Lusitanian Amphorae: Production and Distribution

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Inês Vaz Pinto, Rui Roberto de Almeida
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Inês Vaz Pinto,* Rui Roberto de Almeida and Archer Martin*****

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Roman Amphora Production in the Algarve (Southern Portugal)

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During the Roman period, pottery production was disseminated across the Algarve region, mainly on the coast, and in most cases it has a direct connection with fish-salting units. Somewhat fewer than ten production sites are known to have manufactured amphorae and complementarily domestic pottery and building ceramics, although on only five of them have the fabrics been studied and published. The site at Martinhal on the westernmost part of the coast deserves to be specially highlighted, since it is the only one where the dimensions of the production area are better known, and there are features that allow the evaluation of the structures that supported the production.

Most of these production centres began in the 3rd century AD and were dedicated mostly to the manufacture of amphorae to contain and transport fish products, such as types Almagro 50, Almagro 51c and Almagro 51a-b/Algarve 1.

Local production prior to the 3rd century was rare, and the only workshops known were located in the eastern Algarve, in S. Bartolomeu de Castro Marim and in Manta Rota, where a late variant of type Dressel 14 was produced.

The increase in fish salting from the 3rd century onward certainly contributed to the affirmation of the pottery production units in the region.

KEYWORDS**:** ROMAN ALGARVE; POTTERY PRODUCTION; AMPHORAE; FISH SALTING; LUSITANIA.

Introduction

Amphora production is well documented in the Algarve during the Roman period and, at least in some of the cases, is directly related to fish-salting units, a fact that does not surprise us, since they were destined to be used as containers for different sorts of fish products (Figure 1). On the other hand, pottery workshops were also associated with urban centres, namely towns, but also with rural sites such as villas. The location of Roman towns in the Algarve facilitated the direct relation with long-distance trade and the exploitation of marine resources and therefore the production of pottery containers like amphorae.

The degree of knowledge available concerning the characterization of the fabrics and the production structures of pottery workshops dedicated to the production of amphorae and complementarily domestic pottery and building ceramics is very irregular. Only five of them have been published and undergone archaeological excavations, some of which were at the end of the 19th century.

There is also evidence for other pottery production sites, but we know very little about them. Most of the pottery production units date to the late Roman period, as happens with the fish-salting units, which occur all along the Algarve coast.

1. Amphora production during the early Empire

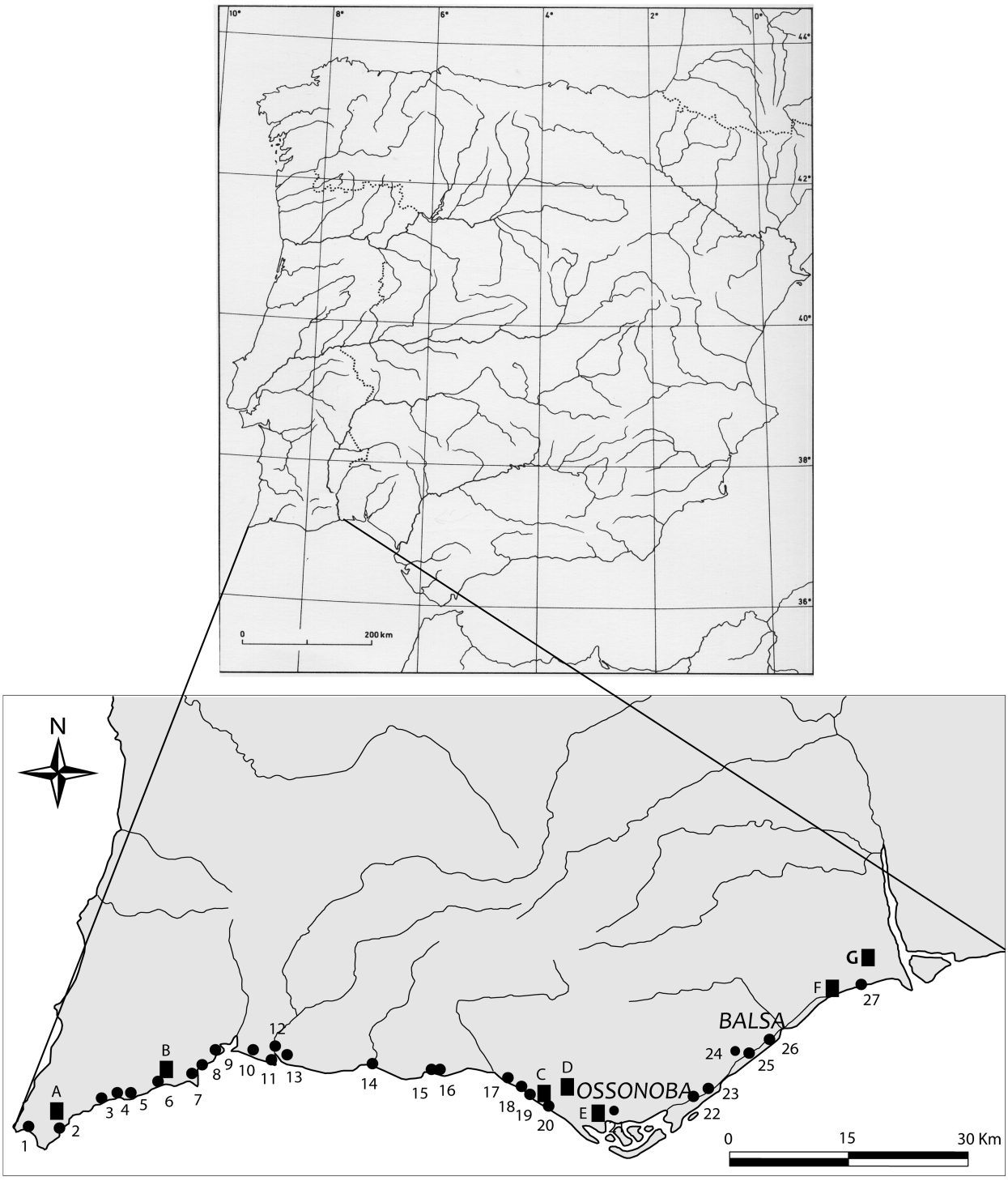
Amphora production during the early Empire is limited to the eastern area of the Algarve in S. Bartolomeu de Castro Marim and Manta Rota (Figure 1). On these two sites the production of the Dressel 14 type was identified, dated to the second half of the 1st century AD in Manta Rota (Viegas 2006), with a late variant of the same type dated to the 2nd century (Fabião 2004). Both also produced domestic pottery, and the continuity of amphora production is demonstrated by the presence of late types, such as Almagro 51c and, in the case of S. Bartolomeu, also Almagro 50.

Despite the fact that this early imperial production is documented, the truth is that the amphorae from the three Roman urban centres in the same region (Baesuris, Balsa and Ossonoba) do not show the consumption of amphorae from these two production centres (Viegas 2011). Also in the Roman Baetican town of Seville, imported Lusitanian amphorae come from the Tagus/Sado Valleys, and none of the Algarve productions is documented (García Vargas 2007). The same pattern occurs at Monte Molião (Lagos), which, however, produced fish sauces, quite possibly for domestic consumption (Viegas and Arruda 2013).

On the contrary, the presence of Baetican fish products (Dressel 7/11 and Beltrán IIB amphorae) is overwhelming in all the above-mentioned Roman urban centres in the Algarve, a reality that will be discussed later in this paper.

1.1. S. Bartolomeu de Castro Marim (Castro Marim)

The site in São Bartolomeu de Castro Marim was identified in the 19th century by the founder of the National Museum of Archaeology, José Leite de Vasconcellos (1898), who recovered a kiln and a set of ten complete amphorae. The production of a late variant of the Dressel 14 type



● *cetariae*

1 Beliche; 2 Martinhal; 3 Salema; 4 Boca do Rio; 5 Burgau; 6 Senhora da Luz; 7 Lagos; 8 Monte Molião; 9 Alvor; 10 Vau; 11 Baralha; 12 Portimões; 13 Ferragudo; 14 Armação de Pera; 15 Albufeira; 16 Praia de Sta Eulália; 17 Cerro da Vila; 18 Praia de Quarteira; 19 Loulé Velho; 20 Quinta do Lago; 21 Faro; 22 Olhão; 23 Quinta de Marim; 24 Torre de Aires; 25 Quinta das Antas; 26 Pedras d'el Rei; 27 Quinta do Muro.

■ amphorae kilns

A Martinhal; B Lagos; C Quinta do Lago; D Salgados; E S. João da Venda; F Manta Rota; G S. Bartolomeu de Castro Marim.

Figure 1. a) Map of the Iberian Peninsula with the location of the Algarve Coast; b) Map of the Algarve coast with the amphora production sites and the fish-salting workshops (*cetariae*).

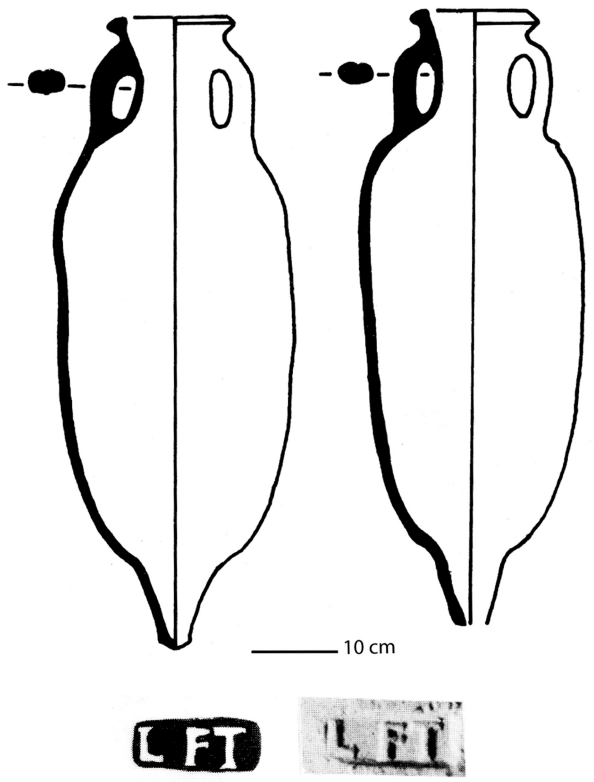


Figure 2. S. Bartolomeu de Castro Marim: Dressel 14 (Late variant) and potter stamp LFT (according to Maia 1979).

is attested, and in the 1970s a potter's stamp (LFT) was found by M. Maia when surveying the site area (Maia 1979; Alves, Diogo and Reiner 1990; Fabião and Guerra 2004: 235). This smaller variant, which is present also in the Sado production, is usually related to a later phase of the production. Comparing the canonical Dressel 14 type to the Dressel 14 amphorae of S. Bartolomeu, one should mention that the latter are generally smaller and that the neck and handles are shorter, with a well-marked shoulder (Figure 2). The designation as Dressel 14 is problematic and has already been questioned, but the inclusion of this smaller variant in the broader group of the Beltrán I is also inadequate.

According to the re-evaluation made by R. Morais and C. Fabião (2007: 131), this production may correspond to the earlier phases of Lusitanian production, from the end of the 1st century BC, and, as is evidenced on the kiln site in Morraçal da Ajuda (Peniche), they seem to be associated to quite well Romanized artisans, as the potter's stamp with *tria nomina* shows. These potter's stamps could be related to the relocation of Baetican potters, since the amphora forms find close parallels in Baetica. Amphora production continued during the late Roman period, as the typical Almagro 51c and Almagro 50 types show. The kiln with a circular plan, about 3.5m in diameter, with a central channel and a firing chamber supported by suspensurae formed by four arches parallel to each other and perpendicular to the central channel, is very similar to the kilns in Martinhal (Cuomo di Caprio's Type 4 (1971-1972)).

Petrographic characterization of the fabric was carried out by A. Schmitt, who described it as non-calcareous and orange, with numerous round nodules of reddish brown iron oxides. The author also points out that 'inclusions of small dimensions are not very abundant and consist mainly of quartz, alkaline feldspar, iron oxides, fragments of granite rock and metamorphic rock and foliated flecks of muscovite.'[1] Considering the texture and granulometry of the fabric, it is possible that it is clay with the addition of natural non-plastic inclusions (Mayet, Schmitt and Silva 1996: 160-162).

1.2. Manta Rota (Vila Real de Santo António)

The site at Manta Rota was already referenced by Estácio da Veiga (1887: 401-402) and Leite de Vasconcellos (1920). In 1992, an emergency excavation was done prior to the construction of a tourist development, close to the Manta Rota beach, with Cristina Tété Garcia directing the archaeological work. The available data point to an occupation ranging from the middle of the 1st until the 5th century AD. It was possibly the location of a Roman villa, since fragments of mosaics were identified on the site (Viegas 2006). The director of the excavation mentions the structure of a kiln that was partially dug, but the lack of clear graphic and photographic archaeological documentation suggests caution in reading such information. Despite this, the morphological features of the Dressel 14 identified (Figure 3) and the fabric shared by the set of amphorae that were recovered lead us to consider them to be of local production. Chemical analysis of the Manta Rota pottery has shown that they are a homogeneous set from the point of view of the chemical characterization of the clay, proving, if any doubts subsisted, that this was a production centre (Dias *et al.* 2009). Besides amphorae, this workshop produced coarse wares that share the same fabric of the amphorae. The archaeological materials indicate that production continued in the late Roman period, with Almagro 51c amphorae (Viegas 2006) (Figure 3). The coastal location of the possible maritime villa, as well as the characteristics of the materials found there, suggest that there were fish-salting vats, which if confirmed, would be another example on the Algarve coast of a model of an establishment that associates the production of amphorae with processing units for fish products.

According to macroscopic observation of the amphora fabric, they were produced with non-calcareous, reddish yellow clay (Munsell 5-7.5 YR 6/8) with about 15/20% of inclusions such as small and very abundant, well-rounded quartz (Viegas 2006: 187).

As mentioned above, the chemical characterization of the Manta Rota fabric was carried out by the team directed by Isabel Dias and obtained by Neutron Activation Analysis in the Instituto Tecnológico e Nuclear (ITN) in Sacavém, Portugal (Dias *et al.* 2009). The results showed that most of the samples belong to a single group, although some

[1] Our translation from the original French text.

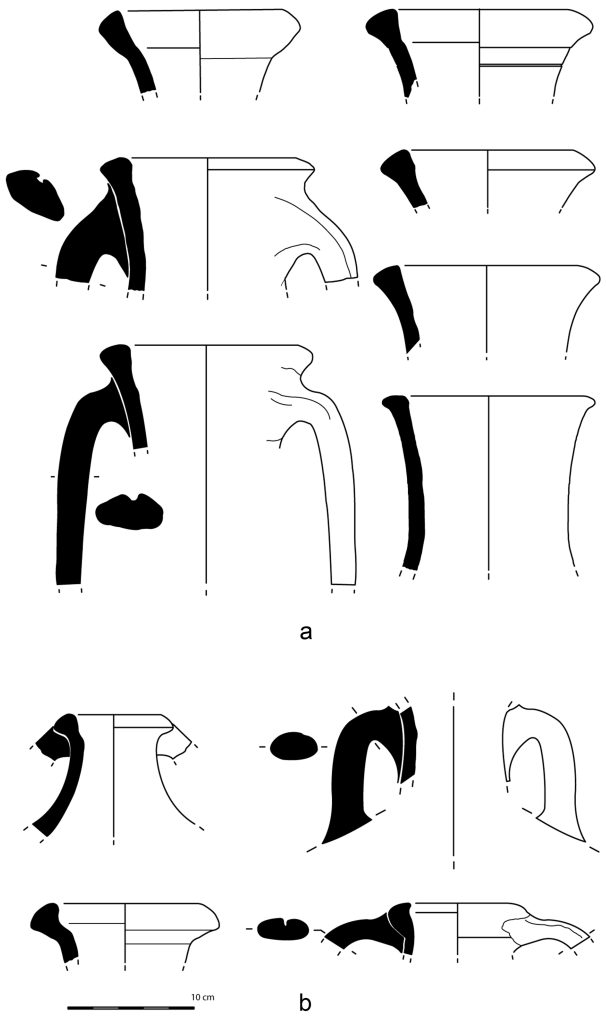


Figure 3. Manta Rota: a: Dressel 14; b: Almagro 51c (according to Viegas 2006).

of the pieces of Dressel 14 and Almagro 51c showed some deviations (Dias *et al.* 2009: 88). Mineralogical composition was examined by X-Ray diffraction and spectrometry, pointing to '(…) a relative homogeneous composition, mainly with quartz, plagioclases, k-feldspars, phyllosilicates, micas, iron oxides (hematite), and traces of carbonates (calcium and magnesium rich).' (Dias *et al.* 2009: 88).

2. Late Roman period

From the 3rd century AD onwards, amphora production spread to the entire Algarve coast, including its extreme western part. As has already been mentioned, both kiln sites in the eastern Algarve (São Bartolomeu de Castro Marim and Manta Rota) maintained their activity during the late Roman period and produced Almagro 51c amphorae. This is also one of the most representative amphora types in the pottery workshops on almost all the sites studied, sometimes along with Almagro 51a-b / Algarve 1 or Almagro 50. The exception to this constant presence of Almagro 51c could be S. João da Venda, where the single Almagro 51c fragment recovered may have come from another site.

2.1. São João da Venda (Loulé)

There is very little information about the way the amphora production centre was integrated into the site of S. João da Venda, which was excavated by Santos Rocha in the late 19th century (Rocha 1975: 160-161) and reinterpreted almost a century later (Fabião and Arruda 1990). Its relatively inland location may be more apparent than real if we take into account the change of the coastline in this area in recent centuries. In effect, considering the existence of the palaeo-estuary of the Ribeira de S. Lourenço, which justified that one of the major seaports in the central Algarve, known as the port of Farrobilhas, was located here in the 16th century, S. João da Venda would have been very close to the northern shore of this ancient estuary. This situation is similar to what would have happened to the even more unknown site in Alfanxia, also located at the end of a branch of the Ria Formosa. The fact that Santos Rocha dug a possible pottery discard area that was quite distant from the objectives of his archaeological exploration in the Algarve region led him to pay little attention to the site, whose exact location remains unknown. Judging from the fragments collected and deposited in the museum of Figueira da Foz, the production consists almost exclusively of amphorae of the Almagro 51a-b /Algarve 1 type (Figure 4), although, given the characteristics of the Algarve pottery workshops, other forms could have been produced, namely Almagro 51c. However, the only fragment of this form that was found there does not allow the inference that it belonged to the local production (Fabião and Arruda 1990). In any case, there is no doubt about the late date for the products of S. João da Venda, which may not be earlier than the 4th or even the 5th century.

The fabric of the amphorae in S. João da Venda was described by C. Fabião and A. M. Arruda (1990) as having a red colour (Munsell 2.5 YR 5/8) and a granular texture with abundant inclusions consisting of rounded and sub-rounded white and grey grains of quartz of about 3 to 4mm; sub-rounded inclusions of quartzite; fragments of shell; iron oxides (?) and sand inclusions with abundant black grains and rare flecks of mica. The outer surface was covered with a very pale brown slip (Munsell 10YR 8/4) that covers the granular texture of the fabric (Fabião and Arruda 1990: 217).

2.2. Quinta do Lago (Loulé)

Quinta do Lago is another Roman pottery production centre that would have been located on the estuary of the Ribeira de S. Lourenço, on its right bank. Almost in front of it, on the opposite side, was located the Salgados site, that was not excavated but shows clear evidence of pottery production.

The site at Quinta do Lago, subject of a preventive excavation in 1984 by researchers of the UNIARQ research centre (University of Lisbon), has a long range of occupation from the 1st century AD until the Islamic

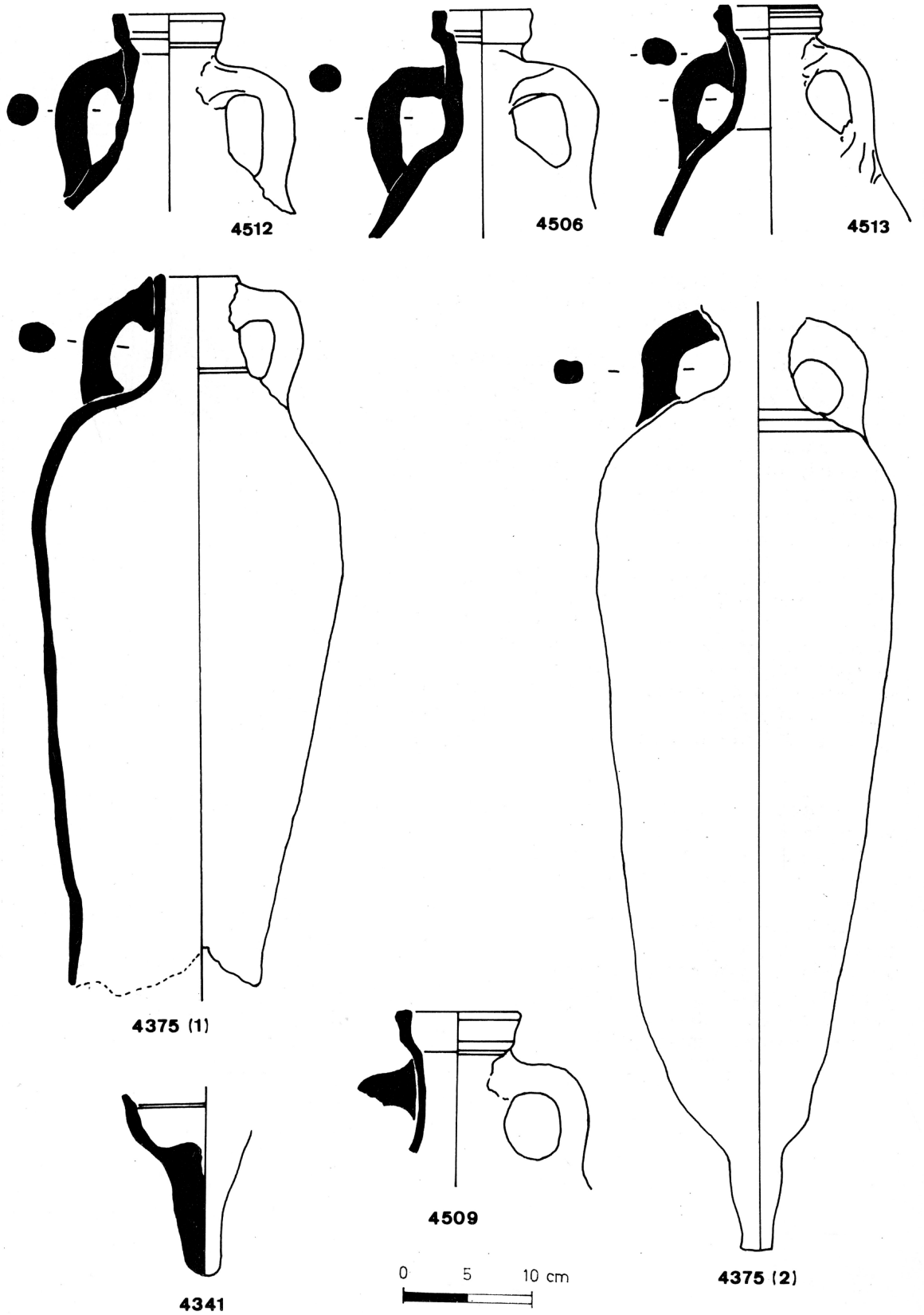


Figure 4. S. João da Venda: Almagro 51a-b (Algarve 1) (according to Fabião and Arruda 1990).

period (Arruda and Fabião 1990). On this site, the direct association of a pottery workshop with a fish-salting unit is clear, possibly integrated in a Roman villa, in a situation similar to Manta Rota. The amphorae produced were mainly Almagro 51c, although some pieces can be assigned to Almagro 50 (Figure 5). There is also evidence of objects related to production such as cylindrical supports, made in the same fabric as the amphorae.

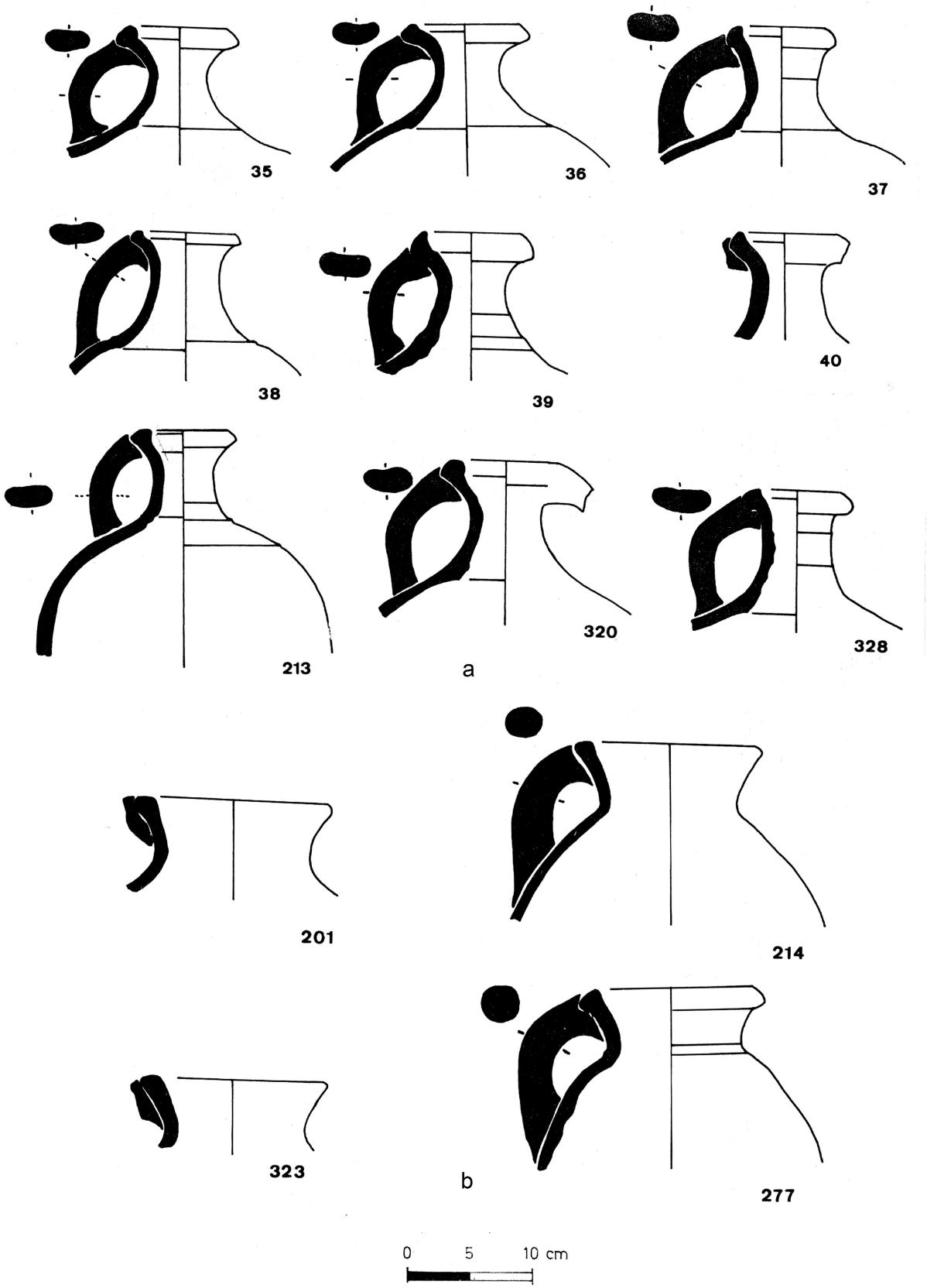


Figure 5. Quinta do Lago: a: Almagro 51c; b: Almagro 50 (according to Arruda and Fabião 1990).

The fabrics of the amphorae at Quinta do Lago have also been analysed by A. Schmitt, who described them as being orange in colour, dotted with white inclusions of medium size (17%), observing numerous grains of quartz and alkaline feldspar, mica and rounded calcite nodules, with occasional amphiboles in some samples (Mayet, Schmitt and Silva 1996: 160).

2.3. Martinhal (Vila do Bispo)

The Roman pottery workshop in Martinhal, today located on the cliff on the eastern side of Martinhal Beach, is decidedly the largest pottery production centre in the Algarve region, with nine amphora kilns and one kiln for ceramic building materials identified.

The first campaign of excavations took place in 1986 (Silva, Coelho-Soares and Correia 1990), followed by others, in 2006, 2008 and 2011 (Bernardes 2008; Ramos, Ferreira and Nunes 2010; Bernardes *et al.* 2013). As seen in Quinta do Lago, despite the evidence of an earlier occupation, testified by various pottery remains, mosaic fragments and painted plaster that may have belonged to a Roman villa, the pottery production lasted from the 3rd until at least the 5th century. The kilns, which are nowadays gradually being swept away by erosion of the cliff, where they stand in a row, have an oval plan with a central corridor. The combustion chamber was fully or partially excavated into the bedrock, with four or five arches, parallel to each other and perpendicular to the channel, supporting the firing chamber. These kilns are of Cuomo di Caprio's Type 4 (1971-1972).

Besides its overall dimension, one of the most relevant features of this pottery production centre was the identification of its *officina*, formed by a building 42m long and 11m wide, with several compartments and a huge water cistern that collected and stored rainwater.

To the west of this building there were two fish-salting vats that still preserved the remains of fish sauces and that repeat the association with amphora production already seen in other contexts (Ramos, Ferreira and Nunes 2010). Most of the production was centred on variants of Almagro 51c and 51a-b; in lesser quantity, forms similar to Keay 25 and Almagro 50 were also produced (Figure 6). Sado 1, Variant A, previously mentioned as a form produced in Martinhal, should be classified within Almagro 50, reflecting the low standardization of the local production. All the identified types are late (Bernardes *et al.* 2013). As far as the type of amphora that in previous publications was classified as a late Dressel 14 (and also designated as Martinhal 1) is concerned, it should be highlighted that the resemblance of this type with Subtypes 2/3 of Keay 25 has already been proposed by the authors (Bernardes *et al*. 2013: 320, fig. 5). Besides the typological features, such as the thickened, sub-rounded rim and the conical and elongated neck, the handles are ear-shaped and oval in section. A review of all the available data led us to evaluate this resemblance to the African type as a sign of African influence in the workshop, and in consequence the previous designation of late Dressel 14 should be rejected and abandoned. Another aspect that should be taken into account is the date range of the production in Martinhal. In fact, there is no evidence for earlier amphora production, and everything indicates that it is a phenomenon of the late Roman period.

In these kilns, the production of coarse ware is also attested, but, as is the case in Manta Rota, this is a secondary production that complements the amphora manufacture (Bernardes *et al.* 2014).

The fabrics of the Martinhal amphorae, already well characterized (Mayet, Schmitt and Silva 1996: 156-158; Bernardes *et al.* 2013), are orange in colour with coarse inclusions consisting of grains of quartz, feldspar and other abundant inclusions. These fabrics are also marked by the presence of numerous reddish or white nodules that correspond to iron oxides or lime/calcareous particles.

The following sites of Salgados (Loulé) and Lagos share some evidence of pottery workshops, such as over-fired fragments of amphorae and burnt bricks, although no kilns were recovered. The development of research into the characterization of the amphorae produced, from the typological point of view and that of their fabric, will surely allow a better understanding of their relationship to other products in the Algarve.

2.4. Salgados (Loulé)

The site was identified during field survey in 2004, at the edge of the ancient estuary of the S. Lourenço, almost in front of the Quinta do Lago amphora-production unit. It was never the object of excavations but, on the slope close to the bank of that ancient estuary, there is a structure with burnt bricks associated with a thick ash layer and fragments of coarse ware, as well as amphorae (Almagro 51a-b and 51c), some of which are deformed due to over-firing (Bernardes *et al*. 2007).

As at the site of Quinta do Lago located on the opposite side of the estuary, the Salgados site has remains ranging from the middle of the 1st century AD (namely marbled South Gaulish Sigillata), despite the amphora production being of a later phase.

2.5. Lagos

During the excavation of a fish-processing unit in Rua Silva Lopes, in Lagos, several fragments of Almagro 51a-b and 51c amphorae that were deformed and showed cracks in the fabric were recovered. This led the excavators to admit the possibility that in the proximity there had been a kiln that produced amphorae specifically to supply that production unit (Ramos and Almeida 2005). Later, the urban intervention in the framework of the URBCOM Project allowed the documentation of new evidence of the same nature, increasing the number of deformed and over-fired fragments of Almagro 51a-b/Algarve 1 and Almagro 51c amphorae. Despite the scarcity of the data available, we should admit the hypothesis already formulated by C. Ramos, R. Almeida and T. Laço (2006) and C. Fabião, I. Filipe and S. Brazuna (2010) not only of this area being an amphora-production centre but also that it was destined for exportation.

The contexts that were excavated point to a late date for amphora production in Lagos, situated between the 4th

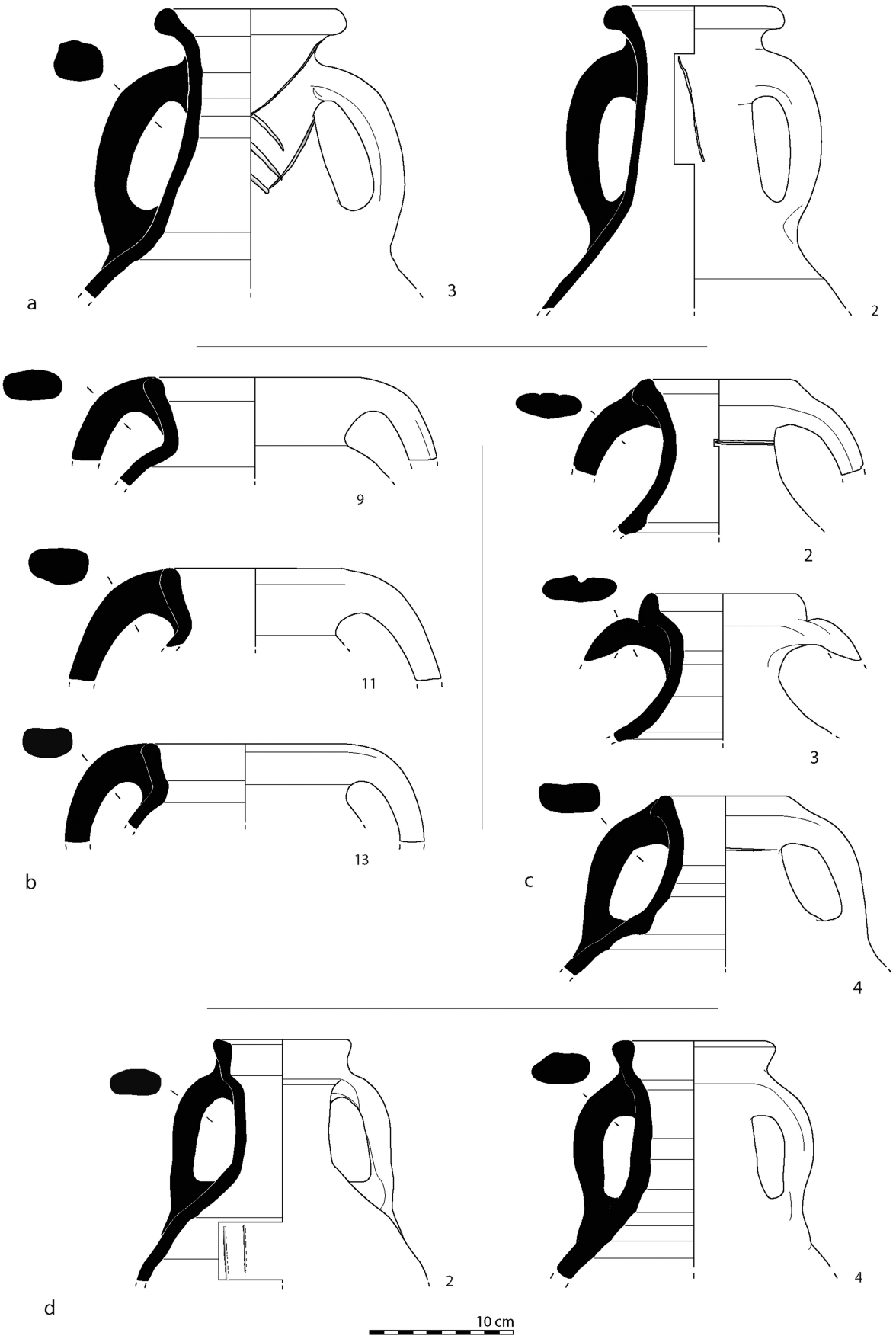


Figure 6. Martinhal: a: Keay 25 (=Martinhal 1); b: Almagro 50/Keay XXII (Martinhal 2); c: Almagro 51c (=Martinhal 3); d: Almagro 51 a-b (Martinhal 4) (based on Bernardes *et al.* 2013).

and the 6th centuries. It should also be mentioned that all the archaeological works that have been undertaken in the historical centre of Lagos, between Ribeira das Naus and Touros, have detected fish-salting units. As far as the fabric characterization of the amphorae described for the Lagos production is concerned, they are 'orange-red in colour, with abundant well-rolled grains of quartz, grog, marine microfossils and large lime/calcareous nodules' (our translation from Fabião, Filipe and Brazuna 2010: 324).

2.6. Other possible production centres

Balsa (Torre de Aires, Tavira)

Amphora production in Balsa can only be assumed, as specific data are practically non-existent. Indeed, a single over-fired fragment seems insufficient to ensure the presence of a pottery centre in the town, although this possibility seems very likely in many respects, namely considering the location of fish-salting factories in the town area (Fabião 2004: 400; Viegas 2011: 282-284). This possible production would have been dedicated to Almagro 51c and would presumably be dated to the late Roman period.

Alfanxia (Moncarapacho, Olhão)

The information available about this site is scarce and unclear. Structures of kilns associated with Almagro 51a-b amphorae have been reported, although with caution (Mascarenhas 1974; Fabião 2004: 400). As in the case of S. João da Venda, its location further inland is only apparent, since in Antiquity it would have been near the bank of the estuary of the small Tronco River.

Its geographical position, close to a small stream, is a model for the location of several Algarve pottery workshops, close to the fish-salting units they supplied, either nearby or downstream from the pottery centres.

Final Remarks

The data that have been presented should be discussed considering also the available information on the fish-salting units.

First, we want to highlight the scarcity of amphora production during the early Empire. This situation can be related to the almost total absence of fish-salting units in the first two centuries of our era. In fact, the great majority of these units are the result of old excavations and rarely present stratigraphic data, and the structures are usually attributed to the late Roman period. In the Lagos area, the fish-salting unit identified in Rua Silva Lopes is indicated as being earlier (from the middle of the 1st century AD), as suggested by the archaeologists (Ramos and Almeida 2005; Almeida and Moros Diaz 2014), although the early materials may not have been directly connected with the fish-salting unit but were probably related to an earlier occupation of the area with a different function.

On the other hand, there is specific data on fish salting in Monte Molião (Lagos), but in this case it was interpreted as a domestic activity, destined for local supply and therefore would not have needed to be contained in amphorae (Viegas and Arruda 2013). Also in Monte Molião, there is evidence of two fish-salting vats in an area that was subject to preventive archaeological work (Bargão 2008). Unfortunately, the limited area excavated makes their integration difficult, even though those structures were assigned to an early imperial date.

Other coastal sites related to fish salting, such as Boca do Rio and Loulé Velho have also provided finds of the 1st century AD, although frequently without clear archaeological contexts and it is difficult to relate them to the productive structures, which are usually dated to the late Roman period. As far as these data are concerned, and despite the fact that late Roman rebuilding may have erased evidence of previous phases, it is a fact that fish salting reached a significant level from the 3rd century onwards and that production from the first centuries of our era was less expressive, as it could not compete in the face of the fish-products industry from the Cadiz and Malaga regions.

All this suggests that the supply of salted-fish products, either to towns or to rural sites, would have been obtained through imports mainly from Baetica. This situation would explain the abundance of Gaditan amphorae, specifically the large number of Beltrán IIB present in residential areas, a reality that is directly related to what happened in previous moments, in the Iron Age and during the Roman republican period. In fact, there is a long-term tradition of the consumption of Ulterior/Baetican products in the Algarve, which is shown by numerous amphora imports in earlier times. Despite that, the manufacture of amphorae during the early Empire is demonstrated in the eastern Algarve, both in S. Bartolomeu de Castro Marim and in Manta Rota, in this case probably related to a maritime villa. In both situations, despite the specificity of the typological details, they belong to the Dressel 14 form. From the end of the 2nd and the 3rd century AD onwards, imports from Baetica remain very important in the Algarve, but now with the presence of Keay 16 amphorae, in a process that follows the previous tradition. These amphorae, which frequently present potters' stamps also known on building materials (*tegulae*, *lateres* etc.), are manufactured in calcareous fabrics, and besides being present in consumption centres, they occur abundantly in the fish-salting units, such as Quinta do Marim (Silva, Soares and Coelho-Soares 1992) and Portimão (Santos 1974-77). This fact must be explained in the framework of a broader regional economy that stretched over both banks of the Guadiana River, with the supply of ceramic products from the Gaditan region (both amphorae and coarse wares) to the Algarve following a preceding tradition, which suggests that amphorae, coarse ware and building materials would have been usual goods on these supply routes.

During the late Roman period, there is abundant evidence of the increase in amphora production, which extended now to the western limit of the region. Yet the diversity

of situations on these amphora production sites does not allow us to propose a single interpretative model.

In fact, some kiln sites developed in close connection with fish-salting units, in the framework of maritime villas (or other kinds of coastal settlements), as seems to be evident at Quinta do Lago and very probably also at Manta Rota. In these cases, the size of both the productive structures suggests a relatively limited production, which favours the hypothesis of an almost exclusively local consumption, a fact that, as we shall see, was also documented in the consumption in urban centres. However the full production capacity of these production units is not known.

The close connection of kiln sites with fish-salting units was also attested in Lagos and Martinhal, although in a different way. In fact, at the first site there is a concentration of fish-salting units in a relatively small area, fully overlapping the area of the known Roman occupation in this town, meaning that we are in a relatively large production centre. Therefore, the products of these production units were certainly intended for export.

At Martinhal, the pottery production area was vast, including ten kilns (nine amphora kilns and another one for tiles) and several features related to manufacture, and attached to the pottery workshop there was also a fish-salting unit, whose dimension it was not possible to determine. The association with a maritime villa is also possible, since there is evidence of mosaic fragments and painted stucco, although they may belong to a phase previous to the pottery workshop.

In fact, this model of maritime villas connected with the exploitation of marine resources and pottery workshops is evident in the Algarve, such as in the case of Manta Rota. However, there are other smaller sites that are not villas and where the pottery workshops are not always associated with fish-salting units. As far as the consumption patterns of foodstuffs in the urban centres of the eastern Algarve are concerned (Ossonoba and Balsa), they show that there was a profound change in the regions that supplied foodstuffs to the southern Lusitanian towns during the period between the 3rd and the 5th centuries (Viegas 2011).

In effect, judging by the amphorae present in the archaeological record, the province of Baetica was the major supplier of foodstuffs in this period, despite the evidence of fish-salting units all over the Algarve coast. The imports of amphorae that transported fish products from Baetica are a reality, although Lusitanian products are also represented (not only the ones that were produced in the Algarve, but also the ones from the Sado and Tagus Valleys). On the other hand, North Africa exported olive oil, and possibly also fish products, to southern Lusitania (Algarve). As far as rural sites are concerned, there are not enough published data to evaluate the weight of Algarve amphorae on these sites compared to imports.

In the current state of knowledge on the production of amphorae in the Algarve region, it appears that, from the point of view of the types produced, this region has some particularities that are worth noting. The absence of amphora production during the Roman republican period must be stressed, and there is no clear evidence of the earlier imperial types, which suggests a relatively late start for amphora production in southern Lusitania. New data recently recovered in Monte Molião may introduce a different perspective on this subject (Arruda and Viegas forthcoming). Dressel 14 amphorae produced in the Algarve, in S. Bartolomeu de Castro Marim and Manta Rota, have specific typological details that differentiate them from the Sado and Tagus examples and traditionally have been associated with the latest moments of this model. Yet, R. Morais and C. Fabião (2007) have suggested more recently that the presence of a potter's stamp with *tria nomina* in S. Bartolomeu de Castro Marim could indicate an earlier phase of the Algarve production, even though its specific characteristics are still difficult to define.

The absence of production of amphorae destined for wine or olive oil transport should also be noted, despite the fact that olives and wine are a reality in the region, as well as wine and olive presses, present on several sites, particularly in Milreu (Teichner 2008).

During the late Roman period, the most common amphorae that were produced in the Algarve correspond to Almagro 51c and also Almagro 50, but there are also other types that seem to be exclusive to the Algarve, as seems to be the case of the recently designated Algarve 1 type (Almagro 51a-b), that was possibly produced in Lagos (Fabião, Filipe and Brazuna 2010). In Martinhal, in the largest production centre in the Algarve, other forms may also occur, such as the Keay 25 type, which may be seen as a sign of African influence in this production. This influence was attested also in southern Baetica, as was documented by E. García Vargas (1998) and D. Bernal (2000). It must be highlighted that in the final phase of production, which is situated in the second half of the 5th century, the low standardization of the amphorae may be characteristic – a feature of this *officina*.

The distribution of Lusitanian amphorae in the domestic market or for exportation, either for the Mediterranean or the provinces of the North or the *limes* of the Empire, is still to be correctly determined and should see further development in the near future. In fact, besides the difficulty for foreign authors in recognizing Lusitanian amphora fabrics and forms, we should also point the impossibility, in many cases, of differentiating between products from the Tagus and the Sado and Algarve products. It has already been mentioned that these products are absent from the Lusitanian assemblages that have been identified in the city of Seville (García Vargas 2007). In the late Roman period, there must have been a significant change, when the amphorae produced in the Algarve were also used locally, as is the case for the Almagro 51c and Algarve 1 from Vale da Arrancada (see Fabião, Viegas and Freitas, in this volume), and even exported abroad.

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