

Food and drink in the Roman world

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ABSTRACT The application of cutting-edge methods of organic residue analysis (e.g. chromatography) to the determination of the contents of ceramic vessels as part of larger a project, including a physical anthropology component, on the food and drink of this ancient population has greatly advanced Bronze Age Aegean archaeology. See Yannis Tzedakis and Holley Martlew (ed.), *Minoans and Mycenaeans. Flavours of their Time*, Athens, 1999 — the catalogue of an exhibition at Athens that has gone on to venues at Rethymnon, Chicago, Birmingham and Stockholm. Therefore, we have decided to set up a parallel project for Roman Italy. Arguably the most significant development in central Italy under the Romans was its evolution from a collection of city-states with varying ethnic and cultural backgrounds to a single unit that came to be the heart of the Roman Empire. The accompanying economic development was first the rise in the second and first centuries BC of market-oriented, intensive agriculture (chiefly for wine) on slave-operated villas at the expense of largely subsistence farming by small-holders and then its decline in the later first and second centuries AD in favor of large estates with extensive production

(such as livestock and grain). The project will use pottery studies and physical anthropology to investigate 1) flows of agricultural goods and people with their genetic information and cultural backgrounds and 2) the nutritional challenge in terms of supply and acculturation to be met as a result of the demographic changes and as a cause of them. Pottery will be analyzed from Cosa, Pompeii and Ostia. The first two were important export centers for central Italian products — the former in the second and first centuries BC and the latter until AD 79 — while the last became a major port for overseas imports destined for Rome. Each functional group presents its own questions. Determining the contents of amphorae will be a major part of the project, as will attempts to use the quantification of amphorae to quantify the agricultural produce they contained. The portion of the project for utilitarian pottery will be aimed at identifying archaeologically the foods prepared by Romans and the specific function of cooking vessels, with the evolution over time of both elements. There are similar questions for the fine wares used for serving and consuming food, as well as specific ones (such as whether vessels within single classes of sigillata formed services).

The application of cutting-edge methods of scientific analysis has proved revolutionary in a project on food and drink in the Aegean Bronze Age civilizations. The approach is two-pronged: one examining pottery through organic residue analysis (mass spectrometry/gas chromatography) and the other skeletons through stable isotope analysis of the protein in the collagen in the bones. From the potsherds it was learned what specific vessels contained and from the skeletons whether the protein in an individual's long-term diet was derived from seafood, plants or an animal source (meat or milk products). A surprising result to emerge from the skeletal study was that at the sites analyzed to date, the Minoans and Mycenaeans ate little if any seafood. The analysis of the pottery produced the earliest proof of resinated wine in the Greek Bronze Age. The project has given rise to a very successful exhibition, which has traveled from Athens and Rethymnon to Birmingham, Chicago and Stockholm, with further venues planned at Naples and Geneva. It has seen preliminary publication in an exhibition catalogue (Tzedakis and Martlew, 1999), and the publication of the primary scientific evidence is forthcoming (2004).

Now it is proposed to initiate a Roman project under the umbrella of the original program. While the Roman project will be autonomous, it will benefit from the existing network of technical support and expertise. The scientific analyses employed are, of course, as applicable to questions of the Roman period as to those of the Bronze Age Aegean.

Naturally these questions reflect the specificity of Roman archaeology. Arguably the most significant development in central Italy under the Romans was its evolution from a collection of city-states with varying ethnic and cultural backgrounds to a single unit that came to be the heart of the Roman Empire. The corresponding economic development was first the rise in the second and first centuries BC of market-oriented, intensive agriculture (chiefly for wine) on slave-operated villas at the expense of largely subsistence farming by small-holders and then its decline in the later first and second centuries AD in favor of large estates with extensive production (such as livestock and grain). The project will use pottery studies and physical anthropology to investigate 1) flows of agricultural goods and people with their genetic information and cultural backgrounds and 2) the nutritional challenge in terms of supply and acculturation to be met as a result of the demographic changes and as a cause of them.

The material for the two parts of the project has been chosen differently. Because of the unity of Roman central Italy any available skeletal material from the area is representative. As pottery is more abundant, selected samples will be analyzed from Cosa, Pompeii and Ostia. The first two were important export centers for central Italian products — the former in the second and first centuries BC and the latter until AD 79 — while the last became a major port for overseas imports destined for Rome.

Each functional group presents its own questions. The portion of the project for common domestic pottery will be aimed at the archaeological identification of the foods prepared by Romans and the specific function of cooking vessels, with the evolution over time of both elements. There are similar questions for the fine wares used for serving and consuming food, as well as specific ones (such as whether vessels within single classes of *sigillata* formed services). Determining the contents of amphorae will be a major part of the project, as will attempts to use the quantification of amphorae to quantify the agricultural produce they contained.

As this project places particular emphasis on the flows of goods, amphorae occupy a central position in the pottery study (Table 1). For this period we have little doubt about the origins of the main amphora types, and there is more agreement on their contents than for other periods. However, there is some disaccord or doubt on the latter point. Peacock and Williams, for example, almost always qualify their attributions with “probably” or “possibly” (Peacock and Williams, 1986). Panella (1973) is also often cautious. Most of the attributions that have gained a consensus, which generally are based on *tituli picti* or on the typical products of the regions of origin, are probably correct, although one must consider that *tituli picti* may refer to secondary uses of amphorae and that regions might have exported products other than their main specialty. In other cases there is a divergence of opinions. Unlike others who consider Dressel 1C amphorae to be wine containers, Will thinks that they carried fish sauces (Will, 1987, p. 202). Carreras suggests that Gallic amphorae may have been used for fish sauces as well as for wine (Carreras, 2000, p. 103). Opinions differ on Adriatic amphorae: Lamboglia 2, for instance, is a wine container for Tchernia, Sciallano and Sibella and Carreras but one for oil according to Will, while Peacock and Williams remain uncertain between the two (Tchernia, 1986, p. 53-56; Sciallano and Sibella, 1991, p. 33; Carreras, 2000, p. 111; Will, 1987, p. 204; Peacock and Williams, 1986, p. 100). Organic residue analysis can make a real contribution to clarifying the situation. However, establishing the contents of amphorae is merely a beginning. It is necessary to quantify both the amphorae and the goods they car-

ried. Much attention has been paid recently to methods of quantifying pottery, including amphorae. Work has also been carried out on the capacity of amphorae. These results need to be collected and carried forward systematically. The aim is to be able to read a certain quantity of amphora sherds as the equivalent of however much wine, oil or other goods carried.

The project on Roman food and drink is at its infancy. However, we have every expectation that it will be just as fruitful in its results as its Bronze Age predecessor.

TABLE 1

Type	wine	oil	fish sauce	other	unknown	reason
ITALIC AMPHORAE						
<i>Brindisi amphora</i>						
Panella, 1973	possibly	probably				regional products
Peacock-Williams, 1986	possibly	probably				none given
Will, 1987		probably				none given
Sciallano-Sibella, 1991		yes				none given
<i>Greco-Italic amphora</i>						
Peacock-Williams, 1986	probably					none given
Will, 1987						none given
Sciallano-Sibella, 1991	yes					none given
<i>Dressel 1A</i>						
Panella, 1973	yes					tituli picti
Peacock-Williams, 1986	yes					tituli picti
Will, 1987	yes					none given
Sciallano-Sibella, 1991	yes					none given
Carreras, 2000	yes					tituli picti; pitch lining
<i>Dressel 1B</i>						
Panella, 1973	yes					tituli picti
Peacock-Williams, 1986	suggested					tituli picti
Sciallano-Sibella, 1991	yes					none given
<i>Dressel 1C</i>						
Panella, 1973	yes					tituli picti
Peacock-Williams, 1986	probably					tituli picti
Will, 1987			yes			none given
Sciallano-Sibella, 1991	yes					none given
<i>Dressel 2-4</i>						
Panella, 1973	yes					tituli picti
Peacock-Williams, 1986	yes					tituli picti
Will, 1987	yes					none given
Sciallano-Sibella, 1991	yes					none given
Carreras, 2000	yes					none given
<i>Dressel 21-22</i>						
Peacock-Williams, 1986				fruit suggested		tituli picti
Sciallano-Sibella, 1991				fruit?		none given
Carreras, 2000				fruit		tituli picti
<i>Spello Amphora</i>						
Panella, 1989	yes					regional product

TABLE 1 [cont.]

Type	wine	oil	fish sauce	other	unknown	reason
Lamboglia 2						
Peacock-Williams, 1986		suggested				none given
Will, 1987		probably				none given
Sciallano-Sibella, 1991	yes					none given
Carreras, 2000	yes					residue
Dressel 6A						
Peacock-Williams, 1986		possibly				none given
Sciallano-Sibella, 1991	yes					none given
Dressel 6B						
Peacock-Williams, 1986		possibly				
Forlimpopoli Amphora						
Panella, 1989	yes					pitch lining
Sciallano-Sibella, 1991	yes					none given
HISPANIC AMPHORAE						
Pascual 1						
Peacock-Williams, 1986	probably					regional product
Sciallano-Sibella, 1991	yes					none given
Carreras, 2000	yes					none given
Dressel 2-4						
Panella, 1973	yes					tituli picti
Peacock-Williams, 1986	yes					tituli picti
Sciallano-Sibella, 1991	yes					none given
Carreras, 2000	yes					none given
Dressel 7-11						
Panella, 1973			yes			tituli picti
Peacock-Williams, 1986			yes			none given
Sciallano-Sibella, 1991			yes			none given
Carreras, 2000			yes			none given
Beltrán I						
Peacock-Williams, 1986			suggested			tituli picti
Beltrán IIA						
Peacock-Williams, 1986			yes			none given
Sciallano-Sibella, 1991			yes			none given
Carreras, 2000			yes			none given
Beltrán IIB						
Panella, 1973			probably			tituli picti
Peacock-Williams, 1986			yes			none given
Sciallano-Sibella, 1991			yes			none given
Carreras, 2000			yes			none given
Beltrán III						
Peacock-Williams, 1986			suggested			tituli picti
Beltrán IVA/Dressel 14						
Panella, 1973			yes			tituli picti
Peacock-Williams, 1986			suggested			tituli picti
Sciallano-Sibella, 1991			yes			none given

TABLE 1 [cont.]

Type	wine	oil	fish sauce	other	unknown	reason
Beltrán IVB						
Panella, 1973			yes			residues
Peacock-Williams, 1986			suggested			none given
Sciallano-Sibella, 1991			yes			none given
Carreras, 2000			yes			none given
Haltern 70						
Peacock-Williams, 1986				must		tituli picti
Sciallano-Sibella, 1991	yes					none given
Carreras, 2000				<i>defructum</i> ; olives in <i>defructum</i>		tituli picti; residue
Haltern 71						
Peacock-Williams, 1986		suggested				analogy with Dressel 20
Dressel 20						
Panella, 1973		yes				tituli picti
Peacock-Williams, 1986		yes				none given
Sciallano-Sibella, 1991		yes				none given
Vindonissa 581						
Panella, 1973					yes	none given
Dressel 28						
Peacock-Williams, 1986	possibly		possibly			none given
Sciallano-Sibella, 1991	probably					none given
GALLIC AMPHORAE						
Gauloise 1-Gauloise 5						
Panella, 1973	yes					regional product
Peacock-Williams, 1986	yes					none given
Sciallano-Sibella, 1991	yes					none given
Carreras, 2000	principally		secondarily			none given
AFRICAN AMPHORAE						
Neo-Punic Amphorae						
Peacock-Williams, 1986					yes	none given
Sciallano-Sibella, 1991			probably			none given
Tripolitanian I						
Panella, 1973		probably				analogy with Tripolitanian III
Peacock-Williams, 1986		probably				none given
Sciallano-Sibella, 1991		yes				none given
Tripolitanian II						
Panella, 1973		probably				analogy with Tripolitanian III
Peacock-Williams, 1986		probably				none given
Sciallano-Sibella, 1991		yes				none given

TABLE 1 [cont.]

Type	wine	oil	fish sauce	other	unknown	reason
<i>Tripolitanian III</i>						
Panella, 1973		probably				regional product
Peacock-Williams, 1986		probably				none given
Sciallano-Sibella, 1991		yes				none given
EASTERN AMPHORAE						
<i>Camulodunum 184</i>						
Panella, 1973						tituli picti; regional product
Peacock-Williams, 1986	yes					none given
Sciallano-Sibella, 1991	yes					none given
Carreras, 2000						tituli picti
<i>Crétoise 1-Crétoise 4</i>						
Peacock-Williams, 1986					yes	none given
Sciallano-Sibella, 1991	yes					none given
Carreras, 2000	yes					tituli picti
<i>Agora M54</i>						
Sciallano-Sibella, 1991	yes					none given
<i>Agora G199</i>						
Sciallano-Sibella, 1991					yes	none given
<i>One-handed container</i>						
Panella, 1973	suggested					tituli picti
Peacock-Williams, 1986					yes	none given
Sciallano-Sibella, 1991					yes	none given

NOTES

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