NOT ONLY MONTE TESTACCIO: REFLECTIONS ABOUT THE PRESENCE OF BAETICAN OLIVE OIL AMPHORAE IN ROME (AND OSTIA) DURING THE MIDDLE IMPERIAL AGE (2ND–EARLY 3RD CENTURIES AD) EMERGING FROM THE FINDINGS AT THE 'TERME DI ELAGABALO' IN ROME

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Abstract

The quantities of Baetican amphorae Dressel 20 found in the Middle Imperial contexts (2nd–early 3rd centuries AD) discovered during the excavations in the so-called 'Terme di Elagabalo' in Rome are added to those discovered in other excavations carried out in Rome (outside Monte Testaccio) and Ostia in order to ponder over their presence in the two cities during this chronological period. Ancient sources and studies are also analysed so as to better understand this commodity,

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leading to a reflection upon the supply system to the Capital and the strategies of Emperors to improve it.

Keywords: amphorae, *Hispania Baetica*, olive oil, commerce, supply.

1. Introduction

The excavations in the building commonly known as the 'Terme di Elagabalo' in Rome (carried out from 2007 to 2013 by the 'Scienze dell'Antichità' Department of 'Sapienza' - Università di Roma) allowed the identification of several ceramic deposits that cover many chronological periods[2]. From the Middle Imperial contexts discovered in this building (2nd–early 3rd centuries AD, a period divided into four phases, named after the Emperors so as to standardise nomenclatures[3]) a total of 40,882 fragments of amphorae were recovered, corresponding to 777 vessels[4]. Among them, 67 Dressel 20 amphorae were identified, possibly the most famous ancient Roman commercial container for the trade of Baetican olive oil, with a capacity of about 77 litres[5]. However, despite the importance of this site and its general large quantities, its deposits cannot be seen as isolated from the remaining part of the city. Therefore, this study also considered and analysed several published ceramic assemblages in Rome dated to the Middle

2 This study offers parts of data discussed in detail in a PhD thesis in Archaeology accomplished at The University of Southampton. Many thanks must go to Prof. S.J. Keay (†), Prof. C. Panella, and Prof. L. Saguì for their help, the suggestions, the opportunity to study these ceramics, and for the possibility of presenting this paper, and to Mrs. Valerie Sinden for having proofread this entire text.

3 The Trajanic age (early 2nd century AD); the Hadrianic age (second–third decades of the 2nd century AD); the whole Antonine age (mid–late 2nd century AD); and the Severan age (very late 2nd/early 3rd centuries AD).

4 For the methodologies in calculating the number of vessels cf. Radaelli, 2017: 1043 with references.

5 For the description of this form, its evolution, its distribution cf. Rizzo, 2014a: 209–215 with references.

Imperial age and then compared these data with the quantities found in Ostia (for the amounts cf. Fig. 1)[6]. The reason to include Ostia in this study comes from the scholarship about trade patterns to Rome, because this port-city has always been a comparison site for the Capital: very often information coming from its port had been applied to Rome itself (Rizzo, 2014b: 393), although recently these comparisons have been under serious revision.

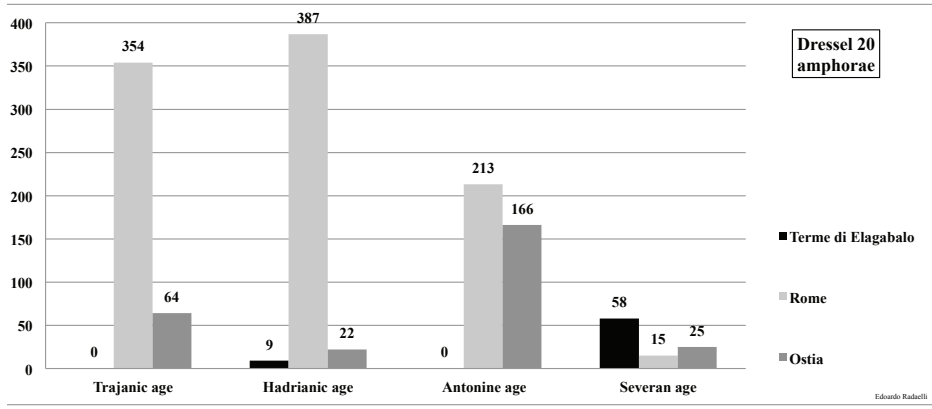

Fig. 1. Quantifications of Dressel 20 amphorae in the contexts considered. Elaboration of the author.

The percentages that will be offered here (Fig. 2) are based on the volumes in litres that were calculated on the basis of the total number of vessels for each in-phase form of olive oil amphora[7]. This study also scrutinised many ancient sources which mention the Baetican oil and the studies about their production facilities in order to better understand this commodity. Clearly, these amounts are only a very small part of the whole, just a representation of the reality, not only because there is a limited number of sites in Rome with clear quantifications published (the lack of precise quantifications is one of the reasons for not considering here the famous dumping site of Monte Testaccio), but also because

6 For the excavations considered both in Rome and Ostia cf. references in Radaelli, 2018: 246, notes 5–6.

7 For the methodology of calculating volumes cf. Radaelli, 2018: 247.

to have a complete and exhaustive view of the entire amount of goods traded to the City is impossible. These quantities (which, of course, could change with future discoveries and publications) led to an analaysis of the presence of the above mentioned amphorae and corresponding litres of olive oil both in Rome and Ostia and also led to some reflections upon the largely debated supply system to the Capital and the dispositions of the Emperors so as to improve it during the Middle Imperial age.

OLIVE OIL QUANTIFICATIONS		ITALY		*HISPANIA BAETICA*		NORTH AFRICA		EASTERN MEDITERRANEAN	
		LITRES	%	LITRES	%	LITRES	%	LITRES	%
TRAJANIC AGE	ROME	0	0	27258	89.4	2993	9.8	233.5	0.8
	OSTIA	40	0.7	4928	81.2	1099	18.1	0	0
HADRIANIC AGE	ROME	0	0	30492	48.3	16588.5	26.3	15959	25.3
	OSTIA	40	1.2	1694	51.0	1588	47.8	0	0
ANTONINE AGE	ROME	0	0	16401	58.9	10152	36.5	1269	4.6
	OSTIA	0	0	12782	34.1	23768.25	63.5	904.5	2.4
SEVERAN AGE	ROME	0	0	5621	32.6	7568	43.9	4053	23.5
	OSTIA	40	0.6	1925	28.8	4602.5	68.9	114	1.7

Fig. 2. Quantifications (in litres) and percentages of olive oil from all identified macro-origins in the contexts considered. Elaboration of the author.

2.
The olive oil of *Hispania Baetica*

Since the end of the 20th century, many studies have been conducted in the Guadalquivir valley (cf. Remesal Rodríguez, 2011: 212–213 and notes 44–47 for a brief bibliography and further references), but the majority of them were more interested in the very large number of sites that produced amphorae and their epigraphic set, rather than the product itself, although many presses were found (Hitchner, 1993: 502). Strabo (III, 4, 16) notes that olive oil was one of the main products of the Iberian coasts and considers that from *Turdetania* excellent (III, 2, 6). Martial describes the *Baetis* river (Guadalquivir) as surrounded by an olive-crown (XII, 96), surpassing the one from *Venafrum* (in Italy) for its abundance

(XII, 63, 1). Pliny the Elder (XV, 8) puts Baetican oil in second place for quality (together with the oil from Istria) and considers the olive the most important tree of *Baetica* (XIX, 93). Columella (V, 8, 5) notes Baetican oil and Statius (I, 7, 28) compares its reputation to the one from Attica in Greece. The main list of production sites is due to Ponsich (1974, 1979, 1984, and 1991): he identified at least 94 confirmed sites in the Guadalquivir valley between Sevilla and Corduba (but cf. the emendations made by Étienne & Mayet, 2004: 42–46 who eliminated a few unsure identifications; cf. also Peña Cervantes, 2011/2012: 41–44 for two other brief lists of presses in Southern Spain). Some sites on that list (as can be seen from the map published by Étienne, Mayet, 2004: Fig. 17) are neither close to kiln sites nor to rivers, suggesting that this commodity might have been distributed not only by waterways, but also by land. Although the amounts considered here represent only a small part of the Baetican olive oil in Rome, as they do not include Monte Testaccio where the majority of amphorae were discarded, this origin prevails in both Rome and Ostia during the Trajanic (with more than 80%) and the Hadrianic ages (about 50%). Later, a change is noticeable: during the Antonine age, while in Rome this origin still heads other ones (with 58.9%), in Ostia its percentage is much reduced (to 34.1%) and then during the Severan age it reaches second place in terms of presence in both cities, with lower percentages (32.6% for Rome and 28.8% for Ostia: Fig. 2).

3.
The supply of olive oil to Rome and imperial interventions

Olive oil was one of those "products subjected to be necessary for the State in large quantities and continuously […] so that the constant demand by the State favoured – or created – stable trade flows" (Remesal Rodríguez, 1990: 356). Therefore, it is not surprising to find a comment of Strabo (III, 2, 6) who describes the large presence of boats filled with oil from *Baetica* in the ports related to Rome. Some scholars have also tried to estimate the amount

of olive oil supplied to the Capital: Panella (1985: 180) refers to 22,480 tons of olive oil *per annum* and 22.5 kg per person; Mattingly and Aldrete (2000: 154, possibly for the early 2nd century AD, although this is unclear from their text) argued 18,000 metric tons (20 litres per person per year, which is an underestimated figure); Tchernia (2011: 256) assumed a total figure of 150,000 Baetican hectolitres per year, that should be doubled for other oils; and Morley (2007: 577) raised the amounts to 21–31 million litres per year. Considering data from the considered sites (both Rome and the "Terme di Elegabalo") about all origins of olive oil (Fig. 2), the whole period considered here (about 100 years) reaches the figure of about 13.86 hectolitres per year. Obviously this figure is approximate, as other finds were surely found in Rome: not only in Monte Testaccio (which could represent something like 150,000 hectolitres *per annum* as suggested by Spanish scholars: cf. Rodríguez Almeida, 1984: 116–119), but also in a few sites not considered for this investigation (due to the problems they have) and even in others which are not published yet.

In any case, the continuous growth of the population of Rome, whose demand constantly increased so that it could not be satisfied with imports from the immediate hinterland, led to the creation of a supply system on which the City depended. At first, the food supply of Rome was not centrally governed (apart from sporadic occasions) and created profit for all the parties involved, but soon it became partly regulated by central powers and controlled by public offices which changed over time (Stecher, 2009: 21, 24–25). This supply system (usually called by scholars '*annona*') was not only closely tied to the free distribution of grain (*frumentationes*) and to the basic daily supplies for the population of the Capital (Sanz Palomera, 2010: 13; Broekaert, 2011: 593, 596), as "the needs of urban centres were substantial for any kind of item" (Arnaud, 2016: 131), but it also seems to have included all issues and workers related to production, transport, and storage (Sanz Palomera, 2010: 13; Broekaert, 2011: 599), as well as ports which created a trade-network: origin-ports (where cargos were loaded) and arrival-ports (where cargos were unloaded). The problem of the food supply for the Capital was, in fact, such an important

issue for the Emperors that, although it was argued that they did not have economic policies (Harris, 2011: 216), during the Middle Imperial age several provisions were carried out by them. Trajan, for example, dedicated and accomplished several interventions so as to improve communications, the safety of people, and trade (Rasmus Brandt, 2005: 26–28), not least the creation of the new harbour in *Portus* with the intention of increasing the amount of goods that could arrive in Rome (García, 2000: 89–90). Hadrian also made significant decisions regarding the food supply, especially promulgating the *lex Hadriana* which seems to have mainly referred to North Africa (cf. Pons Pujol et al., 2008: 1235–1239; Sanz Palomera, 2010: 113–120, both with bibliography). Antoninus Pius continued the policy of his predecessor, and the Empire benefited from this as it seems to have maintained the previous prosperity (*Historia Augusta*, *Ant. Pius*, 7, 1), with an increased safety of communications (Lacour-Gayet, 1968: 179–180), severe punishment for those who attempted to disturb them (cf. *Dig.*, XLVIII, VII, 1, Section 2 referring to Antoninus Pius's dispositions), and some privileges to *naviculariі* (Lacour-Gayet, 1968: 189; cf. also Arnaud, 2016: 144–150) and possibly even to *collegia*[8]. The provinces seem to have had the main benefits from his policy, as shown both from the *Historia Augusta* (*Ant. Pius*, 7, 1) and by some official evidence offered by the provinces (Lacour-Gayet, 1968: 219–222). Despite his very brief rule (87 days), even Pertinax attempted to intervene in the issue of food supply, trying to establish some fiscal alleviations so as to raise commerce with a drastic reduction of expenses (Birley, 1971: 144–152; Letta, 1991: 646–647; Sanz Palomera, 2010: 132–133)[9]. Unfortunately, ancient

8 Many bases were offered from *collegia* in order to thank him for his interest: bakers in Rome (Lacour-Gayet, 1968: 70, 203); boatmen from Ostia (Lacour-Gayet, 1968: 202, note 3); *dendrophori* in *Pollentia* (*CIL* V, 7617), Ostia, and Lyon (Lacour-Gayet, 1968: 203 and notes 6, 7), *fabri tignarii* in *Alba Fucens* (*CIL* IX, 3923); and *centonarii* in Sevilla (*CIL* II, 1167), Rimini, and Marseille (Lacour-Gayet, 1968: 204, notes 3, 4).

9 The successor, Didius Giulianus, lasted even less (66 days) and he could not even think of creating programmes, because Septimius

sources do not give much information about measures carried out by Septimius Severus relating to the economy of the Empire. He can be mentioned for a devaluation of the *denarius* with a decrease in its content of silver (Letta, 1991: 653), for several confiscations of land belonging to some allies of Clodius Albinus (Lo Cascio, 2007: 645–646; about the war against Albinus, cf. Birley, 1971: 189–200), for the privatisation in the imperial domains of the production of Baetican oil (Letta, 1991: 661; Broekaert, 2011: 594–596; Alfonso, 2013: 370–372), and for some provisioning to stabilise olive oil imports to Rome (Broekaert, 2011: 599, 620 with references). He also left a very large donation in grain and olive oil to the people of Rome after his death in AD 211 (De Romanis, 2007: 222–225 with further bibliography). In spite of all the imperial interventions and the existence of this complicated supply system, which functioned till Late Antiquity (cf. Vera, 2010), several shortages happened over the centuries, obliging Emperors to find immediate solutions (Sanz Palomera, 2010: 13–15). For example, during the rule of Antoninus Pius, a shortage of wine, grain, and olive oil in the Capital seems to have occurred and, possibly after being attacked by people who threw stones at him (*Epit. de Caes.*, 15, 9), the Emperor bought these goods with money from his personal treasury so as to distribute them for free to the people (*Historia Augusta*, *Ant. Pius*, 8, 11 and 9, 1). Other shortages likely happened in the Autumn of AD 161, after a severe flood of the Tiber which destroyed several buildings (Birley, 1966: 159), and probably also during the age of Commodus when revolts between people and garrisons arose in Rome, which led the Emperor to create a price control (Alföldy, 1987: 254). All the aforementioned interventions can very likely be interpreted as measures to ameliorate and increase the supply system to the Capital and the Empire's economy, also because it was a matter of imperial propaganda to demonstrate these improvements.

The very large amount of literature about this system often underlines the fact that the majority of these interactions and

Severus and Pescennius Niger had already revolted leading to his sentence to death (Birley, 1971: 163; Letta, 1991: 647, 649).

imports were based on taxes due to Rome (Remesal Rodríguez, 1990: 357–358; Virlouvet, 2003: 67–70; cf. also Di Salvo, 1992: 106–182) and it likely included the Baetican oil since the Antonine age as recent research suggests (Virlouvet, 2003: 66; Sanz Palomera, 2010: 21, note 120 and 27–32; Broekaert, 2011: 612–619; Alfonso, 2013: 367[10]). Once in Rome, the amphorae containing it – not only from *Baetica* (Remesal Rodríguez, 1990: 356; Aguilera Martín, Revilla Calvo, 2004: 1445), but also from North Africa (Aguilera Martín, Revilla Calvo, 2004: 1445, 1453–1459) – were discarded and broken (because they were not reusable for commerce), creating a very large dump, according to a predetermined plan (Aguilera Martín, 2002: 208–211 with further bibliography), that after many centuries became a hill with the name of Monte Testaccio. This was the last of a series of activities, from bottling to trading (identified as independent activities and in which a very large number of men participated, such as *negotiatores*, *mercatores*, *navicularii*, and *diffusores*[11]), which all fell into that supply system. Although (as already mentioned) the amounts found in Monte Testaccio are not included in this study, it was very likely created mainly by those containers being part of that system (Aguilera Martín, Revilla Calvo, 2004: 1445; García Vargas, 2012: 261, both with further bibliography) for the large presence of *tituli picti* recognised by scholars as fiscal control marks or names of traders, both essential elements in determining those containers which were intended for that specific supply system (Rodríguez Almeida, 1984: 26–30; Remesal Rodríguez, 2012: 273). The Baetican fragments considered here, in spite of sometimes bearing stamps on their handles (those from the 'Terme di Elagabalo' are in Fig. 3, together with an *ante cocturam* graffito), rarely have *tituli*

10 Spanish scholars have been the main supporters of this theory to which they dedicated many articles.

11 Carandini, Panella, 1981: 492–494. Cf., for example, the inscriptions analysed in Berni Millet, Gorostidi Pi, 2013 with further bibliography. Cf. also the *corpus olearium splendidissimus* recently identified from an inscription: Keay, 2012b: 9 and Remesal Rodríguez, 2012: 270.

picti. This brings into question whether or not these amphorae found outside Monte Testaccio were part of that system. Free commerce surely existed, which had a large importance (Di Salvo, 1992: 69–78; Virlouvet, 2003: 70–72) and paid custom taxes (all foodstuffs traded to Rome were subjected to customs: cf. Palmer, 1980) so as to be considered as having a complementary role in the supply of food to the Capital (Vera, 2010: 4). Four inscriptions dating from around AD 175 demonstrate, in fact, that Marcus Aurelius and Commodus decided to locate stones to create a boundary around the city of Rome (corresponding to the later Aurelian Walls) for customs reasons, following earlier provisions (Palmer, 1980: 217–218 and 231). As upper-ranking landowners might have imposed imports to Rome from their own estates for personal needs and to increase their wealth (cf., the example of Britannia in Garrafoni, Furnari, 2012 or the one about wine in Radaelli, 2018: 251 and Radaelli, 2019: 259–260), it is therefore possible to assume that at least some of the amphorae analysed here might have been designed for independent commerce, a "free market" (as called by Lo Cascio, 2009 and Bonifay, Tchernia, 2012: 327) that would mean not subjected to the State and its taxations for the supply of the Capital (Étienne, Mayet, 2004: 34). It could have been aimed to create a direct profit both for producers and traders (Hitchner, 1993: 500; Garrafoni, Furnari, 2012: 287–288), otherwise heavily linked to Imperial dispositions about the fiscal supply (whose

STAMPS ON DRESSEL 20 AMPHORAE AT THE 'TERME DI ELAGABALO' (SEVERAN AGE CONTEXTS)					
POSITION	**TEXT**	**TRANSCRIPTION**	**ORIGIN**	**CHRONOLOGY**	**BIBLIOGRAPHY**
Handle	PQFF	*P(ortus) Q. F(lavi) F(laviani)*	Unidentified	About AD 138–145	*CIL* XV, II, 534, no. 3104d = Berni Millet, 2008: 594, no. 1842.
Handle	HERMESF	*Hermes F(ecit)*	Villar de Brenes	About AD 170–177	Berni Millet, 2008: 239–246, fig. 121, 16 and 573, no. 794.
Middle part of handle	DOM	*D. O(---) M (---) [S(---)]* vel *Dom(iti* vel *–itianis) s(ervi)*	Alcolea del Río (*Canania*)	About AD 145–161	Berni Millet, 2008: 267–271, fig. 131, 3–5 and 567, nos. 501–502.
Middle part of handle	ACIRG	*(ex figlinis) Acirg[itanis?* vel *-ianis?]*	La Catria	Found on Severan and post-Severan age types	Berni Millet, 2008: 318–334 fig. 149, 14 and 557, no.19
Middle part of handle	ACIR[G]	*(ex figlinis) Acir[gitanis?* vel *-gianis?]*	La Catria	Found on Severan and post-Severan age types	Berni Millet, 2008: 318–334 fig. 149, 14 and 557, no.19
Handle	LIT	*L. I(---) T(---)*	Álamo Alto (also found in La Catria and Peñaflor)	AD 160/161–179 or 3rd century AD	Berni Millet, 2008: 324, 342–344, 380, fig. 160, 7 and 579, no.1103
Handle	CTRE	*C. TRE(---)*	Unidentified	Unidentified	Berni Millet, 2008: 566, n. 467 (with references)
Handle: double stamp	TR	Unidentified	Unidentified	Unidentified	Martin-Kilcher, 1987: no. 1457 (shape of the handle)
Handle	AIAT	Unidentified	Unidentified	About AD 50–130	Martin-Kilcher, 1987: no. 599 (shape of the rim)
Wall (Graffito *ante cocturam*)	ERMET/IBES	*[---] +ermet[is?---] / [---] +ibes*	Unidentified	Unidentified	–

Fig. 3. Stamps (and one graffito) on Dressel 20 amphorae at the 'Terme di Elagabalo'. Elaboration of the author.

amounts might have been sold anyway: Vera, 2010: 6). An interesting assumption was in fact attempted recently, partly aligned to the one offered here: Baetican oil belonged to private owners and for two centuries, till the Severan age, was all sold, thus it cannot be totally considered a fiscal product (Lo Cascio, 2009: 295; Vera, 2010: 6).

Whether or not the amphorae analysed here were part of that system, they raise the question as to how they entered in those contexts which are partly distant from the *Emporium*, the preferred river-port for unloading boats along the Tiber (although not the only port-site within Rome: cf. Aguilera Martín, 2002: 51–123 and Keay, 2012a: 36–39). Of course, these fragments could have been contained in the earth used to raise levels or fill unused rooms, but this may be just a small part of what actually happened. Taking into account the assumptions made by Peña (2007: 317–318), these fragments could also have been recovered from Monte Testaccio for some reuse, but this explanation also seems reductive, because only a few of the fragments show clear traces of reuse. People who wanted to buy olive oil either for themselves or their families, to resell it in areas located far from the *Emporium* where it arrived, or those clients or friends who received goods given directly by producers (something that still exists today in Italy) had to go there to purchase or collect it. Clearly the use of donkeys or mules for transporting these amphorae on their backs within the city cannot be excluded, but looking at the size and amount of product contained, the weight of all the amphorae found must have been quite considerable. For this reason they were possibly loaded on carts pulled by animals and then transported along the roads in Rome that, although well-made and solid, might have had some instabilities that could lead these round containers to unbalance and fall from the carts. Therefore, the reason why these people decided to carry by road whole containers after having purchased or collected them instead of opting to pour their contents into smaller ones or those made of skin (which could have been used anyway) is difficult to understand.

4.
Conclusions

This study has provided some significant information about the presence of olive-oil amphorae both in Rome and Ostia. The amounts analysed confirm the studies about the large volume of imports of Baetican olive oil, surely due not only to fiscal impositions, but also to a strong demand for this commodity during the Imperial period in the city of Rome (Hitchner, 1993: 500), especially linked to the large amount of its population, although the demand was irregular and this likely created irregularity in supply. It was also noted that the Baetican olive oil generally dominates the amounts, although with an increasing presence of North-African oil (Fig. 2). Rizzo (2012: 98–100 and 2014b: 405 both with further bibliography; cf. also Keay, 2012b: 4) recently underlined the strong difference between Rome and Ostia in the supply of olive oil and, together with other scholars, also suggested that Ostia received larger amounts of North-African oil than Rome, especially during the Antonine age (Bonifay, Tchernia, 2012: 328 with references, who, however, take a cautious position). Data offered in this analysis partly confirm this scholarship: Rome surely received more Baetican oil than Ostia, but only until the Antonine age as oil from North Africa prevails during the Severan age (Fig. 2). At the same time, apart from providing new data from the unpublished Middle Imperial contexts at the 'Terme di Elagabalo', this study also allowed a reflection upon the trading system of this product: although the supply of the Capital was surely mainly based on taxation, a profit-based commerce could also have existed which probably "operated at the margin of a system that was characterised by public supply channels" (Erdkamp, 2005: 256–257) and that "depended largely on the initiative of traders who were attracted by the numbers and aggregate buying power of Rome's consumers" (Erdkamp, 2013: 274). Very likely it could have had a rather significant role in commerce not only to Rome and Ostia, but also to other cities in the Roman Empire (Arnaud, 2016: 118–119). In the end, although all the data which had been offered here may change in the future,

this study demonstrates once more the major importance of amphorae (together with ancient sources) for an understanding of commerce and food supply during Roman times.

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