

# Regional and Interregional Exchanges in the Eastern Mediterranean during the Early Byzantine Period

## *The Evidence of Amphorae*



DOMINIQUE PIERI

OVER THE COURSE OF ONLY A FEW YEARS, our knowledge of late antique amphorae from the eastern Mediterranean has advanced so spectacularly that these objects have become particularly reliable evidence in establishing the chronology and stratigraphy of many sites in the Mediterranean basin. The emergence of new amphora types revealed by recent excavations, as well as their integration into increasingly complex typological classifications, brings into focus the dynamic character of manufacturing in the East, especially the Near East (Cilicia, Syria, Phoenicia, and Palestine). The commercial success of several eastern commodities from the beginning of the fifth century onward—particularly wine, which was widely distributed in large-scale trade during the late period—attests to a reorientation of production methods and a notably successful transformation of commerce.

Treating the question of commercial exchanges in the eastern Mediterranean basin during late antiquity requires a synthesis of available historical and archaeological data. Even today, however, significant unknowns, such as how production was organized, are thwarted by disparities and (especially) asymmetries in the data available. With the exception of juridical texts on the regulation of certain economic activities, there is little textual evidence that would enable us to arrive at a broad understanding of how trade was organized, and it is often difficult to distinguish the effects of larger economic trends from those of microeconomies. Certainly, research has sought to emphasize the importance of specific agents in the production process, but these stud-

ies remain narrow or limited in scope.<sup>1</sup> Many of the economic models regarding commercial exchanges recently postulated for late antiquity rely in part on data collected through archaeology, which can complement textual evidence. These models are based on the analysis of archaeological remains originating in material culture (ceramics, coins, glass, metals, and organic matter).<sup>2</sup>

1 J.-P. Rey-Coquais, "Fortune et rang social des gens de métiers de Tyr au Bas-Empire," *Ktèma* 4 (1979): 281–92; J.-P. Sodini, "L'artisanat urbain à l'époque paléochrétienne (IV<sup>e</sup>–VII<sup>e</sup> s.)," *Ktèma* 4 (1979): 71–118; G. Tate, "Les métiers dans les villages de la Syrie du Nord," *Ktèma* 16 (1991): 73–78; C. R. Whittaker, "Late Roman Trade and Traders," in *Trade in the Ancient Economy*, ed. P. Garnsey, K. Hopkins, and C. R. Whittaker (London, 1983), 163–80; M. Mundell Mango, "The Commercial Map of Constantinople," *DOP* 54 (2000): 189–207; M. Decker, "The Wine Trade of Cilicia in Late Antiquity," *Aram* 17 (2005): 51–59; E. Zanini, "Artisans and Traders in Late Antiquity: Exploring the Limits of Archaeological Evidence," in *Social and Political Life in Late Antiquity*, ed. W. Bowden, A. Gutteridge, and C. Machado, *Late Antique Archaeology* 3.1 (Leiden, 2006), 373–411.

2 J.-P. Sodini, "Productions et échanges dans le monde protobyzantin (IV<sup>e</sup>–VII<sup>e</sup> s.): Le cas de la céramique," in *Byzanz als Raum: Zu Methoden und Inhalten der historischen Geographie des Östlichen Mittelmeerraumes*, ed. K. Belke, F. Hild, J. Koder, and P. Soustal (Vienna, 2000), 181–96; C. Morrisson and J.-P. Sodini, "The Sixth-Century Economy," in *EHB* 1:171–220; M. McCormick, *Origins of the European Economy: Communications and Commerce, A.D. 300–900* (Cambridge, 2001); C. Wickham, *Framing the Early Middle Ages: Europe and the Mediterranean, 400–800* (Oxford, 2005); A. E. Laiou and C. Morrisson, *The Byzantine Economy* (Cambridge, 2007). More recently, see M. Decker, *Tilling the Hateful Earth: Agricultural Production and Trade in the Late Antique East* (Oxford, 2009); M. Mundell Mango, ed., *Byzantine Trade, 4th–12th Centuries: The Archaeology of Local, Regional and International Exchange*,

Ceramics constitute one of the most important tools available for understanding the mechanism of trade between the fourth and seventh centuries. The archaeology of the past twenty years has entirely revitalized our understanding of the history, particularly the economic history, of the Mediterranean in late antiquity and the early Middle Ages. Much attention has focused on amphorae, the packaging of choice for commercial products during the Roman period and late antiquity; as such, they are particularly useful for adducing information about exchanges. They carried wine, olive oil, and garum, essential products in the Mediterranean way of life. Indeed, the study of amphorae—the veritable time capsules of antiquity—has facilitated some of the most remarkable developments in the analysis of specific economic exchanges.<sup>3</sup>

In addition to the significant recent advances in our knowledge of ceramics (establishing the typolo-

gies of amphorae; mapping distribution and quantitative data; specifying origins, contents, and dating, etc.), we have increasingly come to understand the broader mechanisms of the trade in amphorae. We thus are in a position to survey both the significance and limitations of evidence derived from amphorae.

### Amphorae: Attesting to the Dynamism of the East

Archaeological activity has advanced significantly in the eastern Mediterranean during the past several years, thanks in particular to rescue and salvage archaeology undertaken in Istanbul, Athens, Alexandria, Beirut, Caesarea Maritima, and Gaza. These recent finds have enriched our knowledge of amphorae, and we have come a long way from the famous typological diagram of John A. Riley, who in 1982 classified, for the first time, seven international amphora types known collectively under the rubric “Late Roman Amphorae” (fig. 2.1).<sup>4</sup>

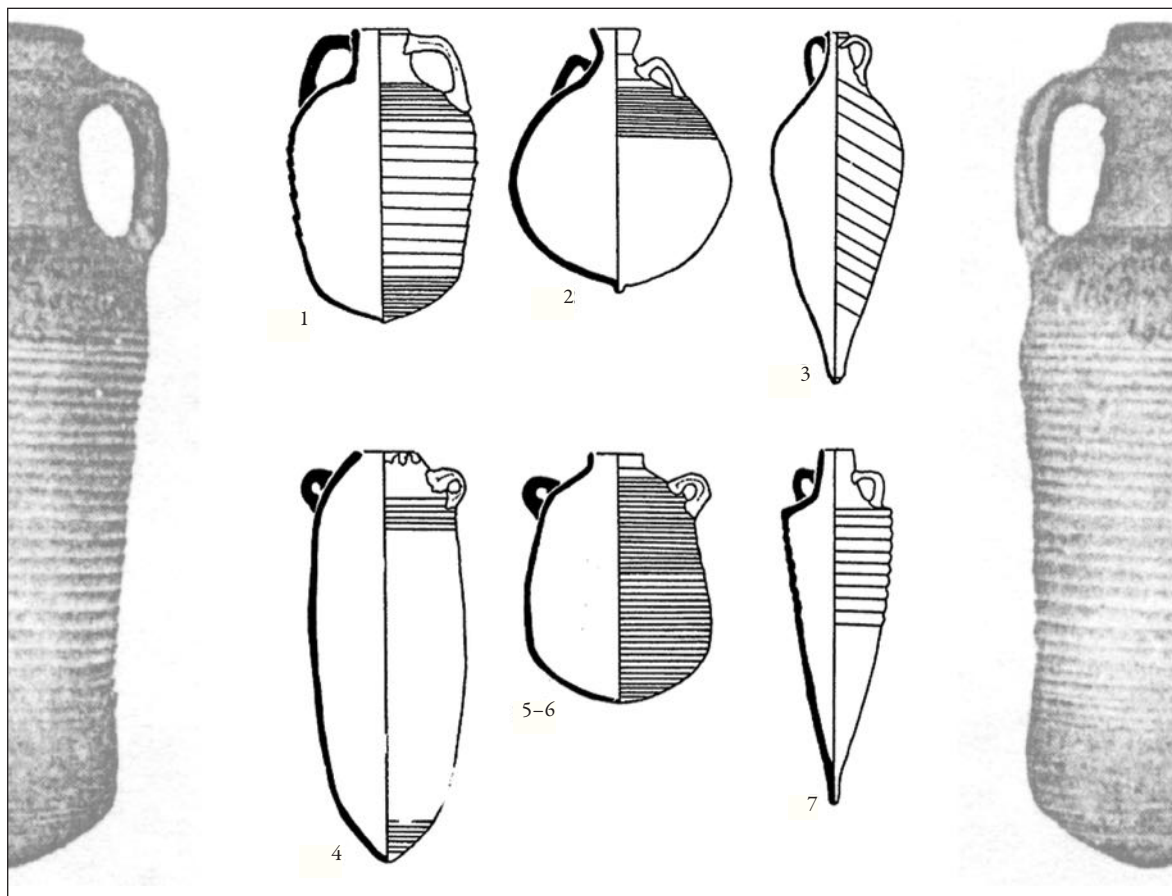
Over the course of twenty years, these seven late period eastern amphora types have multiplied to more than a hundred—not just attesting to great progress in typological classification but also providing evidence of the economic and commercial vitality of the eastern Mediterranean basin. Archaeology regularly reveals new amphora types that enable us to further refine these classifications, emphasizing a manufacture based largely in the major eastern urban centers, but supplemented as well by a multitude of secondary workshops spread over a vast geographic area (Jal’ad, Galilee, the Negev, the environs of Lake Mareotis, and the middle Nile Valley). Among the most recently recognized types, by way of example, are amphorae made at Sinope on the Black Sea, Beirut, Tyre, and Aqaba (fig. 2.2). The science of dating these amphorae has advanced to such an extent that they now constitute exceptionally reliable chronological markers.<sup>5</sup> To gain an idea of the

Papers of the Thirty-eighth Spring Symposium of Byzantine Studies, St John’s College, University of Oxford, March 2004, Society for the Promotion of Byzantine Studies 14 (Aldershot, 2009).

3 The extent of these advances may be gauged from conference proceedings of the past several years: *La céramique byzantine et proto-islamique en Syrie-Jordanie, IV<sup>e</sup>–VIII<sup>e</sup> siècles apr. J.-C.*, ed. E. Villeneuve and P. Watson (Beirut, 2001); *La céramique médiévale en Méditerranée*, ed. G. Démians d’Archimbaud, Actes du VI<sup>e</sup> congrès international sur la céramique médiévale (Aix-en-Provence, 1997); *Ceramica in Italia: VI–VII secolo*, ed. L. Sagui, Atti del Convegno in onore di John W. Hayes (Florence, 1998); *Contentitori da trasporto tra Tardo Antico e Basso Medioevo*, Actes du XXX<sup>e</sup> colloque international sur la céramique, Albisola, 16–18 mai 1997 (Florence, 1999); *Contextos ceràmics d’època romana tardana i de l’alta edat mitjana (segles IV–X)*, ed. M. Comes i Solà and J. M. Gurt Esparraguera, actes, taula rodono, Badalona 6, 7 i 8 novembre de 1996 (Barcelona, 1997); *VII<sup>e</sup> Congrès international sur la céramique médiévale en Méditerranée, Thessalonique, 11–16 octobre 1999: Actes*, ed. Ch. Bakirtzis (Athens, 2003); *Transport Amphorae and Trade in the Eastern Mediterranean: Acts of the International Colloquium at the Danish Institute at Athens, September 26–29, 2002*, ed. J. Eiring and J. Lund, Monographs of the Danish Institute at Athens 5 (Athens, 2004); *LRCW 1: Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean: Archaeology and Archaeometry*, ed. J. M. Gurt Esparraguera, J. Buxeda i Garrigós, and M. A. Cau Ontiveros, BAR International Series 1340 (Oxford, 2005); *LRCW 2: Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean: Archaeology and Archaeometry*, ed. M. Bonifay and J.-C. Tréglia, BAR International Series 1662 (Oxford, 2007); *Çanak: Late Antique and Medieval Pottery and Tiles in Mediterranean Archaeological Contexts*, ed. B. Böhlendorf-Arslan, A. Osman Uysal, and J. Witte-Orr, Proceedings of the First International Symposium on Late Antique, Byzantine, Seljuk, and Ottoman Pottery and Tiles in Archaeological Contexts (Çanakkale, 1–3 June 2005), Byzas 7 (Istanbul, 2007).

4 J. A. Riley, “New Light on Relations between the Eastern Mediterranean and Carthage in the Vandal and Byzantine Periods: The Evidence from University of Michigan Excavations,” in *Actes du Colloque sur la céramique antique de Carthage* (Tunis, 1982), 111–22.

5 Among recent publications, see J. Herrin and A. Toydemir, “Byzantine Pottery,” in *Kalenderhane in Istanbul*, vol. 2, *The Excavations: Final Reports on the Archaeological Exploration and Restoration at Kalenderhane Camii, 1966–1978*, ed. C. L. Striker and Y. Doğan Kuban (Mainz, 2007), 69–122; B. L. Johnson, *Ashkelon 2: Imported Pottery of the Roman and Late Roman Periods*



**Figure 2.1.** First typological diagram of Late Roman Eastern Amphorae by J. A. Riley (“The Pottery from Cisterns 1977.1, 1977.2 and 1977.3,” in *Excavations at Carthage*, 1977, ed. J. H. Humphrey, vol. 6 [Ann Arbor, 1981], fig. 2)

progress that has been achieved in typological classification, consider the most famous of the eastern amphora types—Late Roman Amphora (LR) 1, which was so commercially successful that it penetrated the farthest-flung regions: Great Britain, the southern Egyptian oases, and the Far East. It is probably to be identified with the famous *seriola* described at the beginning of the seventh century by Isidore of Seville.<sup>6</sup> The changes in the form of amphorae over

time are noteworthy, as is the existence of subtypes—a phenomenon recently attested and applicable to late eastern amphorae in their entirety (fig. 2.3).<sup>7</sup> One of the most remarkable phenomena is the abundance from the beginning of the fifth century onward—even the dominance—of amphorae originating in the eastern Mediterranean; they are ubiquitous at all the major Mediterranean consumption sites, both eastern and western. To fully understand the significance of eastern manufacture and its impact on the Mediterranean’s entire commercial network, it is enough to observe the statistical totals in the major western cities (Rome, Naples, Narbonne, Marseille,

(Winona Lake, [Ind.], 2008); idem, “The Pottery,” in J. Patrich, *Archaeological Excavations at Caesarea Maritima, Areas CC, KK and NN, Final Reports*, vol. 1, *The Objects* (Jerusalem, 2008), 12–208.

<sup>6</sup> Isidore, *Etymologiae sive Origines* 20.6.6: “Seriola est orcarum ordo directus vel vas fictile vini apud Syriam primum excogitatum; sicut Cilicises a Cilicia nuncupati, unde [et] primum advectae sunt” (A *seriola* is a straight-sided type of *tun*, or a ceramic wine vessel first invented in Syria; just as Cilicises are named from Cilicia, from where they were [also] first imported) (W. M. Lindsay, *Isidori Hispalensis Episcopi Etymologiarum sive*

*Originum Libri XX* [Oxford, 1911]; *The Etymologies of Isidore of Seville*, trans. S. A. Barney et al. [Cambridge, 2006]).

<sup>7</sup> D. Pieri, *Le commerce du vin oriental à l’époque byzantine, V<sup>e</sup>–VII<sup>e</sup> siècles: Le témoignage des amphores en Gaule*, Bibliothèque archéologique et historique 174 (Beirut, 2005).

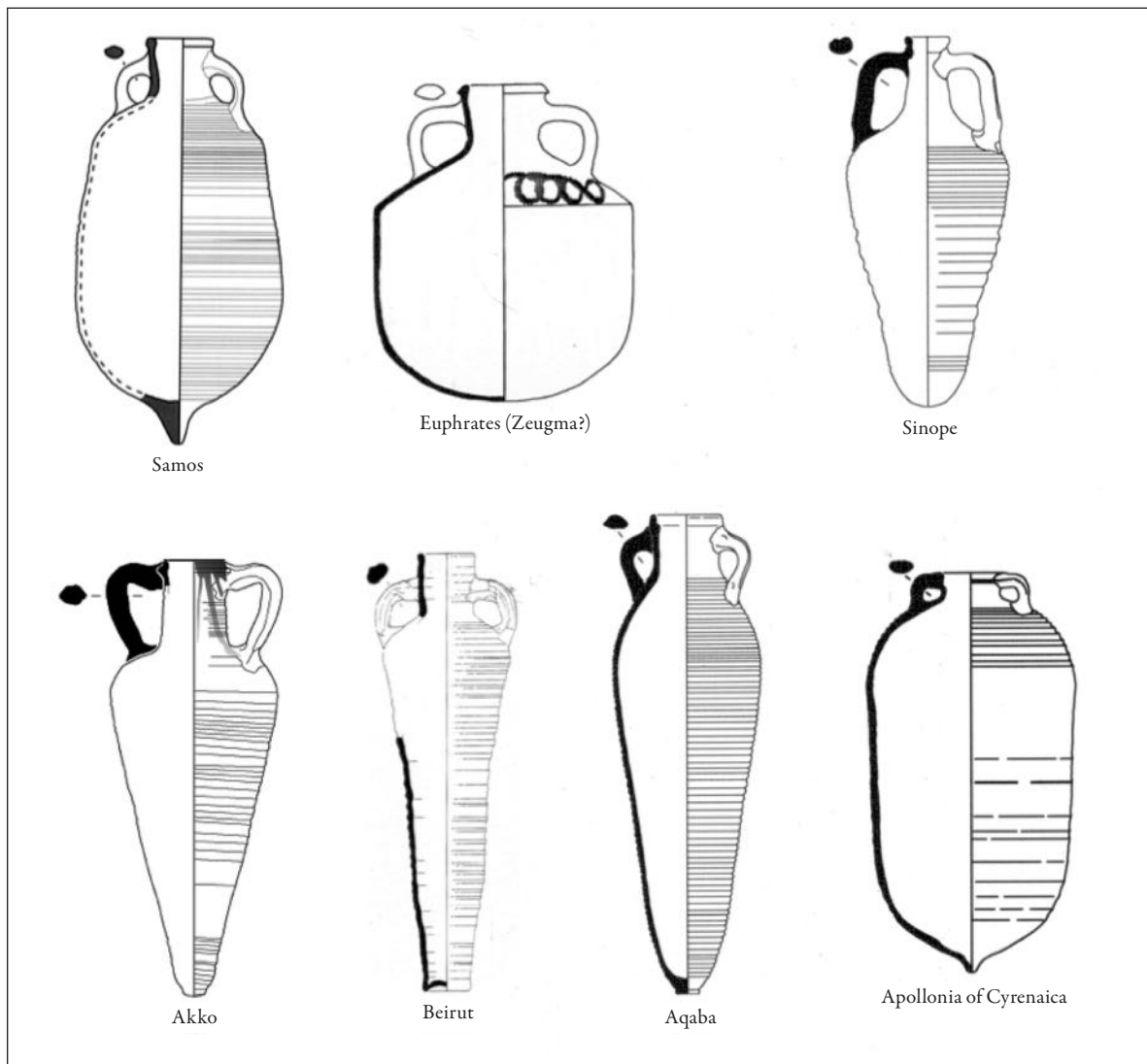


Figure 2.2. An evolution in classification: new amphorae of the past decade (drawing by author)

Tarragon, and Carthage) attributable to the various regions that produced transport containers. In southern Gaul, for example, the entry of eastern imports is reflected in their very high numbers for much of the fifth century, averaging 30 to 45 percent of all the amphorae recovered in the deposits at Narbonne, Arles, and Marseille. More specifically, the census of archaeological contexts at Marseille—one of the most important of the Mediterranean ports in late antiquity—clearly demonstrates a very marked presence of products from the eastern Mediterranean.<sup>8</sup>

8 M. Bonifay and D. Pieri, “Amphores du V<sup>e</sup> au VII<sup>e</sup> s. à Marseille: Nouvelles données sur la typologie et le contenu,” *JRA* 8

They date largely to the fifth century but remain a substantial presence throughout the sixth. Analysis of the distribution of amphorae found at Marseille according to their place of origin reveals the significant presence of eastern imports. A sudden and massive increase beginning in the second quarter of the

(1995): 94–120; D. Pieri, “Les amphores des sondages 6 et 7 de la Bourse,” “Les amphores tardives du puits 225 du quartier du Bon-Jésus,” and “Les amphores du puits du cap Titol,” in *Fouilles à Marseille: Les mobiliers (I<sup>er</sup>–VII<sup>e</sup> s. ap. J.-C.)*, ed. M. Bonifay, M.-B. Carre, and Y. Rigoir (Aix-en-Provence, 1998), 108–27, 231–42, and 260–64. D. Pieri, “Béryte dans le grand commerce méditerranéen (V<sup>e</sup>–VII<sup>e</sup> s. apr. J.-C.),” in *Productions et échanges dans la Syrie gréco-romaine*, ed. M. Sartre, *supp. Topoi* 8 (Lyon, 2007), 297–327.



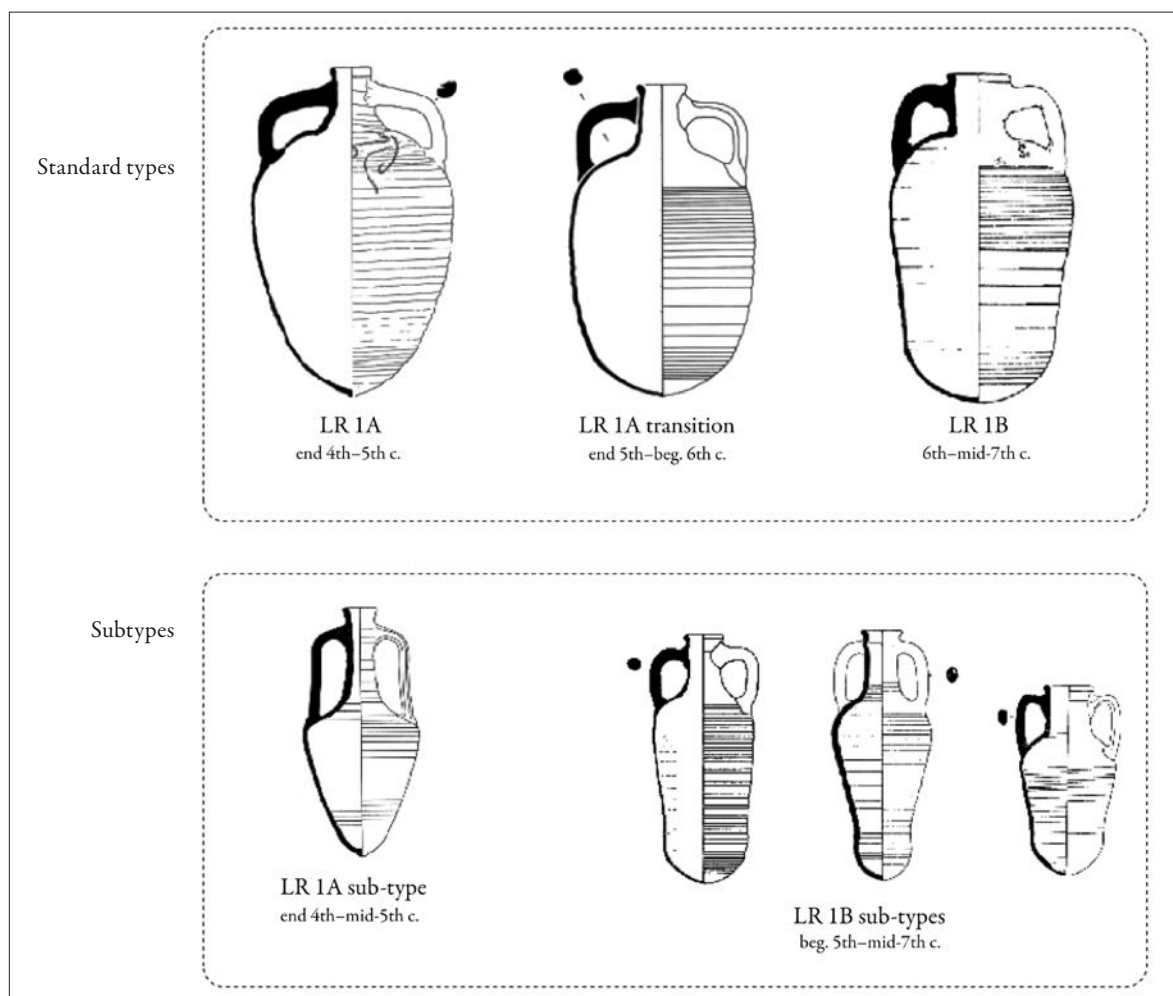


Figure 2.3. Examples of typological evolution of the type LR 1B, 6th–7th c. AD (drawing by author)

fifth century is noteworthy: the years 420–30 in fact mark the beginning of the penetration of eastern products in the West, and similar results have been found in Rome and Carthage. The imports of these wares are constant until the first half of the seventh century, when a precipitous drop is evident—clearly the result of the catastrophic events in the East associated with the war against the Persian Sasanids and the subsequent Arab-Muslim conquest. Elsewhere in the West—whether Rome, Tarragon, or Carthage—imports consistently seem to follow the same trajectory, with similar orders of magnitude (table 2.1).

The decline of western centers of production from the middle of the third century, marked by the gradual disappearance of Roman merchant guilds and the decline of Iberian and Gallic amphora workshops, as well as by the exceptional commercial draw

that Constantinople exerted in the East beginning in the mid-fourth century, prompted the emergence of new regional areas of production that had previously been largely dormant. Certain areas in the eastern Mediterranean rose to prominence as a result of their specialized production of goods intended for export: continental Greece (the Peloponnese), particular islands in the Aegean Sea (Samos, Chios, and Thasos), Crete, Cyprus, the western and southern fringes of Asia Minor, the southern shores of the Black Sea, the Levant, and Egypt (fig. 2.4). The commercial success of the East is evident in the rise in production resulting from strong local demand, as well as demand from distant provinces. Two distinguishing examples are noteworthy: the increase in the size of certain eastern amphorae, such as the LR 4, from the fifth to seventh centuries (fig. 2.5)

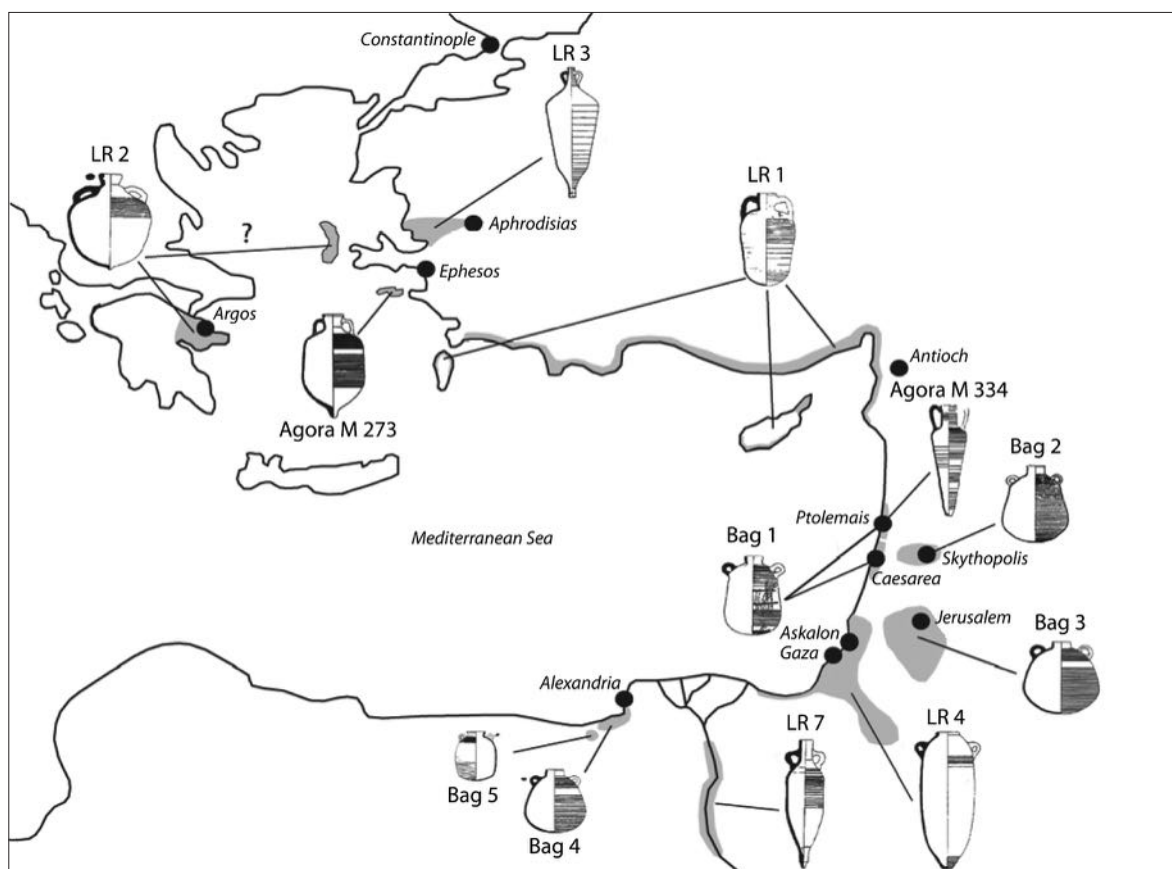


Figure 2.4. Main types of eastern late Roman amphorae and their production areas (after Pieri, *Le commerce du vin oriental*, fig. 107)

and the growth in both the size and the productivity of manufacturing sites (fig. 2.6).

In the East itself, the quantitative data available remain sparse. Beirut, for example, has yielded nearly all the major products associated with the eastern Mediterranean (fig. 2.7).<sup>9</sup> All the major amphora types are present, in proportions that vary according to type and period. Four distinct regions clearly exported provisions to Beirut as a favored trading partner: Isauria-Cilicia, Cyprus, Palestine, and the Black Sea. Beirut also maintained ties with the Aegean, Asia Minor, and Egypt. Although it imported goods from all of the eastern regions, the city nonetheless tended to favor southern markets situated between the river Jordan and the Mediterranean, extending even as far as the Negev. The diver-

sity of amphora types, their varied origins, and their noticeable presence until the middle of the seventh century might indicate that the famous earthquake of 551 did not harm Beirut's commercial vitality to the extent that is often claimed: from the amphorae, in fact, no decrease in the volume of trade is observable. By contrast, a very distinct diminution in the volume of trade evidently accompanied the political change brought about by the Arab conquest of the region. Producing regions contracted, and under the Byzantine organizational model only Egypt and Transjordan continued to engage in manufacturing.

At other sites, in central or eastern Europe (Istanbul, Thasos, Samos, Butrint, Argos, Anemourion, and Alexandria), the dominance of LR 1 is incontrovertible,<sup>10</sup> with the exception of military

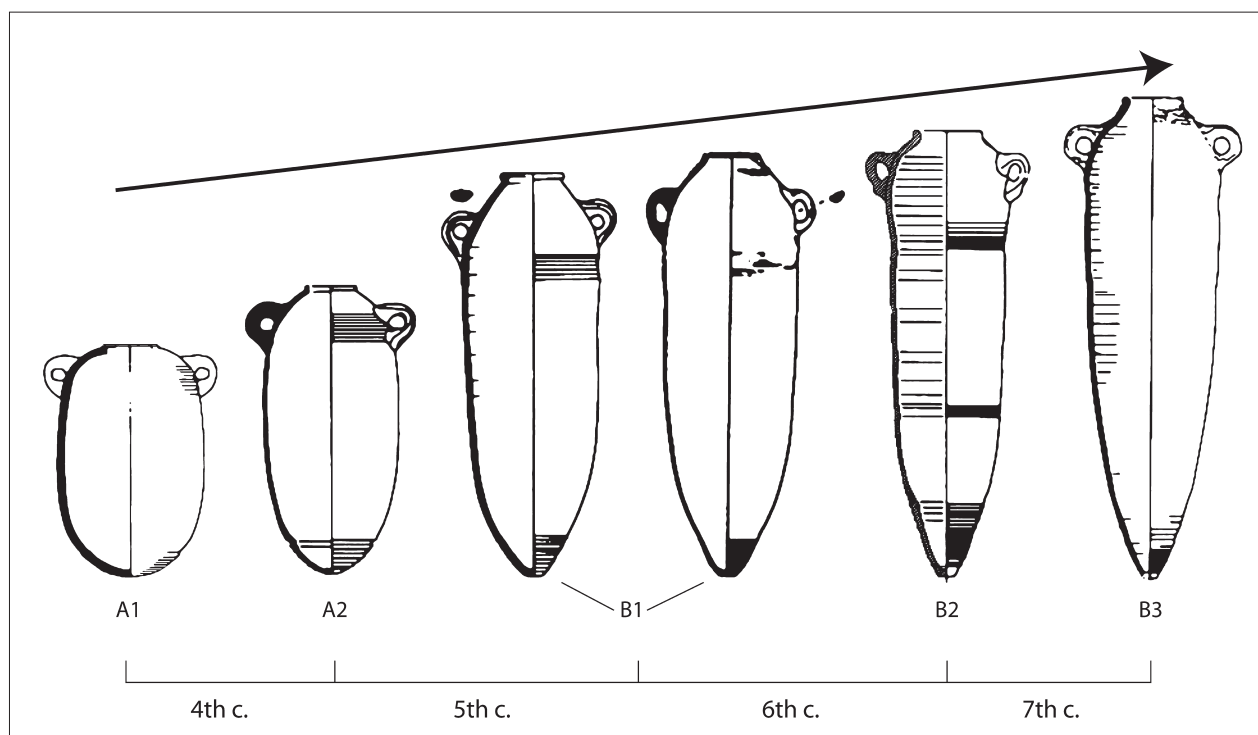
9 D. Pieri, "Béryte dans le grand commerce méditerranéen (V<sup>e</sup>-VII<sup>e</sup> s. apr. J.-C.)," in *Productions et échanges dans la Syrie gréco-romaine*, ed. M. Sartre, supp. Topoi 8 (Lyon, 2007), 297-327.

10 J. W. Hayes, "Amphorae," in *Excavations at Saraçhane in Istanbul*, vol. 2, *The Pottery* (Princeton, N.J., 1992), 61-79; Herin and Toydemir, "Byzantine Pottery"; C. Abadie-Reynal and

**Table 2.1** Comparative data on amphorae from several areas of the western Mediterranean

Site and date	Amphora type		
	Eastern	African	Unclassified
Rome Crypta Balbi, sond. IIIEX 410–480	14.5% NMI	52.0% NMI	
Rome Magna Mater, sond. I–L 420–440	20.0% NMI	40.0% NMI	
Tarragona Vila-Roma 425–450	26.0% NMI	24.5% NMI	
Rome Schola Praeconum I 430–450	46.4% sherds	42.5% sherds	
Rome Magna Mater, sond. P 440–480	27.0% NMI	32.5% NMI	
Naples Carminiello ai Mannesi 430–450	10.1% sherds	44.4% sherds	45.4% sherds
Naples Carminiello ai Mannesi 490–510	16.5% sherds	21.0% sherds	52.8% sherds
Rome Schola Praeconum II 500–530	40.7% sherds	40.4% sherds	
Carthage Michigan Excavations, “deposit” XV 550	68.8% sherds	12.0% sherds	
Naples Carminiello ai Mannesi late 6th–early 7th c.	34.6% sherds	18.8% sherds	46.8% sherds

SOURCE: Pieri, *Le commerce du vin oriental*, 167.  
NMI = minimum number of vessels present.



**Figure 2.5.** An example of the increasing capacity of eastern Mediterranean amphorae: LR 4, produced in the Gaza district of Palestine and widely distributed around the Mediterranean during the 4th to 7th centuries (drawing by author)

positions on the Danubian *limes*. There the type was supplanted by LR 2, which figured more prominently in the provisioning of frontier troops.<sup>11</sup> One

J.-P. Sodini, *La céramique paléochrétienne de Thasos (Alikí, Delkos, Fouilles anciennes)* (Paris, 1992); C. Steckner, "Les amphores LR 1 et LR 2 en relation avec le pressoir du complexe ecclésiastique des thermes de Samos," in *Recherches sur la céramique byzantine*, ed. V. Déroche and J.-M. Spieser (Athens, 1989), 57–71; P. Reynolds, "The Roman Pottery from the Triconch Palace," in *Byzantine Butrint: Excavations and Survey, 1994–1999*, ed. R. Hodges, W. Bowden, and K. Lako (Oxford, 2004), 224–69; C. Abadie-Reynal, "Céramique et commerce dans le bassin égéen du IV<sup>e</sup> au VII<sup>e</sup> siècle," in *Hommes et richesses dans l'Empire byzantin*, vol. 1, *IV<sup>e</sup>–VII<sup>e</sup> siècles* (Paris, 1989), 143–59; eadem, "Les amphores protobyzantines d'Argos (IV<sup>e</sup>–VI<sup>e</sup> siècles)," in Déroche and Spieser, eds., *Recherches sur la céramique byzantine*, 47–56; eadem, "Les importations moyen-orientales à Argos (IV<sup>e</sup>–VII<sup>e</sup> siècles)," in Villeneuve and Watson, eds., *La céramique byzantine et protoislamique en Syrie-Jordanie*, 283–87; C. K. Williams, *Anemurium: The Roman and Early Byzantine Pottery* (Wetteren, 1989); M. Bonifay, R. Leffly, C. Capelli, and D. Pieri, "Les céramiques du remplissage de la citerne du Sérapéum à Alexandrie," *Alexandrina* 2 (2002): 39–84.

<sup>11</sup> O. Karagiorgou, "Mapping Trade by the Amphora," in Mango, ed., *Byzantine Trade, 4th–12th Centuries*, 37–58; eadem, "LR2: A Container for the Military *annona* on the Danubian

must nonetheless guard against too simplistic a conception of the manufacture of amphorae in the East, for many recent studies now suggest more complex models. The number of centers of manufacture seems to have increased, and a regional character becomes evident, with the appearance of atypical forms among the major types.<sup>12</sup> These forms do not extend beyond the regional context, and some output is distributed over limited geographic areas. For example, the recently recognized North Syrian Amphora (NSA) 1, manufactured on the Euphrates River, has been found at only a few sites, in a narrow area from the Euphrates to northern Syria.<sup>13</sup>

Border?" in *Economy and Exchange in the East Mediterranean during Late Antiquity*, ed. S. Kingsley and M. Decker (Oxford, 2001), 129–66.

<sup>12</sup> Such is the case for the amphora associated with the LR 3 group, especially on the evidence of its morphology, since it has but a single handle. This amphora, documented only at Sardis in the sixth century, had very limited geographic distribution over a short period. M. Rautman, "Two Late Roman Wells at Sardis," *AASOR* 53 (1995): 37–84.

<sup>13</sup> D. Pieri, "Nouvelles productions d'amphores de Syrie du Nord aux époques protobyzantine et omeyyade," *Mélanges*





Figure 2.6.  
Late Roman refuse  
heaps; Antinoopolis,  
Egypt (photo by author)



Figure 2.7. Origins of amphorae found in Beirut, 5th–7th c. AD (Pieri, “Béryte dans le grand commerce méditerranéen,” 327, fig. 16)

Differences are discernible when the manufactured goods were intended for short- or middle-distance commerce. Moreover, we need to be able to distinguish manufacturing centers that produced containers intended for long-distance trade from those whose products were intended for more local markets.<sup>14</sup> In addition, the uncertainty regarding the true proportions of local manufacture and regional imports, as well as the presence of workshops that could imitate “international” forms, further complicates our understanding of the manufacture of amphorae in the East.

### The Transport of Goods by Amphora: A Lucrative Trade

The progress in identifying their contents has also made it possible to understand a new aspect of how these containers functioned in regional and inter-regional markets, and to correct misinformation about maritime trade in late antiquity.

There is no longer any doubt that the vast majority of amphorae from the eastern Mediterranean contained wine. This finding is based in part on the character of the inscriptions painted on amphorae; it also relies on the presence of pitch on the vessels’ inner surfaces, as has often been noted in archaeological studies of the ports at Carthage, Marseille, Port-Vendres, and Fos, as well as of seabed shipwrecks, such as those of Yassı Ada, the Palud, the Dramont E, the Saint-Gervais 2, Dor D, and Giglio Porto. Literary testimony, moreover, describes the great majority of eastern regions as essentially producers and above all as exporters of wine. The texts provide information in two areas: the reputation of specific eastern wines and the locations of vineyards as well as the names of the estates. Eastern wines were in fact highly esteemed and widely celebrated in the West by such illustrious writers as Sidonius Apollinaris, Gregory of Tours, and Isidore of Seville.

Jean-Pierre Sodini, *TM* 15 (2005): 583–96; C. Abadie-Reynal, A.-S. Martz, and A. Kador, “Late Roman and Byzantine Pottery in Zeugma: Groups of the Beginning of the Fifth Century,” in Böhlendorf-Arslan, Osman Uysal, and Witte-Orr, eds., *Çanak: Late Antique and Medieval Pottery and Tiles*, 181–94.

<sup>14</sup> S. Demesticha, “The Seventh-Century Cypriot Amphora Types: Regional or International?” in *Tradition and Transition: Maritime Studies in the Wake of the Byzantine Shipwreck at Yassıada, Turkey* (College Station, Tex., forthcoming).

While the eastern trade in ivory, precious stones, perfumes, papyrus, spices, and textiles was very lucrative, wine seems to have been one of the most profitable commodities of the *pars orientis*. Wine was produced throughout the East, in great quantity and of excellent quality, but often also at great cost. Ancient authors describe celebrated estates throughout the eastern Mediterranean basin, whose wines were valued not only for their fine taste but also for their curative powers. Several recipes prescribed by eminent physicians of the period, such as Alexander of Tralles and Paul of Aegina, describe eastern wines, especially those of Gaza and Askalon, as essential in treating a variety of afflictions. Sidonius Apollinaris, in a text composed around AD 460, apologizes for not being able to offer wines from Italy, Greece, and the East to his guest, the senator Ommatius:

Vina mihi non sunt Gazetica, Chia, Falerna.  
Quaeque Sarepteno palmite missa bibas.

As for wines, I have none of Gaza, no Chian  
or Falernian,  
none sent by the vines of Sarepta for you to  
drink.

(trans. W. B. Anderson)<sup>15</sup>

In late antiquity, the prosperity of southern Palestine depended on its agriculture and more specifically on viticulture, which several texts describe as widespread, sometimes even in areas that did not readily support the cultivation of grapes, such as the sand dunes at the southern end of Gaza or the desert areas of the Negev.

The example of Gaza shows that specific regions specialized in viticulture, which constituted a large proportion of their agriculture, in order above all to export a commodity that was renowned throughout the empire and in every corner of the Mediterranean. Gaza apparently gave its name to wines produced in part outside of its territory, including those of the Negev. The name was probably applied to several regional estates under the broad rubric “wine of Gaza” (*vinum Gazetum*, *Gazetina*, *Gazeticum*), somewhat as is done in the present day for

<sup>15</sup> Sidonius Apollinaris, *Carmina* 17.15–16; Sidoine Apollinaire, *Poèmes*, vol. 3, ed. and trans. A. Loyen (Paris, 1970); *Poems and Letters*, trans. W. B. Anderson (Cambridge, Mass., and London, 1936).

Bordeaux wines. Archaeological evidence, moreover, tends to confirm this hypothesis, for the same kinds of containers were apparently used indiscriminately to transport wine from Gaza, Askalon, and the Negev. Wine from southern Palestine, shipped through Gaza, might have acquired an international reputation. Beginning in the fourth century, abundant literary evidence attests to the fame of the estates at Gaza and Askalon, prized even in the West—in Gaul, especially, but in Africa, Italy, and Spain as well. Ancient authors lay particular emphasis on the wines of Palestine, and in particular those from the region of Gaza and the Negev.

With respect to Gaul, several texts make specific reference to wine “from Gaza.” At Tours, an individual named Eberulf, seeking to please his friend Claudius, gave him strong wines from Laodikeia and Gaza: “Misitque pueros unum post alium ad requerenda potenciora vina, Laticina videlicet adque Gazitina” (He sent his servants, one after another, to find the strongest wines, that is, from Laodikeia and Gaza).<sup>16</sup> Venantius Fortunatus (ca. 530–ca. 600), who was a contemporary of Gregory of Tours, enumerated the best wines of the period: “Falerna, Gazaque, Creta, Samus, Cypros, Colofona, Serapitis, lucida perspicuis certantia vina lapillis vix discernendis crystallina pocula potis” (Falerna and Gaza, Crete, Samos, Cyprus, Colophon, Serepta, bright wine vying with translucent gems, crystal goblets with the drafts they contain that can scarcely be distinguished from them [trans. M. Roberts]).<sup>17</sup>

For regions outside of Gaul, other texts provide information on a number of topics. For example, Flavius Cresconius Corippus, in the second half of the sixth century, composed a list of the wines served by Justin II at Justinian’s funerary banquet. He identifies the best wines as being those from Palestine, and we learn that they are white wines (*alba colore*): “dulcia Bacchi | munera, quae Sarepta ferax, quae Gaza crearet, | Ascalon et laetis dederat quae grata colonis . . . prisca Palaestini miscentur dona Lyaei, | alba colore nivis blandoque levissima gusto” (the

sweet gifts of Bacchus, which wild Sarepta and Gaza had created, and which lovely Ashkelon had given to her happy colonists[.] . . . The ancient gifts of the Palestinian Laeus were mingled in, white with the color of snow, and light with bland taste [trans. Av. Cameron]).<sup>18</sup>

These texts indicate, moreover, that the popularity of wines from southern Palestine derived not only from their taste but also from their medicinal properties. Several medical treatises composed between the fourth and the seventh century record that southern Palestinian wine, particularly that from Askalon, was a common medicinal ingredient. In the second half of the fourth century, Oribasius, the personal physician of the Julian the Apostate, recommended a mixture called *anisatum*, made of twenty-one bowls of wine from Askalon, seven bowls of honey, and two hundred anise seeds, for the treatment of various illnesses—particularly stomach ailments.<sup>19</sup> In addition to wine’s being a luxury beverage or as a remedy, ancient texts record an altogether different function, in which it figures as an element of the liturgy. Gaza wine, according to several sources, thus seems to have had a cultural use. In fact, it is specifically mentioned by ecclesiastical authors when they refer to the wine used in the Mass. In emphasizing the quality of wine from Gaza, Gregory of Tours records that it had been acquired not to end up in the gullet of a subdeacon but to fill the chalice.<sup>20</sup> John the Almsgiver, at the beginning of the seventh century, refused to perform the Eucharist with a wine from Palestine because of its exorbitant cost, preferring an Egyptian wine whose taste and price were less extravagant.<sup>21</sup> Archaeology confirms the high cost of wine from Gaza and its use in the liturgy, for amphorae from Gaza are sometimes the only containers of eastern provenience found in western sites associated with religious vocations. In the West, Gaza amphorae are most often found in large redistribution centers, as well as in districts inhabited by the

16 Gregory of Tours, *Historia Francorum* 7.29; Grégoire de Tours, *Histoire des Francs*, trans. R. Latouche, 3rd ed. (Paris, 1995).

17 Venantius Fortunatus, *De Vita S. Martini* 2; Venance Fortunat, *Œuvres*, vol. 4, *La vie de saint Martin*, ed. and trans. S. Quessel (Paris, 1996); M. Roberts, “Venantius Fortunatus’ Life of St. Martin,” *Traditio* 57 (2002): 129–87.

18 Corippus, *In laudem Iustini Augusti minoris* 3.85–97; Corippe, *Éloge de l’empereur Justin II*, ed. and trans. S. Antès (Paris, 1981); *In laudem Iustini Augusti minoris*, trans. Av. Cameron (London, 1976).

19 Oribasius, *Collectionum Medicarum Reliquiae*, CMG 6:1–2.

20 Gregory of Tours, *De gloria confessorum* 65.

21 A.-J. Festugière, *Léontios de Néapolis: Vie de Syméon le Fou et Vie de Jean de Chypre* (Paris, 1974), 327.





**Figure 2.8.**  
Bag-shaped amphorae, type 1  
(photos courtesy AUB  
Museum, Beirut)



aristocracy.<sup>22</sup> Nor can the possibility be ruled out that this wine, highly valued as it was, had symbolic connotations for certain wealthy individuals in the wake of its promotion by the many pilgrims returning from the Holy Land.

22 See, for example, C. Amiel and F. Berthault, “Les amphores du Bas-Empire et de l’Antiquité tardive dans le Sud-Ouest de la France: Apport à l’étude du commerce à grande distance pendant l’Antiquité,” in *La civilisation urbaine de l’Antiquité tardive dans le Sud-Ouest de la Gaule*, ed. L. Maurin and J.-M. Pailler, Actes du III<sup>e</sup> colloque Aquitania et des XVI<sup>es</sup> journées d’archéologie mérovingienne, Toulouse, 23–24 juin 1995, *Aquitania* 14 (1996): 255–63.

Equally interesting are Type 1 Bag-shaped Amphorae, originating in the region of Ptolemais, which also likely transported a specific kind of wine (fig. 2.8). The consistent presence on their bellies of a stylized painted decoration, sometimes depicting a menorah, suggests that these containers held wine intended (whether exclusively or not) for Jewish communities, whose trade in such wine is amply attested in the records of ancient authors.<sup>23</sup>

23 S. Dar, *Sumaqa: A Roman and Byzantine Jewish Village on Mount Carmel, Israel* (Oxford, 1999); S. A. Kingsley, “The Economic Impact of the Palestinian Wine Trade in Late Antiquity,”

It thus seems clear that the main consumers of wine in the West were members of lay and religious elites. As texts show, only privileged individuals of high social rank could have afforded such costly purchases. The best wines of the period came from the East, and, held in high esteem by local elites (extending even to the courts of kings and emperors), they were essential to setting a fine table. The list of wines served at the banquet celebrating the accession of Justin II clearly bears witness to the preeminence of eastern wines. In the East itself, however, the consumption of wine was an altogether different matter, for proximity to the sites of production made wine accessible to a larger number of people. Indeed, the containers are found as often in rural as in urban locations, and in extremely diverse archaeological layers (habitats of every sort, refuse dumps, small forts, etc.). Wine thus seems to have been consumed more democratically in the East, by all ranks of society, and do not appear have been reserved for the upper classes.

#### Exchanges: Means and Agents

The differences observed in the clientele might be explained by the various ways in which commodities were distributed. Eastern products, and wine in particular, could have crossed the Mediterranean only through organized commercial enterprises specializing in large-scale trade. Throughout late antiquity, the Mediterranean remained the sole true link between East and West, and the means of trade had changed little since the Roman imperial period. Transportation costs, particularly costs associated with maritime transport, seem to have had a greater impact than before on the price of products involved in long-distance trade. The development of an increasingly onerous fiscal system—as much in the West as in the East—might have been one of the more obvious reasons for the prohibitive cost of certain commodities,<sup>24</sup> but it was surely not

in Kingsley and Decker, eds., *Economy and Exchange in the East Mediterranean during Late Antiquity*, 44–68.

24 P. Garnsey and C. R. Whittaker, “Trade, Industry and the Urban Economy,” in *The Cambridge Ancient History*, 3rd ed., vol. 13, *The Late Empire, A.D. 337–425*, ed. Av. Cameron and P. Garnsey (Cambridge, 1998), 312–35; J.-M. Carrié, “Les échanges commerciaux et l’État antique tardif,” in *Les échanges dans l’Antiquité: Le rôle de l’État*, Entretiens d’Archéologie et d’Histoire 1 (Saint-Bertrand-de-Comminges, 1994), 175–211.

the only one. A strong demand in the West for luxury products from the East probably also stimulated trade, whose participants appear to have been limited to a few essentially independent producers, merchants, and freight carriers.<sup>25</sup> The apparent drop in the number of ships traveling the Mediterranean, now attested for late antiquity by submarine archaeology, might have been an equally significant factor. According to data gathered and presented by J. A. Parker, only 206 of more than 1,200 Mediterranean shipwrecks can be ascribed to the late Roman Empire and the early Middle Ages.<sup>26</sup>

Several conclusions can be drawn from these observations. First, in diachronic terms, it is striking that between the sixth century BC and the tenth century AD, the number of shipwrecks that can be associated with late antiquity constitutes a very small proportion of the total: barely a tenth of the total number of documented shipwrecks, or 120 for the entire Mediterranean basin (fig. 2.9). Second, if we take only the data from the third century AD forward, a precipitous drop in shipwrecks is evident—a trajectory that concludes in a single instance of a shipwreck in the eighth century (fig. 2.10). The decline is even clearer when we consider the nature of these ships and their cargo. Only fifty or so of the wrecks dating between the fourth and seventh centuries carried amphorae. Among these fifty, only eight had a cargo of eastern amphorae; a mere ten or so were traveling east.<sup>27</sup> The conclusions that we can draw from this remarkable study should nonetheless be interpreted with some caution, since more recent studies tend to moderate this picture of a drastic decline in maritime trade.<sup>28</sup>

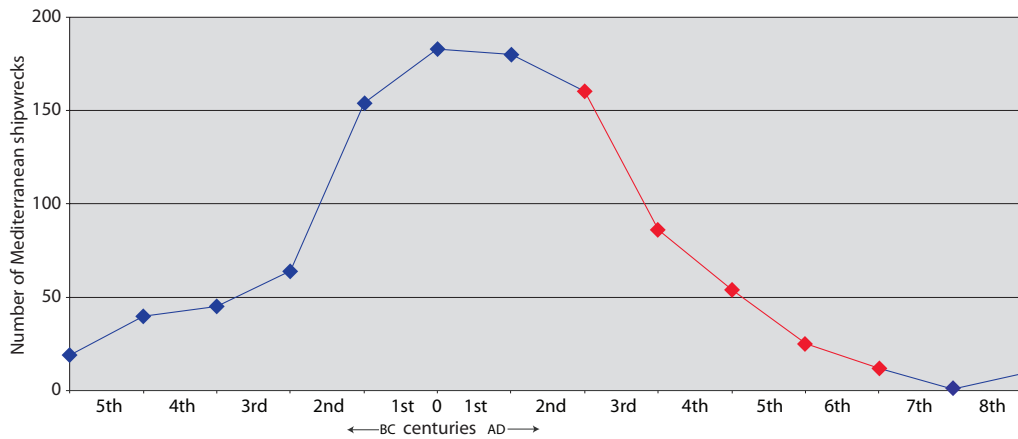
25 Whittaker, “Late Roman Trade and Traders”; B. Sirks, “The Importation and Distribution of Olive Oil and Wine in Rome and Constantinople,” in *Food for Rome: The Legal Structure of the Transportation and Processing of Supplies for the Imperial Distributions in Rome and Constantinople*, ed. idem (Amsterdam, 1991), 388–94; A. Carandini, “Il mondo della tarda antichità visto attraverso le merci,” in A. Giardina, *Società romana e impero tardo antico*, vol. 3 (Rome, 1986), 3–19.

26 A. J. Parker, *Ancient Shipwrecks of the Mediterranean and the Roman Provinces*, BAR International Series 580 (Oxford, 1992).

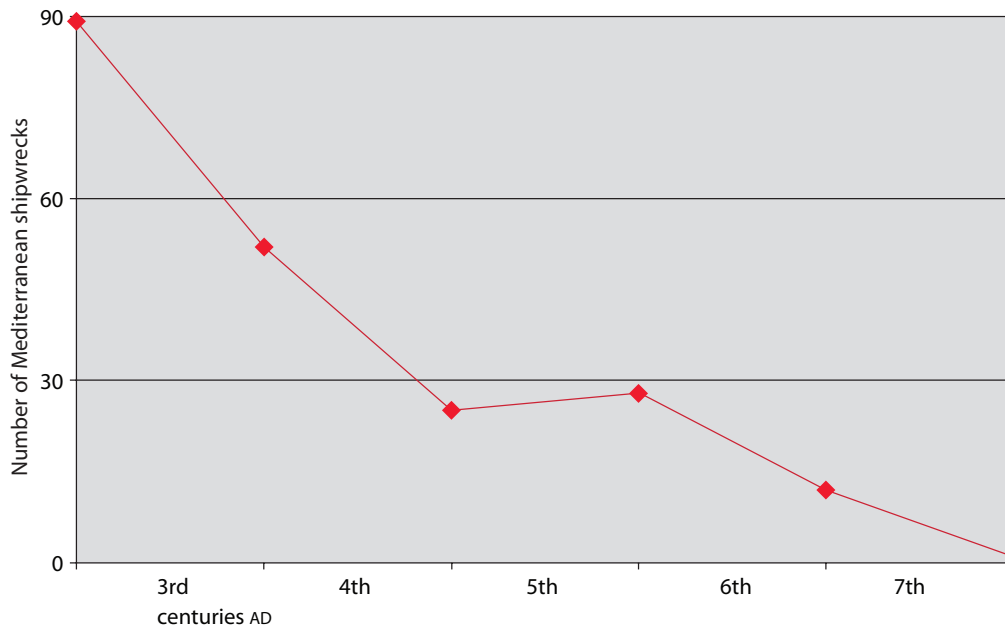
27 G. Volpe, “Archeologia subacquea e commerci in età tardoantica,” in *Archeologia subacquea: Come opera l’archeologo sott’acqua: Storie dalle acque*, ed. G. Volpe (Florence, 1998), 561–626; S. A. Kingsley, *Shipwreck Archaeology of the Holy Land: Processes and Parameters* (London, 2004).

28 See in this volume M. McCormick, “Ships, Shipwrecks, Trade, and Markets.”





**Figure 2.9.** Temporal distribution of the 1,072 ancient shipwrecks in the Mediterranean, 6th c. BC–8th c. CE (A. J. Parker, “Cargoes, Containers and Stowage: The Ancient Mediterranean,” *International Journal of Nautical Archaeology* 21 [1992]: 89–100, with new data)



**Figure 2.10.** Temporal distribution of the 206 Mediterranean shipwrecks in late antiquity, 3rd–8th c. CE; of the 120 wrecked between the 4th and 7th c., only 15 had eastern amphorae in their cargo (Parker, “Cargoes, Containers and Stowage,” with new data)

Yet the dangers of the sea during late antiquity were quite real. The precarious status of merchants was compounded by the financial risks posed by the sizable investment involved in chartering a transport vessel. Such concerns surely underlie some of the painted inscriptions (*tituli picti*) that appear on amphorae with increasing frequency between the fifth and seventh centuries—invocations that could have beseeched divine protection for the vessel and its cargo (fig. 2.11). The perils of the sea could destroy

a vessel and its cargo, and with them would be lost the considerable funds invested in them. According to an anecdote, John the Almsgiver, at the beginning of the seventh century, entrusted a ship of the Alexandrian church to an unfortunate *naukleros* who had been bankrupted by two successive shipwrecks and was on the verge of killing himself.

To understand this trade, it is worthwhile to examine the background of those who were involved in it. In the West, large-scale trade largely bypassed

Late Roman Amphora 1  
with titulus pictus  
end of the 5th c. CE  
St. Blaise (South of France)



Late Roman Amphora 1B  
Antinoopolis, Egypt  
(mid-6th c. CE)

ϕθ  
Ϡ χμγ κζLd b .[

Mary Mother of Christ  
99 (= amen)  
27¼¼ <xestai> [ ... ]  
(14.58 liters)



○ 1 cm

**Figure 2.11.** Painted inscriptions on LR 1 amphorae: (a) Late Roman Amphora 1 with titulus pictus, end of the 5th c. AD; Saint Blaise (south of France); (b) Late Roman Amphora 1B, mid-6th c. AD; Antinoopolis, Egypt (Fournet and Pieri, “Les *dipinti* amphoriques d’Antinoopolis,” fig. 11a–b)

westerners. Rather, it was controlled by foreigners, specifically foreigners from the East: Greeks, Egyptians, Jews, and especially the *Syrii*, a collective term that designated Syrian, Palestinian, and Phoenician merchants who specialized in large-scale maritime commerce. They plied the Mediterranean and formed communities in the major cities associated with the sea trade (Rome, Ravenna, Naples, Marseille, Arles, and Carthage, among others).<sup>29</sup> Gaul and the Frankish kingdom aptly illustrate their dominance: the familiar examples of Marseille, Arles, Narbonne, Toulouse, Bordeaux, Lyon, Tours, Nantes, and Paris, as well as Trier and Cologne, directly link the discovery of containers of eastern manufacture and the presence of eastern individuals mentioned in the texts. During the late Roman

<sup>29</sup> C. Dietrich, *Der Handel im westlichen Mittelmeer während des Frühmittelalters*, AbhGött, Philol.-hist.Kl. 144 (Göttingen, 1985), 170–86.

period and the early Middle Ages, the eastern *transmarini negotiatores* were thus essential agents in the distribution of luxury products to the West, products that were likely known and sought after thanks to communities that originated in the East.<sup>30</sup>

Archaeology and papyrology can give us a fairly precise notion of who these merchants were. To the extent that they have been preserved, inscriptions painted on amphorae in fact mention specific names. Thus several examples of contemporaneous (early sixth-century) LR 1, found in two different locations within Egypt—Alexandria and Hermopolis Magna / Antinoopolis—record an individual named Apollinarios (fig. 2.12),<sup>31</sup> inscribed by the

<sup>30</sup> A. d’Ors, “Los transmarini negociatores de la legislación visigoda,” in *Estudios de Derecho Internacional: Homenaje al Prof. Barcia Trelles* (Santiago de Compostela, 1958), 467–83.

<sup>31</sup> J.-L. Fournet and D. Pieri, “Les *dipinti* amphoriques d’Antinoopolis,” in *Antinoopolis*, ed. R. Pintaudi, Scavi e materiali 1 (Florence, 2008), 175–216.



0 1 cm

0 1 cm

0 1 cm

χμγ † ρθ / Θεου χάρις / Ἀπολλιναρ(του)

*Mary Mother of Christ † Amen / By the Grace of God / Apollinarios*

**Figure 2.12.** Amphorae of Apollinarios, a merchant of the 6th c. AD (Fournet and Pieri, “Les *dipinti* amphoriques d’Antinoopolis,” figs. 20–23)

same hand on the neck of each vessel in black ink, much like the label of a bottle. It is tempting to interpret these inscriptions as naming a merchant who, judging from the dating of these amphorae, lived during the first half of the sixth century. He would not have been Egyptian, for the name Apollinarios was no longer in use in Egypt in the sixth century. In this case it can only be the name of one of these famous *transmarini negotiatores* who bound Asia Minor to Egypt.

### The Standardization of Amphorae: A Difficult Question

Contrary to received wisdom, standardization is relatively rare in late antique amphora forms, certainly for a large proportion of Mediterranean amphorae, whether of African, Italian, or eastern origin. In fact, a single type of amphora can encompass considerable variation in capacity, sometimes amounting to several liters. One of the most revealing examples is the African *spatheion* of the fourth and fifth centuries: the African cargo of the wreck of the *Dramont E* found on the southern French coast shows no dis-

cernible difference between the amphora type Key 25.2 and the *spatheion*, both of which vary in capacity and size.<sup>32</sup> The coexistence of different “standard” units of measure (often fractional units) is seen mainly in eastern amphorae, although it is sometimes difficult to specify the morphological variants that might give rise to errors in classifying amphorae chronologically or typologically.<sup>33</sup> The absence of standardization is particularly characteristic of Cilician amphorae and Cypriot LR 1 vessels. Variations in the capacity of amphora types over the course of time further complicate efforts to associate sizes with specific units of measure. Such is the case with the LR 4, whose capacity increased between the fifth and seventh centuries, a phenomenon that

32 M. Bonifay, *Études sur la céramique romaine tardive d’Afrique*, BAR International Series 1301 (Oxford, 2004), 125–29.

33 For example, the differences posited by D. P. S. Peacock and D. F. Williams (*Amphorae and the Roman Economy: An Introductory Guide* [London, 1986], 185–86) among the LR 1 type are not plausible, since the amphorae that illustrated their “Class 44” are in fact two examples of a single form datable to the sixth and seventh centuries. Examples associated with fifth-century forms do not appear in this typology, although these constitute the vast majority of examples of LR 1 in the western Mediterranean.

can be explained only as the market's response to high demand. Ultimately, the proliferation of forms in late period amphorae tells us little about their contents. Their diversity was the result of a long evolution, dictated in part by the demands of maritime transport. Periods of commercialization and technological development of course had an effect, but so did the variations in the contents of amphorae, the sites in which they were manufactured, and local traditions. The same factors account for the diversity of late Roman amphorae, especially those from the East, in which differences are expressed even more markedly. The types and their variants are particularly numerous during this period, a consequence not just of the multiplicity of manufacturing regions and their particular workshops but also of a deliberate intent to promote the vessels' contents in a highly competitive market.

Late eastern amphorae are by definition containers intended for large-scale commerce, manufactured in the thousands (even millions). It would thus be difficult to see no relationship between the product and its packaging, which should (one would think) reflect and promote the product. The notion that commodities might change because of the size of the amphorae or their intended market is implausible. The commonplace manufacture during the late period of smaller-capacity amphorae, replicating standard models, is characteristic of Greek cultural areas since early antiquity. It has a twofold significance in the composition of freight. First, these small units served to fill the empty spaces left by large-diameter units.<sup>34</sup> Second, they were more easily marketable, ready to be sold on the retail market if they were not intended for barter or for specific buyers. It is unlikely that an amphora type from a single point of origin would have served to trade two products as dissimilar as oil and wine, which did not compete with one another and which were subject to distinct metrological systems. Varying contents in a single kind of container is not (or is only rarely) found during the Roman period, when packaging was clearly

34 The phenomenon, now well attested, was exhaustively treated by Claude Santamaria in his study of the shipwreck Dramont E at Saint-Raphaël, which brought to light the fact that African *spatheia* were principally used to fill the empty spaces between the amphorae. C. Santamaria, *L'épave Dramont "E" à Saint-Raphaël (V<sup>e</sup> siècle ap. J.-C.)*, *Archaeonautica* 13 (Paris, 1995), 117–18.

intended to designate a specific product.<sup>35</sup> The same phenomenon seems to have held true in late antiquity, even if a few exceptional examples attest to multiple uses—for example, the spheroid amphora LR 2, associated in certain specific cases with the shipment of both oil and wine.<sup>36</sup>

The question of the primary content of certain containers is sometimes complicated by the frequent reuse of amphorae; in addition, they might have had multiple uses when they were employed near their place of manufacture, serving to store various products (for example, honey, dried fruit, legumes, dried meats, fish, or cheese).<sup>37</sup> It is thus important to distinguish containers intended for bringing products to market in the context of medium- and long-distance trade from those used locally for a variety of purposes. The main techniques used to sell and promote products were not fundamentally different in antiquity than they are today: a product's commercial success depends not only on its quality and its reputation but also on how it is marketed. Just as important for producers seeking to capture particular markets was their capacity to adapt to competition. In this context, packaging played an important role. Clearly, consumers would have expected to know what an amphora was transporting purely on the basis of its form. The simplest means of promoting the product that amphorae contained was to disseminate them over as wide a territory as possible, and the simplest means of managing and redistributing containers arriving in a port would have been their packaging.

35 Such designation was made even clearer with the dissemination, beginning in the second century AD, of series of containers devised to market specific products. Moreover, might not the series of flat-bottomed amphorae, manufactured in Gaul, Africa, and Italy from the second to the fifth century (their common origin suggested by typological details), have been created in order to associate a specific kind of container with wine?

36 Karagiorgou, "LR2"; S. Demesticha, "Some Thoughts on the Production and Presence of the Late Roman Amphora 13 on Cyprus," in *Trade Relations in the Eastern Mediterranean from the Late Hellenistic Period to Late Antiquity: The Ceramic Evidence*, ed. M. B. Briesce and L. E. Vaag (Odense, 2005), 169–78; P. van Alfen, "Newer Light on the Yassı Ada Shipwreck: The On-going Restudy of the LRA2/13 Amphoras," in *Tradition and Transition*, forthcoming.

37 In the context of local uses, Egyptian LR 7 amphorae contained fish and milk products. See M. Egloff, *Kellia: La poterie copte: Quatre siècles d'artisanat et d'échanges en Basse-Égypte*, *Recherches suisses d'archéologie copte* (Geneva, 1977), 111; J. A. Riley, "Coarse Pottery," in *Excavations at Sidi Khrebish Benghazi (Berenice)*, *Libya Antiqua* supp. 5 (Tripoli, 1979), 2:225.



Finally, tradition was an important factor. For the manufacturers of containers, in direct partnership with regional agricultural producers, knowledge of changes in how containers would be used must have influenced their form. The long lineages of amphorae are often rooted in regions in which the agricultural traditions were strong.<sup>38</sup>

In trying to determine the nature of the contents, we have less information for late antiquity than we do for earlier periods. The painted or engraved inscriptions that during the Roman period convey a great deal of information no longer indicate the commodity being transported; they are instead limited to measures of capacity or to Christian invocations. Most often, we must content ourselves with examining the inside surfaces of amphorae. In order to transport commodities such as wine or fish sauces, containers had to be made watertight by coating their interiors with resin. The incompatibility of resin and oil has long been recognized.<sup>39</sup>

The relationship between the weight of the container and that of the merchandise was a constant concern among potters in antiquity. Modest technical revolutions in that respect are evident during the late Roman Empire. Progress was made in minimizing the tare (empty) weight of containers without excessively increasing their fragility; late antique eastern Mediterranean amphorae are striking for their lightness and the thinness of their walls. Beyond their decorative effect and the practical utility of making the vessels easier to grasp, the corrugations present almost without exception on the bellies of amphorae were intended to improve the firing of the clay and reduce the areas of limiting contacts between amphorae as well as the risk of breakage during sea transport.

The unusual appearance of amphorae with Greek inscriptions painted in red ochre or black ink on their neck and shoulder also warrants mention. These amphorae have long been known by epigraphers, especially papyrologists, for whom the frequently attested inscriptions are an indispensable resource for studying early Byzantine paleography.

38 That is the case, for example, with bag-shaped amphorae made in the Near East beginning in the Bronze Age, whose basic form changed little until the medieval period.

39 The discussion is summarized in N. Ben Lazreg, M. Bonifay, and P. Trouset, "Production et commercialisation des *salsamenta* de l'Afrique ancienne," in *Actes du VI<sup>e</sup> colloque d'Histoire et d'Archéologie de l'Afrique* (Paris, 1995), 103–42.

The data in these inscriptions (*tituli picti*, or *dipinti*) most often consist of the weight or volume of the commodities transported, the names of people or institutions, abbreviated theological formulas (incipits and *isopsephia*), and Christian symbols. The inscriptions offer a form of protection, though their purpose is primarily commercial, and they appear in the same location on each amphora.

The metrological system used to mark the capacity of these amphorae is complex and difficult to interpret because of the use of ornate or highly stylized cursive scripts. The unit of measure, the *sextarius* (Greek *ξέστης*), apparently varied depending on the commodity being transported, the region in which it was produced, and the regions to which it was being shipped, as well as the period. To date, attempts to correlate the capacity of late period amphorae with the known values of the *sextarius* have not been successful, as the system in use seems to be different from those in effect during the Roman Empire or the medieval period.<sup>40</sup> Peter G. van Alfen, in an essay published in 1996, considered the possible association of the capacities recorded with one or several metrological systems that were in use during the proto-Byzantine period (the *sextarius* or a multiple of three *litrai*).<sup>41</sup> He determined that the various methods of calculation were apparently not consistently followed, and consequently it is difficult to arrive at a standard unit of capacity for the late Roman period. Contrary to the hypothesis advanced by Michael Decker of a commercial and economic unit of measure to which a standardization of containers might attest,<sup>42</sup> the study recently undertaken on the imported amphorae found at Antinoopolis reveals the use of diverse and regional metrological

40 Mabel Lang (*Graffiti and Dipinti*, Athenian Agora 21 [Princeton, N.J., 1976]) sought to demonstrate that the general system used for amphorae found in the Agora at Athens corresponded to the Cypriot *sextarius* (= 0.546 l), but this accords with only a few examples of LR 1. Similarly, the units of measure based on the Byzantine *metron*, and its subunit, the *litra*, are no longer convincing. F. H. van Doorninck, "Giving Good Weight in Eleventh-Century Byzantium: The Metrology of the Glass Wreck Amphoras," *INA Quarterly* 20 (1993): 8–12.

41 P. G. van Alfen, "New Light on the 7th C. Yassi Ada Shipwreck: Capacities and Standard Sizes of LRA 1 Amphoras," *JRA* 9 (1996): 210–13.

42 M. Decker, "Water into Wine: Trade and Technology in Late Antiquity," in *Technology in Transition, A.D. 300–650*, ed. L. Lavan, E. Zanini, and A. Sarantis, *Late Antique Archaeology* 4 (Leiden, 2007), 65–92.



systems.<sup>43</sup> Examining other sites from this perspective may further extend these findings.

The fact that late eastern amphorae, and particularly the LR 1, were somewhat standardized implies a rigorous and well-developed system of controls, but it also points to a certain freedom in the manufacture of containers. Only through the joint study of the inscription and the container can we understand this process, although such study requires complete amphorae with legible inscriptions. The case of Antinoopolis reveals that the measurement of the contents was determined by subtracting the weight of the empty amphora from the weight of the full amphora. Indications of the tare weight, calculated as a multiple of the Roman pound, in fact appear on the necks of amphorae. Once the amphora was filled with wine, the container was weighed again and, after a table of equivalents was consulted, the volume in sextarii was indicated on the shoulder or on the plaster stopper. Steelyards found in shipwrecks such as those at Dor and at Yassı Ada are very likely associated with the weighing of amphorae.<sup>44</sup> Such a method would imply that on the agricultural estates, at the moment when the containers were filled, individuals were present who were charged with verifying the integrity of the process and defending against fraud; but in the absence of textual sources, these agents remain unknown. The inscriptions of the tare weight and the sextarius were affixed at the same moment, which makes centralized control in the *horrea* or in the redistribution centers appear unlikely. The rigorous topography of the inscriptions on the LR 1 amphorae, as well as the relatively homogeneous style of the scripts, plausibly suggests an itinerant body of professionals specializing in this trade, able to make their way to the various viticultural estates. However, it also seems that the units of weight and the value of the sextarius might have varied according to the region.

43 Fournet and Pieri, "Les *dipinti* amphoriques d'Antinoopolis."

44 S. Kingsley and K. Ravch, *The Ancient Harbour and Anchorage at Dor, Israel, Results of the Underwater Surveys, 1976–1991*, BAR International Series 626 (Oxford, 1996), 69–72; G. K. Sams, "The Weighing Implements," in *Yassı Ada I, a Seventh-Century Byzantine Shipwreck*, ed. G. F. Bass and F. G. van Doorninck Jr. (College Station, Tex., 1982), 202–30; in this volume, see B. Pitarakis, "Weighing Instruments" in "Daily Life at the Marketplace in Late Antiquity and Byzantium."

### The Structures of Production: Complexity of Methods and Premises

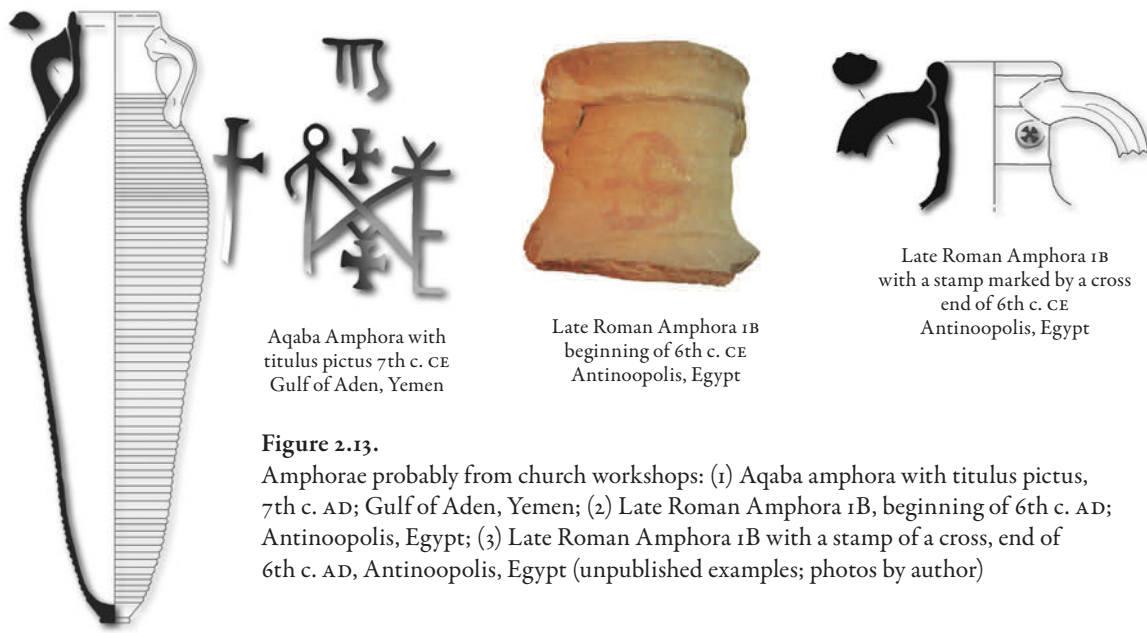
The study of the centers in which eastern Mediterranean amphorae were manufactured in late antiquity is perhaps the field in which progress has been slowest and remains, for the moment, least satisfactory.

Whereas the relationships between the manufacture of amphorae and the production of the goods intended to be shipped are understood, at least broadly, knowledge of the precise organization of amphora workshops continues to be elusive. Whether they were public or privately held enterprises remains unknown, as does how the state and the Church affected the process. Nonetheless, it seems likely that we are dealing with fairly loose and heterogeneous productive enterprises, differing somewhat according to region. Papyrological documentation apparently shows that in Egypt, for example, the system was by and large privately held; the manufacture of amphorae was often subcontracted or delegated to a part-time potter through a landowner or an ecclesiastical estate.<sup>45</sup> Egyptian LR 7 amphorae often contain *tituli picti* on the belly or stamps on the stoppers that suggest either the given names of agricultural landowners or the name of ecclesiastical estates.

The case of LR 1 amphorae is equally revealing, for the names that appear among the painted inscriptions can be plausibly interpreted as Cilician names of private landowners and occasionally of ecclesiastical estates. Several symbols and signs inscribed on the amphora—for instance, crosses that imply a church workshop—also occasionally suggest a closer relation between the Church and their production (fig. 2.13).

The yield of the workshops is similarly unknown to us; it might have been as diverse as suggested by the few potters' establishments found up to the present day, where no single function and organization consistently appear. Knowledge of the sequence of operations, which could shed light on the use of raw materials, related production, the traditions of pottery manufacture, or even technologies, remains sketchy. We likewise know little about the environment of the workshops, for the data only rarely

45 S. Bacot, "Le commerce du vin dans les monastères d'Égypte à l'époque copte," in *Le commerce en Égypte ancienne*, ed. N. Grimal and B. Menu, Bibliothèque d'étude 121 (Cairo, 1998), 269–88.



Aqaba Amphora with  
titulus pictus 7th c. CE  
Gulf of Aden, Yemen

Late Roman Amphora 1B  
beginning of 6th c. CE  
Antinoopolis, Egypt

Late Roman Amphora 1B  
with a stamp marked by a cross  
end of 6th c. CE  
Antinoopolis, Egypt

**Figure 2.13.**

Amphorae probably from church workshops: (1) Aqaba amphora with titulus pictus, 7th c. AD; Gulf of Aden, Yemen; (2) Late Roman Amphora 1B, beginning of 6th c. AD; Antinoopolis, Egypt; (3) Late Roman Amphora 1B with a stamp of a cross, end of 6th c. AD, Antinoopolis, Egypt (unpublished examples; photos by author)

specify the context of these complexes (urban, suburban, or rural) or whether they operated at a regional or provincial level (as independent workshops or as guilds). On this point, the manufacture of LR 1 is again a good example of the complex system of production as it was defined in the East during late antiquity.

At present we know of several sites where LR 1 amphorae were manufactured, since some twenty workshops have been identified, mainly in Cilicia and Isauria.<sup>46</sup> Unfortunately this census, first carried out by Jean-Yves Empereur and Maurice Picon at the end of the 1980s, has only rarely led to excavations.<sup>47</sup> Moreover, even today we know practically

nothing about the output of the workshops in which these amphorae were manufactured—what types the workshops made, or how long they functioned. Despite the apparent homogeneity of this type of amphora, whose forms were highly standardized, the workshops themselves were diverse in size, ranging from the modest rural establishment at Rhosos to the large complex at Seleukeia Pieria. Cyprus may be the exception to the general paucity of information about manufacturing, since two workshops were recently excavated on the island, both on the southern coast: one at Paphos and the other at Zygi. They were discovered in the 1990s, and the excavations remain partial: the kilns have been studied, but the complexes as a whole are still unknown.<sup>48</sup> The extent of the area of production, straddling several provinces (Cilicia I and II, Isauria, Syria I, Rhodes, and Cyprus), suggests shared economic interests

46 J.-Y. Empereur and M. Picon, “Les régions de production d’amphores impériales en Méditerranée orientale,” in *Amphores romaines et histoire économique: Dix ans de recherche* (Rome, 1989), 223–48.

47 M. Ricci, “Elaiussa Sebaste: Context, Production and Commerce,” in Böhlendorf-Arslan, Osman Uysal, and Witte-Orr, eds., *Çanak: Late Antique and Medieval Pottery and Tiles*, 169–80; F. Burrigato, M. di Nezza, A. F. Ferrazzoli, and M. Ricci, “Late Roman 1 Amphora Types Produced at Elaiussa Sebaste,” in Bonifay and Tréglià, eds., *LRCW 2*, 671–88; A. F. Ferrazzoli and M. Ricci, “Un centro di produzione delle anfore LR 1: Elaiussa Sebaste in Cilicia (Turchia): Gli impianti, le anfore,” in *LRCW 3: Third International Conference on Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean: Archaeology and Archaeometry, Comparison between Western and Eastern Mediterranean* (Oxford, 2008).

48 S. Demesticha, “The Paphos Kiln: Manufacturing Techniques of LR1 Amphoras,” *Rei Cretariae Romanae Favtorum Acta* 36 (2000): 549–53; eadem, “Amphora Production on Cyprus during the Late Roman Period,” in Bakirtzis, ed., *De Rome à Byzance, de Fostat à Cordoue*, 469–76; eadem, “Some Thoughts on the Production”; S. Demesticha and D. Michaelides, “The Excavation of a Late Roman 1 Amphora Kiln in Paphos,” in Villeneuve and Watson, eds., *La céramique byzantine et proto-islamique en Syrie-Jordanie*, 289–96.

that extended far beyond the borders of the *chora*, regional as well as provincial in scope.

The few sites that provide information reveal little about production methods. Several kiln structures that date to the fifth and sixth century have been found at Sinope on the Black Sea,<sup>49</sup> and refuse dumps for LR 7 wasters have been discovered in Egypt. We know of several workshops that made LR 4; they were scattered over a vast region that comprises Gaza, Askalon, and the Negev, which suggests that the territory constituted a substantial manufacturing presence.<sup>50</sup> The workshop situated to the north of Askalon in particular offers a fairly complete example of a factory that was integrated into an extensive rural operation. Finally, of the considerable number of late Byzantine structures that survive, several specializing in the manufacture of spindle-shaped amphorae have been found at Aqaba.<sup>51</sup> The few physicochemical analyses that have been performed have established the origins of amphorae from Beirut with absolute certainty.<sup>52</sup>

Given the scarcity of available data, we have only a patchy view of the methods by which amphorae were manufactured in the East. At the same time, to advance our knowledge of these amphorae, and to go beyond the question of their manufacture, it is essential that we be able to evaluate how amphora manufacturing was integrated into its economic context—urban or rural, regional or provincial. Thus, defining with some precision the places in which amphorae were produced remains the challenge for specialists now studying the organization of agricultural centers in the East.

49 D. Kassab-Tezgör and I. Tatlıcan, "Fouilles des ateliers d'amphores à Demirci près de Sinope en 1996 et 1997," *Anatolia Antiqua* 6 (1998): 423–42.

50 Y. Israel, "Ashqelon," *Excavations and Surveys in Israel* 13 (1993): 100–105; idem, "Survey of Pottery Workshops, Nahal Lakhish–Nahal Besor," *Excavations and Surveys in Israel* 13 (1993): 106–7. D. S. Whitcomb, "Ceramic Production at Aqaba in the Early Islamic Period," in Villeneuve and Watson, eds., *La céramique byzantine et proto-islamique en Syrie-Jordanie*, 298.

51 D. S. Whitcomb, "Ceramic Production at Aqaba in the Early Islamic Period," in Villeneuve and Watson, eds., *La céramique byzantine et proto-islamique en Syrie-Jordanie*, 298.

52 M. Roumié, B. Nsouli, C. Atalla, and S. Y. Waksman, "Application of PIXE using Al Funny Filter for Cluster Analysis of Byzantine Amphorae from Beirut," *Nuclear Instruments and Methods in Physics Research, Section B* 227 (2005): 584–90.

## Imitations and Forgeries

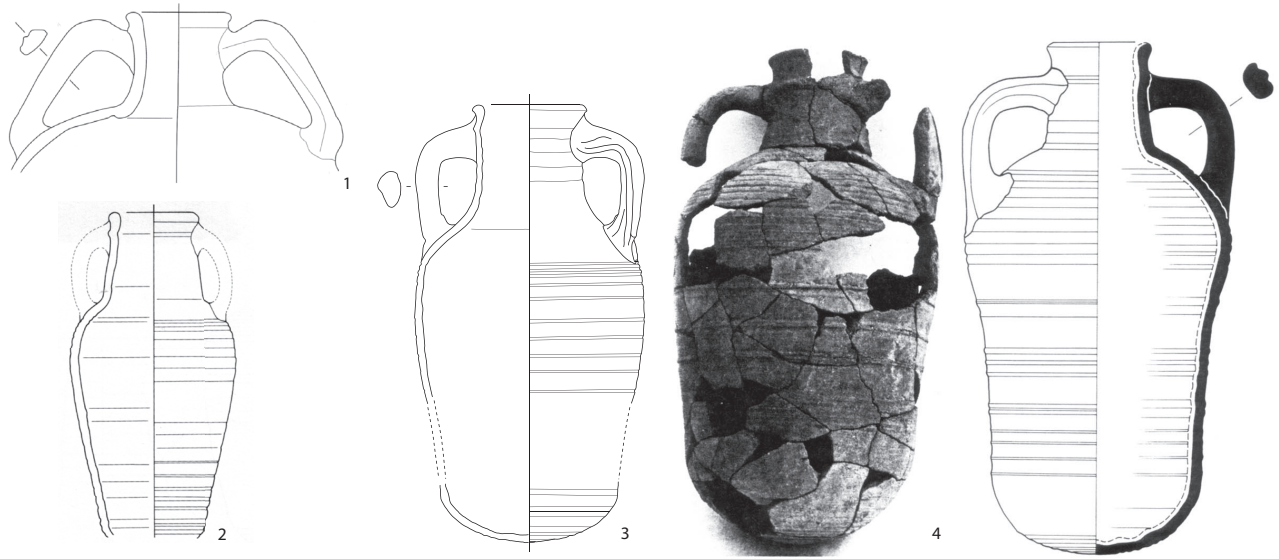
The existence, both recognized and presumed, of regions that produced imitative packaging—and probably, in certain cases, deliberate forgeries—raises a number of questions. The imitation of a specific type of amphora suggests an intent by those with a more or less comparable product to use the commercial success of the original for their own profit. In late antiquity, the output of imitations was limited in both number and chronological scope. Most often, a few containers were copied very faithfully from originals and integrated among ordinary locally manufactured goods. The container most frequently imitated was apparently the LR 1B amphora, intended mainly for the transport of wine. Several workshops are known today that were established far from the traditional regions of production, distributed over geographic areas as diverse as North Africa, Egypt, and the Black Sea. An example of LR 1B preserved in the Bardo Museum in Tunis that seems to be of North African manufacture was the main evidence leading researchers to posit the manufacture of amphorae imitating LR 1 in that region. The subsequent discovery of a manufacturing structure at Henchir Ech Chkaf, near Salakta, has corroborated these suspicions.<sup>53</sup> In fact, this workshop, whose main activity was the manufacture of African containers at the end of the sixth century and during the first half of the seventh, also produced a small quantity of a type of amphora with clear similarities to LR 1.

The case of Egypt is more suggestive; the recent identification of several centers that manufactured LR 1B in the Delta and in the Nile Valley has confirmed the hypothesis of Holeil Ghaly that Egyptian copies of LR 1B were being manufactured in Nile clay at Saqqara.<sup>54</sup> New areas, identified in surveys undertaken by Pascale Ballet, have brought to light imitations in calcite clay (at Uyun Musa in the Sinai) and in alluvial clay (at Kellia and Bawit in the middle Nile Valley).<sup>55</sup> It is noteworthy that there, as in

53 J. Nacef, "Nouvelles données sur l'atelier de potiers de Henchir ech Chekaf (Pheradi Maius, Tunisie)," in Bonifay and Tréglia, eds., *LRCW* 2, 581–95.

54 H. Ghaly, "Pottery Workshops of Saint-Jeremia (Saqqara)," *Cahiers de la Céramique Égyptienne* 3 (1992): 161–71, figs. 16a, 16b.

55 P. Ballet, "Un atelier aux sources de Moïse (Uyun Musa)," in *Le Sinaï de la conquête arabe à nos jours*, ed. J.-M. Mouton, *Cahiers des Annales islamologiques* 21 (Cairo, 2001), 37–50, fig. 9;



**Figure 2.14.** Egyptian imitations of LR 1 (approx. scale 1:4): (1) Uyun Musa (Ballet, “Un atelier aux sources de Moïse (Uyun Musa),” fig. 9); (2) Kellia (Ballet, Rassart-Debergh, and Bosson, *La céramique, les inscriptions, les décors*, pl. 23.138); (3) Baouit (Dixneuf, “Les amphores égyptiennes,” pl. 181.373); (4) Saqqara (Ghaly, “Pottery Workshops of Saint-Jeremia (Saqqara),” fig. 16a–b)

North Africa, the imitations are of late stage amphorae: they copy only LR 1B models, associated with variants generally dating to the first half of the seventh century (fig. 2.14).

The LR 1 amphorae copied in the Black Sea region are made of a whitish clay characteristic of Sinopean ceramics dating to the sixth and seventh centuries.<sup>56</sup> The Aegean Sea (particularly the island of Kos) might also have been an area in which imitations were manufactured.<sup>57</sup>

P. Ballet and D. Dixneuf, “Ateliers d’amphores de la Chôra égyptienne aux époques romaine et byzantine,” in Eiring and Lund, eds., *Transport Amphorae and Trade in the Eastern Mediterranean*, 70–71; P. Ballet, M. Rassart-Debergh, and N. Bosson, *Kellia 2: L’ermitage copte QR 195*, vol. 2, *La céramique, les inscriptions, les décors* (Cairo, 2003), 152–53, pl. 23; D. Dixneuf, “Les amphores égyptiennes du Sinaï à la Moyenne Égypte: Typologie, chronologie, contenu et diffusion: Contribution à l’histoire économique de la période romaine aux premiers temps de l’occupation arabe” (Ph.D. diss., University of Poitiers, 2007).

<sup>56</sup> A complete amphora is preserved in the stores of the Sinop Museum. I am grateful to Dominique Kassab-Tezgör for allowing me to consult material from the excavations at the workshops of Demerci.

<sup>57</sup> I warmly thank Natalia Poulou-Papadimitriou for providing me with the results of this recent research (presented in Parma in March 2008). N. Poulou-Papadimitriou and S. Didioumi, “Nouvelles données sur la production de l’atelier céramique protobyzantin à Kardamaïna (Cos-Grèce),” in *LRCW* 3, forthcoming.

The imitation of LR 1 seems to have been particularly common from the second half of the sixth century onward, at the moment when Cilician manufacture had begun to decline. This synchrony raises the possibility that the emergence of practices associated with counterfeiting reflected a relaxation of controls. At the same time, “officially sanctioned” manufacture and imitations are complex questions, and such speculation is surely premature given the sparse data available at present. Nonetheless, this aspect of manufacture is important for defining the true quantities of commodities exchanged. In the years to come, our current understanding of the manufacture of amphorae in the proto-Byzantine East may well develop in new directions as a result of new discoveries and of new interpretations. Assessing the scope of imitations of amphora types remains a rich line of inquiry. For example, we may well come to discern copies of subtypes of LR 1 in the late calcareous amphorae of Sinope, or imitations of LR 7 in the amphorae of Aqaba.

This brief survey of the manufacture and circulation of amphorae from the eastern Mediterranean suffers from being too schematic. Clearly a more detailed study, by region and by site, would show a



more nuanced reality. The main point here has been to show, through a few examples, the areas of inquiry opened by the study of amphorae in the context of a broader understanding of commercial mechanisms. There is no doubt, as surveys and excavations have shown, that the fourth century witnessed a broad recovery in the Mediterranean economy, perhaps to a level comparable to that attained in the first and second centuries of the Common Era. The new element is the emergence of new regions that participated in trade. The founding of Constantinople and the improvement in political, demographic, social, and economic conditions unquestionably favored the eastern Mediterranean. The early Byzantine Empire did not revolve exclusively around Constantinople but was open to other regions and to the Mediterranean as a whole. And by virtue of this openness, it demonstrated a more dynamic character than did the West. What is different from the preceding period is the development of exchanges oriented from East to West.

But the East was not a unitary entity, even if, as we have seen, the production of wine involved the eastern lands in their entirety. Several geographic areas of exchange seem to have divided up the eastern market: the Aegean and the Black Sea, the Near East, and Egypt. And strong differences among these areas emerged between the fourth and the seventh century, reflecting the demands of large centers of consumption, recurring shortages, and the popularity of certain manufactured products that were valued because they were deemed to be of high quality. The importance of eastern trade, demonstrated in large part by the movement of ceramics, lends urgency to the question of what drove the economy. Most frequently cited is the civil and military *annona*, the public service of the state entrusted with distributing basic commodities such as wheat

to Constantinople and to the army. The often-accepted explanation is that this institution defined the direction of exchanges and stimulated the economies of neighboring regions. One must nonetheless emphasize, without denying its importance in the provisioning of the capital, that the state guaranteed only a portion of the *annona*, with the rest depending on private commerce. The same would have held true for the provisioning of other large cities. The leading role of the Church in the provisioning of cities and the armies has often been stressed, but even the Church was only one participant among many in commercial exchanges, and its economic importance varied by region. The role played by the private sector, although difficult to capture, seems to have been important and suggests a fundamentally commercial economy.

Though amphorae may offer a limited contribution to economic history, they nonetheless enable us to follow the stages of development or regression. This commercial economy was able to escape the contraction of the empire's territory and endure political contingencies. But it was not able to survive the extended disruption of production and of the channels of communication that accelerated in the eighth century.<sup>58</sup> The apparent disappearance after the middle of that century of all imported eastern amphorae, with the exception of a few scattered areas (the Aegean basin, the shores of the Sea of Marmara, and the shores of the Black Sea), marks the true end of the economic system inherited from the Roman Empire.

58 See, in the present volume, J. F. Haldon, "Commerce and Exchange in the Seventh and Eighth Centuries: Regional Trade and the Movement of Goods," 99–122; P. Armstrong, "Trade in the East Mediterranean in the Eighth Century," in Mango, ed., *Byzantine Trade, 4th–12th Centuries*, 157–78.