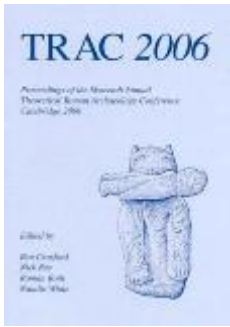

Paper Information:

Title: The Use of Amphorae for Interpreting Patterns of Consumption
Author: Mariana Egri
Pages: 43–58

DOI: http://doi.org/10.16995/TRAC2006_43_58
Publication Date: 29 March 2007

Volume Information:

Croxford, B., Ray, N., Roth, R., and White, N. (eds) 2007. *TRAC 2006: Proceedings of the Sixteenth Annual Theoretical Roman Archaeology Conference, Cambridge 2006.* Oxford: Oxbow Books.

The Use of Amphorae for Interpreting Patterns of Consumption

Mariana Egri

Introduction

Amphorae are the main archaeological artefacts used for identifying patterns of wine or olive oil consumption, owing to their higher archaeological survival rate compared with that of other containers used in antiquity, such as wooden barrels or skin-bags. Two different methods of counting have been usually involved; counting the number of vessels, and calculating the volume of the foodstuff contained within. In the first case, the number of amphorae counted for each site has been mapped in order to identify supply routes, or to determine the service area for various production centres. Perhaps one of the best examples is Tchernia's analysis of Dressel 1 amphorae distribution in Gaul (Tchernia 1983: 87–90). However, the number of vessels is of limited relevance when one wants to identify patterns of consumption within different sites or regions. This is mainly because firstly, each site regularly provides more than one type of amphorae for the same commodity, in the same period of time, coming from different workshops or areas of the Roman Empire. Secondly, each type of amphorae has a different volume, and comparing contents volumes instead of the number of vessels may reveal more details concerning the patterns of consumption (Hesnard 1998: 21–22; Panella and Tchernia 2002: 179). A good example is the discussion of these two quantification methods within the analysis of the finds from *Meta Sudans,* Rome, which points out that the use of the number of vessels is misleading (Panella 1992: 192). An interesting result of the statistical use of the volumes of Dressel 20 amphorae is the estimated number of containers needed for exporting the Baetican olive oil, based on the potential firing capacity of the specialized production centres from this region (Mattingly 1988: 42).

The main problem with estimating volumes is the variation within each type, which is sometimes quite significant, even when made by the same workshop, notwithstanding a high level of standardisation (Carre 1985: 219, note 54; Peacock and Williams 1986: 51–2; Panella 2001: 182–84). There are some attempts to develop computer-based formulae to calculate amphorae volumes using their shapes (see Bezeczky 1998: 152–54, with the bibliography concerning amphorae measurements). Another approach was to use the average volume for each type and source (see the table in Peacock and Williams 1986: 52 and the comments in Dyczek 2001: 57), and this way will be also used in this paper.

Of course, this method is not going to reveal the absolute figures concerning the foodstuff delivered in any given type of amphorae from a particular site, first because most of the vessels recovered are fragmentary, and their shape is often impossible to be reconstructed precisely, which makes it difficult to calculate the exact volume for each of them. At the same time, the assemblages uncovered by archaeologists are only smaller or larger samples of the total number of amphorae used within a site, therefore larger groups, coming from well-defined contexts, are giving more accurate estimation, including for the average volume of each type (Wallace 2004: 429–31). The usual fragmentation of the finds brings about another problem concerning the quantification of the number of containers from a given context, and recent theoretical approaches suggest that the use of EVE (estimated vessel equivalent), or NMI

(nombre minimum d'individus) from the French literature, is more suitable for revealing distribution patterns (Orton, Tyers and Vince 1993: 168–75; Hesnard 1998: 18–20). Still, many of the available ceramic specialist reports tend to identify the minimum number of amphorae by merely counting the rims, bases, and handles, without properly assessing these figures against the total weight of the fragments, for each form.

For this discussion, two groups of data concerning the wine and the olive oil consumed in the Lower Danube region, more precisely in the Roman provinces of Pannonia and Upper Moesia. Some significant groups of finds, coming from extended excavations of well-defined structures and sites have been selected as case studies, in order to have a better image of the consumption patterns. In both situations, the pattern identified by counting the number of vessels will be compared with that provided by the estimated volume of foodstuff delivered within them. The aim is to assess the most suitable method that can therefore support a wider discussion concerning, among other questions, the impact of Roman, or rather Mediterranean, diet within the region.

Consumption of imported wine

The first group of data involves amphorae for wine, imported during the period between Octavian's Illyrian campaign in 35–33 B.C. (an event which marked the beginning of Roman effective presence in the Lower Danube region), and the first half of the second century A.D. (the Hadrianic period). During this period, wine mainly came from Italy, but also from Rhodes, Hispania, the island of Cos, and in smaller quantities from the northern coast of Asia Minor or Pontus.

Archaeological evidence (data collected from Bezeczky 1995; 1997; 2005 and Bjelajac 1996, with additions from Gassner 1989, Hárshegyi 2004, Ožanić 2005 and Vičič 2002) shows that amphorae of types Dressel 2–4 (mainly of Italian origin) and Rhodian dominate (Fig. 1). Therefore, it is worth having a detailed analysis of their distribution across the region.

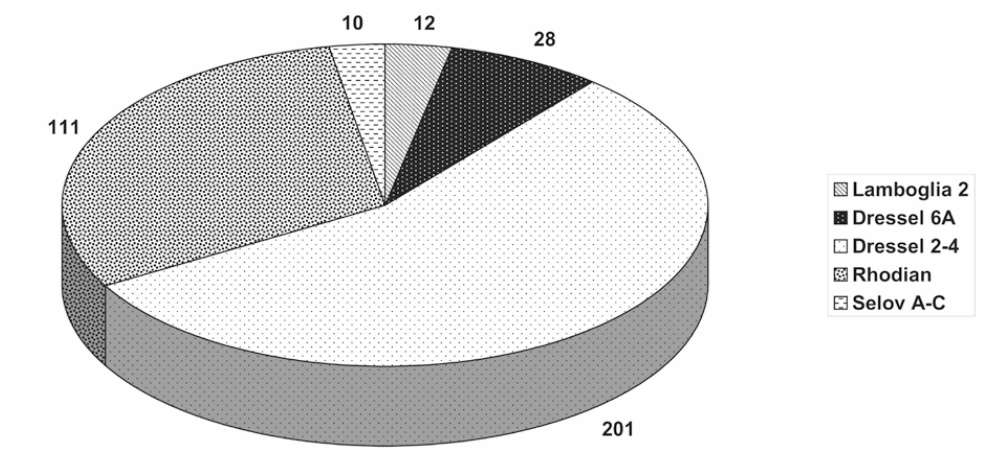

Figure 1: Wine consumption in the Lower Danube region from Augustus to Hadrian.

The reign of Vespasian was one of the most important moments for the development of these two provinces. Before that time, most of the military activity and urbanization processes were concentrated in the area between the rivers Drava and Sava, as well as along the Amber Route (the latter being the main access way to the middle Danube) (Mócsy 1974: chapter 3 and fig. 37; Wilkes 2000: 588–89). For that reason, an analysis of finds including ceramic assemblages has to taken into consideration for these two chronological stages.

The distribution map (Fig. 2) shows that before the Flavian period, Dressel 2–4 amphorae and Rhodian were found only on sites where military units were settled, that is southern Pannonia (*Mursa*, *Cibalae*, *Gomolava*, *Sirmium*, *Bononia* and *Acumincum*), and along the Amber Route (*Emona*, *Salla* and *Savaria*) (Bezeczky 1995). However, the number of finds from each site, even from those which provided important ceramic assemblages, for example at *Emona* and *Savaria*, is rather small.

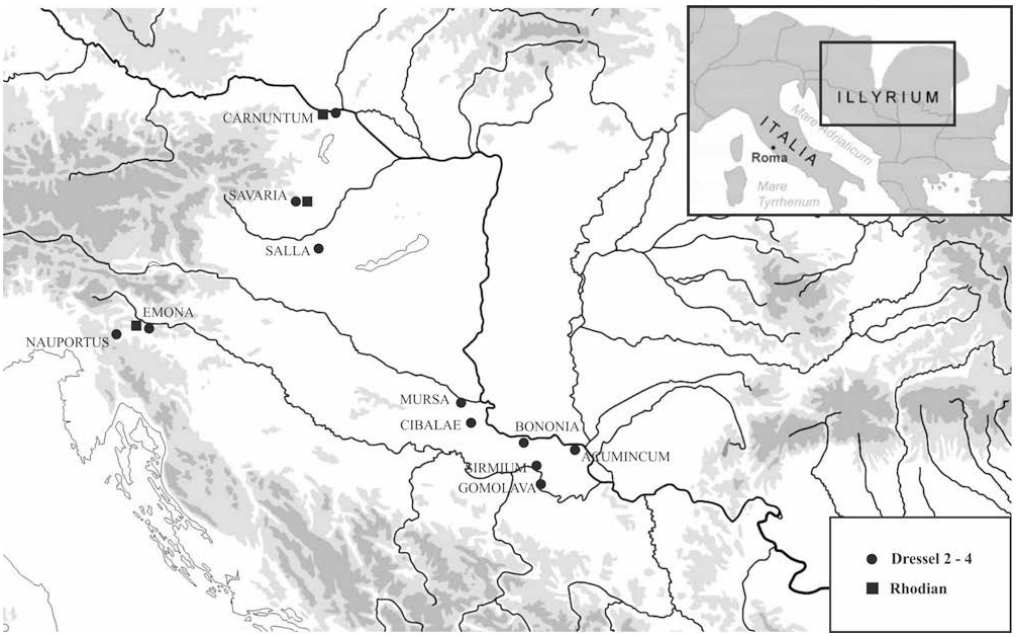

Figure 2: Distribution of Dressel 2–4 and Rhodian amphorae before the Flavian period.

At the same time, very few Lamboglia 2 amphorae were imported, but this was the time when their production ceased in Italy (Cipriano and Carre 1989: 80–82). Another container for wine from the same period, the Dressel 6A type, has distribution patterns that are similar to Dressel 2–4 and Rhodian amphorae (Fig. 3). Moreover, the greatly reduced number of finds belonging to the former type may be linked with the mechanisms of distribution. More precisely, these sites were either not in the service area of the merchants involved in the importation of wine delivered in Dressel 6A amphorae, or military units from Illyricum were less interested by this sort of wine. However, Bezeczky considers that the distribution of all four types of amphorae is mirroring the first phase of the Roman occupation in Illyricum, the later Pannonia and Upper Moesia (Bezeczky 1994: 15–32), a period characterised by a high military mobility, together with occasional concentration of units in certain sites used as bases

for various campaigns. A good example for the latter case is the Celtic settlement at Devin, used as a military supplying base for the campaign of Tiberius across the Danube in A.D. 6, and where a significant number of amphorae (mostly for wine) were found (Gabler 1990–91: 53; Pieta 1996: 189).

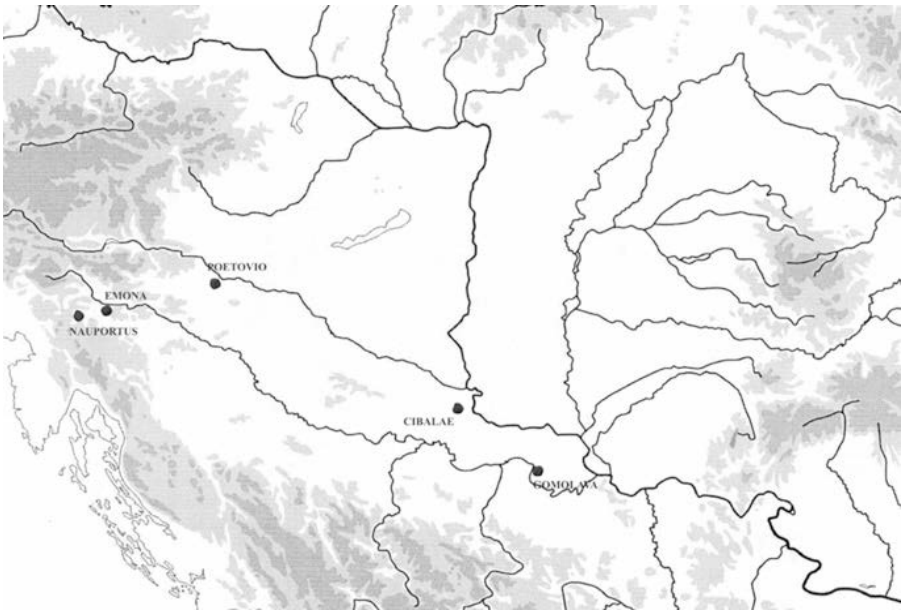

Figure 3a: Distribution of Lamboglia 2 amphorae.

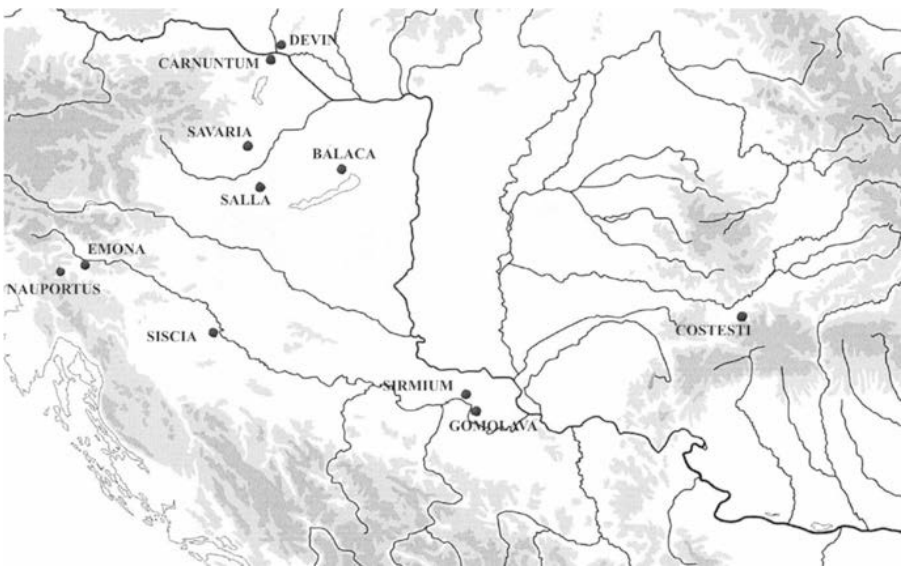

Figure 3b: Distribution of Dressel 6A amphorae.

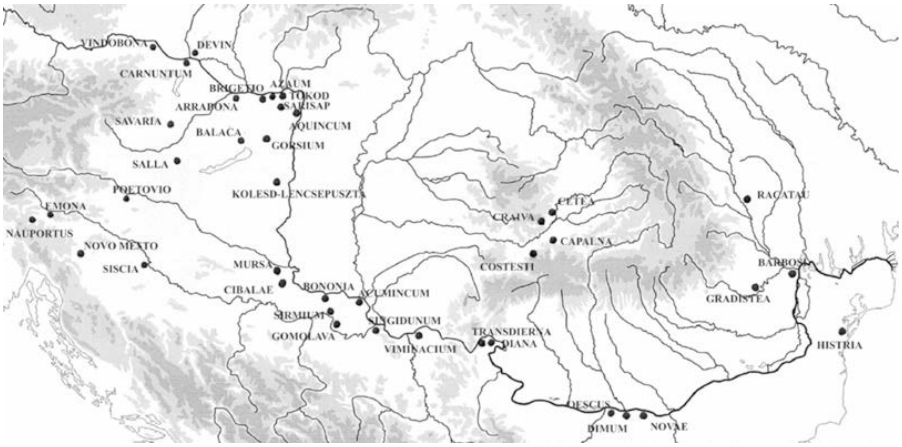

Figure 4a: Distribution of Dressel 2–4 amphorae from Vespasian to Hadrian.

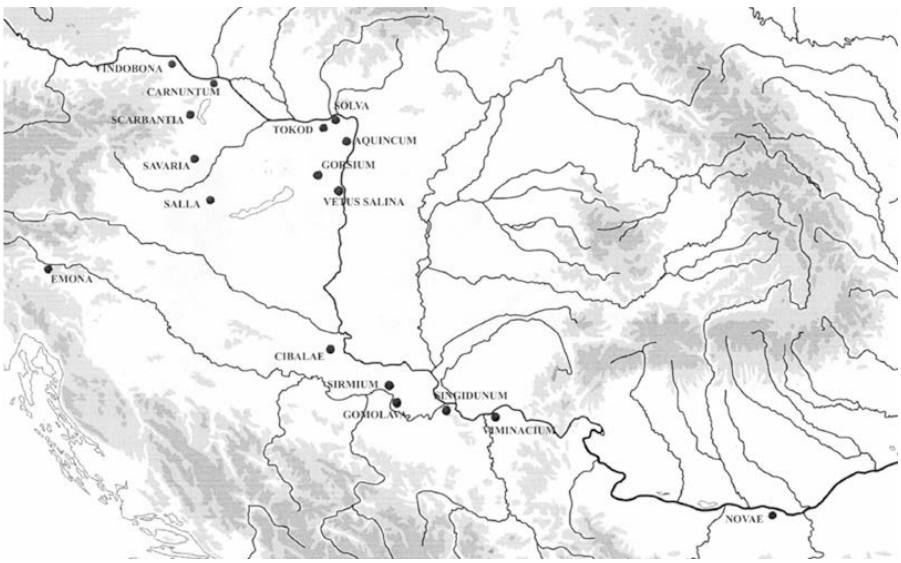

Figure 4b: Distribution of Rhodian amphorae from Vespasian to Hadrian.

From the Flavian period onwards, the military activity was displaced from southern Pannonia to the Danube frontier, and the former area saw a new phase of intensive urbanization. The map (Fig. 4) indicates a wide distribution of Dressel 2–4 amphorae, which travelled even beyond the border to the Dacian Kingdom. In Pannonia, most of these containers were imported from Italy, and a few others came from Hispania (Kelemen 1993: 63). At the same time, the number of Rhodian amphorae increased, but these have been found mainly on sites along the Danube and the Amber Route, and less in the interior of the provinces. This observation suggests that this wine was especially popular among the soldiers, similar to the situation from the Rhine frontier and from Britannia (Peacock 1977: 270; Williams 2003: 26),

although here, there is no evidence for bulk supplies of Rhodian wine coming during the Claudian or Flavian period, and the latest Rhodian amphorae are dated during the Hadrianic period (Kelemen 1993: 63).

In order to create a clearer picture, it is worth comparing the most significant assemblages from *Emona*, *Savaria*, *Carnuntum* and *Aquincum*. Figure 5a shows the number of amphorae, while figure 5b takes into consideration the volume of wine delivered within them. The estimated volume was calculated using a capacity of a Dressel 2–4 amphora of 25.2 litres, and that of a Rhodian amphora of 13.6 litres (Peacock and Williams 1986: 52; Dyczek 2001: 57, 134).

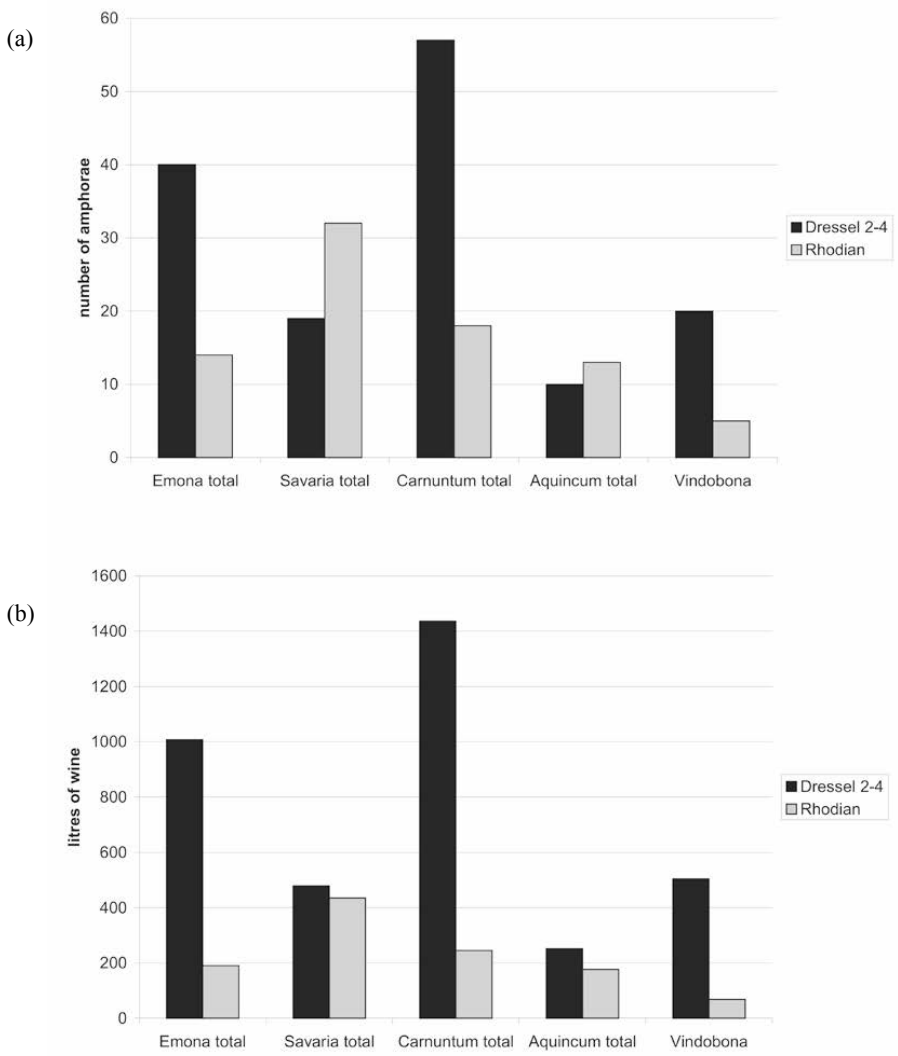

Figure 5: Estimated consumption of wine delivered in Dressel 2–4 and Rhodian amphorae: (a) by amphora quantity; (b) by volume.

This approach proves to be important if we look at the situation in *Savaria*. Here, Rhodian vessels apparently dominate with a pattern that is different from the other three sites, and from the province as a whole if we look at the total of finds. However, if the total volume is calculated, then the situation is more balanced. Many Rhodian amphorae have been found in the temple of Isis (Bezeczky 1988: 170–71; Kelemen 1988: 123–8), and this wine was probably preferred by devotees, since many of them were either of Greek-Oriental origin, or they spent many years as soldiers, officials, or merchants in the same areas of the Empire (Turcan 1996: 95). According to Pliny (*Nat. Hist.* XIV. 79), Rhodian wine had a particular taste, because it was made using sea water, and was also appreciated for its therapeutic virtues.

On the other hand, *Aquincum*, *Carnuntum* and *Vindobona* were legionary sites, and almost all finds come from the forts or from the nearby *canabae*. At the same time, *Emona* and *Savaria* were civil sites, *coloniae*, both with a high percentage of inhabitants of Italic origin, mostly veterans from the legions that participated at the earlier campaigns and their descendants, but also other colonists coming primarily from Northern Italy (Mócsy 1974: 74–9; Fitz 2003: 47–9). However, even on these sites the number of amphorae and the equivalent quantities of wine remain rather small. Therefore, what kind of wine was delivered in these amphorae, how was it purchased and distributed, and who were the consumers?

It is highly likely that these amphorae contained vintage wines, or at least quality wine, and were bought by established clients (either military or civilian), people who were interested in such goods and could afford them. Such quantities of vintage wine did not preclude the import of table wine, but it was a clear difference between the mass exported wine and the great vintages (Panella and Tchernia 2002: 175). Most probably, barrels were used to deliver ordinary wine for the army in the Lower Danube region, as part of the soldiers' daily rations. Similar containers manipulated by soldiers are shown on the column of Trajan, whereas Tchernia suggested that wine from Northern Italy was transported in barrels to the army along the Danube (1986: 295). Archaeological evidence indicates that the Roman army used such containers as early as the end of the first century B.C., and a good example is the collection of finds from the military camp at Oberaden (Brun 2003: 104–05). Among the examples from Pannonia, perhaps the best known barrels are the five that were found at *Aquincum*, which were marked with the name of the legion II *Adiutrix* (Bezeczky 1995: 165). Another nine have been found on the same site, while similar containers without inscriptions come from *Carnuntum*, *Gorsium* and near *Arrabona* (those from the last two sites dating to first century) A.D. (Bezeczky 1995: 165; Baratta 1994: 252).

During this period, ordinary wine produced in Italy was often exported in dolia to the provinces across the sea (Hesnard 1998: 22). Some cargoes may have been shipped to *Aquileia*, before being transferred into re-usable barrels and sent to the Danube provinces overland or on boats along the rivers. According to Strabo (V. 1.8), the Illyrian tribes used the same transportation system for the wine bought from this commercial centre long before the Roman conquest. *Aquileia* was the main Roman emporium on the route between Italy and the Danube frontier, therefore, the five shipwrecks containing cargoes of dolia that have been found in the Adriatic (Juristić 2000: 25) may support this hypothesis.

Returning to the imports of wine delivered in amphorae, it may be presumed that the consumers were mostly officers, but also soldiers and colonists, and traders or officials of Italic or Mediterranean origin who were looking for familiar quality wines. At the same time, some consignments of wine amphorae may have been ordered by precise units, and their names were sometimes painted on the vessels, like is the case at *Aquincum* in Pannonia (Bezeczky 1996:

332–3; Kelemen 1990: fig. 5, no. 4), or at Boljetin in Upper Moesia (Bjelajac 1996: 55, no. 86; Dyczek 2002: 688).

Consumption of olive oil

The second group of data under discussion concerns the olive oil consumption during the first and second centuries A.D. in the same region (Fig. 6). Until the end of the Hadrianic period, olive oil was imported from the Istrian Peninsula in Dressel 6B amphorae (Bezeczky 1995: 156), while the first imports of Baetican oil delivered in Dressel 20 can be dated as early as the end of the first century A.D. (Kelemen 1993: 68; Bjelajac 1996: 32–4).

Dressel 6B amphorae, which are dated prior to the Flavian period, were found only along the Amber Route and in southern Pannonia, and the number of finds from each settlement is rather small. Again, like in the case of early wine imports, this distribution pattern is merely a result of the first phase of Roman military presence in the Danube region (Bezeczky 1995: 156).

From the Flavian period onwards, Istrian olive oil dominated the market in Pannonia and Upper Moesia (Bezeczky 1995: 159; Bjelajac 1996: 15–8), with a peak from the reign of Domitian until late Trajanic period. For example, many amphorae of this type have been found in the military storage facilities built at Konopiste and Kurvingrad, in the Iron Gates sector, not far from the newly constructed bridge across the Danube, in preparation for Trajan's Dacian campaigns (Popović 1996).

As mentioned above, the first Baetican amphorae arrived early within the Lower Danube region, but higher quantities were imported after the middle of the second century A.D. (Bezeczky 1995: 161; 2005: 51). The distribution map (Fig. 6) indicates that Dressel 20 amphorae were found almost only on sites along, or close to, the Danube or the Amber Route, both major ways of strategic importance. In this respect, we should observe that the most significant assemblages all come from military sites.

Earlier Baetican amphorae from the first century A.D. were most probably imported through *Aquileia*, as suggested by finds from the local museum, as well as by other pieces from Istria and Dalmatia (Cipriano and Carre 1987: 485; Kelemen 1993: 68–9). This hypothesis is also supported by a shipwreck from the Adriatic, containing a major cargo of Dressel 20 amphorae (Jurištić 2000: 22). At the same time, the higher number of finds on military sites along the Danube during the second half of the second century A.D. has been considered to be a consequence of the Marcomannic Wars, which generated a concentration of supplies in the area (Remesal Rodriguez 2002: 305–6). These military cargoes, destined to a precise campaign, were probably delivered along the Danube route, as indicated by the appointment of M. Valerius Maximianus, who was in charge with the Pannonian fleet transporting military supplies in A.D. 169–170 (AE 1956: 124). This hypothesis does not exclude the use of the Adriatic route through *Aquileia* further on, especially for composite private cargoes destined to the civilian market, as the finds from some shipwrecks may suggest (Jurištić 2000: 22).

All these data are again raising questions concerning the characteristics of consumption, as well as the mechanisms of distribution. Therefore, it is worth comparing the assemblages of Istrian and Baetican olive oil amphorae from the entire region. Figure 7a shows the total number of amphorae published so far, while figure 7b takes into consideration the total estimated volume of foodstuff delivered within them. The volumes are calculated for a quantity of approximately 36 litres of oil contained in a Dressel 6B amphora (Carre 1985: 219, note 54),

and around 73 litres in a Dressel 20 amphora (Rodriguez Almeida 1984: 117 and 175–205; Panella 2001: note 17). Therefore, the apparent strong reduction in demand for this foodstuff, suggested by the first figure, is in fact not so marked if the estimated volumes are calculated. At the same time, we should take into consideration the other small quantities of olive oil that arrived from northern Africa, Asia Minor, and Pontus, during the last decades of the second century A.D., especially on sites along the Danube (Kelemen 1990: types 20 and 22; 1993: types 23 and 24; Bezeczky 1995: 161).

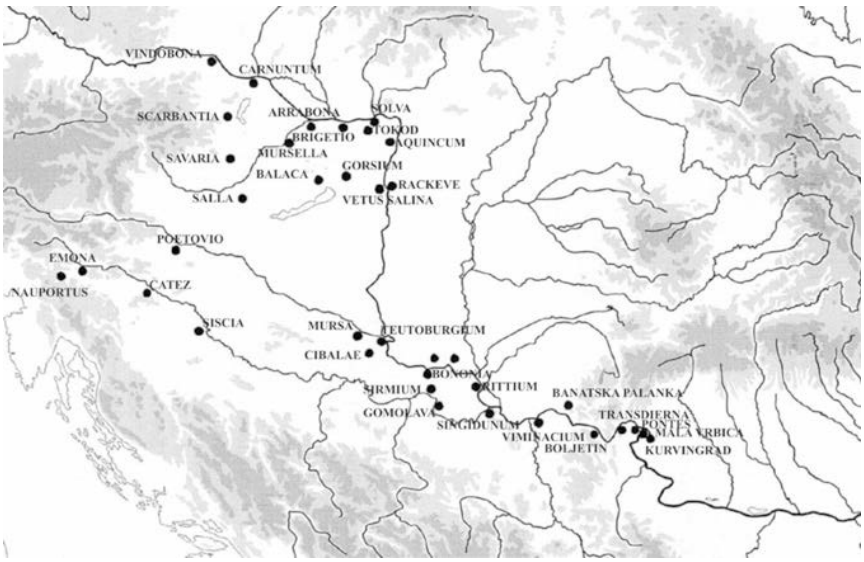

Figure 6a: Distribution of Dressel 6B amphorae.

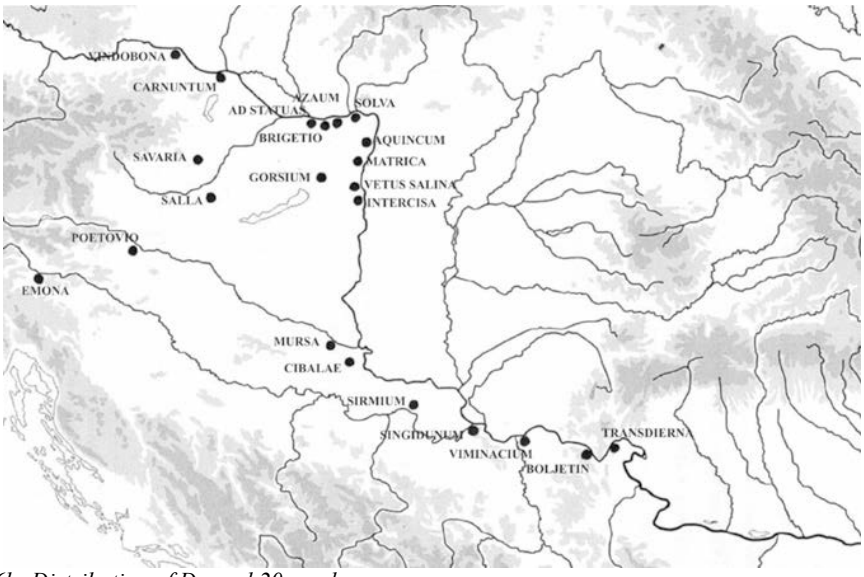

Figure 6b: Distribution of Dressel 20 amphorae.

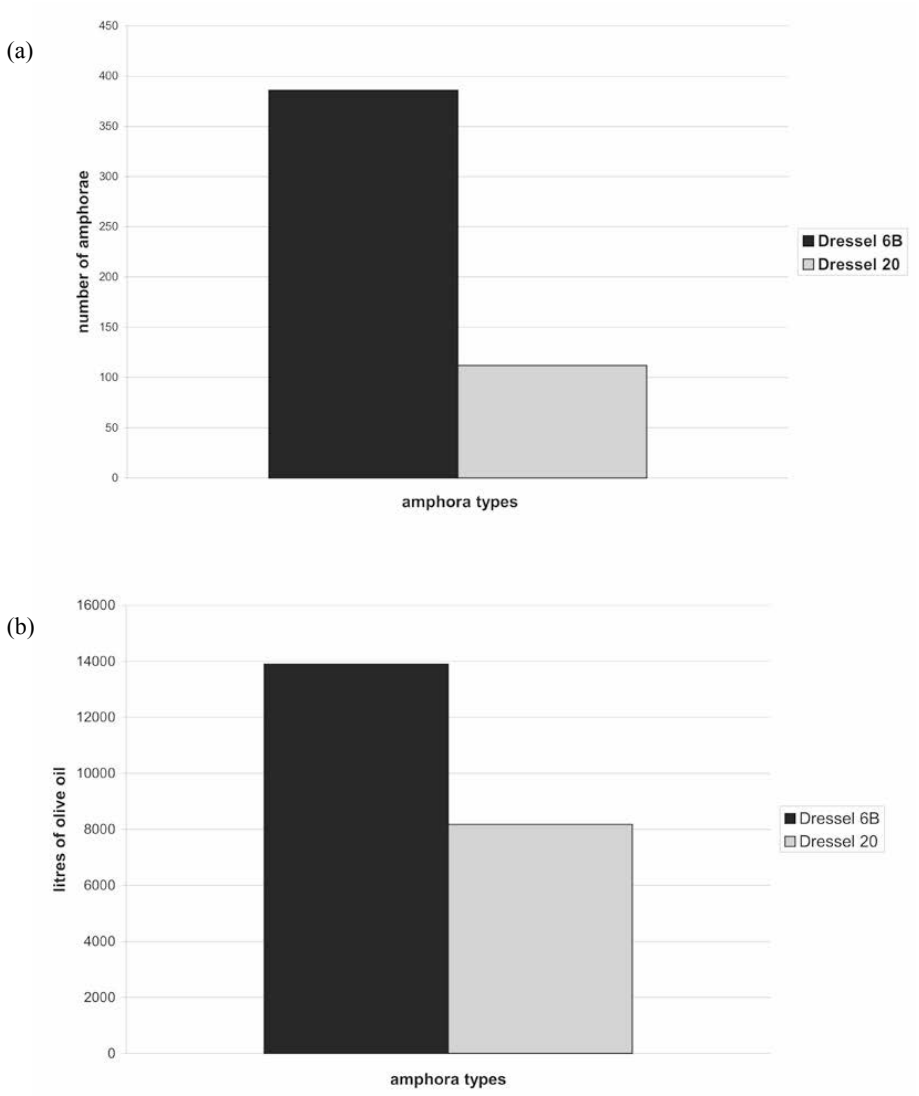

Figure 7: Estimated olive oil consumption in the Lower Danube region (first and second centuries A.D.): (a) by amphora quantity; (b) by volume.

Of course the analysis may be quite fragile insofar as each type of amphorae is represented by a rather small number of pieces, therefore, one has to presume that a possible future publication of a large assemblage of vessels dominated by any of these types, may affect these observations. During the last decades, archaeological research in the region under discussion provided many large assemblages of pottery, including amphorae, and some of them were completely analysed, yet the percentage of such vessels within them remains rather low.

An analysis of the most significant assemblages of amphorae Dressel 6B and Dressel 20 may help in identifying the consumers. The following pair of figures shows the situation on

four civilian (*Emona*, *Poetovio*, *Salla,* and *Savaria*), and four military sites (*Carnuntum*, *Aquincum*, *Gorsium,* and *Vindobona*), all providing large ceramic assemblages with detailed amphora analyses (Fig. 8). First, we have to observe that there was a significant reduction of olive oil consumption in the civilian settlements during the period under discussion, and that this may be explained by the army's movement towards the Danube frontier, corroborated by the increasing percentage of indigenous inhabitants among the urban population from the second century A.D. onwards (Mócsy 1974: 134–53; Fitz 2003: 51). These people were probably less interested by olive oil, since they had other culinary customs, mostly based on animal fats (Bezeczky 1995: 170; 2005: 69; Brun 2003: 169). As Garnsey observed, within ancient societies, food and cuisine was a matter of cultural choice, often used as sign of social

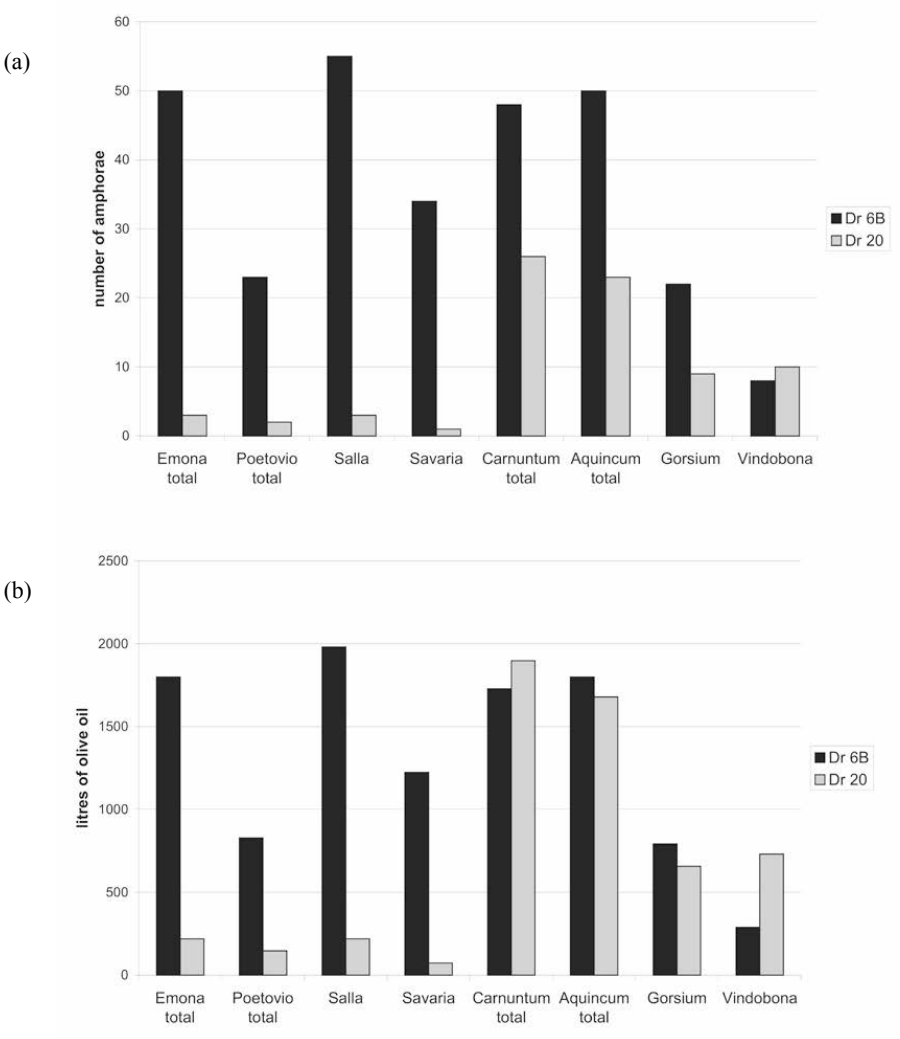

Figure 8: Estimated consumption of olive oil delivered in Dressel 6B and Dressel 20 amphorae: (a) by amphora quantity; (b) by volume.

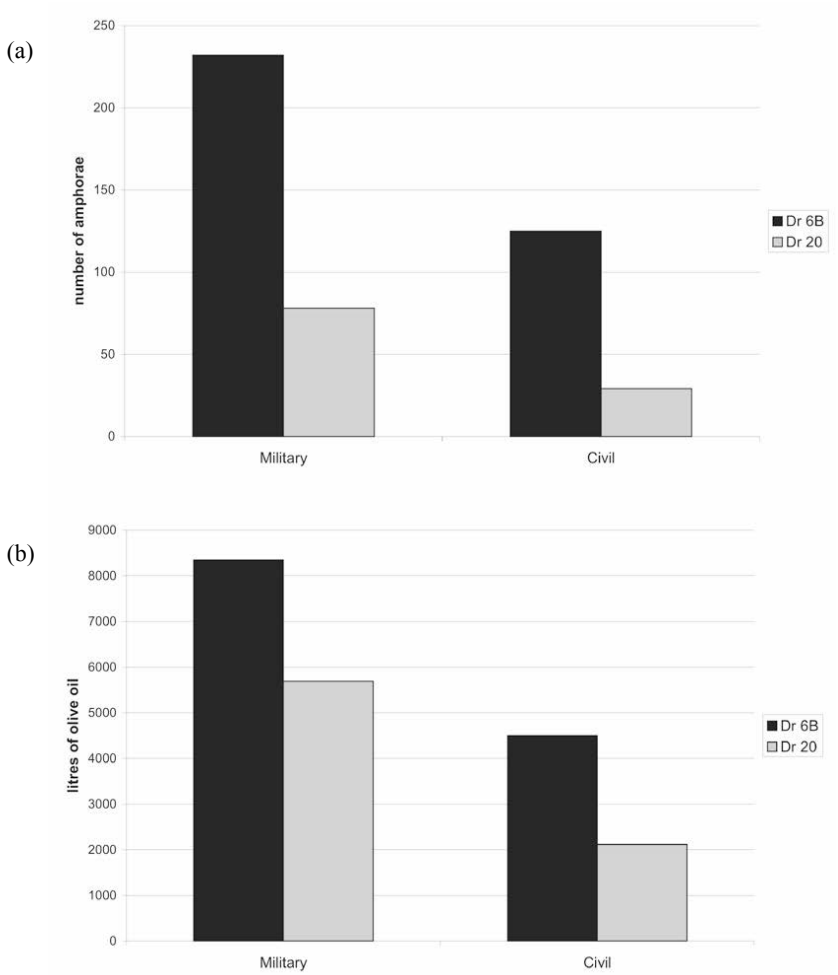

Figure 9: Estimated military and civilian consumption of olive oil delivered in Dressel 6B and Dressel 20 amphorae.

or ethnic representation (1999: 5–10), thus probably only those members of the indigenous society who were interested in acquiring another marker of status in their relationships with the local representatives of the Roman power were keen to copy new dietary habits. Moreover, diet is among the most conservative aspects of daily life, which explain the persistence of some ancestral customs alongside new ones, even within the most cosmopolitan society, and so the adoption of olive oil, involving new recipes and new cooking methods, would have been a major change for an animal fat-based cuisine. At the military sites, *Carnuntum* (Bezeczky 1995; 1997) and *Aquincum* (Bezeczky 1991; 1995), which were both legionary headquarters, they both show a constant demand for olive oil, a tendency shared also by the nearby urban settlements. *Vindobona* also had a legionary fort from the second century A.D., and the higher consumption of Baetican olive oil may be explained by this later development of the site (Bezeczky 2005).

The last pair of figures shows a number of characteristics for the olive oil consumption in the entire Lower Danube region (Fig. 9). Firstly, the military consumption was always higher than the civilian one, but the army received regular supplies of olive oil as part of the daily ration, while the civilian market depended merely on the interests of the merchants. It is considered that the military demand for the Baetican olive oil in the frontier provinces might have influenced the consumption in the nearby civilian settlements (Mattingly 1988: 53, note 101). Therefore, it is not a coincidence that from the Flavian period onwards, when the army was re-deployed along the Danube, civilian consumption in southern Pannonia diminished. Secondly, the demand of olive oil decreased during this period across the entire region. Taking the patterns generated by the previous pair of figures into consideration, we may suggest that a reduction of military consumption mainly characterised the auxiliary units, where many locals were recruited from around the middle of the first century A.D. onwards (Mócsy 1974: 51–2; 154–59). Therefore, legions look to be the constant major client for olive oil in the Lower Danube, despite recruiting locals from the area from the second century A.D. onwards. As units of Roman citizens, they were keen to maintain a distinct status even concerning the dietary preferences, a tendency also illustrated by their higher consumption of pork in comparison with that of the auxiliaries, as this was regarded as being of genuine Roman tradition (King 1999: 182–3). This characteristic may explain their constant interest for olive oil supplies as part of their Roman-style diet, regardless of the ethnic composition.

Conclusion

In conclusion, it should be observed that by taking into consideration the capacities, instead of the number of amphorae found in the Lower Danube region, the analysis of the consumption patterns became more nuanced. In this way, not only can the differences between the civilian and the military market be observed, but also between sites belonging to the same category. Concerning the wine consumption, in general, those produced in Italy were preferred, whereas the Rhodian types were less popular, except in a place with a presumably large community of Greek-Oriental origin. At the same time, barrels might have been used for the military supplies, given the reduced quantities of wine delivered in amphorae, which was probably of better quality. As for the olive oil consumption, the identified patterns suggest a constant legionary demand that also influenced the nearby civilian settlements. Within the latter category of sites, a rather reduced social group, including newcomers of Mediterranean origin, veterans, and perhaps some members of the indigenous elite, were looking for such foodstuff.

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Acknowledgements

This paper had first taken form while I was writing a chapter of my thesis and it is mainly a result of many interesting discussions with my supervisor Professor Martin Millett, to whom I would like to thank for the useful comments. Most of the information was collected during a documentation stage at the Hungarian Institute of Archaeology, thanks to a grant from the Eddington Fund offered by Trinity College Cambridge. At Budapest I benefited from the kind help of Dr Andreea Vaday, to whom I would like to thank for many interesting discussions.

Additionally, I would like to thank Ben Croxford and Roman Roth for help with the English in the final draft.

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