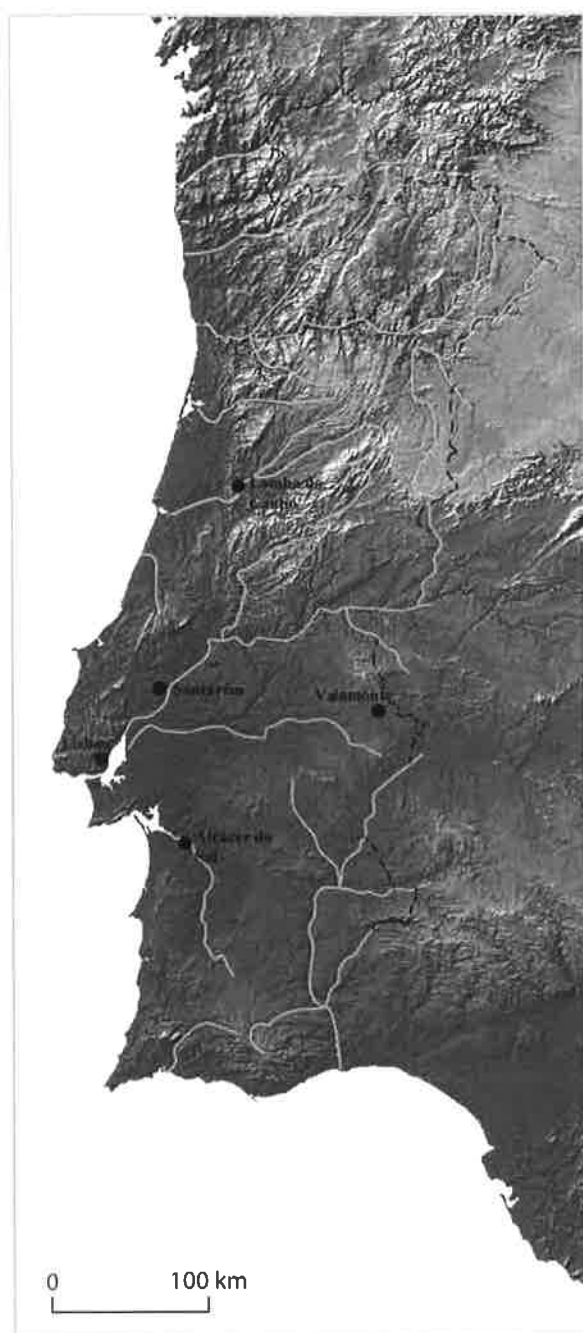
126



127



5 cm



Distribution of lamps of Hellenistic influence, on the left, and Late Republican lamps, on the right, in the Portuguese territory.

