

9 Agricultural Products Transported in Amphorae: Oil and Wine[†]

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This article develops the theme of Chapter 4, moving from the production of cash crops to their transfer to the consumers. The geographical distribution patterns of the physical remains of ceramic containers for wine and olive oil, known as *amphorae*, have enabled modern scholars to reconstruct the main networks of trade in these goods. Thanks to the durability and large number of these artifacts, *amphora* studies have become a thriving sub-discipline within the field of classical archaeology that continues to make substantial contributions to the study of ancient economies. The present piece stands out for the unusually broad perspective taken by its authors.

Here, Clementina Panella, one of the leading Italian experts on Roman containers who is able to build on her own noteworthy surveys of this material,[‡] and the French archaeologist André Tchernia, best known for his fundamental study of the Roman wine trade,[§] team up to provide a succinct synthesis of a vast body of specialised research on the transport of liquid goods to Italy, tracing changes in the relative representation of containers from different regions from the late Republican to the early Byzantine periods (first century BC to sixth century AD). Although some of the details and technical language will be unfamiliar to novices to the field, their survey

[†] Originally published as 'Produits agricoles transportés en amphores: l'huile et surtout le vin', in *L'Italie d'Auguste à Dioclétien. Actes du Colloque International organisé par l'École Française de Rome, l'École des Hautes Études en Sciences Sociales, il Dipartimento di Scienze Storiche, Archeologiche, Antropologiche dell'Antichità dell'Università di Roma La Sapienza et lo Dipartimento di Scienze dell'Antichità dell'Università di Trieste* (Rome, 25–28 mars 1992), Rome: École Française de Rome, 1994, pp. 145–65. Translated from the French by Antonia Nevill. Reprinted with permission.

[‡] 'La distribuzione e i mercati', in A. Giardina and A. Schiavone (eds), *Società romana e produzione schiavistica*, Rome and Bari: Laterza, 1981, vol. II, 55–80; 'Le merci: produzione, itinerari e destini', in A. Giardina (ed.), *Società romana e impero tardoantico*, Rome and Bari: Laterza, 1986, vol. III, 431–59.

[§] *Le vin de l'Italie romaine: essai d'histoire économique d'après les amphores*, Paris: École Française de Rome, 1986.

offers an accessible introduction to the methods and concerns of this particular approach. The authors' caution in drawing historical conclusions from their data highlights both the potential and the limits of economic interpretations of this particular type of evidence. *Amphora* studies shed light on geographical and chronological shifts in inter-regional trade but do not normally allow us to measure changes in the overall scale of commercial exchange or to explain the underlying economic forces of supply and demand. Owing to the deficiencies of the primary sources, these more general issues are best addressed with the help of theoretical models (Hopkins, Ch. 10 below).

The aim of this article[†] is to determine, at some years' distance from works published independently by the two authors,¹ the development of Italian trade as regards the products for which amphorae have left remains – oil and, chiefly, wine. Fresh data have been contributed by excavations recently carried out in Rome. These will be combined for the first time with those from Ostia in a single graph, whose interpretation provides an opportunity to demonstrate the numerous points of agreement which now draw the writers' stand-points closer together.

I STARTING POINTS

1 The reign of Augustus [...] places us at the heart of changes in trading in Italy, especially for the products that interest us. This is a point no longer in any doubt.

a) *Oil*. Let us begin with what has least been commented upon. In the Benaki collection of the Museum of Alexandria there are almost 600 stamped amphora handles from Brindisi, and these represent over half of the stamped Latin handles. These same amphorae, together with what have been called the 'ovoid amphorae of the Republic' (Empereur and Hesnard, 1987), have been found distributed in small or very small numbers, but fairly widely, in the western Mediterranean area, where they penetrated farther inland than was first believed – as far as Mont Beuvray, for instance. Both types disappear shortly before or during Augustus' reign. Subsequently, oil exports would be confined to Istrian oil, contained in Dr. 6B amphorae, exported to Magdalensberg and the Danube (but not to the Mediterranean) at least until the reign of Hadrian, perhaps complemented and superseded by funnel-necked amphorae ('collo ad

imbuto'), which might also have been produced in certain places in the Cisalpine region (Pesavento, 1992).

b) *Wine*. The considerable visible decline between exports of the Dr. 1 and of the Dr. 2/4 has been stressed too often for us to refer to it again. But let us go further: where and when, after the end of the Republic, do we find a massive presence of Italian amphorae? At Carthage, either in the wall of Byrsa, dated between about 45 BC and 15 BC (where, with 40 stamps of *L. Eumachius* and 30 of *Maes(ianus) Cels(ius)*, which is a mark of Suessa Arunca, there is the largest known concentration of Italian amphora stamps), or around the beginning of the first century AD, with many Dr. 6 amphorae. Underwater archaeology provides evidence that leads in the same direction, as the last datable shipwrecks laden completely or partly with Dr. 2/4 or 6 Italian amphorae date to the time of Augustus.²

Thereafter, evidence of exports is not rare, but no longer gives the impression of massive amounts.³ We have to wait until the second century for the flat-bottomed amphorae of Emilia to provide signs of exports, probably less important but nevertheless quantitatively noteworthy, to which we shall return later. Of course, these remarks relate only to mass exports and not those of the great vintages: the literary sources that demonstrate their persistence are now complemented, in the second half of the second century and right into the third, by the evidence of some amphora stamps and some 'late Campanian' (Arthur and Williams, 1992; Tchernia, 1996).

What were the consequences of the drop in overseas trade for Italian vineyards? We will not return to the transformation in types of vine, a necessary adaptation to different demands; but it is probable that certain vineyards on the Tyrrhenian coast disappeared in that period: at Dugenta, Astura and Gravisca, amphora-producing workshops stopped operating at the end of the Republic.⁴ There were doubtless other disappearances in Augustus' time and during the first century. Henceforward, the remaining vineyards would find their main outlets in their production region and, for several of them, in Rome's vast market.

² Grand-Ibaud, D., Ladispoli, Tradière (Hesnard et al., 1988; Gianfrotta and Hesnard, 1987; Fiori and Joncheray, 1975).

³ For Gaul, among the most recent publications, see (on the drop in the percentages of amphorae from Lyon): Desbat and Martin-Kilcher, 1989; Desbat and Dangréaux, 1992, and the references cited therein; for Africa, see Riley, 1979; Fulford, 1983; Panella, 1983; Tchernia, 1996. Note, however, that this question is less clear regarding the eastern Mediterranean because the exact dates of Dr. 6 amphorae from Athens and Alexandria are not precisely known and we lack data from shipwrecks in the Aegean.

⁴ Hesnard et al., 1989; Incitti, 1986.

[†] Two maps and three tables included in the original article have been omitted here. All dates are AD unless specified otherwise.

¹ Panella, 1986, 1992; Tchernia, 1986, 1989.

2 During the same period, we find at Ostia, coming from Baetica and Tarraconensis, imports of three essential products transported in amphorae: oil, wine and fish. Other areas of provenance (Gaul, Africa and Lusitania) would add to or replace these, but the size of these imports was unfailing.

3 The end of overseas exports and the start of provincial imports are far from implying the end of commercial agricultural production in Italy taken as a whole. For wine, the amphorae of exporting areas under the Republic are found again in abundance in Rome up to the middle (Dr. 6) or end of the first century (Dr. 2/4). After that date, the latter tend to disappear fairly gradually, replaced by products from other regions (see below). For oil, although amphorae from peninsular Italy are no longer known after Augustus,⁵ written proof exists of the continued use, up to the end of the first century, at least of oil from Venafrum and chiefly, up to the third or fourth century, of Sabine oil.⁶ In fact, an entire zone of production around Rome permanently eludes the testimony of amphorae. Of particular concern are the wine and oil of the Sabine area, the wine of Tibur, Nomentum and the Montes Albani. In the latter case, the area has been relatively well examined and numerous presses are known (Bellini and Rea, 1985) without any trace of the production of amphorae having been discovered. Rome was near enough for savings to be made in transporting liquids, which were probably held in goatskins. In all these regions, there is textual evidence of a continuity which the proximity of the capital might in any case have led one to assume.

II PRESENTATION AND INTERPRETATION OF THE GRAPHS ON THE WINE TRADE

A Presentation of the graphs

I ARCHAEOLOGICAL CONTEXTS

An examination was made of the amphorae from several well-dated collections found in the stratigraphic excavations recently carried out in the centre of Rome. These groups were selected on the basis of the

quantitative importance of the material, their representativeness, and thus the reliability of the figures deduced from them. In one instance only, average values were calculated on the basis of two different excavations (of the Meta Sudans near the Coliseum and of the Via Nova on the Palatine), because the areas excavated are not only of the same period, but also the result of the same process of formation, the levelling following the fire of 64.

For the periods not yet well attested in the Rome material, we have used the data provided by the stratigraphies of Ostia (the House of the Porch, the store of La Longarina and the Baths of the Swimmer). Ostia was the transit point for seaborne goods destined for Rome and, so to speak, lived in symbiosis with it. Although methodologically speaking not very strict (the material culture of Ostia is certainly not identical with that of Rome), this operation was made necessary in order to begin to formulate a hypothesis on the overall development of Rome's wine supplies over a long period. Obviously, this reconstruction will have to take stock of the new data which the Roman excavations will soon supply.

Within the chronological sequence that we offer (50 BC to 600), the period in which data are most lacking is from 250 to 400. We have available, in fact, only two Roman contexts, qualitatively poor (that of the crypt of Saint Bonaventure in 250–300 and of the temple of the Magna Mater in 350–90), and the only reasonably contemporary level at Ostia (layer 1 of room XVI) is one of slow formation (250–400) which, covering a very extended chronological arc, gives a hardly representative sample. However, we are dealing with a period that is fundamental to an understanding of certain phenomena of production that need to be better known.

2 AREAS OF PRODUCTION AND TYPES OF AMPHORAE

a) Wine amphorae from Italy

Forming part of the 'wine amphorae of the Tyrrhenian coast' are the 'Graeco-italic' and the Dr. 1 for the Republican period, the Dr. 2/4 and 'late Campanian' for the imperial era.⁷

Wine amphorae of internal central Italy include the type *Ostia III*, 369–70 (known from Spello in Umbria: Panella, 1989), present up to the levels of 190–210, and the type *Ostia IV*, 279–90 (known from Empoli in Tuscany: Cambi, 1989) attested starting from the levels of 230–50.

To the Adriatic wine amphorae belong (from the first century BC

⁵ At Giancola, workshops producing 'ovoid [egg-shaped] amphorae' disappeared at the end of the Augustan period: Manacorda, 1990, 1993.

⁶ Venafrum: Plin. *HN* 15.8; 17.31; Mart. 12.63.1; 13.101; Sabine: Columella, *Rust.* 5.8.5; Plin. *HN* 15.13. Galen was familiar with the characteristics of Sabine oil and oil from Istria: Sabine: Galen 6.196, 220, 287; 10.287, 577, 822; 11.392, 869, 872; Istria: 10.791, 822 (ed. Kühn). Sabine oil is also cited in the *Mulomedicina* 874, 875, 899, 903.

⁷ For the latter, see Panella, 1989; Arthur and Williams, 1992.

to the first century AD) the Lamboglia 2 and the Dr. 6A, and, from the levels of 130–50, the type *Ostia IV*, 440–2 (known from Forlimpopoli: Panella, 1989).

The amphorae of Calabria are represented by the type Keay LII, produced in Bruttium and possibly Sicily from the first decades of the fourth century (Andronico, 1991; Gasperetti and Di Giovanni, 1991; Arthur and Williams, 1992).

b) Other wine amphorae

Alongside the Italian amphorae just mentioned, we included in the wine amphorae all the provincial types that are believed with enough certainty to have been used for transporting wine, and a few other types that were undoubtedly for wine but whose origin is still doubtful (as for example the type *Ostia II*, 522–3/*Ostia I*, 553–4 = *Benghazi Mid Roman 1*, considered until now to be north African, but recently attributed by Wilson, 1990, to Sicily). Among the late amphorae, the *Carthage Late Roman 1* were regarded as wine transporters and have been taken into account in the calculations of these containers.

3 PERCENTAGES AND CORRECTION FACTORS

The graphs present a complex series of percentages inferred from each of the groups examined: wine amphorae out of the total number of amphorae (Figure 9.1), and Italian wine amphorae – separated in their turn by region of origin – out of the total number of amphorae (Figures 9.2 and 9.3). As these groups are spread fairly regularly in time, it was possible to show the development by a series of continuous lines and thus to follow over a long period not only arrivals in Rome of wine amphorae in comparison with arrivals of amphorae containing other products, but also the performance of Italian wine amphorae compared with provincial wine amphorae (Hispanic, Gaulish, African, Aegean and oriental taken as a whole).

The reader must be warned, however, of the risks of error inherent in this operation. Starting from percentages within each of the groups examined, it relies on a comparison of them to reconstruct, through the increase or decrease in these percentages, the development of arrivals of a specific product (wine) at a specific site (Rome/Ostia). The supposition is that this can be shown from the trace of the curve (on this see Panella, 1983).

In the instance that concerns us here, it would have been necessary to introduce several correction factors in order to reach a less approximate evaluation of the figures to be interpreted. First, among

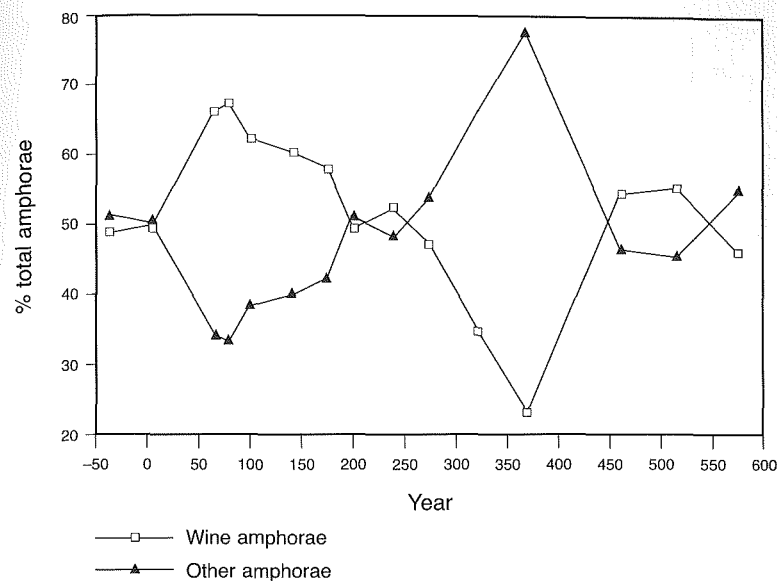


Figure 9.1 Development of the percentages of wine amphorae (Italian and provincial together) and amphorae intended for transporting products other than wine (oil, fish preserve) in the contexts of Rome and Ostia.

the most important, is the capacity of the types of amphorae, which is far from being uniform (flat-bottomed amphorae from those of Spello to those of Forlimpopoli – and almost all the late amphorae – from the Keay LII to the *Carthage Late Roman 1*, 3, 5/6 – transport a lower, and in some instances very much lower, quantity than the Italian amphorae of the end of the Republic and beginning of the Empire); second, the demographic evolution of the sites under consideration. Rome seems to have seen its population decline by half after 410 (Mazzarino, 1951; Durlat, 1990, p. 117), while the very existence of Ostia in the early fifth century is attested only by scarce and poor evidence.

The first point (the capacity of the various types of amphorae) leads one to qualify the apparent stability of the place of Italic wine amphorae between 10 and 190 – between 29% and 21%, as shown in Figure 9.2. In fact, the majority of the Italian amphorae attested in the levels of the second century contain on average one-third less liquid than those of the first century. We may thus assume that between 100 and 200 the percentage of arrivals of wine (if not of amphorae) in the sites studied should be decreased by a few points.

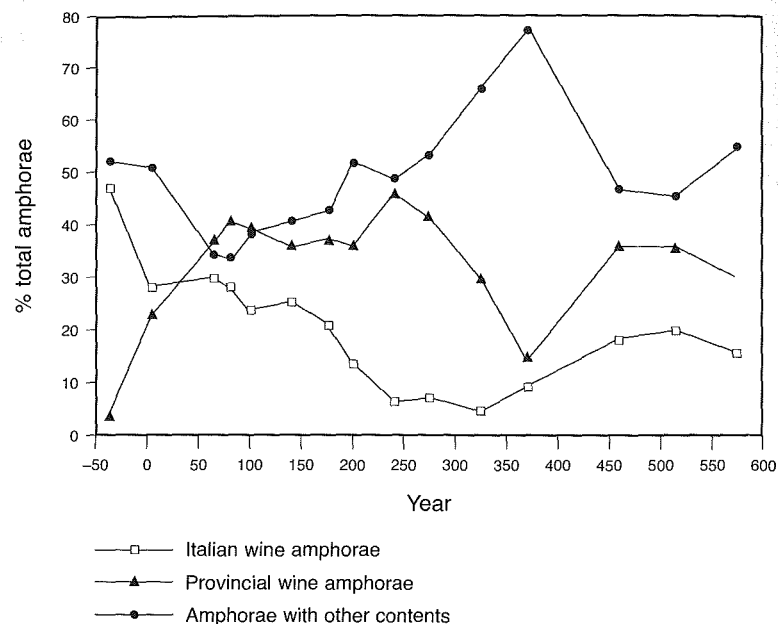


Figure 9.2 Development of the percentages of Italian wine amphorae, provincial wine amphorae and amphorae intended for transporting goods other than wine on the sites of Rome and Ostia.

Similarly, in Figure 9.1, the spectacular increase starting in 350–90 of the proportion of wine amphorae to the total number of amphorae of that period (Italian, Aegean and oriental) had a low capacity (only 3–6 litres for the *Carthage Late Roman 3!*), whereas in the same period (from 430) some African oil or garum amphorae increased their capacity.

As regards the second point (demographic evolution), if one accepts the hypothesis that Rome's population dwindled from the early fifth century and subsequently continued to decline (for some months during the Graeco-Gothic war of the sixth century the inhabitants deserted the town), one obviously has to accept a heavy drop in demand, and consequently in arrivals of amphorae.

The percentages curve cannot take this factor into account. However, it would be possible to introduce a correction element based on hypotheses of the development of demand. If this were done, it would naturally become apparent that there had been no increase, between the third to fourth centuries and the fifth to sixth centuries, in the arrivals of wine-carrying amphorae in Rome.

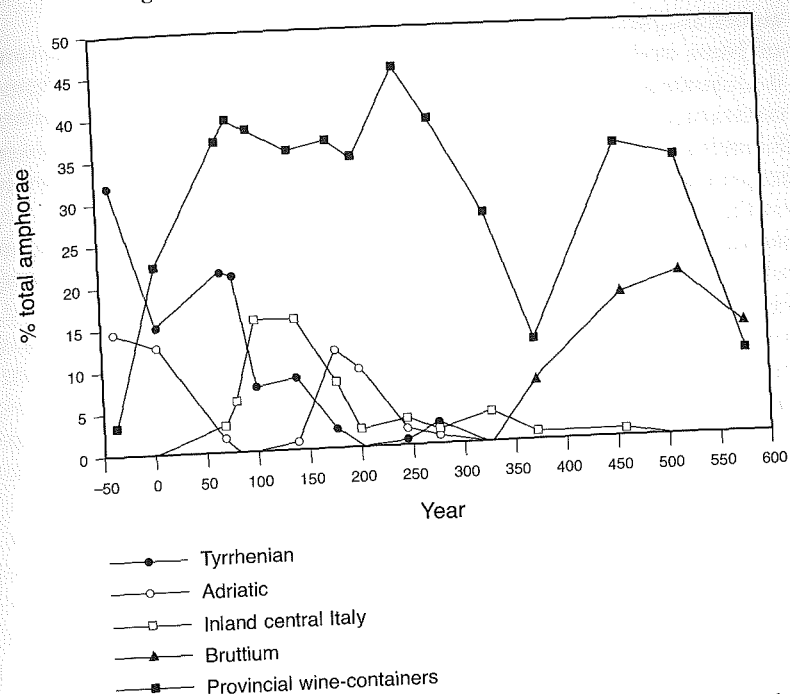


Figure 9.3 Development of the percentages of Italian wine amphorae, sorted by place of origin, and provincial wine amphorae on the sites of Rome and Ostia.

B Interpretation of the chief movements in the curve

For the Italian wine-carrying amphorae, there are clearly two fundamental interruptions.

1 The first is in the time of Augustus. From the House of the Porch around 40 BC to La Longarina several decades later, the collapse in the percentage of Italian amphorae chiefly illustrates the development of provincial imports in all products, but especially in that of wine (Figure 9.2). The proportion of Italian amphorae decreases heavily whereas those of wine amphorae over amphorae as a whole, regardless of content, tends to increase slightly (Figure 9.1).

2 The situation illustrated by Figure 9.2 between the Julio-Claudian era and the end of the Antonine era raises more interesting problems. Commencing from the first half of the first century, and up to the years 160–90, the figures for Italian wine amphorae tend to stabilise, with a slight decrease, to be seen from context to context and mainly noticeable if their capacity is taken into account. Before descending in its turn, the curve of imported wine amphorae con-

tinues at first to grow and reaches its highest points between the time of Nero and that of Trajan, peaking in the Flavian period (Figure 9.2). Since at that time the figures for Italian amphorae remain pretty constant, it would appear that the overall quantities of wine sold in Rome's market increased, and that this increase was due exclusively to provincial production.

This last aspect of the situation could be related to the destruction in the eruption of 79 of the vineyards in the region of Vesuvius, whose amphorae had previously been fairly well attested in Rome. However, it must be noted that, in the context of 64, provincial wines already had a very strong presence. The catastrophe that struck part of Campania does not therefore seem to have played a big part – unless very momentarily – in imports. On the other hand, it must have had a certain impact (and how could it be otherwise?) on the internal balance of Italian production (Tchernia, 1986).

The relative stability of Italian production as a whole, which we have emphasised, in fact masks profound internal changes (Figure 9.3). Up to the time of the Flavians, production on the Tyrrhenian coast represents over half the Italian amphorae. Starting from the end of the first century and the early second, it is inland central Italy that dispatches little flat-bottomed amphorae in large numbers, reaching levels of the same kind as the Tyrrhenian amphorae of the preceding period. With a new flat-bottomed shape, amphorae from the Adriatic coast also make their reappearance; in the Antonine era, they have percentages that are fairly close to those of the Dr. 6 in the reign of Augustus.

We must pause a moment over the two strands of production that become established and develop during the period when the villa of Settefinestre ceases producing wine and starts receiving it from Gaul, as does the surrounding region.

The amphorae of inland central Italy appear under Tiberius and are attested up to the Severan era. Until now, workshops have been found only at Spello in Umbria, but other production centres did exist, no doubt especially in north Etruria (*Ager Pisanus*, *Ager Volterranus*; see Menchelli, 1990–1). Their spread was fairly limited and they were primarily intended for the mass consumption of Rome. This explains the difference in the percentages for Rome and Ostia. Coming down the Tiber, they did not continue their journey to Ostia, where the proportion of amphorae from Gaul was greater.

Around the same time, Pliny the Younger (*Ep.* 5.6) depicts the region (we follow the interpretation of De Neeve, 1990) of *Tifernum Tiberinum* in the upper valley of the Tiber as covered in vines: *sub*

his (collibus) per latus omne vineae porriguntur, unamque faciem longe lateque contexunt; quarum a fine imoque quasi margine arbusta nascuntur [Below them (i.e., the hills) the vineyards spreading down every slope weave their uniform pattern far and wide, their lower limit bordered by a plantation of trees]. His letter is intended to reassure a correspondent who believed he was going to coastal Etruria; no, he is going to inland Etruria: *Ne facerem suasisti, dum putas insalubres. Et sane gravis ac pestilens ora Tuscorum, quae per litus extenditur. Sed hi procul a mari recesserunt* [Nor shall I allow myself to be persuaded, while you think them unhealthy. The stretch of Tuscany along the coast is certainly unhealthy and rife with pestilence; but these (i.e., my lands) are far from the sea]. The excavations of the villa Settefinestre have revealed, however, not any traces of malaria in coastal Etruria in Pliny's time, but a reconversion of the villa's production and ways of life that is just as significant. One of the causes of malaria was in fact the depopulation of the countryside and the abandonment of systems of drainage and irrigation (the trenches of centuriation) which for centuries had contributed to keeping at bay from this region the hazards of malarial marshes (Carandini, 1989).

The amphorae of Emilia make a timid appearance under the Flavians, establish themselves in the Antonine era and disappear from the sites under consideration at the end of the Severan period. With them, non-sporadic archaeological traces of distant exports of Italian wine are found, since there are numbers of them in the reserves of the Agora Museum of Athens, and they are similarly attested at Knossos and Tripolitanian Berenice. Let us remember that third-century Egyptian papyri mention amphorae *Hadrianai* (Rathbone, 1983). A wrecked ship laden with these amphorae recently discovered at Sant'Alessio near the Strait of Messina must have been on its way to Rome, however.

3 The second break, as spectacular as the first, occurred at the end of the second century and the beginning of the third. During this period, evidence of provincial amphorae remains relatively stable and even, around the mid-third century, reaches a second peak (after that of the Flavian era) (Figure 9.2). At the end of the second century, the decline in the curve of wine amphorae as a whole (Figure 9.1) is solely due to the decrease of the percentage of Italian amphorae (Figure 9.2). This would seem to indicate that the decrease in commercial Italian wine in amphorae was partially compensated for by arrivals from the provinces, but without their being sufficient to maintain the whole at the level of the preceding decades. After 250,

we witness a sudden drop in provincial amphorae, and wine amphorae as a whole reach their lowest level during the fourth century (350–90) (Figures 9.1 and 9.2). As it is impossible to suppose that wine consumption in Rome had diminished so considerably, this evidence can be set beside the hypothesis of a contemporary spread of the use of casks in the wine trade.

4 Let us take stock of this problem, on the subject of which the assessments made by the authors of this article may sometimes diverge by a few degrees, but are based on the following common findings.

a) The bas-relief of Cabrières d'Aigues proves that the use of amphorae could occur in the same production area as the use of the cask.

b) The texts of the Digest confirm that the use of casks began to be widespread in Italy at the latest in the early third century. There is no proof of their use on the western side of Italy before then. Neither the bas-relief of the Capitoline Museum, close to the third Pompeian style, nor the casks on Trajan's column, which might concern the north of Italy, have as yet had any explanation that could integrate them in a coherent system. That is why we do not want to use casks to interpret the drop in the percentage of wine amphorae between the middle and the end of the second century (Figure 9.1). This explanation would be all the more difficult to adopt, since at the same time the proportion of Adriatic amphorae clearly increases (Figure 9.2), whereas this region would be the best candidate for an early development of the use of casks.

c) On the other hand, iconography and epigraphy bear witness that casks were in quite common use in Rome in the late third century and the fourth.

d) Although the existence of casks casts doubt on the discontinuities that emerge from a study of the amphorae, it does not prove continuity either, in the absence of material traces and in each of the local instances. It cannot be ruled out, in particular, that casks could have replaced goatskins, and to a greater or lesser degree been used for transporting wines from regions bordering on Rome, the containers leaving no traces, as we have just said. If one comes down to the level of each production region, one notices that the only zone for which precise argument puts it beyond doubt that casks were added to amphorae is the north Adriatic region. There we have the combined evidence of casks found by Maximinus' army among the wine-growers of the region of Aquileia in 238, according to Herodian's account (8.4.4), bas-reliefs of Aquileia and Ancona (Tchernia, 1986,

Fig. 4), and, for the continuity of production in an area which in the time of the Dr. 6 probably contained an amphora workshop, a letter from Constantius and Constans (354) to the *ordo Caesenatianum* from Constantius and Constans (354) to the *ordo Caesenatianum* regarding wine '*quod ad cellarii usus ministrari solet*' [which is customarily furnished for use as cellar supplies] (*Cod. Theod.* 11.1.6). Elsewhere, it can only be a question of hypotheses which are a matter of personal assessment.

III THE END OF THE CURVE

The recovery of the percentage of Italian wine amphorae from the second half of the third century is due to the presence of one type alone, which makes up almost all the total of Italian amphorae: the Keay LII. These are small, flat-bottomed, fairly crude amphorae, with a capacity of from 12 to 14 litres. They are very widespread in the late fourth century and in the fifth century in Greece (Athens, Argos), southern Gaul, Spain and Italy. In 1989 P. Arthur advanced the theory that they came from Bruttium, and that hypothesis was confirmed more recently by the discovery of workshops near Reggio di Calabria. Some also very probably came from Sicily, and there is nothing to say that other centres of production did not exist.

Nevertheless, it is interesting to note that there had previously been production of amphorae in Lucania and Bruttium, from the late Graeco-Italic in the mid-second century BC up to the first century AD (De Caro, 1985). These amphorae were marketed locally and in small quantities elsewhere. When, with the Keay LII, much more widespread production reappeared in the fourth century, a whole range of texts supports the archaeological data. The *Expositio totius mundi* (53) says that Bruttium '*emittit [...] vinum multum et optimum*' [produces a lot of excellent wine]. It is the only passage in the text that mentions exports from Italy, since it is mostly concerned with those from Cilicia, Cappadocia, Dalmatia, Spain and Africa. The Theodosian Code (14.4.4) bears witness in 367 to the arrival in Rome of fiscal wines from Lucania and Bruttium (which created problems, since in response to their complaints, the owners were authorised to replace them by other allowances). In the sixth century, Cassiodorus, in two very interesting letters (*Variae* 12.12 and 14), explains that the Reggio region is poorly endowed with grassland and wheat but rich in olive trees and vines; he describes the wines of Bruttium, which are of high quality and much esteemed at the royal table. A native of the region, he boasts of a vintage named *Palmatianum*, which has 'full body and a creamy smoothness; it is

robust and ages well; it has a forceful nose, a remarkable sparkle, and its bouquet, when spat out, has justly merited its taking its name from the palm'.

Once more, texts whose real economic scope has been difficult to evaluate up to the present acquire more meaning and weight from archaeological data. But let us not be under any illusion. As we said above, fifth- to sixth-century Rome did not belong to the same world as Rome in the second to third centuries. For a heavily diminished population, with a different tax system, imports no longer played the same role. Not only their quantity, but also their structure, and especially the respective shares of luxury and mass produced goods, must have been profoundly altered. Moreover, the cask doubtless won the day at that time for the western wine-containers. In fact, there were only oriental wine amphorae or those from the Aegean to compete with the Keay LII. Among such a reduced population of amphorae, the increase in one of the factors is enough to modify the percentages radically. We must therefore be careful not to think that the occurrences represented by the extreme right of the curve are of the same kind as those revealed by its left side.

CONCLUSION

To conclude the discussion of data on Italian production, supplied mainly by the amphorae of Rome and Ostia, and the methodological reflections they inspire, we shall avoid dealing with the problems posed by the establishment of causal links and seeking the origin of changes. One point alone seems to us sufficiently evident to be worth emphasising.

Shifts of balance in agricultural production and exports between Italy and the provinces have long been the source of much argument and, speaking of Italy, one nearly always thinks of Campania, Latium and Etruria. Now it increasingly appears that the Tyrrhenian coast of central Italy did not have the monopoly on farming as an investment and overseas trading. Since the Lamb. 2 of the Republic are attributed to the northern half of the Adriatic coast (Carre and Cipriano, 1989), the vineyards of this region assume an economic importance almost equalling that of the vineyards of Etruria or Campania, and in the long term their prosperity poses fewer problems of continuity than that of the mass vineyards of the western side: except for the interruption in the second half of the first century, they do not seem to have stopped sending their wine by sea, throughout at least four centuries, chiefly in the direction of Rome and the

Aegean Sea. However, the archaeological landscape of the Adriatic coast differs considerably from that of the Tyrrhenian coast, and one does not find the impressive remains of villas which still adorn Etruria, Latium and Campania. What is implied here? Perhaps simply the glaring inequality in excavations (Fentress, 1990-1) and the less visible vestiges in a region where fine and durable building materials are harder to find.

But several other regions of Italy in their turn have demonstrated their ability to pass from an agriculture with local outlets to one directed towards distance trading, in particular to Rome. Even though we have just warned against the risk of over-interpreting them, the amphorae of Bruttium in the fourth century provide an example. The expansion of the vineyards of the Tiber basin, concomitant with the decline of those on the Tyrrhenian coasts, in the first and second centuries, give another particularly eloquent instance. The percentage curves show clearly that consideration of the changes in Italy's internal equilibrium, and their causes, would today prove a more fruitful task, and one more likely to give an account of the economic history of the heart of the Empire, than continuing to make overall comparisons between Italy and the provinces. But of course, it should not make us forget the considerable amount of food products coming from the provinces, from the time of Augustus, to Italy's urban centres, Rome in particular, and their surrounding areas.

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THE ANCIENT ECONOMY

Edited by
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