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Pottery and Glass in Byzantium

Véronique François and Jean-Michel Spieser

Though pottery and glass are in some ways related, it is not clear that they share sufficiently similar conditions of manufacture, diffusion, or use to allow these aspects to be discussed in conjunction. Pottery appears to have been used in the greater quantity, or is at least found more frequently, and, while glass could well have been a luxury product, pottery practically never was such in the Byzantine world. In addition, research into pottery is further advanced than into glass.

Generally speaking, glassmaking has been neglected for even longer than pottery, both in works on Byzantine art and by archaeologists. Our picture of glassmaking in Byzantium has been drawn from a very small sample of sumptuous vases, from the products of neighboring civilizations, and from a few written sources and is still imprecise and patchy. It is based on rare preserved pieces, which means that problems of attribution have not been resolved, in particular the distinction between Byzantine and Islamic glasses, and less luxurious products have been neglected, although they are certainly more numerous. The study of glass must now take account of material found during archaeological excavations, which is not as neglected as it used to be, to fill out and correct our knowledge of the history of glass in the years to come. In the case of pottery, on the other hand, although we have a long way to go before we know as much as we do about pottery in the classical Roman world and in late antiquity, recent years have seen significant developments, and archaeologists who find Byzantine pottery now have a new set of publications to which to refer.¹

This chapter was translated by Sarah Hanbury Tenison.

¹ In the case of glass, the most recent study is by J. Henderson and M. M. Mango, "Glass at Medieval Constantinople: Preliminary Scientific Evidence," in *Constantinople and Its Hinterland*, ed. C. Mango and G. Dagron (Aldershot, 1995), 333–56. See also J. Philippe, *Le monde byzantin dans l'histoire de la verrerie* (Bologna, 1970). In the case of pottery, D. Talbot Rice, *Byzantine Glazed Pottery* (Oxford, 1930), and C. H. Morgan, *The Byzantine Pottery*, Corinth 11 (Cambridge, Mass., 1942), are still authoritative, to which can now be added Ch. Bakirtzis, *Βυζαντινὰ τσουκαλολάγνα* (Athens, 1989); V. Déroche and J.-M. Spieser, eds., *Recherches sur la céramique byzantine*, BCH, Suppl. (1989); V. François, *La céramique byzantine à Thasos* (Paris, 1995); S. Gelichi, ed., *La ceramica nel mondo bizantino tra XI e XV secolo e i suoi rapporti con l'Italia* (Florence, 1993); J. W. Hayes, *Excavations at Saracane in Istanbul*, vol. 2 (Princeton, N.J.–Washington, D.C., 1992), also important for glass; J.-M. Spieser, "La céramique byzantine médiévale," in *Hommes et richesses dans l'Empire byzantin*, 2 vols. (Paris, 1989–91), 2:249–60;

Glass and Its Production

Prior to the period under discussion, glass production in Byzantium did not deviate from the traditions of the later empire.² We know nothing about the workshops that existed then. Glassmakers were among the number of craftsmen granted exemption from taxes by Constantine.³ Excavations at Saraçhane have revealed three particular types that were important in terms of quantity—wine glasses, lamps, and three-handled lamps—suggesting that these were produced locally during the sixth and seventh centuries.⁴ Nevertheless, it is still difficult to discern the position of the capital in relation to the glass industry. The best-known products are from Syria and Palestine in the fifth to seventh centuries, including flasks of blown glass with molded decorations depicting Christian or Jewish symbols.⁵ Elsewhere, excavations in Sardis, like those at Caričin Grad, have produced new information about ordinary glass products in the sixth and seventh centuries; four thousand fragments of glass vases, which were probably manufactured on the spot, have been found at Sardis.⁶

Shapes

Byzantine glass was produced for a variety of functions. Besides the different types of glass receptacle, flat glass and tesserae for mosaics constituted an important part of glass production. Indeed, glass was essential to the art of Byzantine mosaics, which used colored glass tesserae abundantly all over the empire from the sixth to the fourteenth century. Very large quantities of tesserae were required, for instance, to decorate the great monuments in Constantinople and were presumably manufactured in large

idem, *Die byzantinische Keramik aus der Wohnstadtgrabung*, (Berlin, 1996), and D. Papanikola-Bakirtzi, *Μεσαιωνική έφουλωμένη κεραμεική της Κύπρου* (Thessalonike, 1996), to cite but the most recent works.

² D. B. Harden, "Ancient Glass, III: Post Roman," *AJ* 128 (1972): 78–83, 92, 98–101. See also J.-P. Sodini, "L'artisanat urbain à l'époque paléochrétienne," *Ktéma* 4 (1979): 71–119 (on glass, 92–94).

³ *CTh* 13.4.2 (text republished in *CI* 10.66.1): see Sodini, "Artisanat Urbain," 92 and 103. A text that refers specifically to the glassmakers of Constantinople does not appear to exist. This presumed evidence for glass workshops in Constantinople has slipped into the bibliography on the basis of a wrongly interpreted sentence in Philippe, *L'histoire de la verrerie*, 17. Similarly, reference to a glassmakers gate at Constantinople goes back to E. Garnier, *Histoire de la verrerie et de l'émaillerie* (Tours, 1886), 56: this is, in fact, the gate leading onto the Golden Horn, which is called Cubalıkapı (R. Janin, *Constantinople byzantine* [Paris, 1964], 290) or Cibalıkapı (W. Müller-Wiener, *Bildlexikon zur Topographie Istanbuls* [Tübingen, 1977], 311, fig. 356), near which Pierre Gylles (taken up in Ducange, *Constantinopolis cristiana* [Paris, 1682], 1.14.7) mentions glass workshops, which does not allow us to assume that they existed during the Byzantine period, especially not during later antiquity.

⁴ Hayes, *Saraçhane*, 400.

⁵ C. Meyer, "Glass from the North Theater Byzantine Church and Soundings at Jerash, Jordan, 1982–1983," *BASOR*, suppl., 25 (1988): 175–222; J. Patrich, Y. Tsafirir, and R. H. Brill in Y. Tsafirir et al., *Excavations at Rehovot-in-the-Negev*, vol. 1, *The Northern Church* (Jerusalem, 1988), 134–51; R. H. Smith and L. P. Day, *Pella of the Decapolis* (Wooster, Ohio, 1989), 2:37–38, 110, 114–15.

⁶ A. von Saldern, *Ancient and Byzantine Glass from Sardis* (Cambridge, Mass., 1980). For Caričin Grad, see B. Bavant, "Les petits objets," in B. Bavant, V. Kondić, and J.-M. Spieser, *Caričin Grad*, vol. 2, *Le quartier Sud-Ouest de la ville haute* (Belgrade, 1990), 208–12.

workshops. C. Mango estimates the number of glass cubes required to produce the mosaic in Monreale at one million.⁷ Given an estimated weight of 5 g for the average tessera, this would have represented a production of 5 tons of glass. A similar calculation for Hagia Sophia would certainly give a weight of glass well over 400 tons for the tesserae that were used in the Justinianic period.⁸ Some expertise must also have been required in their manufacture, since the mosaic craftsmen who set off to work for al-Walid, and those sent by Nikephoros II to the emirate of Cordoba to decorate the mosque there, took their own supplies of tesserae with them.⁹

Further evidence that glass was used to decorate buildings is provided by some glass tiles that were intended to cover a wall and that have been attributed to northern Syria in the tenth to twelfth centuries.¹⁰ Quantities of blue and green tiles have also been found in Sardis dated to the seventh century and in Church E to the thirteenth.¹¹ In Constantinople, at the sites of the Pantokrator church (Zeyrek Camii) and the Chora church (Kariye Camii), finds of fragments of historiated painted glass windows and of stained glass windows, together with many lead strips, provide a splendid illustration of the art of Byzantine stained windows.¹² These fragments were initially attributed to a workshop in Constantinople at the beginning of the twelfth century—1120 for Kariye Camii and 1126 for Zeyrek Camii—then it was claimed that the Pantokrator's windows had been executed during the Latin occupation and, if not by a German glass window painter, at least by one directly influenced by Germany.¹³ However, recent chemical analysis of fragments of window glass from Kariye Camii has shown that they belong to an entirely different tradition from that of central Europe and could have been manufactured locally.¹⁴

Not much is known about the production of window glass, although there is plenty of evidence that it was used during the early Byzantine period.¹⁵ In the same way, nothing is known about the places where or the conditions under which glass jewelry was produced; this included amulets of molded glass, bracelets of spun glass, small jewels, and fake cameos, all of which constitute a significant part of glass finds.

With regard to hollow glass wares, the most commonly found shapes are well known:

⁷ According to "Commerce et artisanat en milieu urbain," conference held at the Collège de France, Paris, December 1986, cited by Henderson and Mango, "Glass at Constantinople," 339, no. 24.

⁸ For the weight of the gold used for the mosaics in Hagia Sophia, cf. A. Cutler, "The Industries of Art," *EHB* 557–58.

⁹ In 706–707, the mosaic artists set off with "forty loads (mules? camels?)," according to the *Kitab al-Dahair*: See M. Hamidullah, *Arabica* 7 (1960): 285. We thank A. Cutler for this reference.

¹⁰ J. Durand, *Byzance: L'art byzantin dans les collections publiques françaises* (Paris, 1992), 303, no. 217.

¹¹ Von Saldern, *Glass from Sardis*, 91–92, and 101 (for Church E); J. S. Crawford, *The Byzantine Shops at Sardis* (Cambridge, Mass., 1990), 78–81. Cf. C. Foss and J. A. Scott, "Sardis," *EHB* 617, 620.

¹² A. H. S. Megaw, "Notes on Recent Work of the Byzantine Institute in Istanbul," *DOP* 17 (1963): 349–67.

¹³ J. Lafond, "Découverte de vitraux historiés du Moyen Age à Constantinople," *CahArch* 28 (1968): 231–38.

¹⁴ Henderson and Mango, "Glass at Constantinople," 348–56.

¹⁵ Cf. Bavant ("Les petits objets," 192 n. 2) for the buildings with glass windows in Caričin Grad.

slightly concave cups of varying depths, small cylindrical flasks, drinking glasses, and long-necked bottles. Glass lamps, especially in the shape of goblets to fit into church candelabra, were widespread. All these forms were common to the whole of the Mediterranean basin. These glass wares were, generally speaking, luxury goods. Some were stained, sometimes decorated with paintings, in which gold and polychrome enamels were also used to trace the outlines of foliage embellished with animals or people inscribed within medallions.¹⁶ Of the best-known pieces, a purple enameled glass in the San Marco Treasury in Venice is famous for its ornamentation, which displays antique motifs alongside kufic characters. A. Grabar attributes it to a Constantinopolitan workshop during the Macedonian period.¹⁷ However, the overall scarcity of enameled fragments among finds at Saraçhane and elsewhere in Constantinople (two fragments of cups and a bottle), has led J. Hayes to question the existence of workshops producing this type of glass in the capital.¹⁸ We should also mention the cylindrical flasks, decorated with zoomorphic and geometrical designs arranged in bands, that have been found in Corinth,¹⁹ Cyprus,²⁰ and again in Novogradok in northwestern Russia.²¹ They are dated to the eleventh century, to the end of the twelfth, and to the beginning of the thirteenth century respectively. Other types of glass were produced, perhaps in the capital during the eleventh century: vases with disks, lamps, cups, and goblets of thick transparent glass, their surfaces decorated with disks in relief, points, or concave circles (Fig. 1). There are also other vases decorated more simply with a thread of spun glass trailed over the whole surface, or sometimes bristling with little projecting blobs arranged in bands.²²

Production Techniques

Both the written and the material documentation is poor, although the *Diversarum artium schedula*, compiled by the German monk Theophilus,²³ does provide some indications about manufacturing procedures in Byzantine glassmaking in the eleventh and twelfth centuries. The “Miracles of Saint Photeine” (9th–10th centuries) mentions a fire that started in a glass workshop situated on a road leading from Strategion to Hagia Sophia.²⁴ This is the only known reference to glass production in Constantinople during the Byzantine Middle Ages.

¹⁶ A. Grabar, “La verrerie d’art byzantine au Moyen Age,” *Mon Piot* 57 (1971): 89–127.

¹⁷ See A. Cutler, “The Mythological Bowl in the Treasury of San Marco at Venice,” in *Near Eastern Numismatics, Iconography, Epigraphy and History: Studies in Honor of George C. Miles*, ed. D. K. Kouymjian (Beirut, 1974), 236–54, and I. Kalavrezou-Maxeiner, “The Cup of San Marco and the ‘Classical’ in Byzantium,” in *Studien zur Mittelalterlichen Kunst, 800–1250: Festschrift für Florentine Mütherich zum 70. Geburtstag*, ed. K. Bierbrauer, P. K. Klein, and W. Sauerlander (Munich, 1985), 1:167–74.

¹⁸ Hayes, *Saraçhane*, 401.

¹⁹ G. R. Davidson, “A Medieval Glass Factory at Corinth,” *AJA* 44.3 (1940): 318, 320, figs. 20–21.

²⁰ A. H. S. Megaw, “A Twelfth-Century Scent-Bottle from Cyprus,” *JGS* 10 (1968): 83–104.

²¹ See Grabar, “La verrerie.”

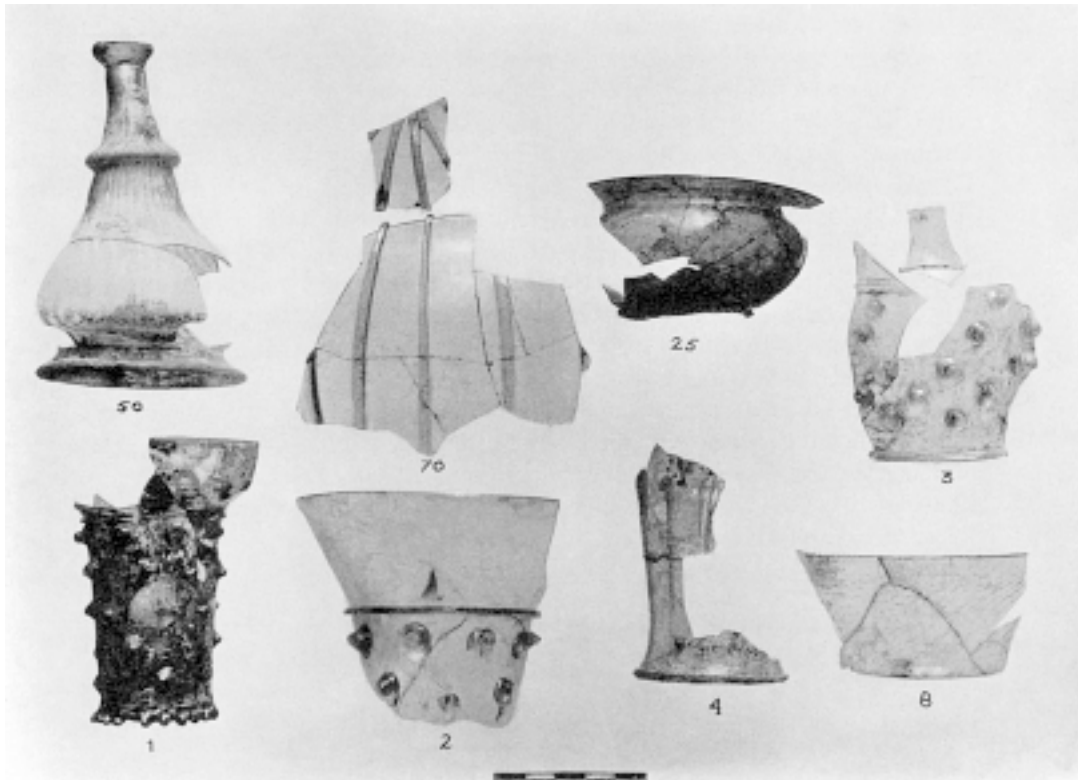
²² Davidson, “Glass Factory,” 308–16.

²³ Theophilus, *Essai sur divers arts*, trans. A. Blanc and J. J. Bourassé (Paris, 1980).

²⁴ F. Halkin, ed., *Hagiographica inedita decem*, 21 (Turnhout, 1989), chap. 9, pp. 111–25 (cf. 122–24). See Henderson and Mango, “Glass at Constantinople,” 346, and R. B. Mason, “Glazed ‘Tiles of



1. Shallow glass bowl. Venice, St. Mark's Treasury (after A. Grabar, "La verrerie d'art byzantin au Moyen Age," *Mon Piot* 57 [1971]: 107, fig. 19)



2. Glass fragments (after Gladys R. Davidson, "A Medieval Glass Factory at Corinth," *AJA* 44.3 [1940]: fig.11)



3. Corinth, Fine Sgraffito plate
(after C. H. Morgan,
The Byzantine Pottery.
[Cambridge, Mass., 1942], 118,
fig. 92, no. 969)



4. Corinth, Fine Sgraffito
plate (after Morgan, *Byzantine
Pottery*, 119, fig. 93, no. 965)

5. Zeuxippus ware.
Hermitage x. 728
(after A. H. S. Megaw,
"Zeuxippus Ware," *BSA*
63 [1968]: pl. 20a)



6. Receptacle, Aegean
ware. Sèvres, Musée
national de la
Céramique, MNC
24782 (after J. Durand,
*Byzance: L'art byzantin dans
les collections publiques
françaises* [Paris, 1992],
394, no. 303)





7. Vases deformed by excessive heat in the furnace (after D. Papanikola-Bakirtzi, *Μεσαιωνική Εφυσλωμένη Κεραμική της Κύπρου* [Thessalonike, 1996], pl. xxx)

In 1937, two glass workshops dating from the eleventh to twelfth century were discovered in Corinth and provided important technical clues, in spite of being attributed for a long time to Greek artisans from Egypt. However, now that the Corinth excavation has been reexamined and the data linked to finds of medieval glasses in Tarquinia and southern Italy, the chronology of the workshops and the origin of their craftsmen are being reassessed.²⁵ D. Whitehouse has demonstrated that these workshops were active in the thirteenth or fourteenth century, during the Frankish occupation of Corinth, and that the glassmakers were probably Italians. Even if these were not Byzantine workshops, there are so few finds that we cannot neglect the technical insights they provide.

These workshops were installed in the town, close to the marketplace within a complex of shops and artisans' workshops including pottery workshops and forges. Production was specialized, with one shop making bracelets and little glass objects and another only dishes. The slivers that have been collected reveal that the quality of the glass was excellent, with no impurities. Faulty pieces are few, which goes to show how perfectly skilled the glassmakers were.

Only one furnace has been discovered although normally two were employed; in the first, the materials fused at high temperatures after which the vessels were moved to the second furnace, set at a lower temperature, to cool. So, if this furnace—a square design with sides 2.38 m long—was indeed the only one, it must be presumed to have had three levels; a heating chamber, with a melting chamber above, in which the glass ingredients would have fused at a temperature of 750–780 degrees, separated by a thick partition from the upper level in which the vases would have cooled.²⁶ Byzantine glass is composed of soda, lime, and silica. Colors were added with the help of oxides of iron, copper, and manganese. Pieces of lime and fragments of quartz, as well as copper scale and iron dross, have appeared in the excavations near the furnace. Vases with smooth surfaces, which were blown without the use of molds, have been found on site, but most of the items had been blown first into forms with internal decorations and then, once outside the mold, blown again. Some vases bear stamped, engraved, or even painted decorations, but these are few.

Glass production in Corinth may be defined, according to the fragments of glasses and of whole glasses observed, as the mass production predominantly of drinking cups that were easy to make and, though fragile, of good quality and intended for everyday use, being molded and blown with or without stamped decoration (Fig. 2). Their shapes are plain and repetitive but their colors many. These products, however, have little in common with the exceptional painted pieces and vases with disks, although the Corinthian pieces, with their sober decoration and wide range of colors, do not lack charm.

Nicomedia' in Bithynia, Constantinople and Elsewhere," in Mango and Dagron, *Constantinople and Its Hinterland* (as above, note 1), 317, fig. 5.

²⁵ D. Whitehouse, "Glassmaking at Corinth: A Reassessment," in *Ateliers de verriers: De l'Antiquité à la période pré-industrielle* (Rouen, 1991), 73–82. On Corinth, see G. D. R. Sanders, "Corinth," *EHB* 652–53.

²⁶ This type of furnace is similar to a description of one in a Syriac manuscript dated later than the 9th century. See Davidson, "Glass Factory," 304.

However, some more carefully worked pieces have been found at Corinth, in particular several small cylindrical flasks, which could well have been the subject of this description by Theophilus: "The Greeks make precious drinking cups, which they decorate in gold . . . [with] circles, and within these circles [are] pictures, animals, birds executed in a variety of ways."²⁷ In the case of these objects, the painted decoration was traced onto the surface of a vase that had already been blown; the vase was then placed in a mold in order to undergo a second firing to fix the color. However, it is very unlikely that these were manufactured on the spot. Recently, the most important finds for the history of glassmaking are from the ship that went down at Serçe Limani in Byzantine waters off Rhodes, at the beginning of the eleventh century, and from another shipwreck that went down 30 km further east.²⁸ The fact that cullet used to travel from Syria, a country with a long tradition of glassmaking, to the shores of the Black Sea is evidence of well-established technical and commercial relations between Byzantium and the caliphate.

Broken glass, or cullet, has been recuperated by glassmakers since time immemorial.²⁹ Written sources show that it used to be transported from countries with a long tradition of glassmaking to regions that were sometimes new to glass production: an agreement between Bohemond VII, prince of Antioch, and Venice in 1277 stipulates that the Venetians would have to pay a tax on all cullet exported from Tripoli;³⁰ a notarial act mentions "barrilia plena vitro coloris blavi" that were transported to Majorca in the fourteenth century by a Genoese galley that had come from the East.³¹ It also appears, at least with regard to the West, that the trade in this commodity, which was considered rare, was subjected to strict regulations.³² As mentioned above, our knowledge of Byzantine glassmaking does not yet enable us to answer questions about the diffusion of glass products or even about the distinction between glass manufacturers and glass merchants, although we know that at Corinth, in urban circles, a merchant glassmaker did sell his products from a stall in his workshop without using intermediaries.

Pottery

This is not the place to discuss production in the technical sense, nor to tell the history of the evolution of Byzantine pottery, its shapes and decoration.³³ However, some fea-

²⁷ Theophilus, *Essai*, 79–80, esp. chaps. 13 and 14.

²⁸ On these shipwrecks and the significance of transporting cullet, see F. van Doorninck, Jr., "Byzantine Shipwrecks," *EHB* 902–3.

²⁹ D. Foy, *Le verre médiéval et son artisanat en France méditerranéenne* (Paris, 1989), 39–40.

³⁰ F. van Doorninck, Jr., "The Medieval Shipwreck at Serçe Limani, an Early 11th Century Fatimid-Byzantine Commercial Voyage," *Graeco-Arabica* 4 (1991): 52 n. 46.

³¹ L. Blancard, *Documents inédits sur le commerce de Marseille au Moyen Age*, 2 vols. (Marseille, 1884–85), 1:484.

³² Foy, *Le verre*, 39. D. Jacoby, "Raw Materials for the Glass Industries of Venice and the Terraferma about 1370–about 1460," *JGS* 35 (1993): 65–90.

³³ On manufacturing techniques, see C. Vogt, "Céramique XIe–XIIe siècles," in Durand, *Byzance* (as above, note 10), 382–84; François, *Thasos*, 9–37; C. Vogt and A. Bouquillon, "Technologie des plaques murales décorées de Preslav et de Constantinople," *CahArt* 44 (1996): 105–16.

tures of this pottery, relating both to its manufacture and to some aesthetic and social aspects, are relevant to anyone interested in the conditions of production and the circulation of these objects. The technology of Byzantine pottery did not present particular difficulties and was easily acquired. Since antiquity there had been no interruption in the manufacture of receptacles and especially not in that of clay materials used in building, such as bricks and tiles. There are more and more indications that the technique of lead-based glazes, which was also well known during the Hellenistic period, had never been completely lost.³⁴ Though the quality of the glaze improved and diversified, there do not appear to have been any fundamental technical innovations. This is related to the fact that Byzantine pottery was never considered a luxury product that sought decorative effects, novel shapes, and original decorations to please a refined circle. What we find—and the very conditions in which the finds appear in the course of an excavation only serve to confirm this—shows that Byzantine pottery, even when glazed and decorated, was intended for common use by a very large proportion of the population. Decoration consisted mainly of motifs, in sgraffito or incised, involving the removal of the slip covering, to expose the differently colored clay beneath. The potter's tools were points of varying fineness, made of metal, needles, slivers of wood, bird or fish bones. A particular example is Fine Sgraffito ware, which has a yellow or yellow-green glaze with very elaborate geometrical or animal motifs, incised with a very fine point through a layer of slip (Figs. 3, 4). As with other incised and champlévé methods, this technique was based on the color contrast between the fired clay and the slipped areas.

From this point of view, there was no great difference in status between coarse wares, meaning unglazed pottery intended chiefly for cooking, storage, or transport, and glazed pottery, which corresponded to tableware. Although a distinction may be made—and examples are given below—between the different qualities of tableware, the fact is that none of them may be considered prize ceramics intended for a privileged clientele, with the exception, perhaps, of some types of painted polychrome wares. Unglazed wares were certainly not unskilled products; technological requirements were involved, such as a degree of porosity to keep water fresh and a degree of heterogeneity to render wares resistant to cooking, achieved by adding impurities that were less plastic than clay.³⁵ These wares have long been neglected by archaeologists,³⁶ a setback that has now been largely remedied by a number of field studies and also thanks to a remarkable synthesis by Ch. Bakirtzis.³⁷ In it, he presents the main shapes

³⁴ For the lead-based pottery of antiquity, see D. Pinkwart, "Hellenistisch-römische Bleiglasurkeramik aus Pergamon," in *Pergamon: Gesammelte Aufsätze* (Berlin, 1972), 140–63. For the survival of the technique, see Spieser, "Céramique byzantine médiévale," 250 and nn. 10 and 11.

³⁵ See Spieser, *Die byzantinische Keramik*, chap. 6.4 and pls. 41–46 (note especially the great resemblance between vessel no. 424 (pl. 44) and those called τζαρίκια by Bakirtzis, Βυζαντινά προυκαλολάγηνα, 87–88 and pl. 22, no. 4). See also S. Y. Waksman and J.-M. Spieser, "Byzantine Ceramics Excavated in Pergamon: Archaeological Classification and Characterization of the Local and Imported Productions by PIXE and INAA Elemental Analysis, Mineralogy and Petrography," in *Materials Analysis of Byzantine Pottery*, ed. H. Maguire (Washington, D.C., 1997), 105–34.

³⁶ Spieser, "Céramique byzantine médiévale," 252–53.

³⁷ Bakirtzis, Βυζαντινά προυκαλολάγηνα.

of these wares with their Byzantine names and functions as well as an outline of the chronological evolution of the best recorded examples, especially the amphoras. However, the Byzantine period is also when amphoras gradually changed shape, away from those of antiquity, before finally disappearing. Though the stages of this evolution have not yet been precisely defined, the appearance of the barrel is well documented; barrels and amphoras coexisted for a long time, and shipwrecks carrying cargoes of amphoras are still recorded as late as the thirteenth century.³⁸

The rest of this chapter is concerned with places of production, commercialization, and diffusion, but only of glazed wares, because there is still very little information of this kind about coarse wares.³⁹ With regard to Byzantine pottery as a whole, one would expect to find a very dispersed production, given that it was easy to set up shop producing medium-quality wares that would be distributed over only a small area. The low value of these objects, as well as their unwieldy nature and relative fragility, meant that transporting them long distances could not ensure substantial profits.

This very general hypothesis does, however, need to be modified in several ways. First of all, there is a variety of ware that could, for a brief period around the year 1000, have been considered, if not a luxury product, at least a very high quality one. This painted polychrome ceramic made of white clay was produced not solely to supply tableware but also to provide architectural decorative pieces, icons, and revetments for *templa*.⁴⁰ It is particularly well attested in Constantinople.⁴¹ In Bulgaria, it appears to have developed in connection with Preslav and its hinterland, and we know that at least part of these wares were manufactured on the spot.⁴² Chemical analyses suggest that part of the white wares found in Constantinople was manufactured in its

³⁸ N. Günsenin, "Récentes découvertes sur l'île de Marmara (Proconèse) à l'époque byzantine: Epave et lieu de chargement," in *Constructions maritimes et fluviales. Approches archéologiques, historiques et ethnologiques* (= *Archaeonautica* 14 [1998]), ed. P. Pomey and E. Rieth (Paris, 1999), 309–16. We thank N. Günsenin for information on this subject and for this reference. For the "disappearance" of amphoras, see Bakirtzis, Βυζαντινὰ πσοκαλολάγγνα, 84–87. On amphoras in the Balkans, see L. Bjelajac, "Byzantine Amphorae in the Serbian Danubian Area in the 11th–12th Centuries," in Déroche and Spieser, *Recherches* (as above, note 1), 109–18. For shipwrecks containing amphoras, see van Doorninck, "Byzantine Shipwrecks," *passim*.

³⁹ See, however, N. Günsenin's works (cf. "Récentes découvertes," and "Ganos: Résultats des campagnes de 1992 et 1993," *Anatolia Antiqua* 3 [1994]: 165–78). See also Waksman and Spieser, "Byzantine Ceramics," on the problems involved in determining the production center for this type of pottery found at Pergamon.

⁴⁰ Vogt in Durand, *Byzance* (as above, note 10), 388–91, nos. 296–97.

⁴¹ E. Ettinghausen, "Byzantine Tiles from the Basilica in the Topkapu Sarayı and Saint John of Studios," *CahArch* 7 (1954): 79ff. See also, for this kind of pottery in general, V. N. Zalesskaya, "Nouvelles découvertes de céramique peinte byzantine du Xe siècle," *CahArch* 32 (1984): 49–62; Vogt and Bouquillon, "Technologie."

⁴² Cf. E. C. Schwartz, "Medieval Ceramics in Bulgaria," *BSI* 43 (1982): 45–50. For Patleina, see I. Akrabova-Jandova, "Vovo v Patleina sred Jordan Gospodinov," *Preslav* 1 (1968): 78; for Tuzlalak, see T. Totev, "Icones de céramique peinte et en relief nouvellement découvertes à Preslav," in *Actes du XIVe Congrès international des études byzantines. Bucarest, 6–12 septembre 1971* (Bucharest, 1976), 465–68; idem, "Le monastère de Tuzlalak: Un centre de céramique peinte à Preslav aux IXe–Xe siècles" (in Bulgarian), *Archeologia* 18 (1976): 8–15.

hinterland.⁴³ Finally, although its interpretation is not yet definitive, there is the allusion to some *tanstria* of Nikomedeia in a *praktikon* of 1202.⁴⁴ To sum up, this was a very special line of production in the Byzantine world, and, from our vantage point, one that has yet to be understood satisfactorily with regard to its centers of production and diffusion.

Apart from these wares, which were exceptional on account of their decorative qualities, there are a few other facts that prevent us from adhering to the hypothesis outlined above. There is some very secure evidence that points to an important trade in certain categories of ceramics. Shipwrecks have been found containing cargoes of tableware, and some productions have now been identified sufficiently to permit a few details about their diffusion to be gleaned. In the twelfth century, Fine Sgraffito ware was found across the whole territory of the Byzantine Empire as well as in Italy (in Venice and along the Tyrrhenian coastline, always in small quantities) and the Middle East.⁴⁵ Corinth is the only production center for which we have secure evidence (Figs. 3, 4). Measles Ware,⁴⁶ for its part, is dated to the first half of the twelfth century and appears, paradoxically, to have been diffused in Italy, solely along the Adriatic coastline and in Padua, to a greater extent than Fine Sgraffito ware, although of the two, it was poorer in quality.

At the end of the twelfth and the beginning of the thirteenth century, two other Byzantine productions took over. Zeuxippos ware is the Byzantine pottery most frequently found in Italy, but only in the north (Venice, the Tyrrhenian coastline, Parma, Padua, Ferrara, and Bologna). It was also imported into the Crusader states and is represented in Alexandria. It is well identified and technically superior to the average Byzantine production. The decoration and clay are very characteristic, and it is generally concluded that all the vases and sherds that can be placed in this category were the work of a single, as yet unknown, production center (Fig. 5).⁴⁷ However, some aspects of the distribution of these wares present problems, and this hypothesis may well have to be revised. Around the same time as Zeuxippos ware, the production and diffusion of what A. Megaw called Aegean ware was developing (Fig. 6). In spite of its original decorative style, this pottery is technically inferior to Zeuxippos ware.⁴⁸ It was

⁴³ A. H. S. Megaw and R. E. Jones, "Byzantine and Allied Pottery: A Contribution by Chemical Analyses to Problems of Origin and Distribution," *BSA* 78 (1983): 235–65.

⁴⁴ Cf. Zaleskaya, "Nouvelles découvertes"; Spieser, "Céramique byzantine médiévale," 255. See also Mason, "Tiles of Nicomedia," 313–32.

⁴⁵ For Corinth, see Sanders, "Corinth," *EHB*. On the circulation of Byzantine pottery, especially in Italy and the Middle East, see V. François, "Sur la circulation des céramiques byzantines en Méditerranée orientale et occidentale," *La céramique médiévale en Méditerranée* (Aix-en-Provence, 1997), 231–36.

⁴⁶ Pottery with sgraffito decoration enhanced with bright red or brownish red marks: Morgan, *Byzantine Pottery*, 90–95.

⁴⁷ A. H. S. Megaw, "Zeuxippos Ware," *BSA* 63 (1968): 67–68; idem, "Zeuxippos Ware Again," in Déroche and Spieser, *Recherches* (as above, note 1), 259–66. See also, for pottery similar to Zeuxippos ware, Spieser, *Die byzantinische Keramik*, chap. 7.8, pl. 51.

⁴⁸ A. H. S. Megaw, "An Early Thirteenth-Century Aegean Glazed Ware," in *Studies in Memory of David Talbot Rice* (Edinburgh, 1975), 35–45.

originally identified only in Saranda Kolones on Cyprus, though it is now found on many sites in Greece and Asia Minor; in Italy the available information suggests that its diffusion was limited to Venice and the Campagna (Ravello). In the Middle East the distribution of finds is almost the same as that of Zeuxippos ware.

It is still not clear how these types of pottery were diffused; generally speaking, maritime trade played an essential role, as demonstrated by the distribution of sites where they appear. However, on each site, they are found in small quantities alongside local productions or other imports. At Pergamon, for instance, Zeuxippos ware represents scarcely 1% of all the glazed pottery. It does appear to be present in greater quantities in Constantinople and along the shores of the Black Sea, where most of the loveliest finds in this category come from (Fig. 5).

Given our present state of knowledge, shipwrecks and their cargoes still provide the most secure evidence for the volume of commercialization, at least in the case of two of the wares considered above. The wreck found close to the island of Pelagonissos in the northern Sporades is that of a ship containing 1,500 pieces, both entire and fragmentary, of Fine Sgraffito ware, dated to the mid-twelfth century and closely related to Corinthian products.⁴⁹ There is equally good evidence for the commercialization of Corinthian products, which are found widely distributed throughout the empire and even beyond.⁵⁰ As for the commercialization of Aegean ware, the evidence comes from the Castellorizo wreck, which went down off the Lycian coast, on the merchant sea route that linked Cyprus and Rhodes with the Aegean.⁵¹

Though these wares are particularly well identified, and their diffusion relatively well observed, they are not the only ones. Among the others is a very fine ceramic, with practically no visible temper and covered with a very characteristic green glaze with purple marks (analysis has confirmed that manganese was used).⁵² It is known through finds at Sardis and Pergamon, although its production cannot be attributed to either center.⁵³ On the other hand, a production very characteristic of Sgraffito ware, covered with bottle-green marks and dribbles, was put out at Lemnos in the

⁴⁹ C. Kritzas, "Byzantine Wreck at Pelagos' Island," *Ἀρχαιολογικὰ Ἀνάλεκτα ἐξ Ἀθηνῶν* 4.2 (1971): 176–85; E. Ionnidaki-Dostoglou, "Les vases de l'épave byzantine de Pélagonnèse-Halonnèse," in Déroche and Spieser, *Recherches* (as above, note 1), 157–71. Cf. van Doorninck, Jr., "Byzantine Shipwrecks," *EHB*.

⁵⁰ François, "Sur la circulation."

⁵¹ M. Michailidou and G. Philotheou, "Plats byzantins provenant d'une épave près de Castellorizo," in Déroche and Spieser, *Recherches* (as above, note 1), 173–76; I. Loucas, "Les plats à glaçure inédits d'une collection privée de Bruxelles," in *ibid.*, 177–83.

⁵² S. Y. Waksman, "Les céramiques byzantines des fouilles de Pergame: Caractérisation des productions locales et importées par l'analyse élémentaire (PIXE et INAA)" (thèse, Université Louis-Pasteur, Strasbourg, 1995); Spieser, *Die byzantinische Keramik*, chap. 7.9 and cat. no. 352, pp. 552–55; Waksman and Spieser, "Byzantine Ceramics." For Pergamon, cf. K. Rheidt, "The Urban Economy of Pergamon," *EHB* 627–28.

⁵³ J. A. Scott and D. Kamilli, "Late Byzantine Glazed Pottery from Sardis," in *Actes du XV^e Congrès international des études byzantines, Athènes, 1976* (Athens, 1981), 2:679–96.

fifteenth century. It was diffused solely in the territories under the rule of the lords of the producer island: Thasos, Samothrace, and Ainos.⁵⁴

The production of two other centers has been identified; distribution was primarily and probably solely regional, even local. At Pergamon, local pottery production has been detected, thanks to wasters and other evidence of manufacture (the presence of stilt). Analysis has confirmed the unity of this ware.⁵⁵ Going by the external appearance of the sherds (they have not been analyzed), Pergamon ware could have been used on the Gülpınar site, about 200 km further north.⁵⁶ The production identified at Serres was undoubtedly comparable, in terms of distribution and influence, to that of Pergamon.⁵⁷

These situations were further complicated by the problem of imitations. At Pergamon, some sherds are glazed in a manner similar to that described above, with a decoration of purple marks, though they belong to locally made vases, as demonstrated by analysis of their constituent clay.⁵⁸ There is evidence that some workshops were not limited to one type of production: at Pergamon again, sherds have been found that were made (though not there) of homogeneous clay, some decorated with fine sgraffito and others with slip.⁵⁹

Other clues about production centers are obviously provided by the workshops that are distributed over the territories of the empire or under former Byzantine rule, and can be detected by the remains of kilns or of dumps connected to kilns. Among these are the following, grouped by regions.

Italy: at Classe near Ravenna, one kiln active between the fifth and eighth centuries; coarse and glazed wares have been found nearby.⁶⁰

Former Yugoslavia: wasters have been discovered at Skopje for the eleventh and twelfth centuries⁶¹ and at Novo Brdo for the fourteenth and first half of the fifteenth centuries.⁶²

Greece: at Kounoupi (Argolis), two kilns used for firing coarse ware and amphoras, dated to the end of the sixth and the beginning of the seventh century;⁶³ on

⁵⁴ François, *Thasos*, 144–45.

⁵⁵ Spieser, *Die byzantinische Keramik*, chap. 2; Waksman and Spieser, "Byzantine Ceramics."

⁵⁶ Spieser, "Céramique byzantine médiévale," 258–59, F. Yenişehirlioğlu, "La céramique glaçurée de Gülpınar," in Déroche and Spieser, *Recherches* (as above, note 1), 303–15.

⁵⁷ D. Papanikola-Bakirtzi et al., *Ceramic Art from Byzantine Serres* (Urbana, Ill., 1992).

⁵⁸ Spieser, *Die byzantinische Keramik*, chap. 7.9, and cat. nos. 559–61 and 578.

⁵⁹ *Ibid.*, chap. 7.10, and cat. nos. 571–73.

⁶⁰ M. G. Maioli, "Produzione di ceramiche tardoantiche e bizantine: Una fornace recentemente scoperta a Classe (Ravenna)," *Faenza* 66 (1980): 217–27.

⁶¹ B. Babić, "Trouvaille scellée de poterie de table byzantine à Skopsko Kale," *ArchJug* 12 (1971): 45–53.

⁶² M. Corović-Ljubinković, "La céramique serbe émaillée du Moyen-Age: La céramique de Novo Brdo," *Travaux du Musée National* 3 (1962): 182–86.

⁶³ W. Rudolf, "Excavations at Porto Cheli and Vicinity: The Early Byzantine Remains," *Hesperia* 48 (1979): 295–311.

the ancient Roman agora at Corinth, four kilns dating from the eleventh to the twelfth century;⁶⁴ on Euboea, at Oreoi, a kiln dated to the eleventh and twelfth centuries;⁶⁵ in the Nemea valley, traces of a kiln and kiln tools (ox-yokes) from the mid-Byzantine period;⁶⁶ at Trikala (Thessaly), a kiln containing some vases awaiting their second firing, thirteenth century.⁶⁷ Elsewhere, other centers of production of varying importance have been identified by means of dumps and stilts: Valtesi in Phokis,⁶⁸ Serres in the second half of the thirteenth century; Thessalonike in the fourteenth⁶⁹ and Lemnos in the fifteenth century.⁷⁰

Cyprus: Dhiorios' kiln was active in the seventh to eighth centuries and used for common ware; at Lemba (Paphos district), wasters are evidence of production at the beginning of the thirteenth to mid-fourteenth centuries, similarly at Enkomi (Famagusta district), for the thirteenth or fourteenth century;⁷¹ at Paphos, a workshop was established in the ruins of the castle of Saranda Kolones during the thirteenth century and continued to operate until the fourteenth century;⁷² at Lapithos (Kyrenia district), part of a kiln has been found, containing vases arranged for firing separated by stilts (15th–16th centuries) (Fig. 7).⁷³

Rumania: many kilns have been discovered, including in the Ploiesti region, close to the village of Bucov, kilns from the eighth to tenth centuries in which earthenware and glazed ware were fired;⁷⁴ at Pacuiul-lui-Soare, a kiln from the mid-eleventh century⁷⁵ and production in the thirteenth and early fourteenth centuries evidenced by wasters;⁷⁶ at Suceava, Curtea de Arges, and Facai Craiova, a few kilns dated to the fourteenth and fifteenth centuries⁷⁷ and two undated kilns at Capidava and Dinogetia.⁷⁸

⁶⁴ Morgan, *Byzantine Pottery*, 7–21.

⁶⁵ A. Sampson, "Ορειοί (Εύβοια)," *ΑΔ* 29.2 (1973–74): 487.

⁶⁶ F. Sutton, "Appendix: Ceramics of the Historic Period," in J. C. Wright et al., "The Nemea Valley Archaeological Project: A Preliminary Report," *Hesperia* 59 (1990): 655.

⁶⁷ D. Theocharès, "Ασκληπιεῖον Τρίκης (Τρίκαλα)," *ΑΔ* 20.2 (1965): 1: 313–16.

⁶⁸ A. Armstrong, "Some Byzantine and Later Settlements in Eastern Phokis," *BSA* 84 (1989): 47.

⁶⁹ D. Papanikola-Bakirtzi, "Εργαστήριο ἐφυσλωμένης κεραμεικῆς στή Θεσσαλονίκη: Πρώτες παρατηρήσεις," in 'Αφιέρωμα στη μνήμη Στυλιανού Πελεκανίδη (Thessalonike, 1983), 377–88. A. Vavylou-lou-Charitonidou, "Céramiques d'offrande trouvées dans des tombes byzantines tardives de l'hippodrome de Thessalonique," in Déroche and Spieser, *Recherches* (as above, note 1), 209–25.

⁷⁰ François, *Thasos*, 86.

⁷¹ D. Papanikola-Bakirtzi, "Cypriot Medieval Glazed Pottery: Answers and Questions," in *The Sweet Land of Cyprus*, ed. A. A. M. Bryer and G. S. Georghallides (Nicosia, 1993), 116–19 and 120–21.

⁷² A. H. S. Megaw, in *RDAC* (1976): 117–46.

⁷³ Papanikola-Bakirtzi, "Cypriot Glazed Pottery," 119–20.

⁷⁴ M. Comsa, "La céramique de type byzantin de Bucov-Ploiesti," in *Actes du XIV^e Congrès international des études byzantines*, Bucarest (as above, note 42), 295–98.

⁷⁵ S. Baraschi, "Un cuptor de ars oale de Pacuiul-lui-Soare (secocul al XI lea)," *Studi si cercetari istorie veche* 25.3 (1974): 461–72.

⁷⁶ S. Baraschi, "Ceramica din asezarea medievala (secole XIII–XIV)," *Pacuiul-lui-Soare* 2 (1977): 67–115.

⁷⁷ S. Baraschi, "Sur la production céramique de tradition byzantine au Bas-Danube," *Etudes byzantines et post-byzantines* 1 (1979): 29–39.

⁷⁸ Baraschi, "Un cuptor," 461–72.

Bulgaria: two kilns and traces of workshop sites have been found in Patleina. Architectural ceramics and dishes were being produced there in the ninth to tenth centuries; more recent excavations have exposed nine shops and as many kilns;⁷⁹ at Preslav, a large manufacturing center was set up near the monastery and operated during the ninth and tenth centuries; pots, architectural ceramics, and terra-cotta icons were manufactured there. At least ten kilns have been spotted on the banks of two rivers, Tica and Vinica; the large kilns were used to fire vases and the little ones bricks and tiles, in the ninth and tenth centuries.⁸⁰ Kilns, wasters, and tools point to pottery work in the great urban center of Tsarevets in the thirteenth and fourteenth centuries;⁸¹ finally, Varna also emerges as a center of production.⁸²

Turkey: in the imperial agora at Iasos, two kilns have been discovered, dated to the ninth and tenth centuries;⁸³ stilts and misshapen vases are evidence of production at Eski Anamur (the Anemourion of antiquity) in the eleventh to thirteenth centuries;⁸⁴ at Pergamon in the thirteenth century; at Iznik (Nicaea) in the tenth to the beginning of the fourteenth century.⁸⁵

A significant number of shops were set up close to rivers or the coast, reflecting the potters' need for water as well as confirming the importance, not only of sea transport, as mentioned above, but also of river transport. Together, the finds seem to indicate that the number of workshops increased in the thirteenth century, and production may well have gone up too. That it became more widespread is confirmed by the few Byzantine texts that mention potters and allude to a rural craft performed by both specialized potters and potter-farmers—small family businesses that supplied the village community. This, at least, is the information gleaned from documents relating to eastern Macedonia, which mention several potteries operating in the same village.⁸⁶

⁷⁹ Akrabova-Jandova, "Vovo v Patleina," 69–79.

⁸⁰ T. Totev, "L'atelier de céramique peinte au monastère royal de Preslav," *CahArch* 35 (1987): 65–80; idem, "Fours à céramique dans le lac de retenue des eaux du barrage Vinica près de Preslav," *Arheologija Bulgarska* 15.4 (1973): 58–68. For other examples of brick and tile production linked to monasteries, this time in Serbia, see S. Popović, *Krst u krugu: Arhitektura manastira u srednjovekovnoj Srbiji* (Belgrade, 1994), 325–37 (and 287–88 for pottery production in Serbian monasteries); see also M. Ristić, S. Ćircović, and V. Korać, *Opeke srpskih srednjovekovnih manastira* (Belgrade, 1989). We thank S. Popović for these references.

⁸¹ M. Dolmova, "Kam vaprosa za proizvodstvo na sgrafito keramika v Tarnovgrad," *Arheologija* 27.2 (1985): 10–20. On 13th- and 14th-century workshops in general, see K. Kuleff et al. in *International Symposium on Archaeometry*, ed. Y. Maniatis (Amsterdam, 1989), 533–42.

⁸² D. Dimitrov, "Rabotilnitsa za trapezna keramika vŭv Varna," *Izvestiia na varnenskoto arheologichesko druzhestvo* 11 (1960): 111–17.

⁸³ C. Laviosa, "Iasos 1972," *AnatSt* 23 (1973): 41–43.

⁸⁴ T. Tömöry, "Medieval Sgraffitto Ware from Anemorium in Cilicia," *Bulleten* 41 (1977): 30–40.

⁸⁵ V. François, "Les ateliers de céramique byzantine de Nicée/Iznik et leur production (Xe–début XVe siècle)," *BCH* 121 (1997): 411–42.

⁸⁶ J. Lefort, "Anthroponymie et société villageoise (Xe–XIVe siècle)," in *Hommes et richesses dans l'Empire byzantin* (as above, note 1), 2:236–37 (especially the reference in 1316 to seven potters at Radolibos). Cf. J. Lefort, "The Rural Economy, Seventh–Twelfth Centuries," *EHB* 308–9.

The information also corresponds to the greater quantity of later sherds found in excavations, particularly in western Asia Minor.

That this increase cannot simply be ascribed to the greater quantity of archaeological finds is demonstrated by the contemporaneous increased usage of stilts, which first appeared in Byzantine pottery at the end of the twelfth century. These are little tripods with sharp points that were shaped by hand in coarse clay or molded. Stilts were set between vases, with the flat part against the unglazed base of one piece and the three points touching the inner glaze-covered sides of the next one, which explains the marks left by these three points of contact at the bottom of vases. Vases have been discovered in this position in the Lapithos kiln (Cyprus) (Fig. 7).⁸⁷ The technique did not originate in Byzantium: evidence for its use is found much further back in the Far East, since Chinese products already bore these marks at the dawn of the Christian era. Subsequently, the tripod was introduced to the Near East by Muslim merchants; ninth-century Persian and Egyptian pots show traces of its use. When Byzantine potters adopted this tool, it enabled them to fill up their kilns and made the vases easier to unload, but it did not change the volume of production. This sort of tool is particularly precious because it helps to date the pottery and its presence alone is evidence for the existence of a workshop, even when nothing else remains.

Three trends that emerged during the twelfth century to develop fully around 1200 may thus be linked: the well-known increase in the circulation of people between the western and eastern basins of the Mediterranean; a general increase in production observable over the whole of the Mediterranean world, not only within the Byzantine Empire; and an overall increase in the commercialization and distribution of a proportion of these productions. One consequence is the existence in Italy and the Middle East of composite sets consisting of Byzantine wares, other “Christian” products, and Islamic pottery from both east and west. But these composite sets do not appear on Byzantine territory: Byzantium does not appear to have imported any pottery. Thus, as well as indicating a possible change in customary eating practices (such as a greater use of pottery vessels instead of wooden ones) and a very probable demographic surge within the Byzantine Empire, the evolution of the production and commercialization of pottery also serves to pinpoint Byzantium’s links with the rest of the Mediterranean world, which were closer than in previous centuries.

Thus we know about some workshops and are able to identify Byzantine wares, and sometimes also note their distribution. However, we still know nothing about the people involved in this process. When relatively important shops were involved, what was the potter’s role in the trade? Did he sell his products himself, or did he entrust them to merchants, who undertook to sell them in possibly distant markets and, if so, under what conditions? Were these merchants Byzantines or, as in more recent periods, Latins? There are as yet no answers to any of these questions. Several solutions may nevertheless be suggested by studying practices in neighboring lands.

⁸⁷ Papanikola-Bakirtzi, “Cypriot Glazed Pottery,” pl. 3, a.

For instance, the documentation for the sale of pottery made in Valencia (Spain) and its hinterland in the fourteenth and fifteenth centuries is exceptionally rich. Contracts drawn up before a notary tell us about the professional merchants who bought part or all of a potter's production and ensured its distribution by selling it in markets, which could sometimes be far from the production center, as in the case of Narbonne or Majorca. These merchants would also preempt vases that had yet to be made—and a client might even supply some of the primary materials (lead and tin) that were required to complete his order, as stipulated in a document dated 26 March 1325⁸⁸—or he might pay the potter a deposit. The client could also be a company of merchants and bankers.⁸⁹ Buyers frequently appear in connection with the textile industry—in the West at any rate. Cloth merchants and tailors made contracts with potters; for instance, the merchants of Narbonne who traveled to Valencia to sell their textiles went home, once their business was concluded, loaded with consignments of Manises dishes. A note of purchase by a tailor of a potter's entire production for a year shows that this man was engaged in two lines of trade: tailoring and selling pottery. This entry is evidence of the way trade routes in the textile industry were used to sell the pottery products of the region, rather than simply showing that the traders were keen to avoid returning home with empty holds.⁹⁰

In the case of Byzantium, little is known about the traffic in pottery products, and the details of this trade remain obscure. Very few, if indeed any, written documents appear to have survived from any period. Among all the corporations listed in the *Book of the Eparch*, there is nothing about potters; details about the way markets were organized and artisans installed contain no reference to traders in pottery. This silence extends to the documents relating to commercial transactions, notarial acts, and household inventories, although we know that such documents exist in the case of pottery production in neighboring lands, which could sometimes be very close to the Byzantine world in terms of either geography or quality and appearance. For instance, in the thirteenth century, the *droitures* of the Acre Fonde include pottery among the list of products traded locally: it was subject to taxation, more heavily in the case of exports (25% of the value) and less so for imports (8.3%). In Beirut, on the other hand, the privileges granted to the Genoese in 1223 included an exemption from commercial franchise for the *labours de poterie*.⁹¹ Al-Makhzumi's *Minhadj*, a fiscal treatise from the

⁸⁸ P. Lopez Elum, "Origen y evolucion de dos grandes centros ceramicos: Manises y Paterna," in *La ceramica medievale nel Mediterraneo occidentale, Siena 8–12 ottobre 1984, Faenza 13 ottobre 1984* (Florence, 1986), 167.

⁸⁹ See the order for 256 vases, placed with the potter Asmet Zuleima of Manises in December 1401, by the Datini merchant company, which was active in Valencia from the end of the 14th century, on behalf of another large Italian commercial company, the Florentine company of Zanobi Gaddi and Antonio di ser Bartolomeo: M. Spallanzani, "Un invio di Maioliche ispano-moresche a Venezia negli anni 1401–1402," *Archeologia medievale* 5 (1978): 529–41.

⁹⁰ Lopez Elum, "Origen," 167.

⁹¹ J. Richard, "Colonies marchandes privilégiées et marché seigneurial: La fonde d'Acre et ses *droitures*," *Le Moyen Age* 60 (1953): 330–31.

Fatimid-Ayyubid period, mentions imports of pottery to Tinnis.⁹² The Cairo *Geniza* documents are full of information about prices. Humble marriage contracts in particular stipulate the prices of certain household items, including pottery—vases, jars, plates, large bowls—which formed part of the dowry.⁹³ The *Geniza* documents also provide valuable information about different kinds of potters and their different methods, which are evidence of specialized production.⁹⁴ Finally, a charter drawn up in March 1168 between William II, king of Sicily, and a Benedictine abbey lists the items sent from Messina to a monastery in Jerusalem and mentions fifty *scutellas* that were exempt from taxation.⁹⁵

Despite these lacunae in Byzantine documents, archaeological discoveries have shown that the exchange and circulation of pottery products was in fact very complex. Three levels can be distinguished with certainty. First, there were regular and quantitatively important exchanges that constituted a real market and probably followed trade routes used by other sorts of merchandise. The evidence for this is found in shipwrecks. This level involves only quality pottery that was to some extent standardized. Second, there were regular exchanges on a regional scale, with one center supplying a region's pottery requirements (though it is still not possible to give a precise definition of "region"). Finally, there was a medley of intermediary, secondary, marginal, and intermittent currents that ensured the circulation of medium or small quantities of vases. It is in this context that the presence of small numbers of vases far from their centers of production may be explained by looking at customs on board ship. For instance, in the Mediterranean, unless the captain had contracted to feed his passengers, they, whether pilgrim, merchant, or Crusader, would each have to buy all sorts of supplies and comforts prior to embarkation. These objects then belonged to the passenger in question, who would renew his supplies at every port of call. Accounts of such journeys provide valuable information about these purchases; Brother Niccolo da Poggibonsi, who traveled from Venice to the Holy Land in 1346, wrote that "tutti gli storigli si rompano" during a storm, which implies that all his containers were indeed made of clay;⁹⁶ two other Italians en route to the Holy Land wrote in their account of their travels that, prior to embarking at Venice on 4 September 1384, they bought a mattress, a good bottle of malmsey, a little chest in which to store the Bible and Gospels, some silver cups, and some plates;⁹⁷ and Giovanni Livi, in his book *Dall'archivio di*

⁹² C. Cahen, "Douanes et commerce dans les ports méditerranéens de l'Égypte médiévale d'après le *Minhadj* d'Al-Makhzumi," *Journal of the Economic and Social History of the Orient* 7 (1964): 227.

⁹³ E. Ashtor, "Matériaux pour l'histoire des prix dans l'Égypte médiévale," *Journal of the Economic and Social History of the Orient* 6 (1963): 177–79.

⁹⁴ S. D. Goitein, "The Main Industries of the Mediterranean Area as Reflected in the Records of the Cairo *Geniza*," *Journal of the Economic and Social History of the Orient* 4 (1961): 188–89.

⁹⁵ D. Pringle, "Pottery as Evidence for Trade in the Crusader States," in *I comuni italiani nel regno crociato di Gerusalemme*, ed. G. Airaldi and B. Z. Kedar (Genoa, 1986), 470.

⁹⁶ *Viaggio da Venezia a Gerusalemme di Fr. Niccolo da Poggibonsi*, ed. F. Zambrini (Bologna, 1872).

⁹⁷ *Viaggio in Terra Santa, da Frescobaldi Lionello, 1384–1405*, ed. C. Angelini (Florence, 1944).

Francesco Datini mercante pratese (1335–1410), lists “richardo di tutte quelle chose che si fanno bisogno per il mare: una cassa mezzana di legno, tre orciuoli grandi, sei scodelle, due catinelle, due pentole invetriate, due tazze di stagno, dodici bicchieri di vestro, sei taglieri.” Thus the purchase of pottery vessels in the port of departure may well have contributed to the circulation of pottery products without involving any maritime trade as such.