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THIRST FOR WINE?

An amphorae assemblage from Vesuvius and the problem of self-sufficiency in late antique Campania

1. Introduction

Buried by two eruptions, in AD 79 and 472[1], the archaeological sites in the environs of Mount Vesuvius have the potential to harvest high-resolution data like the remains of carbonised leaves[2] and ploughing furrows, which can be used alongside with the artefacts to capture a more holistic picture of ancient life and economy at the time of the catastrophes. Within this framework, the amphorae assemblages can illuminate on the trade of some staple food – wine, oil, and *salsamenta* – and potentially reveal for each of them the degree of dependence of a region on others. In order to do so, proper quantifications are needed but rarely they are carried out even in Pompeii, where the minimum number of individuals (NMI) or the estimated vessel count (EVC) is available only on partial data in just a couple of instances[3].

This contribution[4] focuses on late antique Campania, in particular it compares the amphorae assemblages from *Neapolis* with one from a site in its countryside – the Roman villa with baths in Pollena Trocchia, on the northern slopes of Mount Vesuvius. These are in fact the only sites for which quantitative analyses have been made, while the others, despite the adequate number of publications currently available, are useful mostly for comparing amphorae types (**fig. 1**).

In *Neapolis*, the pioneering work by Paul Arthur at the baths of Carminiello ai Mannesi highlighted a considerable increase in the import of African amphorae from 20% in the 4th century AD to 44% in the 5th century AD[5], which he compared to a similar figure (42 %) for the mid-5th century AD *Schola Praeconum* in Rome to hypothesise a vast dependence on African oil for both cities. Arthur further developed this thesis in more recent years, by assembling the figures from all his excavations in the city[6]. Differently from Rome, the evidence from 4th century AD *Neapolis* revealed a rather small percentage of African amphorae, which nevertheless are attested in a certain variety of types. This situation changed in mid-5th century AD to a much larger portion of African amphorae (55 %)[7] and a reduction in typological varieties, which led him to conclude that Campania progressively lost its self-sufficiency and that the trade started being more State-regulated, as mirrored by the centralisation of the African productive units.

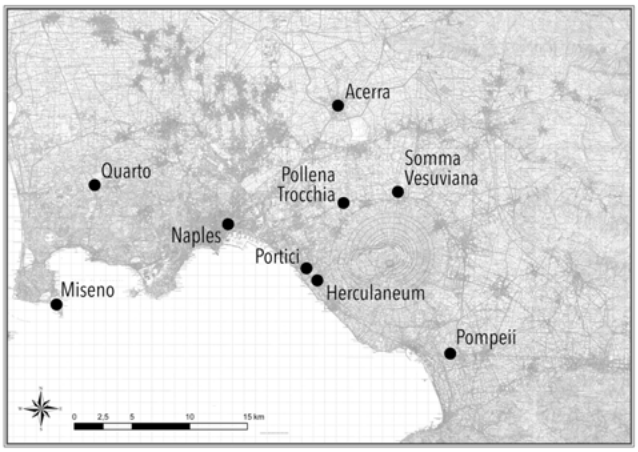

Fig. 1. Map of the environs of Vesuvius with indication of main sites with late antique amphorae.

More recently, the urban digs at the ancient harbour and theatre of *Neapolis*[8] provided sizeable datasets which have been thoroughly studied, up to the point that the percentage of unidentified individuals ranges from 2 % to 8 % in the 5th century AD contexts, thus provide solid figures for comparison (**fig. 3**).

In the case of the amphorae at the harbour, the comparison between the assemblages of the 4th and the 5th century AD shows an increase of African imports from 33 % to 62 %, as well as an increase of Italian products, while those from Spain and the Levant decrease. In the theatre the African amphorae are still the majority, but with a lesser percentage (40%), and the Italian ones are quite common as well (20 %), like at the harbour. This evidence has been interpreted by Carsana and Del Vecchio following the scheme created by Arthur, i.e. suggesting that Campania was not self-sufficient, although also a higher percentage of Italian products was noted.

This general picture frames the data that we are going to present. The site under deeper scrutiny is located on the

1 De Simone et al. 2011.
2 Vairo/De Simone in press.
3 E.g. De Sena/Ikäheimo 2003.
4 Section 1 is written by GFDS, section 2 by CSM; section 3 by GFDS and CSM..
5 Arthur 1985. The contexts of the 5th c. AD include amphorae which are sorted as follows: 44 % African, 10 % Eastern, 46 % Miscellaneous.
6 Arthur 2002.
7 54 % African, 6 % Aegean, 6 % Western, 34 % Miscellaneous.
8 Carsana/Del Vecchio 2010; Carsana/Del Vecchio 2014; Del Vecchio 2014.

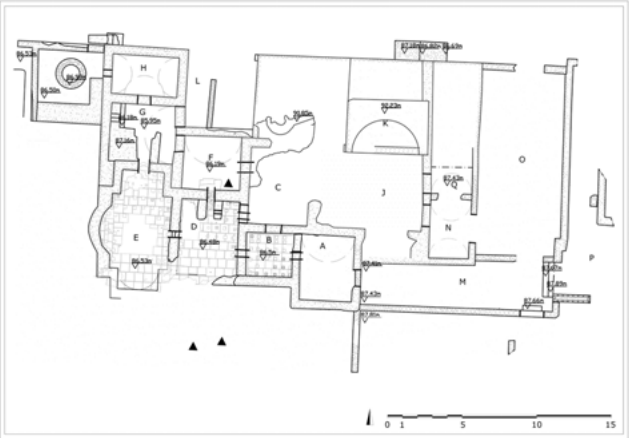

Fig. 2. Plan of the Roman villa with baths in Pollena Trocchia (drawing by J. Soucek).

north slope of Mt. Vesuvius, roughly at 90 m above sea level, in the ancient territory of Neapolis, in the present-day town of Pollena Trocchia. The site consists of a Roman villa with baths (**fig. 2**), set right above the volcanic ashes erupted by Vesuvius in AD 79, then buried by another eruption in AD 472. Despite the very long life of the site, the stratigraphic sequence is quite straightforward, since it shows the ashes of AD 79, the foundation of the walls, and a few contexts clearly dated by pottery and coins to the last phase of the site, in which nevertheless the residual pottery – mostly of the 3rd and 4th century AD – is often present[9]. In fact, during the 5th century AD the heated rooms of the baths were converted to a dumping area and cemetery. Of particular interest are the burials of some children, placed in the most recent anthropic context under the volcanoclastic debris of the AD 472 eruption. In one instance two burials are set one close to the other, the first in a LRA1, the other in a Keay 52, while another burial of a 6-years-old boy includes a coin of the Emperor Marcian, who ruled in the Eastern Roman Empire from AD 450 to 457.

2. The amphorae from Pollena Trocchia

The pottery assemblage from the Roman villa with baths in Pollena Trocchia includes 35,107 potsherds, with a minimum number of individuals (NMI) of 6,503; among these, the amphora fragments are 6,910 with an NMI of 166, which represents 2.55 % of the total NMI.

The amphorae fragments cover a wide timespan but in almost all instances they come from contexts dated to the 5th century AD. The vast quantity of residual pottery in all contexts is a key-feature of the site and can be explained by analysing the taphonomic process which created the strata. In particular, the majority of the contexts appear to be the result of the spoliation of the baths and the subsequent accumulation of debris in the 5th century AD.

In order to provide a comprehensive picture of the dataset, the most representative types are described in chronological order, while the table (**fig. 4**) comprises details on chronology and quantity of each identified amphora type.

Among the residual potsherds, the earliest amphora fragment is from a Dressel 1A, the wine container produced in Campania and dated to the 2nd–1st century BC. The rim has been found in a collapse right underneath the AD 472 eruption and perhaps was part of the Roman cement[10] (**fig. 5,1**).

Other few residual fragments are dated to the 1st–2nd century AD, i.e. roughly at the time in which the site was built. Noteworthy are a rim of Dressel 21–22 type 1a for *salsamenta*, produced in Sicily[11] (**fig. 5,2**), one Ostia LIX from the Byzacenan workshops of *Sullechtum*/Salakta, perhaps for olive oil[12] (**fig. 5,3**), and especially the Tripolitana I for olive oil transport, which is attested with 6 individuals[13] (**fig. 5,4–5**). Most of the rims are similar to the amphora found in the Laurons II wreck and can be dated to the first half of the 2nd century AD, which was the period of maximum exportation of this type in the west Mediterranean. Interesting are also two African imitations of Dressel 2–4[14] (**fig. 5,6**), produced in *Tripolitania* probably for the wine transport, like the Aegean and Italian models.

In Pollena Trocchia, all these artefacts come from contexts interpreted either as collapses or as results of dumping activities which took place in the 5th century AD, as the ubiquitous presence in each context of late antique artefacts proves[15].

Among the artefacts dated from the mid-2nd to the 3rd century AD there are mostly amphorae for olive oil transport of Tunisian (Africana Piccola, 22 specimens, **fig. 5,7–15**) and Tripolitanian production (17 specimens, **fig. 5,16–21**). The dataset encompasses the Africana IA/Keay 3A type (seven specimens)[16] dated to the end of the 2nd–early 3rd century AD and especially the Africana IB/Keay 3B type (15 specimens), dated until the mid-3rd century AD[17].

Among the Tripolitanian amphorae few are the specimens of Tripolitana II type (4 individuals), for oil or *salsamenta*[18], although in our instances the lack of pitch covering could exclude the second option. More frequent is the oil amphora of the Tripolitana III type, with nine individuals[19]. Most of

[9] Martucci et al. 2012.

[10] 0095.0008.

[11] Botte 2009, 149–156 fig. 11 type 1a (0367.0001).

[12] Bonifay 2004, 101 fig. 53,6 type 15 (0256.0004 found in a collapse context dated in the close of the 5th c. AD).

[13] Ibid. fig. 3,5 (0282.0028); 105 fig. 55a,2 type 19 (0336.0008, 0410.0014, 0418.0003, these two from the same dump context, 0413.0027).

[14] Ibid. 29 (in general); 146 fig. 79,1 type 56 (0467.0010, 0701.0013); 0280.0033.

[15] For example in the context 336 the Tripolitana I has been found with a Gazan LRA4.

[16] Bonifay 2004, 107 fig. 56,1 type 21/Africana IA (0410.0015, 0431.0009, 0447.0006, 0462.0012, 0467.0009). – Keay 1984 fig. 37,1 Africana IA (0462.0083); fig. 37,4 (0462.0080).

[17] Bonifay 2004, 107 fig. 56,4 Africana IB, type 21 (0053.0017, 0410.0003, 0410.0008); fig. 56,5 Africana IB, type 21 (0284.0022, 0284.0028); 107 fig. 56,6 Africana IB, type 21 (0280.0029, 0462.0070, 0462.0078). – Keay 1984 fig. 38,2 (0462.0061, 0462.0062); fig. 38,4 (0431.0007); fig. 38,12 (0462.0073, 0462.0074).

[18] Bonifay 2004, 89–92 (0091.0002, 0321.0010) and the later type ibid. 89–92 fig. 47,4 Tripolitana IIB, type 4 (0284.0021).

[19] Keay 1984, 133–136 fig. 51,1 (0131.0008); 133–135 fig. 51,3 (0280.0034). – Bonifay 2004, 105–107 fig. 55a,1 type 20 (0265.0003, 0284.0050, 0321.0011, 0410.0012, 0410.0013, 0462.0066); 105 fig. 55a,2 type 20 (0280.0037, 0282.0028).

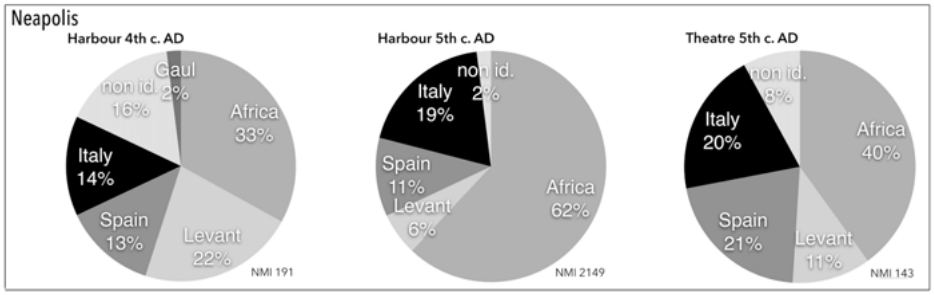

Fig. 3. Pie charts of the amphorae found in Naples, divided by provenance.

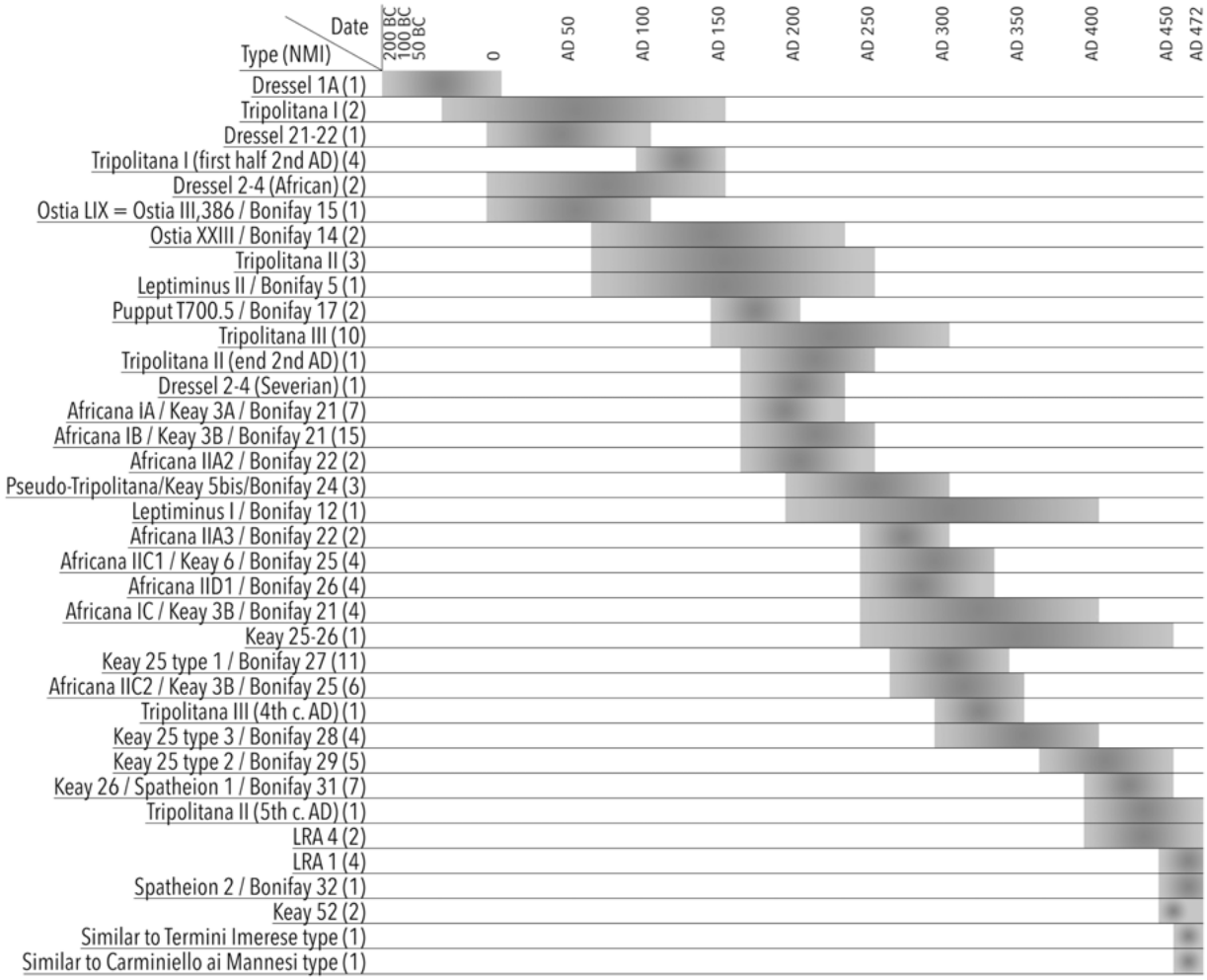

Fig. 4. Typo-chronological table of the amphorae from the Roman villa with baths in Pollena Trocchia.

the specimens find parallels with the productions found in *Lepcis Magna*[20].

The remaining amphora fragments for this period encompass few scattered types: the Ostia XXIII, probably produced in Byzacenan workshops and used for olive oil (two specimens)[21] (**fig. 5,22**); the *garum* amphora Leptiminus II/Bonifay 5, of Punic tradition, produced in the Byzacenan workshops of *Leptiminus*/Lamta (with just one individual)[22] (**fig. 5,23**); the Pupput T700.5/Bonifay 17 (two specimens)[23] (**fig. 5,24**), produced in the same workshops; and few of the first proconsular amphorae Africana IIA2 type (two specimens), produced in the workshops of *Byzacena* or *Zeugitana* for *salsamenta* or wine and dated to the end of the 2nd–mid 3rd century AD[24] (**fig. 5,25–26**).

The evidence of the 3rd and 4th century AD mostly includes amphorae from proconsular Africa, especially the Africana II and III types. Two specimens can be assigned to the Afri-

[20] Bonifay 2004, 105–107 fig. 55a,1 type 20.
[21] Ibid. 41; 101 fig. 53,1 type 15 (0280.0035, 0367.0002).
[22] Ibid. 92 fig. 48,1 type 5 (0462.0069).
[23] Ibid. 103 fig. 53,1 type 17 (0462.0067, 0467.0011).
[24] Ibid. 111 fig. 57,4 type 22, Africana IIA2 (0284.0027, 0701.0022).

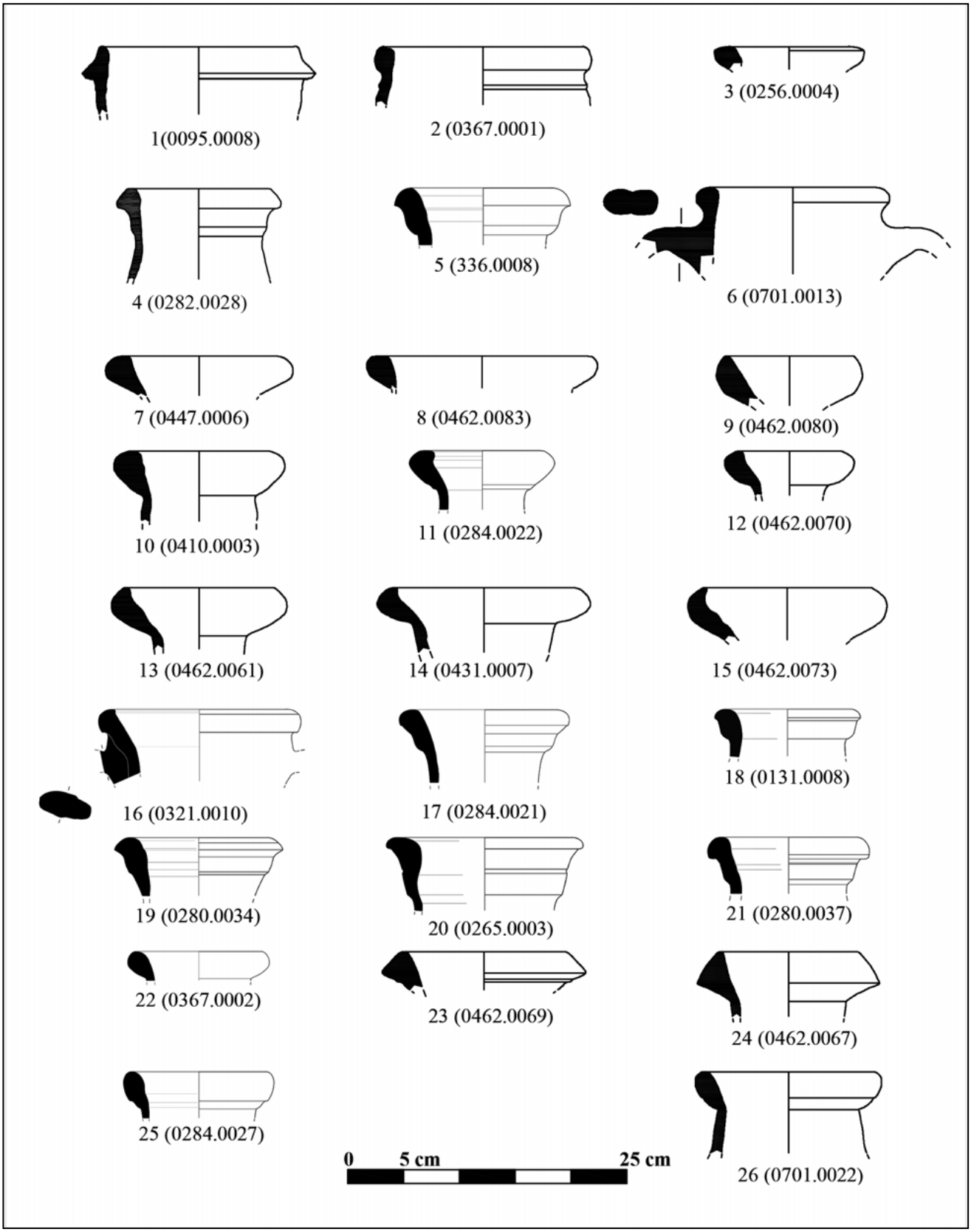

Fig. 5. Amphorae from Pollena Trocchia.

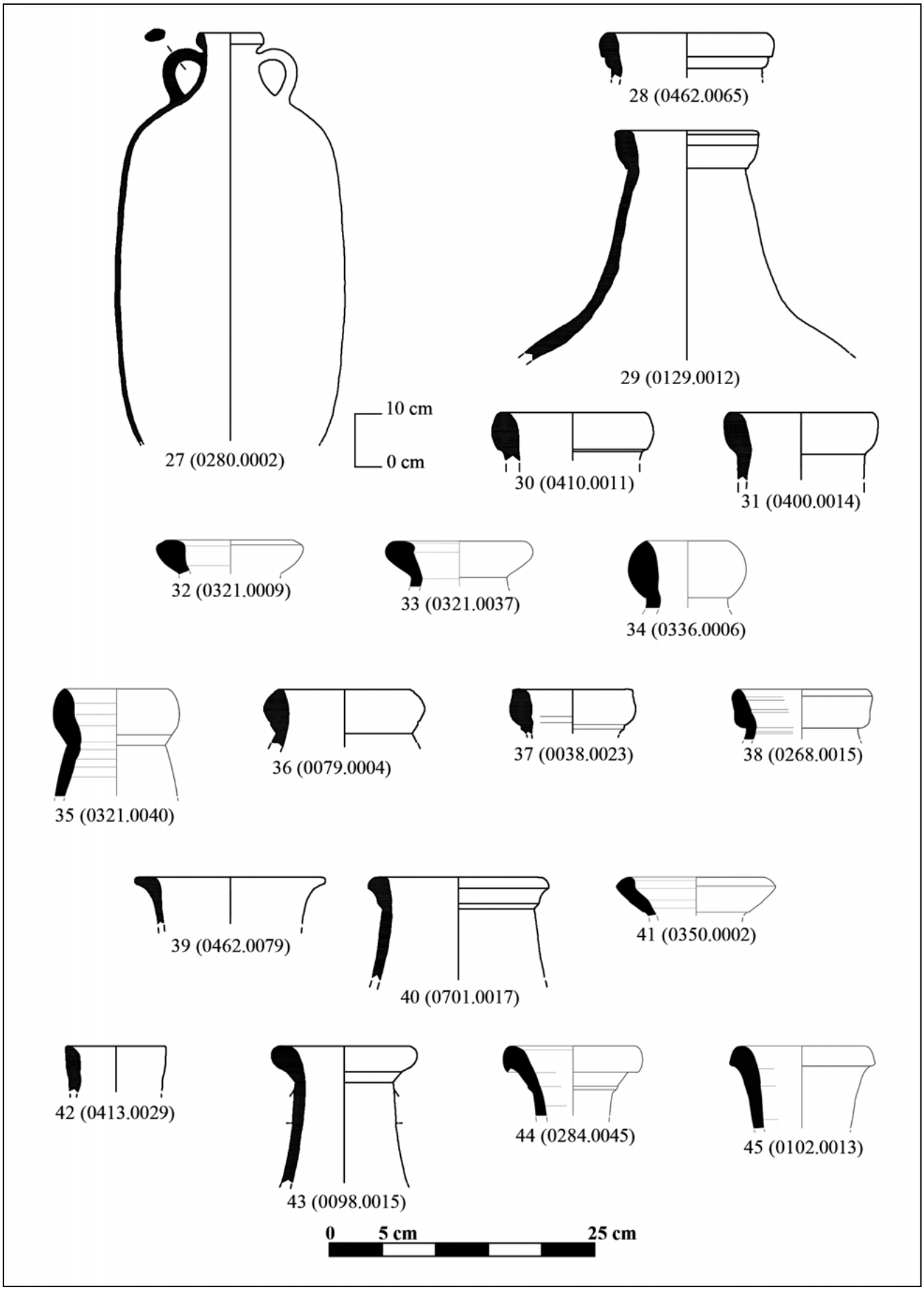

Fig. 6. Amphorae from Pollena Trocchia.

cana IIA3 type, produced in *Zeugitana* and *Byzacena* in the second half of the 3rd century AD[25] (**fig. 6,27–28**), while more common (10 individuals) is the Africana IIC, produced in the *Zeugitana* from the mid-3rd to the mid-4th century AD, perhaps for *salsamenta*. Among these, the oldest are the Africana IIC1 and IID1 types, both dated from the mid-3rd to the early 4th century AD[26] (**fig. 6,29–31**), produced in *Byzacena* perhaps for *salsamenta*, both present in our assemblage with four individuals each[27], while the Africana IC type (four specimens), for olive oil transport, is dated from the mid-3rd century to the end of the 4th century AD[28] (**fig. 6,32–33**). Among the Africana IIC amphorae the most frequent in Pollena Trocchia is the C2 type (3rd–mid-4th century AD), produced in *Zeugitana* in the workshops of Nabeul (six specimens)[29] (**fig. 6,34–36**).

The group of amphorae of the 3rd and 4th century AD includes also three specimens of the Tunisian Pseudo-Tripolitana/Keay 5bis/Bonifay 24 type (3rd century AD), produced in the 3rd century in the Sahel region for wine or oil transport[30] (**fig. 6,37–38**), late Leptiminus I/Bonifay 12 (3rd–4th century AD) from *Sullechtum*/Salakta workshops for *salsamenta*[31] (**fig. 6,39**), and a late Tripolitana III, dated to the first half of the 4th century[32] (**fig. 6,40**).

Nevertheless the prevailing type in this period (20 individulas) is the cylindrical amphora Africana III/Keay 25, produced in *Zeugitana* or *Byzacena* perhaps for wine or *salsamenta* (**fig. 6,41–45; 7,46–49**). The oldest subtype, dated to the end of the 3rd-beginning of the 4th century AD, is the Africana IIIA/Keay 25 subtype 1, present in Pollena Trocchia with 11 specimens[33]. Well attested is also the subtype 3, of the 4th century AD, with four specimens[34], as well as the subtype 2, dated to the end of the 4th to the mid-5th century (five specimens)[35]. Noteworthy is also the transitional shape between the Africana III/Keay 25 type and the *Spatheion* I/ Keay 26 type (one specimen)[36] (**fig. 7,50**).

The Africana later amphorae include the *Spatheion* 1/ Keay 26, typical of the first half of the 5th century (7 specimens)[37] (**fig. 7,51–54**), the *Spatheion* 2, typical of the second half of the 5th century (one specimen)[38] (**fig. 7,55**) and a variety of the Tripolitana II type dated to the 5th century[39] (**fig. 7,56**).

Among the amphorae of the 5th century, it is interesting to note the appearance of some products from areas other than Africa. From the Levant come the wine amphorae LRA4 (two specimens)[40] (**fig. 7,57–58**), from Gaza and the LRA1, probably of Cilician production (four specimens)[41] (**fig. 7,59**). The others come from Italy: in particular two specimens of the wine amphora Calabrian Keay 52[42] (**fig. 7,60–61**); one amphora similar in shape to that found at Carminiello ai Mannesi (Naples), but similar in fabric to the Sicilian Termini Imerese type[43] (**fig. 7,62**) and one that find a close parallel with a Campanian amphora found in late 5th contexts of Carminiello ai Mannesi and thought to be produced in the bay of Naples[44] (**fig. 7,63**). Our specimen is characterised by a hard and compact greenish fabric, quite depurated, with few inclusions that have the aspect of white micro-craters with orange borders.

The overview of the evidence provided above shows some similarities with the datasets currently available for *Neapolis* (**fig. 3**). Such comparison is necessary and somehow obvious, considering that the imported amphorae would have reached the countryside mostly through the city harbour[45]. As in *Neapolis,* the majority of the amphorae comes from Africa, roughly with the same typological variety, but in Pollena Trocchia they reach 87%, while the other regions are attested quite scantly: Levant 5 %, Italy 4 %, with 4 % of unidentified individuals. Even by excluding from this calculation the amphorae of the earlier centuries, the general impression of a predominant role played by the African amphorae remains unchanged, being the imports from Spain absent and the imports from the Levant and Italy quite small, respectively with 8 and 6 individuals each. The most interesting difference pertains to the imports from Italy and their content, the wine.

3. Discussion

The evidence from Pollena Trocchia shows a large presence of amphorae from Africa (87 %) and only few from Italy (4%). This information is rather peculiar in comparison with the assemblages of the 4th and 5th century AD in *Neapolis* – where the percentage of Italian amphorae ranges between 14 % and 20 % – as well as with the rest of the pottery assemblage of Pollena Trocchia. Indeed at our site the amphorae

25 Ibid. 107 fig. 58,7 Africana IIA3, type 22 (0280.0002); fig. 58,10 type 22 (0462.0065).

26 Ibid. 114–115 fig. 60 type 25, Africana IIC1 (0129.0012, 0134.0002); fig. 60,3 type 25 (0410.0011).

27 Ibid. fig. 62a,6 type 26, Africana IID1 (0400.0014, 0467.0008, 0701.0015); 115–117 fig. 62b,15 Africana IID transition with Africana III, type 26 (0467.0006).

28 Ibid. 107 fig. 56,9 type 21, Africana IC (0321.0009, 0701.0011); 107 fig. 15,1 atelier of *Thaenae*/Thyna, Africana IC, type 21 (0321.0037).

29 Ibid. 114–115 fig. 61,12 type 25 (0321.0041, 0336.0006); 114–115 fig. 61,13 type 25 (0321.0040, 0467.0005); 114–115 fig. 61,14 type 25 (0410.0016); 114–115 fig. 61,18 type 25, Africana IIC (0079.0004).

30 Ibid. 110 fig. 59,1 type 24 (0038.0023); 114 fig. 59,9 type 24 (0268.0015, 0281.0011).

31 Ibid. 99–101 fig. 52,3 type 12 (0462.0079).

32 Ibid. 105 fig. 55a,4. type 20 (0701.0017)

33 Ibid. 119–122 fig. 63 type 27, Africana IIIA/Keay 25 subtype 1 (0113.0001, 0350.0002, 0429.0013, 0429.0014); fig. 63,1 Africana IIIA/ Keay 25 subtype 1, type 27 (0413.0029); fig. 63,2 Africana IIIA, type 27 (0098.0015, 0400.0010, 0400.0012, 0701.0021); 119–122 fig. 63,5 Africana IIIA/Keay 25 subtype 1, type 27 (0284.0026, 0284.0045).

34 Ibid. 119–122 fig. 64,5 type 28/Africana IIIB/Keay 25 subtype 3 (0102.0013, 0284.0029). – Keay 1984 fig. 86,5 (0280.0020, 0280.0032).

35 Bonifay 2004, 121 fig. 65,3 Africana IIIC/Keay 25 subtype 2, type 29 (0284.0043, 0321.0039); 119–122 fig. 65,6 Africana IIIC/Keay 25 subtype 2, type 29 (0280.0030, 0280.0031); 119–122 fig. 65,9 type 29/ Africana IIIC (0284.0052).

36 Ibid. 125 fig. 67,6 Spatheion 1, type 31 (0268.0012).

37 Ibid. 125 fig. 67 type 31 (0098.0017, 0410.0009); fig. 67,1 (0400.0011); 125 fig. 67,6 type 31/*Spatheion* 1/Keay 26 (0118.0059); 125 fig. 67,18 type 31 subtype D (0284.0051, 0321.0038, 0400.0007).

38 Ibid. 125–127 fig. 68,4 type 32A (0410.0017).

39 Ibid. 89–92 fig. 48,8 type 4 (0268.0009)

40 Keay 1984, 278–281 fig. 122,7 (0280.0036); 278–281 fig. 122,14 type LIVD (0336.0007).

41 Ibid. 274 fig. 117,10 (0079.0010, 0342.0001 reused for a child burial, 0431.0005, 0431.0008).

42 Casalini 2014, 273 fig. 2,4 (0083.0002); Arthur 1989 fig. 1,2 (0352.0001 reused for a child burial).

43 Ibid. fig. 2,12 (0149.0004).

44 Arthur 1998, 499 fig. 7,5 (0462.0063).

45 See Arthur-Patterson 1994, 422; 424 and De Simone et al. 2013.

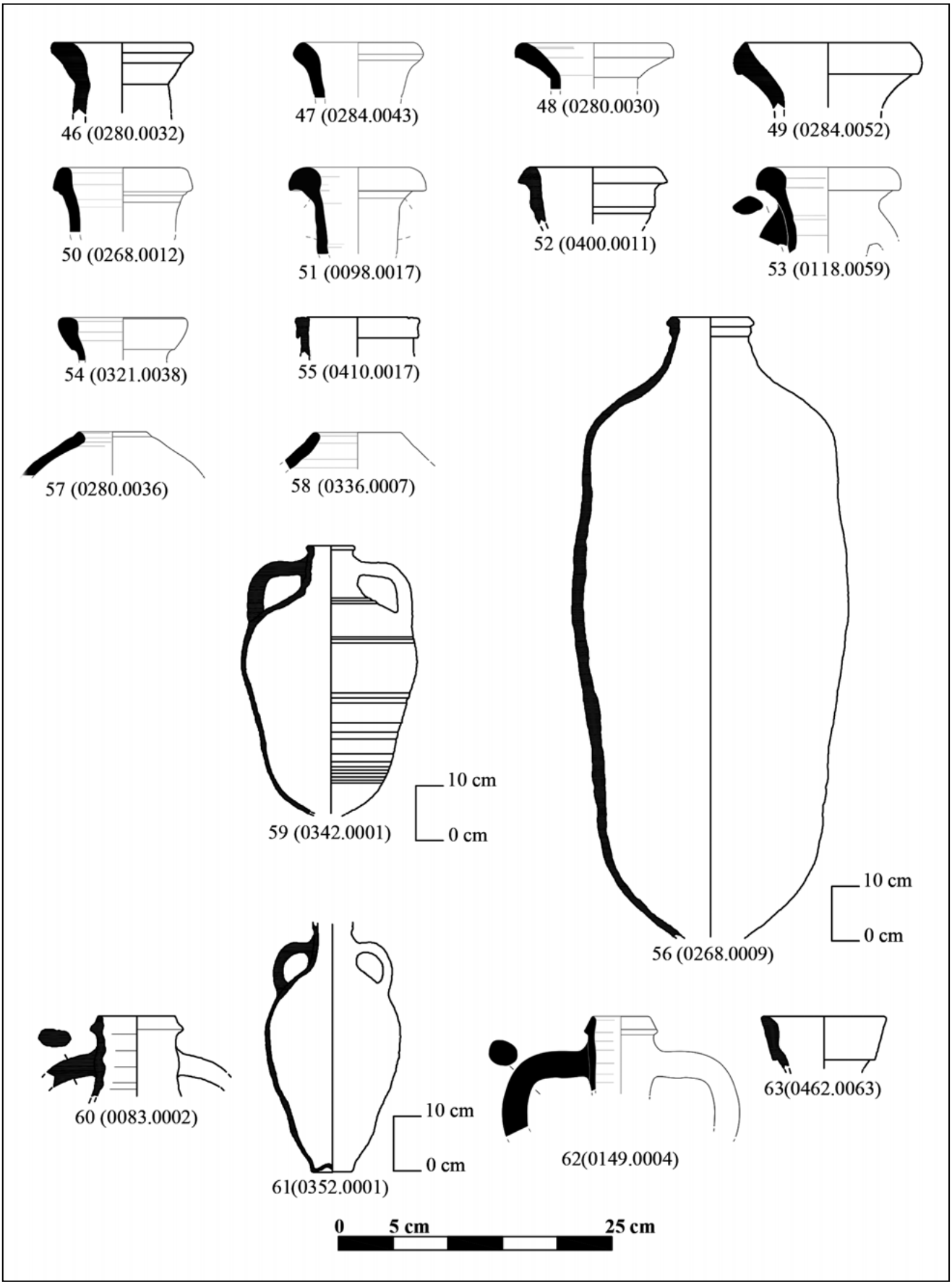

Fig. 7. Amphorae from Pollena Trocchia.

are just 3.6 % of the entire dataset, while taking into account the provenance of all artefacts, the majority of them come from a local source, mostly around Vesuvius and in a smaller portion from other places in Campania (together reaching 70 %), while the African products sum to just 17.22 %.

It is difficult to assess to what extent the assemblage from Pollena Trocchia can contribute to the general discussion on self-sufficiency/dependence of Campania in late antiquity. In fact the evidence from the amphorae informs solely on the long-distance trade of the goods carried with them; in these regards, all contexts in the Bay of Naples are similar in showing only a handful of amphora sherds produced in Campania, which is striking considering the otherwise intensive micro-regional and inter-regional trade networks witnessed by the other components of the pottery assemblage of Pollena Trocchia, thus probably something is missing in the picture[46]. Similarly should be interpreted the percentage of Italian wine amphorae, which is smaller in Pollena Trocchia than in *Neapolis*, thus implying either that the countrymen were soberer than the citizens or, more likely, that some wine was produced locally and traded with perishable materials, like wineskins and barrels. In support of the latter theory one should consider the paramount cultural and economic role played by the vineyards of Vesuvius in the cities around the volcano from at least the 3rd century BC to the Pompeian eruption of AD 79. After the catastrophe the Campanian amphorae continued to be produced in a much smaller scale[47], proving that wine production persisted. The scale of production needed to meet the demand can be reckoned by calculating the available land of *Neapolis* (plain and hills of Vesuvius up to 400 m. a.s.l. = 6,270 ha)[48], the number of inhabitants for the city (75 ha = 11,250–18,750 people)[49] and its countryside (3,135–9,405 people), the average productivity rate of a vineyard (3 cullei/iugerum = 1,572 litres/2,520 square metres), and the average wine consumption (250 litres per person per year in Cato, Agr. 57)[50]. The result shows that the entire land of *Neapolis* could provide wine for 156,451 people per year, which equals to 5–10 times the entire population of the city and its countryside. Considering that only part of the population drank wine, one can guess that 1/40 of the land would have been necessary to satisfy the local demand. Obviously other cultivations competed for the land and the actual extent of vineyards is difficult to assess, yet in AD 472 the so-called "Villa of Augustus" in Somma Vesuviana was producing ca. 100,000 litres of wine and other factories of this kind can be guessed. The most interesting feature of this discovery is the scant presence of amphorae[51] and the remains of wood, pitch, and resins where likely some barrels were, thus it seems reasonable to suppose that at least part of the wine drank on the slopes of Vesuvius and in the city was produced locally.

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[46] See Menchelli/Picchi 2014 for a similar approach on the olive oil production in the *Ager Firmanus*.

[47] Arthur/Williams 1995.

[48] This approach is similar to that used in De Sena 2005. The figures presented here are taken from De Simone in press, where the size of the city territories, the productivity rate of the vineyards, and the rationale behind the population density are discussed thoroughly. For late antiquity, the smaller number of sites hints to a lower population density.

[49] The estimate of 150–250 p/ha for the cities is taken from Wilson 2011.

[50] This figure is very high (thus very conservative for these calculations) when compared to some ethnographic data, which point to a consumption as low as 100 litres per year (Purcell 1985, 13; 15 note 17).

[51] De Simone et al. in press. NMI is required to test this theory against the evidence.

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