The distribution of African pottery under the Roman Empire: evidence vs. interpretation

Michel Bonifay

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The Distribution of African Pottery under the Roman Empire

Evidence versus Interpretation

Michel Bonifay

Despite the reticence of some historians and archaeologists,[1] it has become more and more commonplace to use pottery as an indicator for measuring the directions, nature, and intensity of trade in classical antiquity. Even without referring back to the well-known contributions of the 1980s by scholars such as A. Carandini or G. Pucci,[2] and the first large-scale quantification of pottery at Ostia and Carthage, I believe that pottery evidence, if cautiously interpreted, is at least as legitimate as literary sources for giving us information about Roman trade.[3] Just as it is impossible to ignore literary sources, it would be unwise to do without the pottery evidence for the reason that, as John Lund reminded us in 2006 (quoting the Danish novelist Thorkild Hansen): 'History is old and avaricious. In one hand it holds millions of nameless destinies and with the other hand, it passes us a potsherd.'[4]

When dealing with the North African economy, the utility of pottery is even more marked, because of the lack of archaeologically excavated evidence for the production of foodstuffs in this territory. Though rural surveys are quite abundant in North Africa, very few farms and other production centres have actually been excavated.[5] As a consequence, pottery remains the best way to

[1] Clearly expressed by Bang (2008: 2–3). [2] Carandini (1983); Pucci (1983).

[3] Good examples are given by Reynolds (1995; 2010).

[4] Lund (2006). But this does not imply that the pottery data are superior to data from texts, on the pretext that pottery data are more objective and quantifiable. We can make as many interpretations using the same pottery assemblage as we can using the same text.

[5] As far as I know, only two Roman farms have been excavated recently in Tunisia, and both are very late in date (Byzantine and even late Byzantine). The first one, Demna-Wadi Arremel, is situated in the Segermes region (Ghalia 2006), and the second one, Aïn Wassel, in the region of Dougga (De Vos 2007).

approach the African economy, as shown by A. Carandini in 1970.[6] Because of the very widespread distribution of African pottery (amphorae, tablewares, cooking wares, coarse wares, lamps, and so on), the vitality of African trade, as evidenced by the pottery remains found all over the Mediterranean, is often considered as an indicator of the wealth of the entire African economy. Good illustrations of this method of research can be found in the African Red Slip (ARS) ware quantifications carried out by E. Fentress and P. Perkins, compared with the rhythms of African building,[7] or in the growth of African amphora imports evidenced by C. Panella in Ostia, related to the development of olive cultivation in Byzacena.[8]

But, with these last examples, we enter straight into the heart of the problem. I do not intend to discuss all aspects of Roman African trade in connection with pottery remains; instead I would just like to point out some of the recurring problems everybody comes across when dealing with African wares, even if they are not ceramics specialists.

WHICH AFRICA?

As this question always recurs in the current publications on the African economy, I think it is still useful to attempt to define the limits of the African territory. The question is confused by the present geographical meaning of the term 'Africa' and by the spectre of the French colonization of 'Afrique du Nord' as well as by the postcolonial notion of the 'Maghreb'. It is interesting to note that P. Salama made his famous map of the roads of Roman Africa end to the east where the French protectorate of Tunisia ended in 1947, and to the west where fourth-century Africa ended (more or less at the present Algerian–Moroccan border).[9] On the other hand, the 'Maghreb romain' as defined by P.-A. Février enclosed the entire territory of the three recently liberated French colonies of Morocco, Algeria, and Tunisia, but ended to the east where fourth-century Africa ended, at the far end of the gulf of Sirte, in Libya.[10]

From my point of view—this means from the potsherd point of view!—I think that we should set aside Morocco, the former Mauretania Tingitana. From the Roman period onwards, this part of the African territory has been associated more with Spain than with the rest of Africa. As far as the production of foodstuffs goes, the evidence suggests that the *salsamenta* from Tingitana were packaged in Baetican-shaped amphorae (Dressel 7–11

[6] Carandini (1970). [7] Fentress and Perkins (1988). [8] Panella (1973).
[9] Salama (1950). [10] Février (1989; 1990).

and Beltran II A–B) locally produced[11] or even produced in the Cadiz area.[12] Moreover, as already mentioned, Tingitana was administratively linked to the dioceses of Hispaniae from the fourth century onwards.

The regions included in present-day Tunisia and in the western part of Libya actually represent, according to C. Panella's phrase, 'the heart of Roman Africa'.[13] These regions are also the best documented in terms of pottery production (Fig. 11.1). But archaeologists, happy with the abundant evidence of amphorae and ARS kilns in Tunisia and Libya, have a tendency to forget another huge part of Africa, present-day Algeria. Very little is known about the pottery of Numidia and Mauretania Caesariensis, owing to the complex political troubles that Algeria has suffered since 1992. Nevertheless, it is obvious that some (a lot of) African pottery distributed around the Mediterranean, especially amphorae, cannot be recognized as products of Tunisia and Libya; they must come from elsewhere, and we cannot exclude the possibility that they may have come from Algeria.[14]

On the other hand, things are becoming more and more precise in Tunisia, where it is possible in most cases to supersede the traditional classification of ARS production (A, C, D, A/D, C/E, E, and so on)[15] and to specify the workshops themselves: El Mahrine,[16] Oudhna,[17] Sidi Khalifa,[18] Sidi Marzouk Tounsi,[19] and so on.[20]

The same opportunities are offered by amphora production. It is now possible to distinguish between very distant workshops even if the typology is identical, using not only stamps[21] but also petrography.[22] Two cities seem to be particularly productive, Sullecthum and Nabeul: more than twenty-five workshops have been identified in Sullecthum,[23] and about fifteen in Nabeul.[24] For both these cities, production is huge, and the products widely distributed

[11] Cerri (2007); see also Papi, Chapter 14, this volume.
[12] Bernal Casasola (2006); *contra*: Pons (2007) and Papi, Chapter 14, this volume.
[13] Panella (1993: 640).
[14] Nevertheless, the evidence of such production is very scarce. The production of Dressel 30 amphorae at Tubusuctu (Tiklat) and Saldae (Bougie) (Laporte 1976–8) is secure. The Algerian origin of type Keay 1B, even if different from the origin of the previous type, is probable (Capelli and Bonifay 2007: 555). Lastly, the hypothesis that the so-called Stazione 48 del Piazzale delle Corporazione type (with the stamp M—palm tree—C) was produced at Caesarea Mauretaniae (Cherchel) (Ben Abed, Bonifay, and Griesheimer 1999; for some doubts about this interpretation, see Bonifay 2004: 18–19) has to be abandoned for petrographic reasons.
[15] For this classification, see Carandini et al. (1981). [16] Mackensen (1993).
[17] Barraud et al. (1998); Dridi (2005). [18] Ben Moussa (2007).
[19] Peacock, Bejaoui, and Ben Lazreg (1990).
[20] This progress has been made possible through meticulous archaeometrical analyses: Mackensen and Schneider (2002; 2006). See also Bonifay, Capelli, and Brun (2012).
[21] As is well known, a series of African amphorae stamps specify the name of the city, e.g. Neapolis/Nabeul, Hadrumetum, Leptiminus, Sullecthum (Zevi and Tchernia 1969; Manacorda 1977; most recently, Stone 2009).
[22] Capelli and Bonifay (2007; 2014).
[23] Nacef (2015). [24] Mrabet and Ben Moussa (2007); Bonifay et al. (2010).

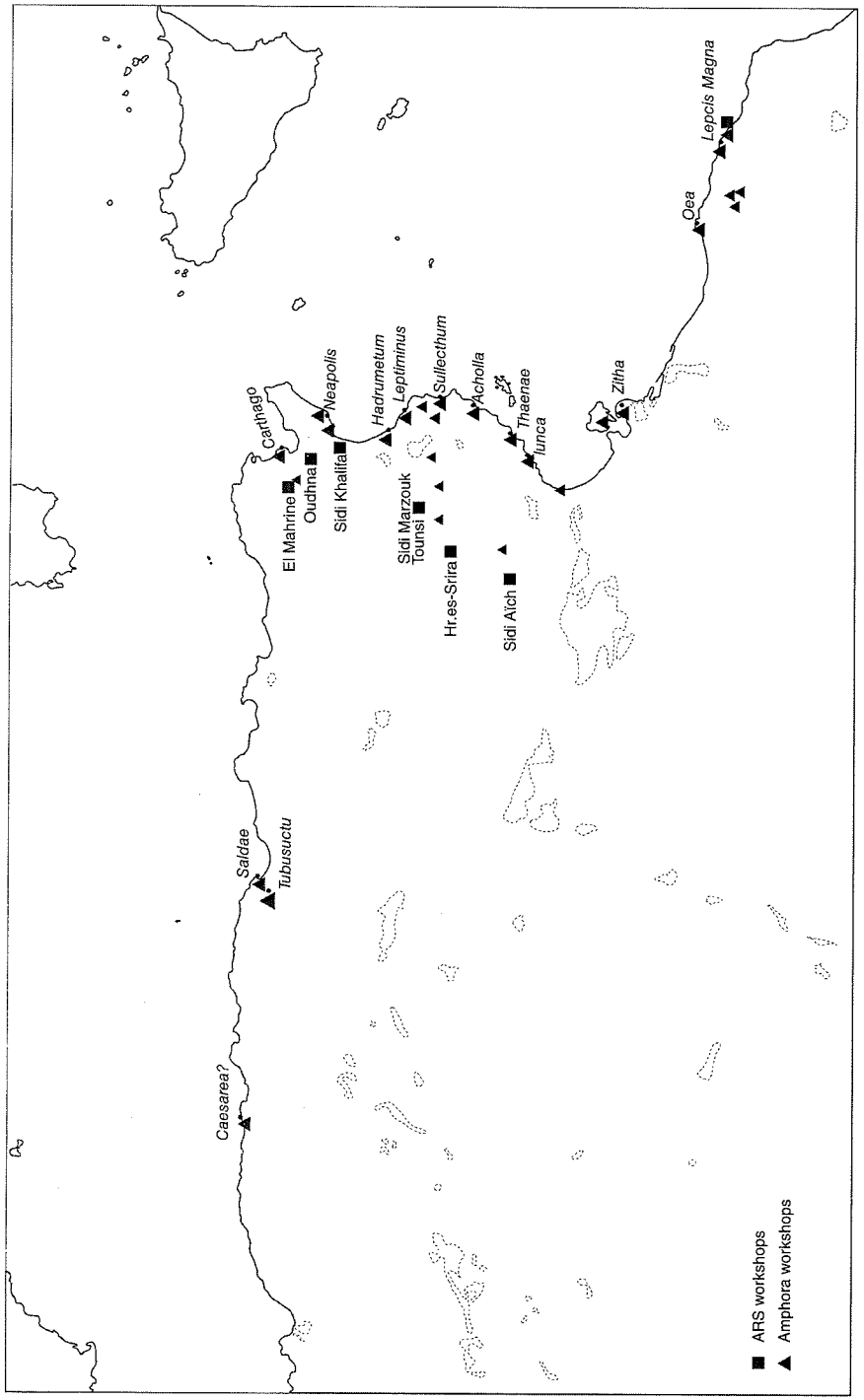

Fig. 11.1. Map of the main African pottery workshops (after Bonifay and Tchernia 2012)

throughout the Mediterranean. But we must question whether a Sullecthum or a Nabeul amphora found in one location in the Mediterranean is always an indication of the importation of a product originating in one or both of these cities, or whether, on the contrary, we have a situation, on a smaller scale, similar to that of the Cadiz amphorae that were filled with salted fish from Morocco. The evidence of the supply of empty containers to agricultural or fish production centres is still very poor, though it seems mainly to be linked with salted fish production, on Cap Bon (late Roman salteries of the region between Korba and Kelibia, where many Keay 35B amphorae originating in the Nabeul workshops were found)[25] and perhaps some islands in the straits of Sicily (Sullecthum amphorae); it has also been suggested that the Jerba workshops could have supplied some cities in the Tunisian area of Tripolitana with containers.

So, in Tunisia, and to a lesser extent in Libya, things are becoming clearer, though such precise specification could also be dangerous if used inflexibly.[26] But perhaps Morocco is not really Africa,[27] and we are still missing a huge amount of information—from Algeria.

WHAT WAS INSIDE AFRICAN AMPHORAE?

For some time it has been evident that African amphorae were mainly carrying olive oil.[28] Nevertheless, more and more exceptions have come to light, and a dispute has been growing since the end of the 1970s.[29] More recently, African amphorae have been less and less considered as having carried olive oil. One of the most debated questions was the presence or absence of an internal pitch lining. Pitch was said to be incompatible with oil, so all the pitched African amphorae (and there are a lot) were considered not to have transported oil. But now, even if I contributed considerably to the dispute over olive oil being the main content of African amphorae,[30] I fear that scholarship went too far in this direction. Two points need to be stressed.

First, chemical analyses have recently provided a lot of new and surprising results. For example, the samples of African amphorae analysed by N. Garnier demonstrated that most of them had chemical traces of olive oil as well as

[25] Bonifay et al. (2002–3: 155).

[26] For the moment, it is difficult to identify the amphora types that could have distributed the olive oil produced in the Medjerda valley (Thugga). Cf. De Vos (2007: 48–9).

[27] Although see Papi, Chapter 14, this volume.

[28] See in particular Carandini (1970); Panella (1973); Manacorda (1977); Keay (1984); Mattingly (1988).

[29] Lequément (1975, 1976, 1980).

[30] Bonifay (2007a).

chemical traces of pitch.[31] In addition, ten African amphorae from a late-fifth-century warehouse in Classe, the port of Ravenna, were recently analysed by Alessandra Pecci and showed traces of castor oil, and had a pitch lining![32] Henceforth, we must acknowledge that pitch is fully compatible with oil: it is possible that more or less all amphorae were pitched, even those for transporting olive oil.[33] However, with a few exceptions,[34] no traces of pitch are visible inside the amphorae that probably contained oil, perhaps because the slow decomposition of the pitch into the oil was absorbed into the pores of the pottery. In conclusion, even if the chemists can tell us that oil amphorae were initially pitched, the clear visual observation of significant traces of pitch inside African amphorae remains a strong argument for contents other than oil.

Second, we cannot exclude in some cases the possibility of reuse of the amphorae, and this eventuality considerably weakens the conclusions we have drawn from the typology of amphorae in connection with their contents. In other words, in Africa, does one amphora type always correspond to one (and only one) content? I now believe the answer could vary according to the location and the chronology. For example, it is possible that the reuse of amphorae did not have the same frequency in Africa as in northern Italy, nor on the coastline of Africa (for example, Pupput or Nabeul) and its internal zones (for example, Dougga). In the same way, the reuse of amphorae probably did not have the same frequency during the second to third century as during the fifth to sixth century (as evidenced through the difference between the Monte Testaccio and Classe warehouses?). Nevertheless, I maintain that the presence and the absence of a clearly visible pitch lining are significant, at least for primary cargoes and during the early and mid-Roman periods, otherwise it would not make sense why some African types regularly present traces of pitch (Africana II) and others not (Africana I) (Fig. 11.2). Furthermore, the fact that the latter were present in Monte Testaccio between the mid-second and mid-third century, associated with other supposed oil containers such as the African Tripolitana I and III and Spanish Dressel 20, prove that they probably contained olive oil.

So, the point is not to deny the possibility that African amphorae carried olive oil, but to canvass the idea that the contents of these amphorae were probably more diverse than previously assumed.

As an alternative content, it can be suggested that some African amphorae carried *salsamenta* and *garum*. And, in fact, there is no doubt that they did: fish remains were present in several Africana II amphorae (Fig. 11.2) found in

[31] Garnier (2007); Garnier, Silvino, and Bernal Casasola (2011).
[32] Pecci et al. (2010).
[33] Romanus et al. (2009); Pecci and Cau Ontiveros (2010); Garnier, Silvino, and Bernal Casasola (2011).
[34] Garnier, Silvino, and Bernal Casasola (2011: 411).

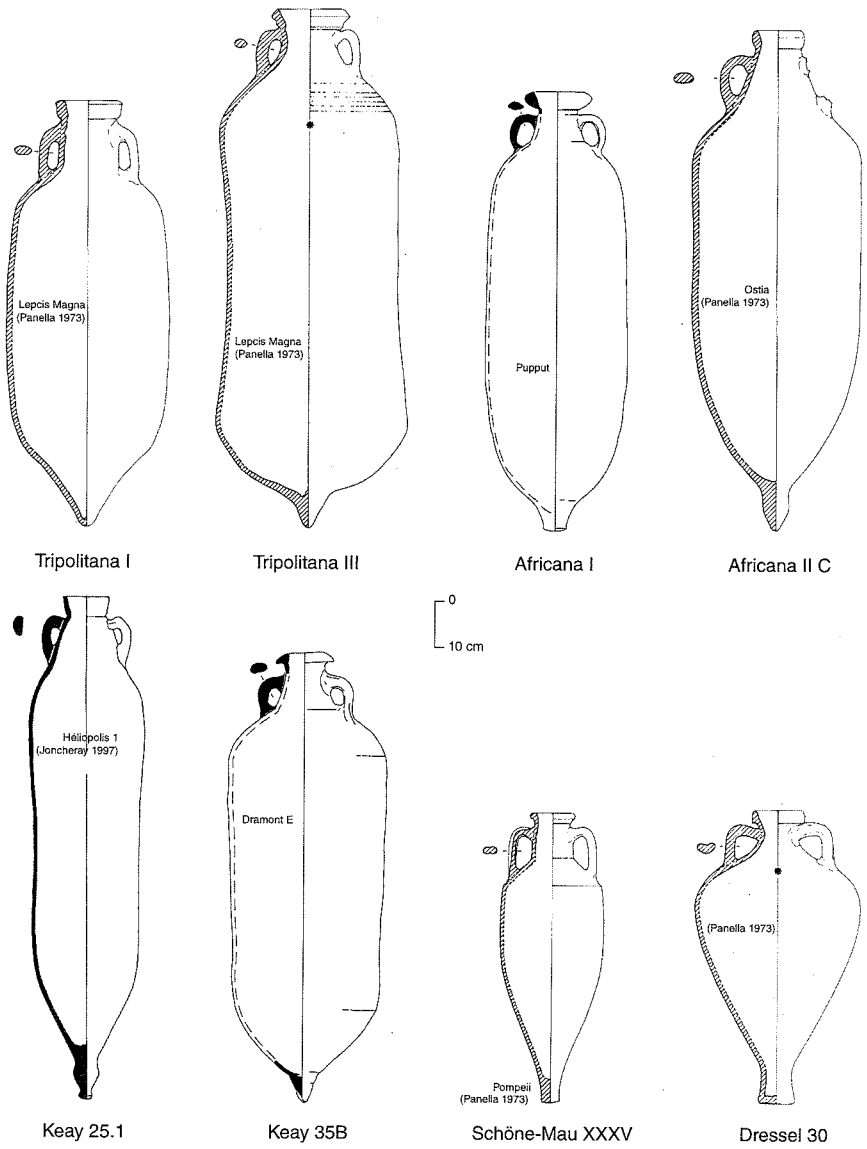

Fig. 11.2. African amphora types mentioned in the text

a series of third-century shipwrecks in the western Mediterranean (for example, Cabrera III in Majorca).[35] Moreover, we are now well informed about *salsamenta* production in Africa Proconsularis, since the survey of the Tunisian

[35] Bost et al. (1992: 143). In Majorca also, see the Cabrera I wreck (Bost et al. 1992: 13–14) and the Cap Blanc wreck (Parker 1992: no. 176).

coastline published by H. Slim and P. Trousset[36]—production that was significant in some cities, like Nabeul, where Roman fish salteries took up a large area of the town from the first to the third century.[37] So, as far as the mid-Roman period is concerned, it seems that the distinction between two types of African amphorae, produced in the same workshops as shown by the similarity of the stamps, did correspond to two different contents, as initially assumed by the fathers of African amphorae studies, F. Zevi and A. Tchernia.[38]

But the problem becomes more complex when we move to the third main product commonly packaged in amphorae during antiquity, and perhaps the most important one: wine. Wine production has been always underestimated in Africa because of a propensity to associate all the remains of presses in Africa with olive-oil production. However, the same type of pressing equipment could be used for oil and wine, as J.-P. Brun demonstrated,[39] and we need more excavations in order to decide between oil and wine. Another difficulty is that cellars with rows of *dolia*, one of the best markers of wine production in most regions of the Empire, did not exist in Africa Proconsularis, where amphorae were used instead. Nevertheless, we have at our disposal numerous literary references to wine production in Africa from the first to the fifth century and also some epigraphic evidence.[40] But it has often been assumed that this wine production was mainly consumed locally and that the wine was packaged in skins.[41] In fact, skins and even barrels, as recently shown by Marlière and Torres Costa,[42] were particularly well adapted in Africa to transport by road of both wine and oil (because oil had to be transported to the port cities, where it was bottled before being exported overseas, as shown by Peña[43]). But some amphorae also demonstrate the distribution of African wine throughout the Mediterranean (Fig. 11.2). It seems obvious that the Tripolitanian type Schöne-Mau XXXV was imitating the Italian wine amphora Dressel 2/4 during the first and second centuries, and that the Mauretanian and Tunisian type Dressel 30 was imitating Gaulish wine amphorae during the third century, which points to the overseas commercialization of African wine. But could some later types have carried wine as well? The type Keay 25 was probably the most widely distributed amphora around the Mediterranean during the fourth century. It was always pitched and did not usually carry olive oil, as demonstrated by the fifteen samples recently analysed by N. Garnier;[44] moreover, a series of new analyses showed traces of

[36] Slim et al. (2004). [37] Slim et al. (2007).
[38] Zevi and Tchernia (1969). [39] Brun (2003).
[40] All quoted in Lequément (1980) and Brun (2003). See in particular: Strabo (XVII. 3, 4); Columella (*Rust.* III. 12, 5 and 15, 4–5; V. 5, 4; *De Arboribus*, 4, 1, and 4–5); Plinio (*NH* XIV. 120); and Augustine (*Ep.* 22, 29; *De bapt.* 20, 25; *Ep.* 93, 49).
[41] Martin-Kilcher (1998: 515). [42] Marlière and Torres Costa (2007).
[43] Peña (1998). [44] Garnier (2007).

tartaric acid, a marker of wine, inside several examples of Keay 25 subtype 1.[45] As this type appears at the end of the third century or the beginning of the fourth century, I wonder whether it could not have been devoted to the transport of poor quality wine, linked to the *canon vinarius* instituted at the same date?[46] Boudewijn Sirks does not exclude the possibility that Africa contributed to the *canon vinarius*,[47] while Domenico Vera thinks that only Italy was subjected to this fiscal measure.[48] From this point of view, it can be said that the contents of the fourth-century Keay 25 amphorae is one of the key problems for studies of Roman African trade.

In conclusion, when dealing with the distribution of African amphorae, we must keep in mind that the contents are not always the same in the same chronological period (Africana I and II) according to the form, but also that the main products exported overseas may have changed over time—for example, oil dominated between the mid-second and mid-third centuries, possibly *salsamenta* during the third century (mainly the second half), and perhaps wine (?) during fourth century.

WHAT WAS ARS TRAVELLING WITH?

As it is commonly assumed that the tablewares did not travel for their own value, how can we explain the outstanding distribution of ARS, 'the most widely distributed pottery of the Mediterranean in the whole of classical Antiquity?' For A. Carandini, ARS was 'no more than a simple accompanying product' of African oil.[49] Other scholars also considered grain, at least for explaining the beginning of the exportation of ARS before the second-century 'olive boom',[50] or to account for the huge amount of ARS in the eastern Mediterranean compared to the scarcity of African amphorae.[51]

Nowadays, what seemed to be a chronological or geographical exception—ARS without amphorae at the end of the first century and in the eastern Mediterranean—may be considered as a rule. Most scholars assume that ARS did not normally travel with African amphorae. The traditional diptych between amphorae and tablewares,[52] built according to the distribution pattern of Campanian Black Gloss wares, does not work with ARS, as the following observations will prove. First, the examples of the dissociation between African

[45] Formenti and Joncheray (1995); Woodworth et al. (2015). On the other hand, samples of Keay 25 subtype 3 revealed traces not of tartaric acid, but of possible animal fat, perhaps evidence for the transport of fish products.
[46] According to Vera (2005), the *canon vinarius* was instituted not under the reign of Aurelian but later, during the Tetrarchic period.
[47] Sirks (1991: 392, and n. 24). [48] Vera (2005: 249). [49] Carandini (1983).
[50] Mattingly (1988). [51] Panella (1993). [52] Morel (1983).

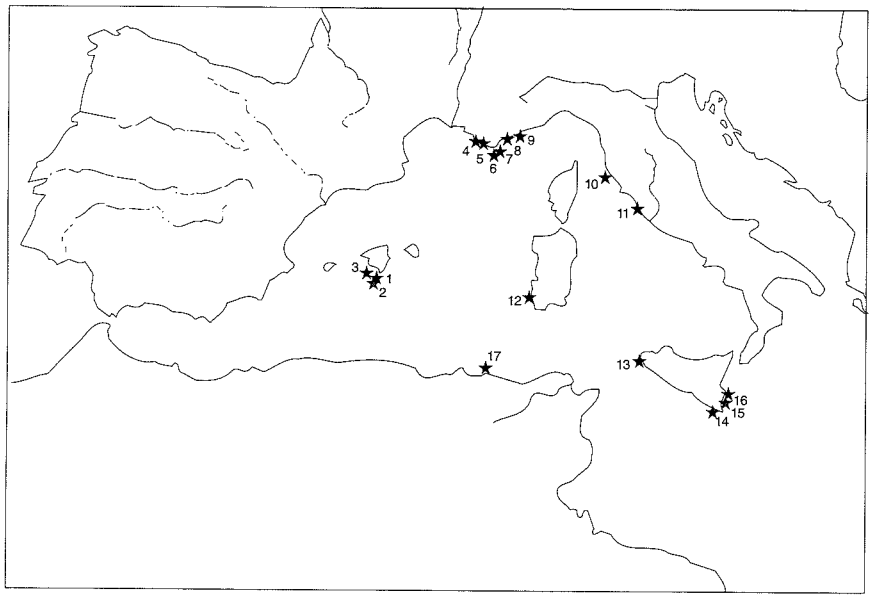

Fig. 11.3. Map of the shipwrecks mentioned in the text

Note: 1: Cabrera III; 2: Cabrera I; 3: Cap Blanc; 4: Pointe de la Luque B; 5: Port-Miou; 6: Héliopolis 1; 7: La Palud; 8: Pampelonne; 9: Dramont E; 10: Giglio Porto; 11: Trincere; 12: Fontanamare A; 13: Marausa; 14: Femmina Morta; 15: Ognina A; 16: Plemmirio B; 17: Cap de Garde.

amphorae and African tablewares have become more and more numerous: tablewares are more abundant than amphorae in the eastern Mediterranean, but also in Portugal[53] and in Egypt, while amphorae are more numerous than tablewares along the Germanic *limes*. Secondly, tablewares are rarely associated with amphorae cargoes (Fig. 11.3). For the mid- to late Roman period, only two secure ARS cargoes are known, in the Femmina Morta wreck (Sicily)[54] and in the Fontanamare A wreck (Sardinia),[55] both dating back to the beginning of the fourth century, but in these cases we must point out that both the amphorae and the ARS cargoes are heterogeneous (African and Spanish amphorae; Northern and Central Tunisian ARS). On the other hand, the two best-known homogeneous ARS cargoes date to the mid-fifth century (Dramont E and Port-Miou, Provence) and perhaps already are post-Roman cargoes.[56] Thirdly, coming back to A. Carandini's hypothesis about olive oil as a vehicle for ARS distribution, we must consider that the main ARS workshops were not located in the main areas of olive-oil production. This fact is particularly evident for the fourth-century ARS D workshop of the lower Medjerda valley, a region

[53] Reynolds (1995). [54] Parker (1976–7).
[55] Dell'Amico, Facenna, and Pallares (2001–2).
[56] Santamaria (1995); Deneauve (1972).

more adapted to the production of grain. C. Panella has already pointed out the chronological coincidence between the founding of Constantinople and Africa becoming the principal grain supplier of Rome, which saw the development of the new ARS D workshops (El Mahrine and its neighbours), while Egypt from now on supplied the new metropolis.[57]

So, the trend nowadays is to consider that grain was the main product that ARS was travelling with. And, if the end of the widespread exportation of African oil did not mark the end of ARS, as proposed by A. Carandini, to some extent the end of the widespread exportation of African grain perhaps did. The drop in ARS exports from the second quarter of the fifth century onwards is not, as J. W. Hayes pointed out,[58] a theoretical point of view but is proven more and more with the publication of new eastern Mediterranean and even western Mediterranean contexts.[59] Even if the drop is less visible in the west than in the east,[60] things are changing; in particular, the sources of ARS supply are not the same. The Medjerda valley workshops seem to become less dynamic, and are replaced on the Mediterranean markets by the gulf of Northern Hammamet workshops (Sidi Khalifa) and by the revival of the Central Tunisian ones (Sidi Marzouk Tounsi: category C5). Lastly, it now seems obvious that this 'major shift in trading patterns'[61] occurred from as early as the beginning of the fifth century, well before the arrival of the Vandals in Africa.

Also, the revival of ARS exports from the sixth century onwards cannot be explained simply by the Byzantine reconquest, as has been previously assumed by some scholars, because this phenomenon seems to start in the first decades of the sixth century.[62] Moreover, the resumption of the grain supply could explain the revival of ARS export in the eastern Mediterranean, but not in the western Mediterranean, other than in some areas of Italy and south-eastern Spain under Byzantine rule. But the tendency to link ARS supply in the western Mediterranean with the geography of the Byzantine territories[63] does not always work, as shown in Italy by the example of Sant'Antonino di Perti, which was still supplied with ARS well after the Lombard conquest of 646, and in Spain by the example of Cartagena, where the chronology of the last occupation levels may postdate the sacking of the city by the Visigoths in AD 625.[64]

[57] Panella (1993). [58] Hayes (1972: 423).
[59] In the eastern Mediterranean, now see Bes (2015); in the western Mediterranean, see Fentress and Perkins (1988), Fentress et al. (2004).
[60] I am not sure that the minor changes I recently proposed for the dating of some ARS forms can provide such a dramatic change in the distribution curves of ARS in the eastern Mediterranean, as evidenced in Bes and Poblome (2009: fig. 3).
[61] Hayes (1980: 517).
[62] Paralleled by the growth of eastern Mediterranean imports (amphorae) in Carthage at the same time, perhaps a reflection of the closer relations between the Vandal state and Constantinople in the early sixth century: Fulford (1983: 11).
[63] e.g. Zanini (1998) for Italy. [64] *contra*: Reynolds (2010: 121, and n. 442).

In conclusion, when dealing with ARS distribution, we must keep in mind that this product does not have the same significance before and after the mid-fifth century, and that the primary cargo this tableware was travelling with may have changed over time.

WHAT MECHANISMS ALLOWED AFRICAN POTTERY TO REACH ITS DESTINATION?

The fact that the African pottery had such a large distribution does not imply that this distribution results from the same commercial mechanisms everywhere, in both the Roman and the post-Roman world. Asked in 2008 to reflect on this question in the framework of the project 'Port Networks in the Roman Mediterranean', directed by S. J. Keay, both A. Tchernia and I proposed distinguishing at least four different patterns of distribution (Fig. 11.4).[65]

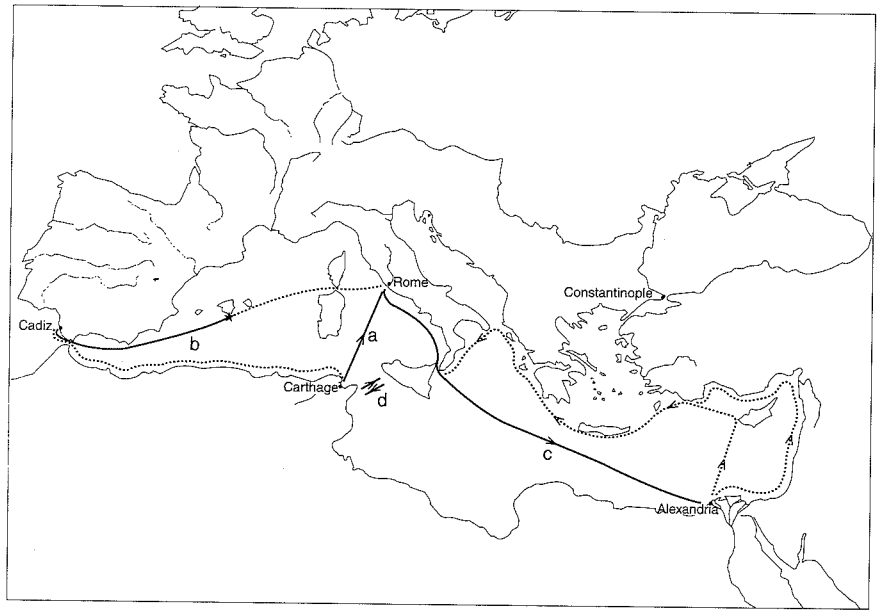

Fig. 11.4. Patterns of African pottery distribution (after Bonifay and Tchernia 2012)

[65] Bonifay and Tchernia (2012).

(a) Direct Routes to Rome or Other Main Ports

This type of distribution is the first one that comes to mind when we think about the distribution of African wares. Several shipwrecks with a homogeneous or nearly homogeneous cargo illustrate this type of direct journey (see Fig. 11.3).[66] In this case, it is perhaps surprising to find cargoes originating, not from Carthage, but from other cities mainly situated on the eastern Tunisian coast. Typology and archaeometry tell us that the shipwrecks Ognina A[67] and Plemmirio B,[68] sunk off Sicily between the end of the second century and the beginning of the third century, and Héliopolis I,[69] sunk off the Provençal coast at the beginning of the fourth century, could have come from Sullecthum. Originating from Nabeul are the very similar wrecks of Pampelonne in Provence[70] and Marausa in Sicily,[71] both of which date back to the fourth century, and probably also the post-Roman wrecks of Dramont E[72] and La Palud,[73] on the Provence coastline, of the mid-fifth and mid-sixth centuries. From Leptiminus is perhaps the wreck of Giglio Porto[74] in the Toscan archipelago, of third-century date. In all cases, the ships transported diverse foodstuffs: oil, *salsamenta*, and pickled olives, in one case associated with a tableware cargo (Dramont E). It is possible that the African merchandise was gathered in an African warehouse before leaving for Rome or another main port. This is probably the case for the Trincere wreck,[75] sunk off Tarquinia in the first half of the third century, with a mixed cargo of Sullecthum amphorae and Carthaginian cooking wares; this is also the case for Pointe de la Luque B,[76] sunk at Marseilles in the mid-fourth century, which included both Nabeul amphorae and possibly Algerian ones, together with a complementary cargo of Cherchel or Tipasa lamps.

(b) Indirect Routes to Rome or Other Main Ports

Even more heterogeneous, a series of mid- to late third-century shipwrecks contained a mixed cargo of both Spanish and African amphorae. Spanish amphorae were always more numerous than African ones, and the loading of the goods seems to have been performed at the same time in the same port. A model for this type of heterogeneous cargo is Cabrera III (Majorca, *c.* AD 267), which contained Baetican oil and *salsamenta* associated with African

[66] Bonifay (2007b). [67] Kapitän (1972). [68] Gibbins (2001).
[69] Joncheray (1997). [70] Lequément (1976).
[71] Tusa, Ampola, and Lentini (2004). [72] Santamaria (1995).
[73] Long and Volpe (1998). [74] Celuzza and Rendini (1991).
[75] Pontacolone and Incitti (1991). [76] Dovis-Vicente (2001).

salsamenta amphorae, and was probably loaded in Cadiz (see Fig. 11.3).[77] If we assume that the African amphorae were initially transported to Spain and then redirected towards Rome (or elsewhere in the Mediterranean), this kind of indirect journey seems to have ensured the distribution of a substantial amount of African *salsamenta* during the mid- to late third century and the beginning of the fourth century, as shown by a dozen or so wrecks scattered in Spain, the south of France, Italy, and Croatia.

(c) Return Cargoes from Rome

Until now, we have dealt only with the western Mediterranean. But how did ARS (and to a much lesser extent African amphorae) manage to reach the eastern Mediterranean? E. Fentress highlighted the possible role of Rome 'as an entrepôt between Africa and Sicily', suggesting that some ports in Sicily could have been supplied with ARS by ships coming from Rome and going back to Africa.[78] More recently, Philip Bes suggested that Alexandria could have acted as a centre of redistribution of ARS, collected from the *annona* ships returning from Rome.[79] A. Tchernia and I proposed an extension of this pattern, considering that from the month of June onwards, because of the direction of the wind, it was no longer possible for the *annona* ships to follow a direct route to Rome.[80] They had to sail eastwards up to Lycia and then turn westwards along the southern coast of the Peloponnese or Crete towards the straits of Messina. Such a journey could explain the widespread distribution of ARS in Lycia, southern Peloponnese, and Crete.[81] According to this hypothesis, an ARS plate found in Crete could have moved from Tunisia to Rome, and then from Rome to Alexandria, and finally from Alexandria to Crete. Nevertheless, this hypothesis could be weakened by the fact that ARS was mainly distributed to the eastern Mediterranean after the collapse of the Egyptian grain supply to Rome *c.* AD 330.

(d) Cabotage (Local or for Redistribution)

Another mechanism well highlighted by E. Fentress in Sicily is cabotage.[82] It is obvious that cabotage could have played an important role in the redistribution of ARS, generally speaking. But in the case of Sicily, given the proximity of Sicily to Africa, it probably played a role in primary distribution. The Italian–French project investigating the distribution of African pottery in Sicily fully

[77] Bost et al. (1992). [78] Fentress et al. (2004: 157). [79] Bes (2015: 135).
[80] Arnaud (2005: 27). [81] Bes (2015). [82] Fentress et al. (2004: 157).

confirms Fentress's hypothesis.[83] The facies of the African amphorae, tablewares, cooking and coarse wares, and so on in the western part of Sicily (the region of Marsala) are identical to the facies of the Cap Bon region (Nabeul) pottery. In this case, we might suggest that the ARS was not part of the seaborne trade of expensive foodstuffs but was perhaps commercialized on a small scale for its own value.

So, the presence of an ARS ware or amphora sherd in one place can be explained by several different mechanisms, variable over time, and we must take care not to simplify too much the processes of the distribution of African pottery.

ATTEMPTS AT INTERPRETATION

The four previous sections have demonstrated the geographical origin of African wares, the amphorae content, the question of the main foodstuffs accompanied by ARS, and the different mechanisms of African ware transportation, and highlight the difficulties we have to deal with when studying the distribution of African pottery and the questions that have still not been resolved.

But, pointing out these difficulties must not be 'simply a way of giving up on writing history',[84] and we still need to put forward new models in order to try, again and again, better to explain the distribution of the African pottery (amphorae and ARS). In the attempt to form new interpretations, I have chosen three parallel and complementary keys to further our understanding, which are D. Mattingly's perception of plural Roman economies,[85] D. Vera's highlighting of the importance of demand in the Roman economy,[86] and the description of the Roman 'agrarian markets' proposed by P. F. Bang.[87]

(a) The 'Imperial Economy'

What D. Mattingly calls the 'imperial economy' could explain the massive presence of African oil amphorae in Rome from the mid-second century onwards,[88] and in particular the increase of Tripolitanian amphora imports during the first quarter of the third century, when the *canon olearius* had been

[83] Malfitana, Bonifay, and Capelli (2007). [84] Bang (2008: 3).
[85] Mattingly (2007). [86] Vera (2010). [87] Bang (2006; 2008).
[88] Rizzo (2003: 222). Even if oil was not freely distributed until the reign of Septimius Severus, it seems that the regularity of its supply had to be controlled by the *praefectus annonae* from the end of the reign of Hadrian onwards (Christol 2008).

instituted. In fact, Rome seems to contain most of the imports of African oil amphorae and most of the stamped ones.[89] The significance of stamps is quite clear when dealing with Tripolitanian ones mentioning an imperial estate or a senatorial family. But stamps mentioning a city name (Neapolis, Hadrumetum, Leptiminus, Sullecthum) do not necessarily have to be interpreted as evidence of city control over the supply to Rome,[90] because such stamps are also present on salted fish amphorae (Africana II), whose content does not ever seem to have been an *annona* product, and on wine amphorae (Dressel 30 from Tubusuctu), which pre-date the institution of the *canon vinarius*.

On the other hand, the chronological coincidence between the appearance of a new, widely distributed African amphora type (Keay 25) and the institution of the *canon vinarius* at the beginning of the fourth century (if we follow Vera 2005) is quite striking. Nevertheless, if most of the Keay 25 amphorae of the fourth century were really transporting wine,[91] it is difficult directly to link the increase of these imports to the imperial economy, because these amphorae were distributed everywhere and not only in Rome, which seems to have been supplied mainly with the wine of the Italian provinces.

Finally, the *canon frumentarius* could be a possible explanation for the presence of ARS in Rome and, by ricochet (that is, the return cargoes) for the distribution of ARS not only in some major ports of the western Mediterranean (for example, in Gaul and in Spain), but also in Alexandria and in the Aegean, at least until the beginning of the fourth century. On the contrary, this model could hardly explain the massive distribution of ARS in the eastern Mediterranean after the foundation of Constantinople, except at the very end of the period, when the Byzantine Empire became more dependent on the African grain owing to the loss of Egypt in AD 642.[92] At this stage, if we wanted to link—directly or indirectly—the distribution of ARS in the eastern Mediterranean to the imperial economy (and subsequently assign the disruption of this distribution to the mid-fifth-century collapse of the *annona* system), we might suppose that after *c.* AD 330 either some Egyptian fiscal grain was still supplying Rome or some African fiscal grain was from now on supplying Constantinople, for neither of which hypotheses do we have any historical evidence.

(b) The 'Extra-Provincial Economy'

In order to proceed in our attempt at interpretation, it is perhaps necessary to put forward a second level of the Roman economy, the free market economy,

[89] Stone (2009). [90] Manacorda and Panella (1993); Reynolds (1995: 47).

[91] Woodworth et al. (2015). Other contents are not completely excluded: oil (variant to be defined), and fish products (possibly subtype 3). See also Reynolds (2010: 144, and nn. 331, 444).

[92] Vera (2010).

which has been recently highlighted by D. Vera,[93] even if the organization of this market trade was probably quite different from the modern equivalent.[94]

First, as far as the eastern Mediterranean is concerned, it does not seem completely unreasonable to imagine that Egyptian grain was still reaching Rome during the fourth century, but in this case it would be free market grain, arriving at Rome because of the brutal imbalance provoked by the new direction imposed on the Egyptian fiscal grain.[95] Thus, the eastern Mediterranean could still have been supplied with ARS (but not with amphorae) through return cargoes, and the first drop in ARS in this region, probably observable at the beginning of the fifth rather than in the middle of the century,[96] could be linked to a decrease in the western market, itself linked to new sources of grain supply[97] and/or to a drop in the population of Rome.[98]

Second, as we have seen, the homogeneous African cargoes of wrecks discovered on the southern coastline of Gaul, as well as the Spanish–African mixed cargoes discovered in the Balearics, seem to prove that African foodstuffs were not solely redistributed from Rome. Therefore, we need the concept of a free market in order to help us explain, in the same way as the concept of an imperial economy did, the huge distribution of African foodstuffs in the western provinces.[99] We have already brought up the 'opportunistic speculation'[100] that could have generated the possible supply to Rome of free market Egyptian grain during the fourth century. But the three other elements of the 'bazaar'-shaped free market(s), as described by P. F. Bang, also find striking—even if sometimes ambiguous—testimonies.[101] The 'parcelling of capital' and its maritime expression, 'smallish ships',[102] is clearly evidenced by underwater archaeology, not only at a general level,[103] but also by homogeneous African wrecks;[104] moreover, the composition of such cargoes seem to reflect 'a slow trickle of goods arriving in many individual instalments'.[105]

[93] Vera (2010). [94] Bang (2006; 2008).

[95] I thank B. Sirks, E. Lo Cascio, during the conference, and D. Vera, by mail, for helping me to reflect on this hypothesis. According to D. Vera, such a hypothesis could be effective in the decades following *c.*330, but it seems more probable that, at the end of the fourth century, Rome was entirely supplied by African, southern Italian, and island (Sardinia and Sicily) grain. See also Vera (1997–8).

[96] Bes (2015). [97] Vera (1997–8). [98] Zanini (1996: 682, and fig. 9).

[99] And maybe in the eastern Mediterranean, as an alternative to the return cargo explanation, as suggested by D. Vera in a personal communication. Some major cities (e.g. Alexandria) organized their own *arca frumentaria*.

[100] Bang (2006: 82). [101] Bang (2006: 80–3). [102] Bang (2006: 81).

[103] Boetto (2012: 167): 'Ces petites embarcations sont révélatrices, au même titre que les plus gros tonnages, de grands trajets.'

[104] The ship *Héliopolis I*, sailing from Salakta to Marseilles or Arles (?) at the beginning of the fourth century, was 'un petit bâtiment de 12 à 14m de longueur' (Joncheray 1997: 164). The ship *Dramont E*, dating back to the second quarter of the fifth and sailing from Nabeul to Marseilles (?), was about 15 m long and of about 45 tonnes capacity (Santamaria 1995: 175–8).

[105] See the case of the Cap de Garde wreck at Annaba (Lequément 1975).

The 'social networks' between merchants[106] could find an archaeological reflection in the strange Spanish–African mixed cargoes of the second half of the third and the beginning of the fourth centuries. Last but not least, why not consider the very formal stamps with the city name as a response to the 'low standardisation of the products',[107] owing to the variable conditions in which these foodstuffs (oil, *salsamenta*, wine) were processed, in order to win the trust of the buyer?

Finally, as an expression of the inter-provincial economy and of the market trade, we should not forget to mention the caravan trade through the desert from Africa towards Egypt, as it seems that a part of the ARS and even some African amphorae found in the oases of the western desert and even in the Nile valley came not by sea but by road.[108]

(c) The 'Provincial Economy'

As D. Mattingly explains that 'the provincial economy intersects with extra-provincial economies, whereby inter-regional movements of goods took place across customs zones at provincial boundaries', I think we could include in this category not only the trade within the huge province of Africa Proconsularis, well attested by archaeology,[109] but also the circular trade in the straits of Sicily, between Sicily and Tunisia. The strong connection between the pottery assemblages found on each side of the straits witness a very local trade, maybe a sort of peddling trade.[110] In the same category, we have to include the road-based trade in central Roman Africa, which permitted diverse foodstuffs to travel from the gulf of Sirte to inland regions of Numidia and Mauretania Caesariensis, as attested by the tariff of Zaraï[111] and by the distribution of the central and south-western ARS productions at Sétif and its surroundings.[112]

As shown by the short preceding remarks, and mostly by publications on African pottery since the early 2000s,[113] this reflection on the distribution of African pottery in terms of economic history is still making constant and rapid progress. Since the 1970s the explanatory models have drastically moved towards more and more complexity, when considering the origin of the productions, the foodstuffs transported by the amphorae or accompanied by ARS, and the different mechanisms of trade. For the moment, at least one

[106] Bang (2006: 83; 2008: 239–89). [107] Bang (2006: 82).
[108] Bonifay (2007c); Ballet, Bonifay, and Marchand (2012).
[109] Bonifay (2004: 449–52). [110] Bang (2006: 78).
[111] Trousset (2002–3). This text is now echoed by the recent discovery of third-century Mediterranean amphorae at Lambaesis (Bouteflika, Kitouni-Daho, and Malek 2011: 54).
[112] Bonifay (2013).
[113] One of the most recent and important ones is the brilliant synthesis published by Reynolds (2010).

thing is sure: we need more conferences like the one from which this volume originates, appealing to a close collaboration between archaeologists and historians, in order to extract from the African pottery all the information this modest documentation could legitimately provide us.

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