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AMPHORAE IMPORTS IN SOUTHERN *LUSITANIA* (ALGARVE)

Recent evidence from urban sites: the Roman town of *Balsa*

1. Introduction

In recent years our research has focused on southern Portugal (specifically, on the Algarve region), which, in Roman times, was part of the province of *Lusitania*. The ongoing research project is centered in the study/analysis of different pottery categories from a number of different excavations that have taken place at the sites of Roman towns such as ancient *Ossonoba* (today Faro) and *Balsa* (Torre de Ares) or at the sites of smaller urban settlements, such as the ancient *Baesuris* (today Castro Marim) (**fig. 1**). There was a clear option to focus on materials found at these sites and deposited in the Town Museum in Faro and in the National Museum of Archaeology in Lisbon.

At the end of the 19th century Estácio da Veiga identified the site of the Roman town of *Balsa*, where now stands a farm called Torre de Ares[1]. To confirm this hypothesis, a number of discoveries were taken into consideration. The ruins of a bath building, of a fish sauce «factory» and the types of construction material found on the surface suggested an ancient Roman town. The location was also consistent with the distances between towns given by the written sources, such as the Antonine Itinerary, and with the epigraphic data[2]. Pottery, glass, coins, mosaic fragments, inscriptions and other materials, recovered in the 19th century, are stored at the National Museum of Archaeology in Lisbon.

In 1977 there was an excavation campaign in Torre de Ares (*Balsa*), by M. and M. Maia[3], which focused on three separate sectors. In sector 1, remains of the water supply or drainage system of the Roman town were found. In another area (sector 2) a fish sauce factory was partially dug, and some other structures belonging to a possible residential area were also identified at sector 3[4]. Unfortunately there are no preserved levels since every stratigraphic unit shows ceramics from the 1st until the 3rd or 4th century AD (South Gaulish sigillata along with ARS wares, etc). This was mainly due to intense agricultural activity at the site. Also, there is evidence of occupation in medieval times (late Islamic and medieval Christian periods, ranging from the 12th to the 14th century), as well as of more recent «disturbances» in the fish sauce factory area.

In 1994, J. Nolen published a monograph in which the Estácio da Veiga materials were presented (mainly from the necropolis), as well as a small quantity of the pottery selected from the 1977 excavation. Fine wares (terra sigillata

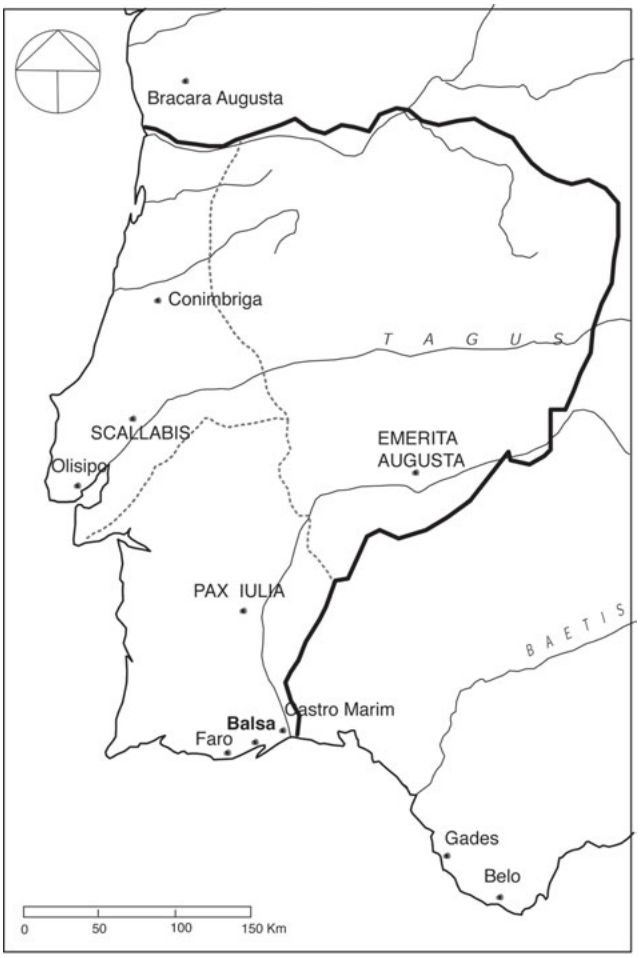

Fig. 1. The limits of *Lusitania* and *Balsa* location (Torre de Ares-Tavira) in southern Portugal.

1 S. M. P. E. Veiga, Povos Balsenses (Lisbon 1866).

2 M. L. E. V. A. Santos, Arqueologia Romana do Algarve (Lisbon 1971). For the epigraphy of *Balsa*, which shows a wealthy elite and is the only testimony for some of the town monuments such as the circus, see J. d'Encarnação, Inscrições romanas do *conventus pacensis*: subsídios para o estudo da romanização (Coimbra 1984).

3 No publication was produced and the only information available is the tags with the pottery bags and the report of the archaeological works carried out, available in the Portuguese Institute of Archaeology. M. G. P. Maia/M. Maia, Relatório da Campanha de escavações realizada em Torre de Ares (Tavira) entre 24 de Outubro e 25 de Novembro de 1977 (Lisbon 1978).

4 The total area of excavation wass about 350 sq. m. but in some areas the excavation only reached surface levels.

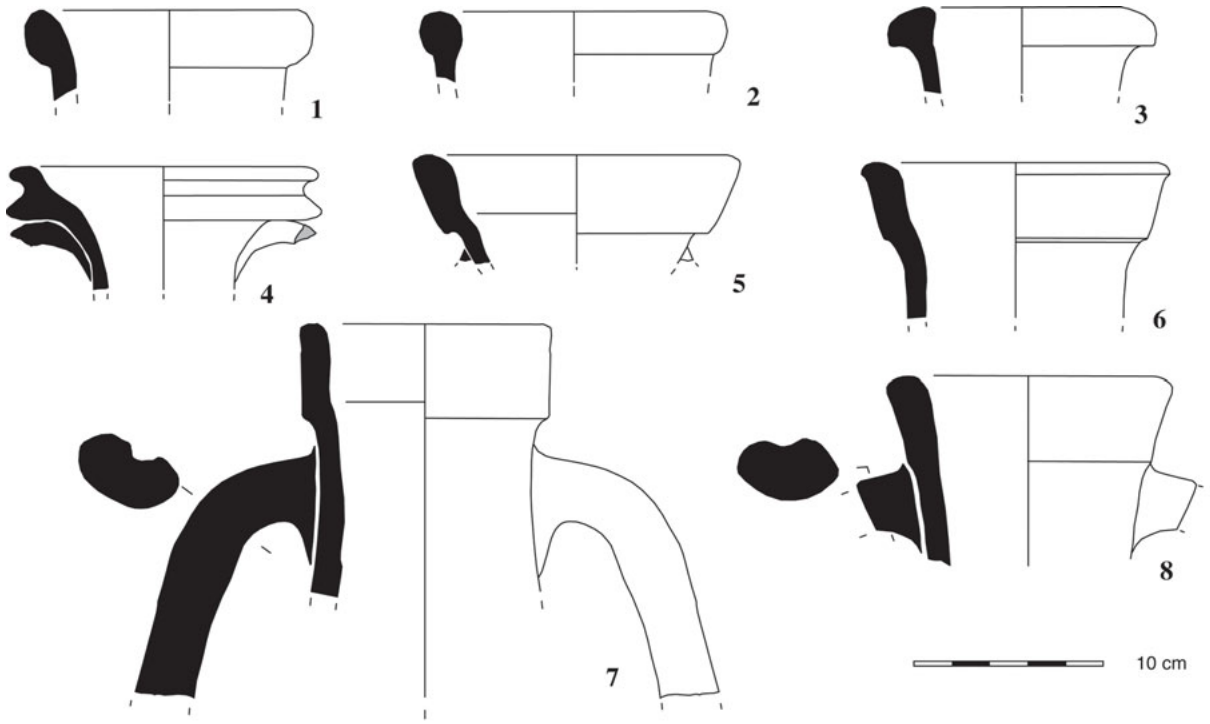

Fig. 2. 1–2 Dressel 2–4 (Italian); 3 Gauloise 4 (Gaul); 4 Dressel 28 (Baetican); 5–8 Haltern 70 (Baetican). Scale 1:4.

and thin walled wares), local/regional and imported coarse wares and glass objects were also a part of this publication. It also included 43 rim-sherds and five amphora stamps studied by C. Fabião[5]. A systematic inventory and detailed study of the pottery from this excavation is now in progress by the author, as part of the research project mentioned above.

2. Terra sigillata imports from *Balsa*

The study of the terra sigillata has already shown that the site was supplied with the main types of terra sigillata: Italian type, South Gaulish, Hispanic sigillata from *Celti* (Peñaflor), Tricio (*Tritium Magallum* in the Ebro valley) and Andújar (in the Guadalquivir valley), African red slip ware A, C and D, Late Phocaean red slip ware, Late paleochristian sigillata (DSP) and «luisante» sigillata[6] (**table 1**). Although the name of *Balsa* is of pre-Roman origin and the town minted coins in the 1st century BC[7], most of the Italian type *sigillata* imports began in the last decades of the 1st century AD.

More than 40 per cent of the imported terra sigillata found at the site was South Gaulish (mainly from La Graufesenque) and most of the imports are from the Flavian period with a few pieces dating from the first decades of the 2nd century AD[8]. The majority of Hispanic sigillata imports also date from this period, as the ARS A started to appear in the markets. After the first decades of the 2nd century AD there is a decrease in the imports of terra sigillata. Despite this, late imports of ARS A, C and D show clearly the existence of quite dynamic commercial exchanges with North African imports. The dating of the latest forms of ARS D shows that the town was abandoned in the late 6th or early 7th century AD[9]. Even if just a few fragments represent them, the presence of «luisante» sigillata, paleochristian and Late Phocaean show the site was also supplied by southern Gaul and the eastern Mediterranean.

3. General characterization of the *Balsa* amphorae

For this paper 246 amphorae were studied, which include the 43 fragments previously published[10] (**table 2**). The quantification method was based on the Minimum Number of Vessels (MNV) and the amphorae were classified according to the available typologies.

The macroscopic analysis and observation of the amphora fabrics allowed, in most of the cases, to propose the provenience for the pieces studied, in the main known production areas (*Lusitania*, coastal *Baetica* and Guadalquivir valley, Italy, Gaul and North Africa). Unfortunately, no chemical or petrographic analysis was possible at this moment.

The amphora types recovered in *Balsa* and their chronological distribution don't show exactly the same pattern as the terra sigillata. In fact, 55.4% of the amphorae arrived

5 Nolen 1994; Fabião 1994, 17–36.
6 Viegas 2006a.
7 Like those from the ancient town of *Ossonoba* (today Faro) these coins show maritime motifs that have been studied recently by A. M. Faria, Moedas da época romana cunhadas em território actualmente português. In: M. P. García-Bellido/R. M. S. Centeno (eds), La moneda Hispánica. Ciudad y territorio. Anejos Arquivo Español Arqu. 14 (Madrid 1995) 143–153.
8 Viegas 2006a, 29–70.
9 Ead. 2007, 71–83.
10 Fabião 1994, 17–36.

	MNV	%
Italian-type sigillata	73	7.7
South Gaulish sigillata	393	41.6
Early Hispanic (Peñaflor) sigillata	49	5.2
Hispanic sigillata	73	8.2
ARS A	109	11.5
ARS C	90	9.5
ARS D	135	14.2
Late Phocaean red slip ware	9	0.9
"Luisante" sigillata	6	0.6
Paleochristian sigillata	6	0.6
Total	**948**	**100**

Table 1. Distribution of terra sigillata wares in *Balsa* (Torre de Ares – Tavira).

Amphora type	FABIÃO 1994	Total MNV	%Total MNV
Dressel 2-4 (Italian)	-	2	0.8
Dressel 2-4 (Baetican)	5	5	2
Haltern 70 (Baetican)	2	26	10.6
Agora M 54 (Eastern Mediterranean)	1	1	0.4
Dressel 28 (Baetican)	-	1	0.4
Dressel 14 (Baetican)	-	9	3.7
Dressel 7/11 Baetican	2	11	4.5
Beltrán IIA (Baetican)	1	7	2.9
Beltrán IIB (Baetican)	7	47	19.1
Gauloise 4 (Gaul)	-	3	1.2
Dressel 20 (Baetican)	-	14	5.7
Hammamet 1 (?) (North Africa)		1	0.4
Dressel 14 (Lusitanian)	-	9	3.7
Almagro 50/ Keay XVI (Baetican)	2	29	11.8
Almagro 51a-b/ Keay XIX (Baetican)	4	12	4.9
Almagro 51c (Baetican)	3	7	2.8
Dressel 23 A (Baetican)	1	3	1.2
Dressel 23 C (Baetican)	-	1	0.4
African II A (Keay V) (North African)	-	4	1.6
African II C (Keay VI) (North African)	-	6	2.4
African II D (Keay VII) (North African)	1	7	2.8
Keay XXV (African III C) (North African)	-	3	1.2
Almagro 50 (Lusitanian)	-	2	0.8
Almagro 51a-b (Lusitanian)	-	11	4.5
Almagro 51 C (Lusitanian)	15	25	10.2
Total	43	246	100

Undetermined	19

Table 2. Distribution of amphora types in *Balsa*. The total Minimum Number of Vessels (MNV) includes the amphorae previously published by C. Fabião.

during the High Empire, against 44.6% that arrived at *Balsa* during the Late Roman period. In both periods, fish sauce amphorae are the large majority and amount to 61.1% of the amphorae imported to *Balsa* during the High Empire and even more, about 78.2%, during the Late Roman period.

During the High Empire the main suppliers to *Balsa* were based in the province of *Baetica* with a very high percentage of amphorae from the Cadiz area used to transport fish sauce products. The Guadalquivir region was responsible for the supply of olive oil and wine, totalling together 17.8% of the Baetican amphorae in this period. Local/regional productions of Lusitanian fabric are present in the site with only 6.6% of the amphorae in this period.

In the Late Roman period, the Baetican amphorae still amount to 47.3% of the total of amphorae found at the site, and the local/regional Lusitanian fish sauce amphorae are now better represented than before with 34.5% of the amphorae from this period. North African products (fish sauces and olive oil) made their appearance in the markets at this period, amounting to 18.2% of the amphorae.

Although we lack information on the topography of the town of *Balsa*, the distribution of the amphorae in the three sectors excavated show, with no surprise, that most of the amphorae came from sector 3, which is the location of the partially dug fish sauce «factory».

3.1. Amphorae imported to Balsa *in the High Empire*

The main source of *Balsa* amphorae was the province of *Baetica* (mainly the coastal area of Cadiz but also the Guadalquivir valley). Italian imports are rare and only one piece was imported from the eastern Mediterranean. Imports from Gaul are also present with few examples, and one possible Hammamet 1, Tunisian amphora was also identified, showing early and uncommon amphora imports from this region.

In fact, the only Italian amphora imports present in *Balsa*, so far, are two pieces of Dressel 2–4 with a fabric showing volcanic rock that is usually attributed to the *Latium*/Campanian region[11] (**fig. 2,1–2**). Production of this form extends from the middle of the 1st century BC until the end of the 2nd century AD. Other Italian ceramic imports of this period include Italian type sigillata as well as a few examples of Pompeian-Red ware, Italian common ware and Augustan thin-walled ware. The other pieces of Dressel 2–4 are from *Baetica* and C. Fabião had already studied them[12]. Also known to have transported wine is the sole import from the eastern Mediterranean, Agora type M54, with only one piece that was previously published by C. Fabião[13].

The only piece of Dressel type 28 (**fig. 2,4**), that is traditionally associated with a wine content, has both form and fabric that can be attributed to the production center of the Hospital de las Cinco Llagas, in Seville[14]. Our piece is very

[11] PEACOCK/ WILLIAMS 1986, 106.
[12] FABIÃO 1994, 18.
[13] Ibid. 23.
[14] GARCÍA VARGAS 2000, 88.

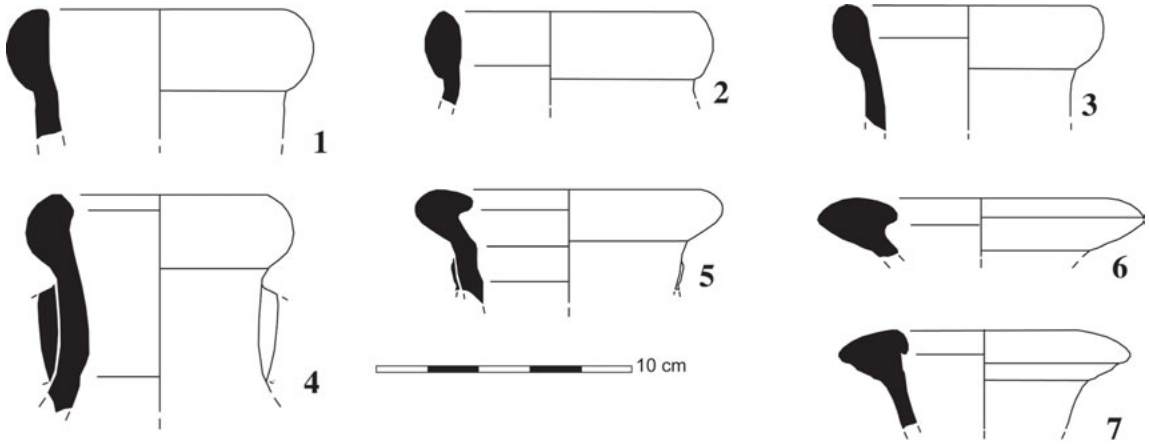

Fig. 3. 1–8 Dressel 20 (Baetican). Scale 1:4.

similar to those published by García Vargas, dated from the middle of the 1st century AD[15].

Wine amphora Gauloise 4 is represented in this Roman town only by three examples (**fig. 2,3**). If we consider the South Gaulish terra sigillata imports, which account for 41.6% of the whole terra sigillata in the site, then a larger proportion of this Gaulish amphora type should be expected. The date range of this type covers the period from the middle of the 1st until the 3rd century AD. The period when *Balsa* received most South Gaulish sigillata is centred in the second half of the 1st century (mainly the Flavian reign) and this is possibly also the main period when wine amphorae were imported from Gaul.

The Haltern 70 amphorae that transported a wine-related product (*defrutum*[16]) were produced from the first half of the 1st century BC until the Flavian period. In *Balsa* there are 26 pieces of this form representing 10.6% of the total of amphorae found in the site (**fig. 2,5–8**). If we consider the data on the chronological and morphological evolution of this amphora type that was recently proposed by A. Puig[17], we can confirm that most of the examples belong to Claudian period (**fig. 2,5–6**), with one example from Flavian period (**fig. 2,7**).

Other Guadalquivir valley imports, the Dressel 20 amphorae, correspond to 5.7% of the total sample (14 pieces). The chronological and morphological evolution based on the studies by S. Martin-Kilcher and P. Berni[18] shows that some fragments belong to the earlier forms, which are dated from the Augustan/Tiberian period (for example: **fig. 3,1–4**), while others have rims dating to the end of the 1st century and the beginning of the 2nd century AD (**fig. 3,5–6**). There is evidence of olive oil imports from the Guadalquivir valley in the Late Roman period (as will be seen). The imports of Dressel 20 in *Balsa* cover a quite long period of time with a larger proportion from the first phases of production and also from the end of the 1st century and the beginning of the 2nd century AD. Also from *Balsa*, there are the stamps published by C. Fabião[19]. The study of the diffusion of this type of olive oil amphora in modern Portugal has shown that the supply follows a coastal pattern, penetrating along rivers into inland sites such as villas and towns. As Fabião has pointed out, this trade is closely related to the official supply of olive oil to the British Isles[20].

As has been said, most of the imports in *Balsa* during the High Empire have their origin in coastal *Baetica* (Cadiz region). The Dressel type 7/11 (also named Beltrán I) is supposed to have transported fish products[21] and shows a percentage of 4.5% of the total of amphorae recovered in the site, which corresponds to 11 pieces (**fig. 4,1–3**). Production began during the Augustan period and this type had a wide distribution in the western Mediterranean basin, reaching the northern provinces. The production of Dressel type 7/11 is attested in several production centers in *Baetica* with a major concentration on the coast, in sites in the bay of Cadiz[22] and also in Algeciras, as well as on the Mediterranean coast of today's Spanish Andalusia (area of Malaga) and more rarely, in the interior, in the valleys of the Guadalquivir and Genil rivers[23]. The study of well-dated contexts in consumption sites allows us to recognize the morphological evolution of this fish sauce amphora from the

15 Ead., Las producciones de la figlina: ánforas. In: Arqueología y rehabilitación en el Parlamento de Andalucía. Investigaciones arqueológicas en el Antiguo Hospital de las Cinco Llagas de Sevilla. Ed Secretaria General del Parlamento de Andalucía (Sevilla 2003) 200–219 fig. 7.1.

16 Recently A. Aguilera showed the different number of uses for *defrutum*. In fact this product seems to have been used either to improve wine or for medical and pharmaceutical purposes, in the kitchen etc. A. Aguilera, *Defrutum*, *sapa* y *caroenum*. Tres nombres y un producto: Arrope. In: Carreras et al. 2004, 120–131.

17 A. Puig, Evolució de les Haltern 70. In: Carreras et al. 2004, 23–31.

18 Berni 1998

19 Fabião 1994, 33, an-6 and an-7; Ceipac n. 24964 (QRFLCORNE); Ceipac n. 24965 (incomplete stamp «O» with palm leaf).

20 Id. 1993–1994, 219–245.

21 A wine content has recently been proposed for both Dressel 7/11 and Beltrán II B types. T. Silvino/M. Poux (avec la coll. de N. Garnier), Où est passé le vin de Bétique ? Nouvelles données sur le contenu des amphores dites «à sauces de poisson et à saumures» de types Dressel 7/11, Pompéi VII, Beltrán II (Ier s. av. J.-C.–IIe s. apr. J.-C.). In: S.F.E.C.A.G. Actes Congrés Blois (Marseille 2005) 501–514.

22 L. Lagóstena Barrios, Alfarería romana en la bahía de Cadiz. Publicaciones Sur. Universidad de Cádiz (Cádiz 1996).

23 García Vargas 2000, 73–75.

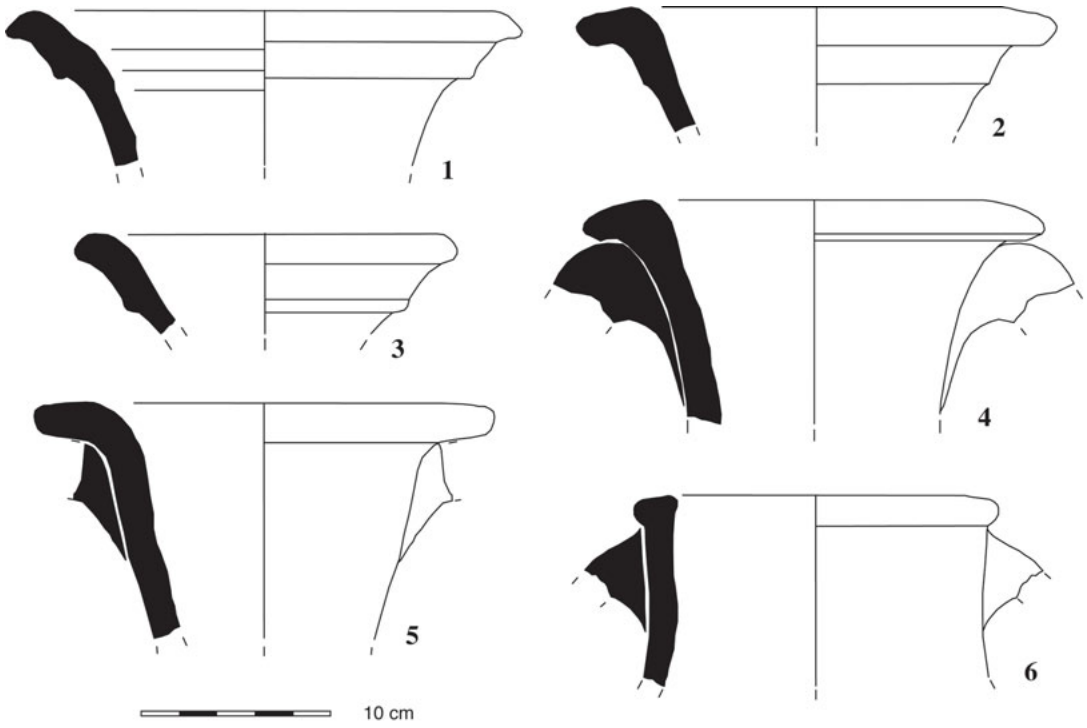

Fig. 4. 1–3 Dressel 7–11 (Baetican); 4–5 Beltrán IIB (Baetican); 6 Dressel 14 (Lusitanian). Scale 1:4.

second half of the 1st century BC until the middle of the 1st century AD.

Despite the production of Dressel 14 being attested in coastal Algarve and Tagus and Sado valleys in *Lusitania*, half of the pieces of this form came from *Baetica*, corresponding only to 3.7% of the total sample (9 pieces). Production covers the period from the reign of Tiberius until the 2nd century AD[24]. The period of more intense commercialization is centered in the second half of the 1st century or the beginning of the 2nd century AD.

Beltrán type II A, also related to a fish sauce content, is relatively rare in *Balsa,* being represented only by 2.9% of the total amphorae (7 pieces). Production of this fish sauce amphora started during the Augustan or early Tiberian period, either in the Algeciras or the Cadiz bays, but it is in the last quarter of the first century AD that the exports are stronger[25].

The amount of Beltrán IIB amphorae is quite high, with 47 pieces corresponding to 19.1% of the whole sample (**fig. 4,4–5**). All the pieces are in fabrics from coastal *Baetica*. This type is attested in several production centers along the coast of Cadiz and the Bay of Algeciras, as well as the Mediterranean coast and is dated from the beginning of the 1st century and during the 2nd century AD[26].

The amphora in **fig. 6,11** corresponds to the form Hammamet 1 and is the only North African import from the High Empire in *Balsa*. As M. Bonifay recently showed, this type follows the Punic tradition and was produced in the middle of the 2nd and the beginning of the 3rd century AD in the region of the Gulf of Hammamet[27]. Distribution of this production in the Mediterranean shows few examples in the Italian peninsula (fragments in Ostia, Luni and a complete amphora in villa Adriana) and on the coast of southern Gaul (Marseille); in the Iberian peninsula the only occurrence was in Ampurias[28].

3.2. Amphorae of the High Empire of local/regional origin

During High Empire Lusitanian amphorae are a minority in *Balsa*. Although production centers in the Sado valley started their production in the Tiberian period[29], and in the Tagus estuary in the middle of the 1st century AD. In *Balsa* there are 9 pieces of Dressel 14 of Lusitanian fabric (3.7% of the total sample) (**fig. 4,6**). Most of the rim forms belong to the later phases of production and only one example shows the externally moulded rim (with similarities to Haltern type 70), which is characteristic of the early Lusitanian Dressel 14 forms. A late variant of Dressel 14 was produced in two sites in the Algarve, in Olhos de S. Bartolomeu de Castro Marim[30] and in Manta Rota[31].

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24 Ibid. 83–84.
25 Ibid. 84–85.
26 Ibid. 86–100.
27 M. BONIFAY, Amphores de tradition punique du Golf d'Hammamet. In A. Ben Abed/ M. Greisheimer (dir.), La nécropole romaine de Pupput. École Française Rome 2004, 197–229 esp. 203–204.
28 BONIFAY 2004, 22.
29 C. T. DA SILVA, produção de ânforas na área urbana de Setúbal: a oficina romana do largo da Misericórdia. In G. Filipe/J. M. C. Raposo (eds), Ocupação romana dos estuários do Tejo e do Sado. Actas das Jornadas, Seixal 1991 (Lisboa 1996) 43–54.
30 M. MAIA, As ânforas de S. Bartolomeu de Castro Marim. Clio/ Arqu. 1, 1979, 141–144. See also ALVES/DIOGO/REINER 1990, 193–198.
31 VIEGAS 2006b, 177–196. Recently C. Fabião synthesized and updated all the information available on production centers in *Lusitania* in FABIÃO 2004, 379–410.

3.3. Late Roman imports in **Balsa**

Some 44.6% of the amphorae presented in this paper belong to the Late Roman period and the proportion of fish sauce amphorae is even higher than before.

During this period 65.5% of the amphorae were imported, showing that Baetican products are still very important, representing 47.3% of the total of amphorae and with a large majority of fish sauce amphorae. North African amphorae are responsible for the supply of either fish products or olive oil, amounting to 18.2% of the amphorae in this period. Locally/regionally produced Lusitanian amphorae that transported fish products make up 34.5% of the total of amphorae of this period, which is a much higher percentage than during the High Empire.

Amphora of Almagro type 50, produced in the Bay of Cadiz (also named Keay XVI), are very well represented in *Balsa* where 29 pieces were recovered (11.8%) (**fig. 5,1–6**). Production seems to have started at the end of the 2nd century/beginning of the 3rd century AD and is attested in the production center of Puente Melchor (Puerto Real – Cadiz)[32]; it is still quite frequent during the 5th century AD. Previously published material includes two handles with AEMHEL stamps and one reading LEVGEN[33].

Almagro 51a–b (Keay XIX) is also well represented with 12 pieces (4.9%) belonging to coastal *Baetica* productions. Some of the Baetican pieces of this form show a fabric that is typical from the coast of Malaga. One production area has been identified in the site of Huerta del Rincón (Malaga)[34]. There are also great morphological similarities between the rims found in *Balsa* that are illustrated (**fig. 5,7–9**) and the pieces from this production center[35]. Recent data from D. Bernal's research suggest that this form was produced from the second half of the 3rd century until the middle of the 5th century or the beginning of the 6th century.

Fish sauce amphora Almagro 51c from coastal *Baetica* corresponds to 2.8% of the amphorae in *Balsa* (7 examples) (**fig. 5,10–11**). As Bernal recently demonstrated, this form is the main Baetican type used to transport fish sauces in the Late Roman period[36]. Despite this, the most common fish sauce amphora from *Baetica* in *Balsa* is the form Almagro 50/Keay XIX.

There is evidence of the continuation of olive oil imports to *Balsa* during the Late Roman period, even if there are only 3 fragments of Baetican type Dressel 23a/ Keay XIII A, and one Dressel 23c/ Keay XIII C. One piece has already been published[37] and the others are presented now (**fig. 5,12–14**). The date range of this production covers the period from the last quarter of the 3rd century until the middle of the 4th century AD. The amphora-rim in **fig. 5,12** is a Dressel 23a/Keay XIII A and has the characteristic short triangular rim. With regard to the fabric we have attributed it to coastal *Baetica*. Production of this form is attested in kilns on the Malaga coast at Huerta del Rincón[38]. The amphora represented in **fig. 5,13** shows the same general form with a fabric like that described by P. Berni for some of the Catalonian examples: a compact, orange/reddish fabric with fine white inclusions and a buff slip, similar to some North African fabrics[39]. The other Dressel 23 belongs to the C variant (Keay XIII C).

As seen in other sites in the Mediterranean, during the Late Roman period there is evidence of imports from North Africa (Tunisia) with several examples of African type II amphorae in its variants A, C and D. In the sample previously studied by C. Fabião there was only one fragment of an African type II D[40]. Macroscopic analysis and comparison with fabric descriptions and samples in Bonifay 2004 was tried. This allowed us to propose, for some of the sherds, a more precise origin in the various workshops already identified in modern Tunisia. Although this data should be confirmed with further research it seems that most of the pieces were imported from Sidi Zahuri and/or the workshops in the Nabeul area (12 examples). Fabrics characteristic of the Salakta workshop were also identified (4 pieces) and Leptiminus and Majoura fabrics are also present with one example each.

In fact, 4 pieces (**fig. 6,1–4**) belong to African type II A «con gradino»[41] (Keay type V). This type was imported to the Catalan coast from the end of the 2nd century/beginning of the 3rd century AD but there is evidence that production might have continued during the 4th and the 5th centuries. Olive oil was the main content transported from the region of Byzacena[42]. According to Bonifay the production of this type didn't reach the 4th century and oil wasn't the major content. A fish sauce content is indicated: »Il semble assuré aujourd'hui que les amphores Africaines II A, dont beaucoup d'exemplaires sont poissés, n'étaient pas destinées à la commercialisation de l'huile»[43].

African type II C (Keay type VI) is also represented in *Balsa* by 6 examples that correspond to 2.4% of the sample (**fig. 6,5–6**). Though other workshops seem to have produced it, this form was mostly produced in the territory of *Neapolis* as is stressed by Bonifay[44]. There is evidence for an olive oil content but fish sauce was also transported[45]. Bonifay states that *salsamenta* must have been the major content of this amphora, that had its diffusion mainly in the second half of the 3rd century and the 4th century[46].

African type II D, also named Keay type VII, was the best-represented North African amphora in *Balsa* with 7 pieces that correspond to 2.8% of the total of amphorae in

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32 E. Garcia Vargas, La producción de ánforas en la Baía de Cádiz en época romana (siglos II A.C–IV D.C.) (Écija 1998).
33 Fabião 1994, 34 Ceipac n. 24967; 24968 (Aemhel) and Ceipac n. 24969 (Levgen).
34 Bernal 2000, 283.
35 Ibid. fig. 5,46–49.
36 Ibid. 284.
37 Fabião 1994, 19 est. 1, an-8.
38 Bernal 2000, 255.
39 Berni 1998, 61.
40 Fabião 1994, 22 est. 1, an-16. The rarity of this production was considered strange by the author and was justified by the character and the conditions of the collection/selection of the material in the former excavations.
41 Keay 1984, 114 fig. 43.
42 Ibid. 111.
43 Bonifay 2004, 111.
44 Ibid. 115.
45 Keay 1984, 119 Fig. 45.
46 Bonifay 2004, 115.

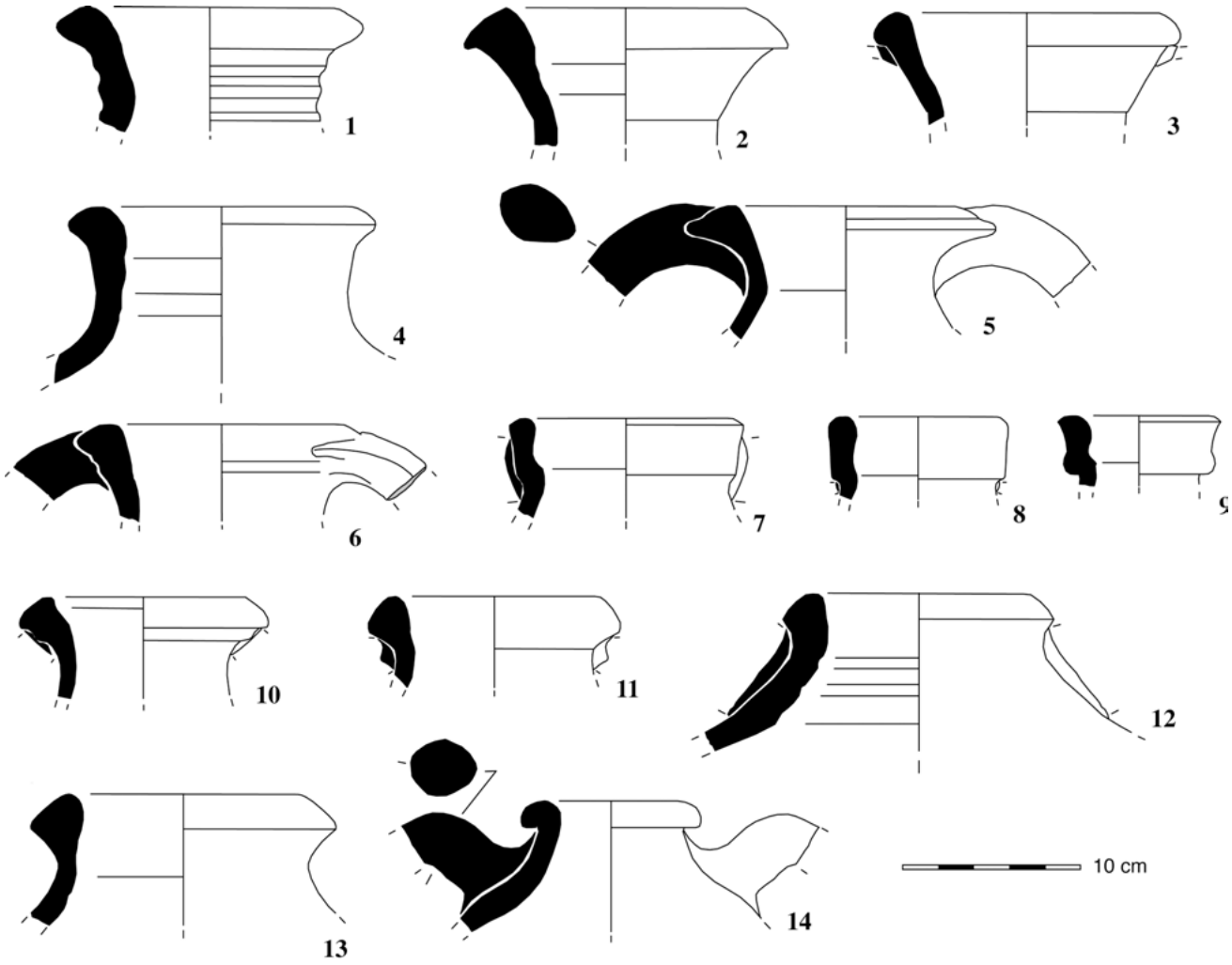

Fig. 5. 1–6 Keay XVI/Almagro 50 (Baetican); 7–9 Keay XIX/Almagro 51AB; 10–11 Keay XIII A, Keay XIII B (Baetican). Scale 1:4.

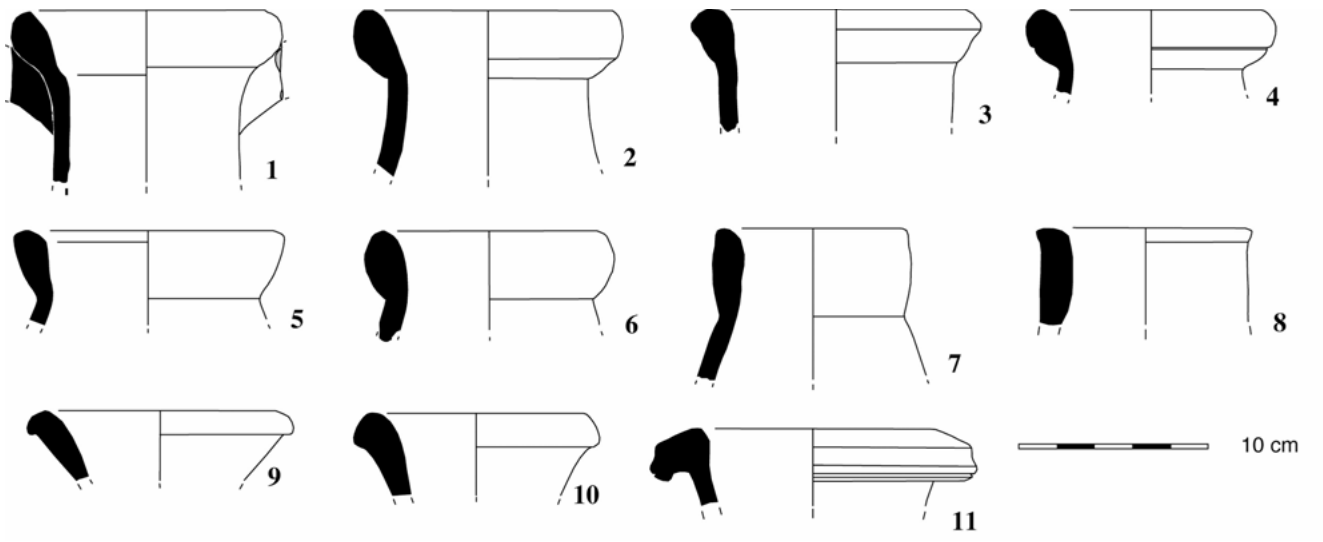

Fig. 6. North African imports. 1–4 African II A; 5–6 African II C; 7–8 African II D; 9–10 Keay XXV; 11 Hammamet 1(?). Scale 1:4.

the site (**fig. 6,7–8**)[47]. It was produced in the region of Byzacena, in towns such as *Leptis Minor* and *Hadrumetum* from the 3rd until the 5th century AD[48]. As for most African II amphorae, the available data on the content shows both olive oil and fish products.

Keay type XXV.2, (African III C) is represented by 2 examples (**fig. 6,9–10**). The production of this variant extends from the end of the 4th until the middle of the 5th century and Bonifay proposes a wine content[49].

Although the imports of ARS D reaches the end of the 6th and even the beginning of the 7th century, most of the North African amphora imports occur in the late 3rd century and the beginning of the 4th century. In fact, there aren't, so far, any amphora imports later than this period except for the Keay XXV.2 examples that may have reached the 5th century.

3.4. Late Roman local/ regional amphorae

Lusitanian amphorae are relatively more common in this period than they were during the High Empire and make up 34.5% of the total of amphorae. The contents of the types represented are usually related to fish products.

Only two examples of Almagro 50 present a Lusitanian fabric and may be part of the Algarve productions. This form was produced in the Tagus and Sado valleys and in the Algarve production center at Quinta do Lago (Loulé)[50] as well as in the west side of the southern coast of the Algarve in Martinhal (Sagres)[51].

The Lusitanian Almagro type 51a–b is represented by 11 pieces (4.5%; **fig. 7,1–5**) This form was produced in the Sado valley and in the Algarve region, in the production centers in S. João da Venda (Faro)[52] and in Martinhal (Sagres)[53].

During the Late Roman period the best represented amphora type in *Balsa* was the Almagro 51c (**fig. 7,6–7**), which was produced in *Lusitania*. There are 25 pieces of this form, corresponding to 10.2% of the total of amphorae. Another 9 examples have their origin in the coast of Cadiz. Most of the Lusitanian examples of this form belong to the material previously studied by C. Fabião, and at the time of the publication in 1994, there were doubts about their provenience, if it was *Balsa* or not[54].

In *Lusitania* this form is attested in the production centers of the Tagus and Sado valleys since the end of the 2nd and the beginning of the 3rd century, until the middle of the 5th century. Production of Almagro 51c is also attested in most of the production centers in the Algarve, such as Quinta do Lago (Loulé)[55] where it is the most well-represented form produced there (our fragment in **fig. 7,6** is identical to one from this site[56]). This form was also produced in Manta Rota[57], in Olhos de S. Bartolomeu de Castro Marim[58] and in Martinhal (Sagres)[59]. Even if the pieces from *Lusitania* are in the majority, there is still an important presence of amphorae from *Baetica* (9 pieces).

4. Consumption patterns and economic trends

First of all we must stress again that the sample studied may not be representative of the consumption patterns or the economic trends of *Balsa* during the Roman period. As mentioned before these amphorae come from specific areas of the town and in the future, new evidence will certainly change the view we have now. We also lack information on the precise extension of the Roman town and its topography and although we have proposed different functional areas for the different excavated sectors, they are highly hypothetical due to the small excavated area and the evidence recovered.

Despite this there are still some points to be discussed based on the sample of 246 amphorae that were studied. During the High Empire there is a strong presence of the amphorae that transported fish sauce products from *Baetica*. The geographical proximity of this province explains the integration of southern *Lusitania* (today Algarve) in the Baetican commercial circuits based on the town and main port of Cadiz. As some authors defend, such as C. Fabião, in this period the Lusitanian fish sauce industry would have depended on Baetican amphorae to be exported, a situation that would have changed in the Late Roman period as most of amphora kilns in southern Portugal date from the 3rd to the 5th century AD[60]. Although the presence of Lusitanian fish sauce amphorae in the Late Roman period is more pronounced, Baetican imports are still important at this period.

There is evidence, in several shipwrecks in the Mediterranean and also along the southern Lusitanian coast, of the association of Haltern 70 amphorae, olive oil amphorae Dressel 20 and the fish sauce types, such as Dressel 7/11 (usually in boats that transported metal ingots)[61].

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47 Keay 1984, 121 Fig. 47.

48 Ibid. 123–126. For Bonifay the end of production is the first decades of the 4th century (Bonifay 2004, 117).

49 Bonifay 2004, 122.

50 Arruda/Fabião 1990, 199–213, fig. 59.

51 Silva/Soares/Correia 1990, 225–246.

52 C. Fabião /A. M. Arruda, Ânforas de S. João da Venda (Faro). In: Alarcão/Mayet 1990, 215–224 fig. 62–63.

53 Silva/Soares/Correia 1990, 225–246

54 As mentioned in Fabião 1994, 34, the container/box with this material had the reference SA-68, unknown in the Museum. More recently, Fabião (2004, 400) suggested a local amphora production in *Balsa*, based on these amphorae and on the presence of one overfired amphora-fragment, although stating the need for further evidence to support this hypothesis (Fabião 2004, 400).

55 Arruda/Fabião 1990 fig. 60–61.

56 Ibid. Fig. 60,46.

57 Viegas 2006, 177–196.

58 Alves/Diogo/Reiner 1990 fig. 56.

59 Silva/Soares/Correia 1990, 225–246.

60 C. Fabião, Garum na Lusitania rural? Alguns comentários sobre o povoamento romano do Algarve. In: J.-G. Gorges/M. Salinas de Frías (eds.), Les campagnes de Lusitanie romaine. Occupation du sol et habitats. Coll. Casa Velázques 47 (Madrid 1994) 227–252 esp. 245.

61 Morais/Carreras, Geografia del Consum. In: Carreras et al. 2004, 93–110.

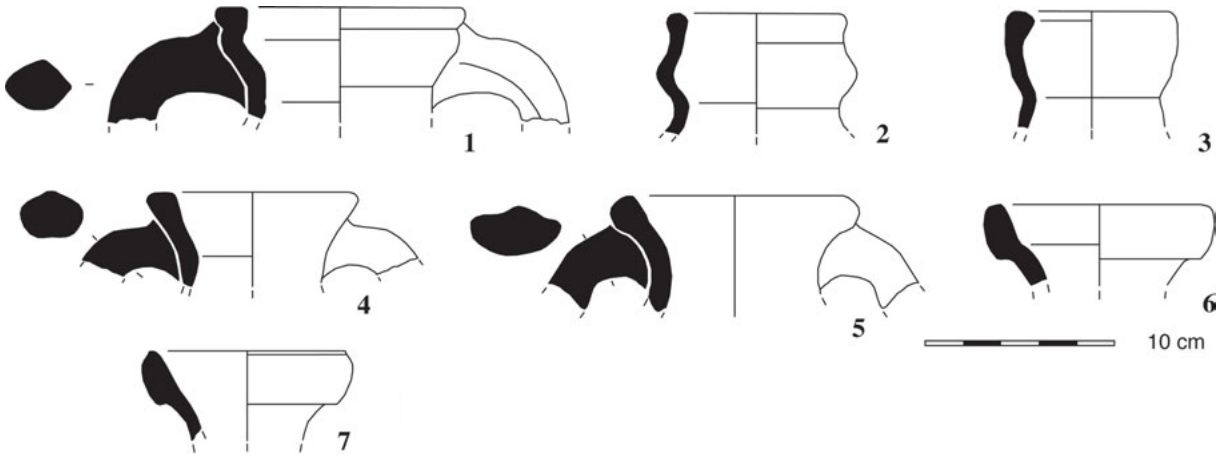

Fig. 7. 1–5 Almagro 51 AB (Lusitanian); 6–7 Almagro 51 C (Lusitanian). Scale 1:4.

As a result of some casual discoveries made in deep sea fishing, there were first published in 1987 two almost complete amphorae of types Haltern 70 and Beltrán IIA[62] and later, in 2000, a further twelve almost complete amphorae were published from the same area (two Haltern 70 types and ten Dressel 7/11 fragments, some of which belong to the Pompeii type VII)[63]. This is clear evidence for the kind of sea trade from *Baetica* to southern *Lusitania*.

During the High Empire the wine imports to *Balsa* came from a variety of different origins, such as the Eastern Mediterranean, Italy, Gaul, and most of it was supplied by *Baetica*. Also in this period this province was the major supplier of a variety of foodstuffs to *Balsa*, such as wine, olive oil and most of all fish products. During the Late Roman period the situation is quite different as *Baetica* is responsible for the supply of fish sauces, with few examples of olive oil imports and without any example of wine.

Apart from amphorae, there is other evidence of these commercial exchanges and inter-provincial relations. The preliminary inventory of the pottery recovered in the 1977 excavations in *Balsa* shows that about 25% of the common ware came from the Cadiz region or coastal *Baetica*. The different forms represented show that this pottery covered most of the functions in the Roman house, except for the cooking ware. It is known that light buff fabrics can't support high temperatures or direct fire. Among this Baetican coarse ware there are some forms (medium-size jars) that can be related to *garum* imports[64]. In other Algarve sites such as *Baesuris* (Castro Marim) and *Ossonoba* (Faro) this coarse ware is quite common, mainly during the High Empire, following a previous Republican and pre-Roman tradition.

The Guadalquivir Valley is also responsible for the supply of a few storage vessels such as *dolia* and *seriae*, which show fabrics identical to those of the Haltern 70 amphora. As the presence of these types of storage vessel is attested in several Algarve sites, both in towns and in villas, samples of these pieces were selected for laboratory analysis in order to try to discover their contents.

Part of the terra sigillata in *Balsa* came from the Guadalquivir valley: the town of *Celti* (the today Peñaflor) and the Andújar Hispanic sigillata production center. In the first case we're referring to a fine ware or imitation of Italian-type sigillata, which constitutes 5.2% of the sigillata imported to *Balsa*, and part of the Hispanic sigillata (8.2%). Also, most of the thin-walled wares have their origin in this region.

During the Late Roman period there was still a very important percentage of Baetican amphora imports, which can be explained by their geographical proximity. During this period, most of the amphorae in *Balsa* transported fish sauce products, the production of which is attested in this excavation and in other areas of *Balsa* and all along the coast. The production could also be attested by the presence of a specific form of dish used to boil the fish with salted water in order to produce the *garum*. It is symptomatic that this form of cooking ware is best represented in the specific grayish sandy fabric of the local coarse ware[65].

The low number of amphorae that transported olive oil and wine to the south of *Lusitania* during the Late Roman Empire is not surprising. There is evidence of the development of the production of wine and olive oil in several villas. According to the *corpus* presented by A. Carvalho, this production is also attested in the eastern part of the southern coast of the Roman Algarve. The major problem is to differentiate the structures involved in the production of olive oil or wine[66].

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62 A. M. ARRUDA/I. FRADE/J. TRAVASSOS, Duas ânforas romanas de Cacela (Vila Real de Santo António). Conimbriga 26, 1987, 125–131.

63 A. M. D. DIOGO/J. P. CARDOSO, Ânforas béticas provenientes de um achado marítimo ao largo de Tavira, Algarve. Rev. Portuguesa Arqu. 3/2, 2000, 67–79.

64 PONSICH 1988. For further studies on Baetican common ware in Portugal as a complementary cargo in the commerce involving Baetican amphorae see I. V. PINTO/R. MORAIS, Complemento de comércio das ânforas: cerâmica comum bética no território português. In: Actas del Congreso Internacional CRETARIAE, Salsas y salazones des pescado en occidente durante la Antiguedad. BAR Internat. Ser. 1686 (Oxford 2007).

65 Following the observations of M. Ponsich for the Baetican region, this form was used for the production of *garum* although we think this wasn't its only purpose being part of the cooking ware.

66 CARVALHO 1999, 361–390; J. ALARCÃO, A produção e circulação de produtos. In: J. Serrão/A. H. O. Marques (eds), Nova História de Portugal I (Lisboa 1990) 409–443.

At Milreu, there were detected structures for wine production and recently the production of olive oil was also attested[67]. At S. João da Venda (Faro) there seems to have existed a *cella vinaria* (and press)[68]. In the western part of the southern coast of the Algarve, presses were found in Fonte Velha (Bensafrim, Lagos) Vidigal and Vale do Marinho, (Mexilhoeira Grande, Portimão). Evidence for the production was found also in Loulé Velho (Quarteira-Loulé) and Dona Menga (Luz – Tavira)[69].

If the relative rarity of amphorae that transported wine or olive oil can be explained by the evidence of local/regional production in the Late Roman period, how could the abundance of Baetican fish sauce amphorae be explained, when *Balsa* and the whole Algarve coast is producing fish products? Fabião's explanation for this phenomenon is not only the geographical proximity of the Baetican region, but also the sumptuary character of the consumption by the wealthy elites of *Balsa*[70]. In our opinion, attention should also be drawn to the diversity of fish-based products that are attested in the ancient sources, in the amphorae's *tituli* and in the content analysis. This could perhaps explain that a region, which was producing fish products, would import other types of sauces from the Baetican region.

One of the main conclusions of the study of amphora imports in *Balsa* was the identification of a quite numerous sample of North African imports in the Late Roman period. The presence of North African imports in Lusitanian sites is reduced to few pieces in each site and only coastal sites (Algarve) seem to present a different pattern. North African amphora imports in *Balsa* seem to concentrate from the end of the 3rd century, during the 4th century, with rare pieces attributed to the 5th century. Also, the presence of one Hammamet 1 type shows that imports started in the 2nd century and are a reality also in High Empire.

The content of most of the North African (Tunisian) amphora types identified in *Balsa* is not completely determined yet. In some cases there is evidence for olive oil but fish sauce is also documented and in at least one case, also wine. The possibility that some of these types also transported fish sauces to southern Portugal reinforces the already high proportion of fish products imported in the Late Roman period.

The first evidence of the commercial exchanges with ancient Tunisia is the presence of ARS A that started in the Flavian period, although it is from the middle of the 2nd century AD onward that there is an intensification of this commerce. Amphora imports from North Africa are contemporary with the supply of ARS C and D as well as the significant amounts of African cooking ware, that took place between the 3rd and the 5th century. In fact African cooking ware represents 27% of the total common ware recovered in *Balsa*. As I have already pointed out in another paper, when compared to the high proportion of North African cooking ware, the percentage of amphorae is less important[71]. Nevertheless there seems to be a close relationship between the supply of North African products transported in amphorae and the distribution of African cooking ware. On the other hand, ARS supply seems to follow a completely different and almost independent pattern, being present and abundant in almost all the coastal and inland sites (either urban or rural), occupied in the Late Roman period.

Despite what has been said, there is no doubt that the percentage of African amphorae is higher in the coastal Algarve than in other inland sites as the Alentejo villas, given the example of *Balsa*.

In 1993–94, in his article on the presence of olive oil imports from *Baetica* in *Lusitania*, Fabião informs us also about the presence of North African amphora imports. Despite the quite wide distribution of these materials they seem to be represented by no more than two or three examples in each site[72].

In fact, in the Roman villas in S. Cucufate, only two examples of African II type were identified and at Monte da Cegonha two pieces of African II and one Keay XXXV B[73]. In the Roman villa «Cardílio» two examples of Keay IV and V were recovered[74]. In the Roman villa at Tourega (Évora), at Quinta das Longas (Elvas)[75] or at the villa in Vilares de Alfundão (Ferreira do Alentejo)[76] North African amphorae are totally absent. When the information on the African cooking ware is available it seems that its absence or rarity is closely related to the import of North African amphorae.

In towns such as *Conimbriga*, the North African amphorae are represented by a few fragments recently identified among the material from the excavations previous to

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67 For the production of wine ALARCÃO 1988, 207–208; CARVALHO 1999, 370 and olive oil F. TEICHNER, Resultados preliminares das últimas escavações na pars rustica noroeste da Villa romana de Milreu. In: Actas do 1º Encontro de Arqueologia do Algarve. *Xelb*, 4. (Silves 2003) 103–114.

68 ALARCÃO 1988, 209.

69 ALARCÃO 1988, 207–208; CARVALHO 1999, 382.

70 FABIÃO 1994, 22.

71 VIEGAS 2007. – It should also be mentioned that one shipwreck in the coast of Italy (Trincere-Tarquinia) shows a higher percentage of North African cooking ware with 75.96% (Hayes forms 196, 197 and 23B) and only 12.5% of amphorae (African II A and B types), apart from a small amount of ARS ware. See L. PONTACOLONE/M. INCITTI, Un rellito con carico di merce africane di etá imperiale alle Trincere (Tarquinia). Africa Romana 8 (Sassari 1991) 543–570.

72 References to North African amphorae until 1993 can be seen in FABIÃO 1993–1994, 219–245. For the information from that period on see references *infra*.

73 S. Cucufate amphorae were studied in J. ALARCÃO/R. ÉTIENNE/F. MAYET, Les villas romaines de São Cucufate (Portugal) (Paris 1990) 251–254 and the amphorae of Monte da Cegonha and Tourega were recently studied in a comparative approach by I. V. PINTO/C. LOPES, Ânforas das villae romanas alentejanas de São Cucufate (Vila de Frades, Vidigueira), Monte da Cegonha (Selmes, Vidigueira) e Tourega (Nossa Senhora da Tourega, Évora). In: Setúbal Arqueológica. 13. Simpósio Internacional Produção e Comércio de Preparados Piscícolas durante a Proto-História e a Época Romana no Ocidente da Península Ibérica. Homenagem a Françoise Mayet. Setúbal 7–9 Maio 2004 (Setúbal 2006) 197–224.

74 A. M. D. DIOGO/A. J. N. MONTEIRO, Ânforas romanas de «villa Cardílio», Torres Novas. Conimbriga 38, 1999, 201–214.

75 M. J. ALMEIDA/A. CARVALHO, As ânforas da uilla romana da Quinta das Longas (S. Vicente e Ventosa, Sines): resultados de 1990–1998. Rev. Portuguesa Arqu.1/2, 1998, 137–163.

76 J. NORTON/J. L. CARDOSO/C. T. DA SILVA, Canilho. As ânforas da *villa* romana de Vilares de Alfundão. Coninbriga 32–33, 1993–1994, 181–190.

the Portuguese/French Mission[77]. At *Mirobriga* there is only one published example of a North African Keay LXII[78] and at the site where a fish sauce factory was identified on the western coast (Sines) only 4.8% (3 examples) of amphorae were attributed to the region of Byzacena.

Nevertheless it is in the Algarve area that the presence of North African amphorae is stronger. In the Algarve west southern coast, occasional finds from the Arade river (Portimão) underwater collections are clear evidence of this. Among the amphorae recovered in 1983, North African types account for about 12%[79]. In a more recent publication about amphorae, also from non-systematic collections concerning the dredging of the Arade river, the proportion is about 16%[80].

So far, the only other site that seems to have had the same importance, in regard to the North African amphora imports, is Tróia (Grândola) in the Sado river estuary. Unfortunately the published assemblages from this well known fish sauce complex were recovered in non-systematic prospections[81]. More recently, the publication of the amphorae from two excavation campaigns (1974 and 1975) shows that North African amphorae represent 7.2% of the studied examples[82].

With regard to the chronology of the North African imports, most of them belong to the late 3rd and the 4th century with a few pieces that may reach the 5th century.

[77] Amphorae from the Portuguese-French exacavations in *Conimbriga* were published by J. ALARCÃO, Les amphores. In: J. Alarcão/R. Étienne (eds), Céramiques diverses et verres. Fouilles de Conimbriga VI (Paris 1976) 79–91. Recently, the material from the ancient excavations was studied by I. I. R. BURACA, *Civitas Conimbriga*. Ânforas romanas. MA dissertation in Regional Archaeology presented to the Faculty of Letters of the University of Coimbra (Coimbra 2005).

[78] The total of amphora published amounts to 68 pieces from the ancient excavations in *Mirobriga* (1959–1979), and these may not be representative of the Roman town in southern Portugal. A. M. D. DIOGO, Ânforas romanas de Miróbriga. In: Arquivo de Beja. 10. série 3 (Beja, 1999) 13–27.

[79] C. T. DA SILVA/A. COELHO-SOARES/J. SOARES, Nota sobre material anfórico da foz do Arade (Portimão). Setúbal Arqueológica 8, 1987, 203–219.

[80] A. M. D. DIOGO/J. P. CARDOSO/F. REINER, Um conjunto de ânforas recuperadas nos dragados da foz do rio Arade, Algarve. Rev. Portuguesa Arqu. 3/2, 2000, 81–118.

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[82] A. M. D. DIOGO/A. C. PAIXÃO, Ânforas de escavações no povoado industrial romano de Tróia, Setúbal. Rev. Portuguesa Arqu. 4/1, 2001, 117–140.

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