

# THE NORTHERN BLACK SEA IN ANTIQUITY

NETWORKS, CONNECTIVITY,  
AND CULTURAL INTERACTIONS

EDITED BY VALERIYA KOZLOVSKAYA



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CULTURAL INTERACTIONS**

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## OVERSEAS TRADE IN THE BLACK SEA REGION FROM THE ARCHAIC TO THE HELLENISTIC PERIOD

Sergey Iu. Monakhov and Elena V. Kuznetsova

### THE ROLE OF AMPHORAE IN THE STUDY OF ANCIENT TRADE

It is well known that of all categories of archaeological material, amphorae are the most representative finds in terms of the developments that took place in ancient trade. Pointed amphorae, in particular, were the main type of containers used for the overseas transportation of the most important products – first of all, wine and olive oil.<sup>1</sup> This probably also explains the fact that amphorae comprise 45 to 90 percent of all finds in the cultural layers of ancient settlements.<sup>2</sup> In other words, amphorae (and, most of all, amphora fragments) directly reflect the situation in trade in various products, such as wine, olive oil, pickled fish and *garum*, pickled meat, marinated olives, honey, figs, pomegranates, nuts, tar, oil, and others.<sup>3</sup>

Another important factor is that until the Roman period almost every large center exporting these products manufactured its own amphorae, whose shape differed from the shape of the containers produced in other *poleis*.<sup>4</sup> It is possible that an average buyer or consumer was able to recognize amphorae that contained “Chian,” “Thasian,” or “Lesbian” wine just by looking at them.<sup>5</sup>

### CLASSIFICATIONS OF CERAMIC CONTAINERS FROM THE ARCHAIC TO THE HELLENISTIC PERIOD

The specifics of amphora production in the Greek world made it necessary to develop detailed typological and chronological classifications of amphorae

from various centers very early in the process of their study. In the 1930s, Virginia Grace and Boris Grakov laid the foundations for amphora studies as a discipline by presenting a typology of amphorae from Thasos, Rhodes, Chios, and some other centers and proposing a general chronology for them.<sup>6</sup> Later, their conclusions were modified and extended. Thus, the work of Iraida Zeest was a real breakthrough in amphora studies – in particular her last book, which for the first time presented an overview of amphora production in many centers of the Eastern Mediterranean and the Black Sea region.<sup>7</sup> This scholar studied an enormous amount of ceramic material from the North Pontic region, which made her publication the first of its kind in this field.

Work in this direction was continued by Iosif Brashinskiĭ, who in his last book focused on solving some important methodological problems.<sup>8</sup> His research did not necessarily aim at improving the existing classifications of ceramic material, but rather at answering questions of a paleoeconomic character, which was a great achievement in itself. From the 1980s onwards, several other scholars worked on creating typological and chronological classifications of amphorae from various centers. Such projects are usually very laborious and take many years to complete, and this is why the resulting publications do not appear frequently, in contrast to standard publications of excavated material.<sup>9</sup>

Later, a number of publications highlighted the main trends in the development of amphora shapes of some specific centers. Jean-Yves Empereur and Antoinette Hesnard published a retrospective overview of ceramic containers from a number of Hellenistic centers,<sup>10</sup> while a similar catalogue of amphorae from Western Mediterranean centers came out at about the same time.<sup>11</sup> In the 1990s and 2000s, attempts were also made to localize the amphorae from the so-called unidentified production centers, such as Kolophon, Peparethos, Mende, Kos, Erythrai, Akanthos, Ouranopolis, and the South Pontic centers.<sup>12</sup> Containers from the Black Sea centers of the Roman period were also studied.<sup>13</sup>

For a long time, the main method used to determine chronological sequences in amphora classifications was the method of stratigraphic observation. However, it soon became clear that in order for the classifications to be reliable and complete, they had to be based on a comprehensive analysis of a large number of ceramic complexes. Such an analysis would provide a basis for more complex typological classifications and make it possible to establish a detailed chronology for each amphora type and variant. Zeest used eight such complexes, all coming from settlements.<sup>14</sup> Brashinskiĭ analyzed forty-six complexes, most of them associated with burials, which are particularly important for establishing a chronology.<sup>15</sup> In 1999, one of the authors of the present chapter published a book featuring the data from 200 ceramic assemblages, dating from the seventh to the end of the second centuries BCE.<sup>16</sup> A considerable part of these complexes was, once again, associated with burials, where amphorae were often deposited very soon after their production.

As a result of these studies, the most important factors that contribute to the formation of a ceramic complex were established, including the following:

- 1 Most often, assemblages consist, to a great extent, of amphorae from the largest production centers, representing only a small part of multiple and diverse trade connections. Some trade partners – especially those that participated in trade only for a short period – are not represented at all in the materials of ceramic complexes.<sup>17</sup>
- 2 Ceramic complexes were formed as a result of an uneven trade flow, when products from a particular center arrived at the market in bulk and at certain intervals.
- 3 Ceramic complexes do not allow one to trace the continuous evolution of amphorae coming from various centers, since not all periods are represented equally well. Moreover, several types of standard containers usually coexisted in most of the large production centers.<sup>18</sup>
- 4 The formation of a ceramic complex depended on specific conditions, which cannot always be determined. The deposition of a complex into a cultural layer of a settlement may have been the result of the destruction or the reconstruction of the latter, as well as of other developments. Thus, in the case of the Elizavetovskoe settlement, the range of the represented ceramic containers is very broad because the settlement not only consumed imported wares, but also was an intermediary in the trade with the steppe population.<sup>19</sup> Exports of commodities in amphorae to an average rural settlement were irregular; in addition, they were always of the cheapest kind. Thus, for example, at the settlement of Panskoe I in the *chora* of Chersonesos amphorae from Chersonesos were by far the most prevalent, while those from Thasos, Chios, and Mende were quite rare.<sup>20</sup> In addition, empty containers could have been used in rural settlements in the course of many years for household needs (as, for example, at the settlement of Usad'ba Litvinenko, where a storage facility revealed thirteen amphorae from Peparethos, Chios, and Herakleia Pontike, dating from the 380s BCE to the first half of the 340s BCE).<sup>21</sup>
- 5 Ceramic assemblages from shipwrecks are more informative, since it is clear that all the amphorae on a wrecked ship had been produced around the same time, with no more than a few years in between. Such chronologically homogeneous complexes are known from the shipwrecks at Porticello,<sup>22</sup> Kyrenia on Cyprus,<sup>23</sup> Serçe Limanı,<sup>24</sup> the island of Leuke,<sup>25</sup> and certain other places,<sup>26</sup> where volumes of amphorae from undoubtedly the same ship have been found on the sea bottom.
- 6 The formation of ceramic complexes associated with burial sites was also determined by a number of factors. Thus, for example, elite Scythian kurgans of the fourth century BCE in the Northern Black Sea do not present a chronological continuum, but date mainly either to the first third or to the third quarter of the century.<sup>27</sup> And although all the amphorae must have been deposited into a

burial at the same time, it does not necessarily always mean that they were manufactured in the same year (as in the case of kurgan 26 at the burial site of the Elizavetovskoe settlement, excavated in 1911, where amphorae dating to different periods were found).<sup>28</sup>

- 7 Remains of funerary feasts always reveal a large amount of ceramic fragments, sometimes including dozens of amphorae. This type of monument is rather common and requires special attention. The standard approach to the study of remains of a funerary feast is to establish stratigraphic correlation between them and one of the burials with which they are associated (most often, the earliest one) and then to date all the material from the funerary feast to one and the same period. This often leads to erroneous conclusions. A classic example, in this respect, is the case of the Chertomlyk kurgan: the date of this monument is based on the interpretation of four amphora stamps found in the burial mound, which, cumulatively, date to the second half of the fourth century BCE.<sup>29</sup> However, only the Herakleian stamp of the magistrate Pisistrates from the mound, associated with the earliest funerary feast dating from the end of the 340s to the first half of the 330s, can be used as the chronological marker for the royal burial at Chertomlyk. The rest of the stamps must belong to other funerary feasts, especially in view of the fact that the high status of the deceased presupposed recurring funerary rituals in the course of several years.<sup>30</sup>
- 8 The above does not contradict Brashinskii's conclusion that amphorae are usually the latest category of finds in ceramic complexes. In most cases, they stayed in circulation for a relatively short period, especially in Scythian nomadic communities. But we should also keep in mind that nomads received wine in relatively large quantities, at irregular intervals, so that one delivery could have included wine and amphorae produced in different years. The difference in the time of production was probably no more than four or five years. Thus, for example, Thasian amphorae discovered in the Berdiānskii kurgan featured stamps of four different magistrates.<sup>31</sup> Wine was kept in pithoi, sometimes for many years, and mostly poured into amphorae just before being sold.<sup>32</sup> However, some expensive sorts of wine could also have been kept in amphorae for a long time,<sup>33</sup> which obviously does not facilitate our interpretations of ceramic complexes.

The last decade witnessed a growing interest in the analysis of ceramic complexes. In particular, Emilian Teleaga published a formidable monograph about Greek imports in the necropoleis of the Northwestern Black Sea region.<sup>34</sup> Sergei Polin prepared three monographs, where he analyzed about a thousand Scythian burial complexes with an abundance of Greek ceramic imports, including numerous amphorae.<sup>35</sup> Many articles can also be added to this list of recent publications.<sup>36</sup>

All this work led to several important conclusions. First of all, in many cases a reliable date has been determined both for ceramic complexes, in



general, and for amphorae in these complexes, in particular. Secondly, secure chronological markers have been established for the most numerous series of ceramic containers, while the synchronization of stamped amphorae in some complexes improved our knowledge of the chronology of amphora stamping in certain production centers in the fourth to third century BCE. Thirdly, series of amphorae from these complexes allowed scholars to trace the evolution of some groups of amphorae within a longer period. Moreover, in some cases, it was possible to attribute series of amphorae to specific production centers, previously referred to as “unidentified,” and to identify new types of standard amphorae. Finally, the ceramic complexes provided scholars with a broad selection of amphorae from various production centers that exported their wares to the Northern Black Sea region from the seventh to second century BCE. The study of this material allowed scholars to determine the main tendencies in the evolution of amphora shapes and lay foundations for the creation of detailed typological and chronological classifications of ceramic ware of many large production centers for the period in question. The results of these studies were first presented in a 2003 monograph,<sup>37</sup> which contributed to the chronological and typological classifications of amphorae from such production centers as Klazomenai, Miletos, Samos, Lesbos, Chios,<sup>38</sup> Erythrai,<sup>39</sup> Kos,<sup>40</sup> Ikos,<sup>41</sup> Akanthos,<sup>42</sup> and some others.<sup>43</sup>

The reconstruction of the dynamics of amphora production in the main centers exporting commodities in ceramic containers is still a work in progress. The main part of this work is the developing of amphora classifications. However, the classifications themselves are only an instrument that allows one to determine the main trends in the evolution of amphorae and to establish more detailed and precise chronologies. Catalogues used for the identification of whole amphorae also help create catalogues that can be used for the identification of amphora parts (such as rims and toes). And based on this data, regardless of the presence of ceramic stamps in an assemblage, one can move from a general evaluation of trade to the statistically informed analysis of trade relations on the basis of the entire assemblage of amphora fragments.<sup>44</sup> This subject will be discussed later in the present chapter.

#### THE ANALYSIS OF THE CERAMIC COMPLEXES FROM THE ARCHAIC TO THE HELLENISTIC PERIOD

The analysis of the ceramic complexes from the Archaic to the Hellenistic period led to the following conclusions about the exports of products in amphorae to the Northern Black Sea market. From the time of their foundation onwards, North Pontic Greek *apoikiai* had stable economic contacts with

the Mediterranean, receiving the products of Mediterranean workshops and food products that were not available in the colonies (especially, wine and olive oil that were so important to the Greeks) in exchange for local raw products. The volume of this trade is hard to evaluate, but it is clear, on a very general level, that already in the sixth and fifth centuries BCE it was quite significant, even in comparison to the Late Classical period. The proportion of amphorae and amphora fragments in the overall ceramic material recovered from the Greek settlements of the sixth, fifth, and fourth centuries BCE is approximately the same.

However, our knowledge about ceramic containers of the Archaic and the Early Classical periods is very incomplete, especially in comparison to the information we have for the fourth century BCE. The reason is the fact that finds of whole amphorae from those early periods are rather rare and only very few of them come from large ceramic complexes. At first glance, the low number of the sixth- and fifth-century-BCE amphorae can be explained by the supposition that the overseas trade of the Pontic centers reached a truly significant level only in the fourth century BCE and the level of exports of wine and olive oil into the Northern Black Sea region before that time was much lower. It is true that the North Pontic market had grown by the fourth century BCE through the increase of the population in the local Greek settlements and through the involvement of barbarians in trade, which is reflected by burial goods in the kurgans of the local barbarian aristocracy. This, however, does not mean that a sudden increase in the volume of trade between the North Pontic region and the Mediterranean centers took place. From the fourth century BCE onwards, the factor of inter-Pontic trade, which involved such important trade partners as Herakleia and Sinope, has to be taken into consideration. These centers were squeezing the Mediterranean exporters who had previously dominated the region out of the market. In addition, local wine production started to emerge in Chersonesos in the last third of the fourth century BCE, which took over a part of the North Pontic market. Some other Northern Black Sea centers also produced their own wine, which, however, they used for their own needs rather than for trade. The earliest containers used for wine pressing found in the Bosphorus date to the fourth century BCE. Therefore, we can conclude that in the sixth and fifth centuries BCE, when the exports to the Black Sea region came mainly from the Aegean, the volume of imported wine and olive oil was hardly any lower than during the Late Classical period, although the exact amount cannot be calculated.

The fact that the finds of intact amphorae of the Archaic and the Early Classical periods in the urban centers of the Northern Black Sea region are relatively rare can be explained by the poor state of preservation of the early cultural layers in these settlements, which, in addition, are covered by later layers of many meters, and, therefore, have been studied only fragmentarily. With

the notable exception of Berezan', Archaic layers of the North Pontic urban centers have been excavated only in small areas, with large lacunae. As a result, we have a large amount of amphora fragments of the sixth century BCE, but only a very few ceramic complexes with synchronous groups of containers.

The finds of intact amphorae of the Archaic and the Early Classical periods are much more frequent in the necropoleis of the North Pontic centers, but there are still not enough of them to form a substantial database. The reason for this, however, is not so much the bad state of preservation of Archaic burials or the infrequent finds of amphorae in them, but rather the lack of attention to this material on the part of the archaeologists who excavated these necropoleis in the first half of the twentieth century. Pointed amphorae, considered "plain material," were not catalogued or preserved, as, for example, was the case with the excavations of Olbia's necropolis, conducted by Boris Farmakovskii. The publication of excavated material from this necropolis does not feature a single description of a pointed amphora (since none are preserved in the museums), although it is clear from the text that about half of the burials contained such amphorae, and often more than one.<sup>45</sup> In contrast to black-glazed and painted ceramics, Farmakovskii did not send amphorae to the Hermitage, but left them at the site, where they later perished. The situation was similar at Berezan' and at the sites of the Bosporan cities. As a result, for the sixth century BCE we have only individual amphorae, often with no knowledge of their archaeological context, some amphorae from necropoleis, and very few ceramic complexes containing amphorae from specific production centers.

For the fifth century BCE, when all Greek *apoikiai* in the Northern Black Sea region were developing, we have a more representative selection of material. Large-scale reconstructions, building activities, and changes in the layouts of the settlements took place during that time. From that period, we have a series of large complexes, sometimes including several dozens of amphorae. In kurgan burials, material from the sixth and fifth centuries BCE is presented in similar proportions. This is associated with the fact that barbarian tribes (first of all, the Scythians) were gradually becoming involved in the with the Greeks. Therefore, while there are only very few complexes with Greek imports dating from the end of the seventh to the sixth centuries BCE, for the fifth century BCE we have dozens of them.

#### *Complexes of the End of the Seventh to the Sixth Centuries BCE*

Complexes of the end of the seventh to the sixth centuries BCE with synchronous groups of ceramic containers from various production centers are extremely rare: in the last hundred years, only about a dozen of them have been found. Their chronological distribution within the period is very uneven. For most of them, the date can be narrowed down to a quarter of a century,

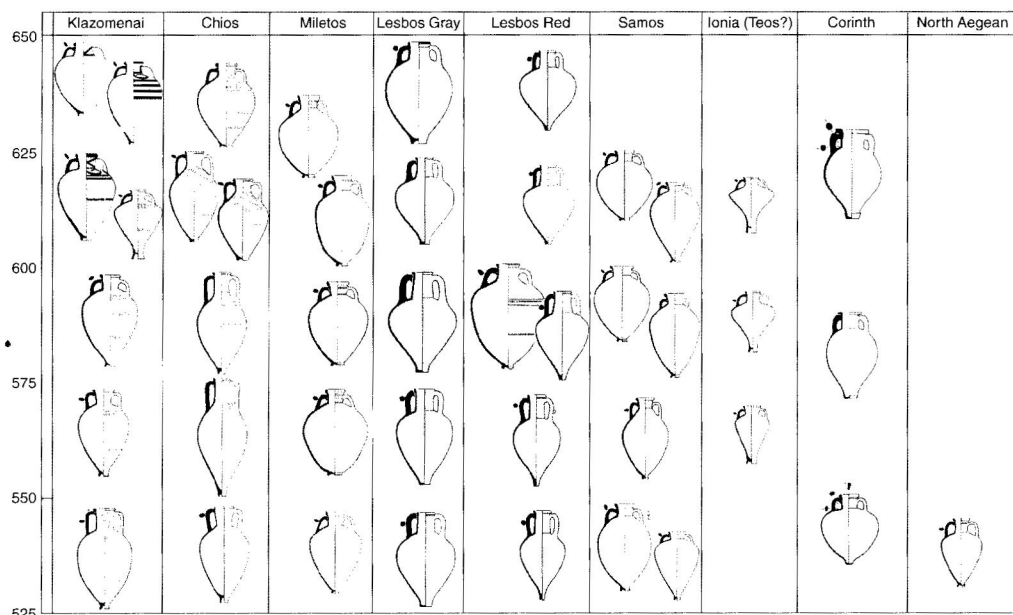


Fig. 4.1. Shapes of Greek amphorae from various centers (650–525 BCE).

but in some cases, when painted pottery is present, a more precise date can be assigned, although tentatively. In general, these complexes provide a fairly complete picture of ceramic containers from the leading exporting centers of the Archaic period: Chios, Klazomenai, Samos, Miletos, Lesbos, Corinth, Thasos, the Northern Aegean, and some others (Fig. 4.1).

Thus, although the earliest stage of the trade between Greece and the Northern Black Sea region is represented by materials from only a very small number of ceramic complexes, they include imports from all important trade centers. The emerging picture is still rather schematic and incomplete. The gaps in the typology of containers can be filled, to a certain extent, through the study and comparative analysis of amphorae found outside such complexes.

#### *Complexes of the End of the Sixth to the First Half of the Fifth Century BCE*

The most reliable chronological indicator for the complexes of the end of the sixth to the first half of the fifth centuries BCE undoubtedly are Chian amphorae. They allow us to determine, on the one hand, the complexes of the end of the sixth and the beginning of the fifth centuries BCE (the 490s and 480s), and, on the other hand, the later complexes of the 480s and 470s BCE. Starting from the second quarter of the fifth century BCE, other groups of amphorae can also be used as such indicators – first of all, those from Thasos and Mende (Figs. 4.2, 4.3). With reliable dates available for some of the ceramic complexes,

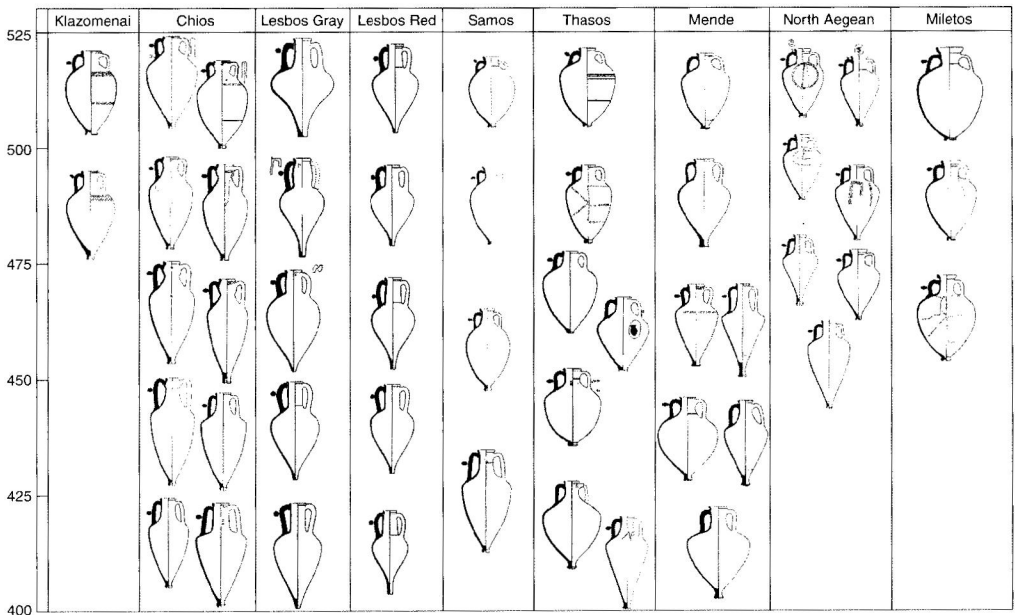


Fig. 4.2. Shapes of Greek amphorae from various centers (525–400 BCE).

the others too can be dated to narrow chronological periods, such as the 470s to 460s BCE, the 460s to 450s BCE, etc.

From the first half of the fifth century BCE we have only about two dozen complexes. However, the quality of this material and its informative value allow us to answer some questions. First of all, these complexes represent the entire variety of the Mediterranean products that were exported to the Northern Black Sea region in ceramic containers in the first half of the century. It can be securely stated that at the very beginning of the fifth century BCE the group of exporting centers known from the previous period did not change much: the influx of the products from Chios, Klazomenai, Samos, Miletos, Lesbos, Corinth, and the Northern Aegean was as intense as before (Figs. 4.2, 4.3).

Noticeable changes in the list of the main exporting centers occurred in the first quarter of the fifth century BCE. Ceramic containers from Miletos and Klazomenai have not been found in the complexes and assemblages of amphora fragments dated to the 480s BCE. Most likely, this development can be associated with the events that took place in the beginning of the fifth century BCE, when Miletos was destroyed and the economy of the largest Ionian centers in Asia Minor went through a period of decline after the Ionian Revolt had been crushed in 494 BCE. It is, however, possible that Miletos, which was rebuilt after 479 BCE and, most likely, restored its *chora* very soon after, was also able to revive its own amphora production. It is also highly possible that the so-called proto-Thasian amphorae (which have nothing to do with Thasos)

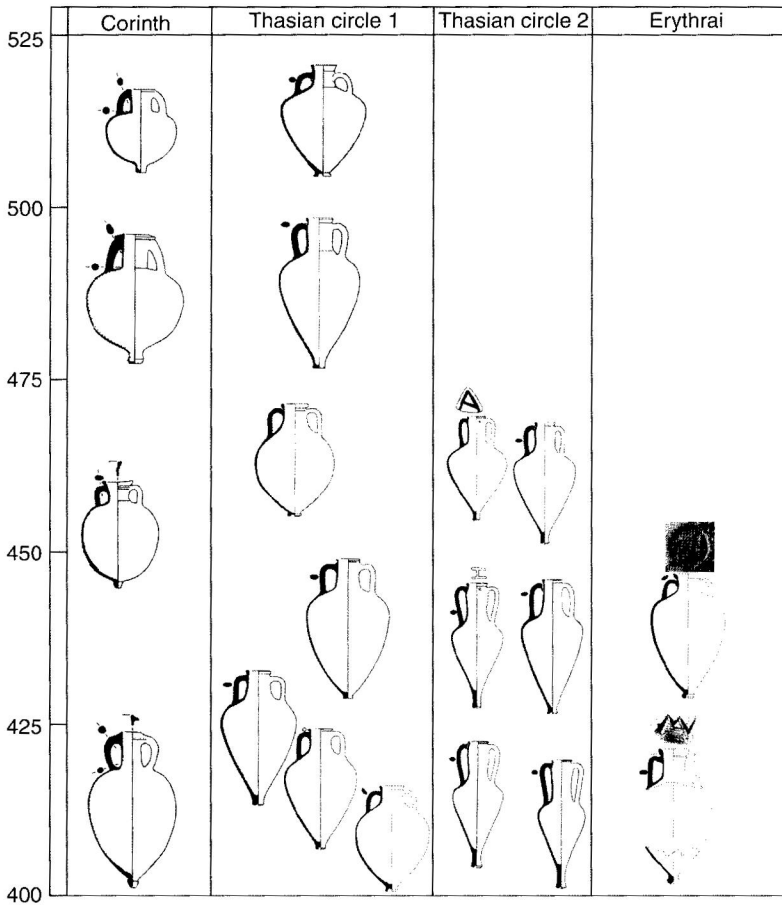


Fig. 4.3. Shapes of Greek amphorae from various centers (525–400 BCE).

of the second quarter of the fifth century BCE, with some features similar to those of the amphorae from Miletos and Samos of the end of the sixth to the beginning of the fifth centuries BCE, will turn out to be Milesian containers of the 470–460s BCE (Fig. 4.2). This is less likely for Klazomenai, since the rather characteristic clay of the Klazomenian amphorae has not been identified in the tremendously large group of amphorae and amphora fragments of the second quarter of the fifth century BCE.

The situation with Samian ceramic containers is rather different. In contrast with the Milesian and Klazomenian amphorae, Samian amphorae did not stop circulating and the import from this center remained stable and continued without any noticeable interruptions (Fig. 4.2). The Samians joined the Ionian Revolt at the beginning, but at the critical moment they abandoned their allies and secured victory for the Persians, having thus avoided their own destruction (Hdt. 6.13); this may possibly explain the fact that there were no interruptions in amphora production on Samos in the first third of the fifth century BCE.

Similarly, there seem to have been no interruptions in Chian imports (Fig. 4.2), although, unlike the Samians, the Chians took part in the Ionian Revolt until the very end and were punished by the Persians. However, after the battle at Mykale in 479 BCE, Chios freed itself from Persian domination and for a long time remained one of the most important members of the Delian League.

Aeolian imports, like Chian, remained quite stable during the entire first half of the fifth century BCE, with no noticeable interruptions. One detail is, however, conspicuous: red-clay amphorae, which are traditionally considered to be of a Lesbian origin, are almost entirely absent in the complexes of the second quarter of the fifth century BCE. Another interesting feature characterizing Aeolian wine imports is the fact that the amphorae of the so-called Nadlimanskoe type (according to the classification of Monakhov)<sup>46</sup> emerged in the first quarter of the fifth century BCE, in addition to the well-known standard red- and gray-clay Lesbian amphorae. The new type possessed some characteristics characteristic of Lesbian containers (the shape of the rim, the toe, and the handle), but had different body proportions (Fig. 4.2). This development may be explained by the existence of several rather large production centers on Lesbos, each of which could have manufactured its own specific containers with the same morphological prototype.<sup>47</sup> In this case, the temporary disappearance of red-clay amphorae (while the production of various types of gray-clay amphorae continued) could be tentatively explained by differences in the development of various Lesbian *poleis* after the Ionian Revolt.

All this information allows us to conclude that a noticeable decrease in the volume of commodities imported in amphorae from the largest Greek centers in Asia Minor, with a possible exception of Chios, took place in the 480–470s BCE. They were replaced on the Northern Black Sea market by other exporters – first of all, by the *poleis* of Northern Greece and Thrace.

It is possible that Thasos had already started to export its wine at the end of the sixth century BCE, and in the fifth century BCE the volume of Thasian imports increased considerably. The commodities were first exported in “pithoid” amphorae, but starting from the second quarter of the fifth century BCE a few new series of amphorae appeared. There is hardly any doubt that the latter were manufactured on Thasos, especially because we know that the anepigraphic stamps (Fig. 4.2), which are clearly Thasian (as convincingly argued by Yvon Garlan),<sup>48</sup> first appeared on the amphorae in question.

Mende (or another center that was close to this *polis*) also belonged to this circle of new exporters – intensive export of wine in amphorae started there at the end of the first to the beginning of the second quarter of the fifth century BCE (Fig. 4.2). “Swollen-neck” amphorae, whose shape in some details resembled that of the amphorae from Thasos and Mende dating to the second quarter of the fifth century BCE, were probably produced in one of the

*poleis* in Thrace or Chalkidiki. In other words, the events of the first third of the fifth century BCE prompted some serious changes not only in the political, but also in the economic situation in the Aegean. The weakening of the positions of some large Ionian centers in Asia Minor allowed new centers of wine production in Thrace and Chalkidiki to enter the international market (Fig. 4.3).

#### *Complexes of the Second Half of the Fifth Century BCE*

We have at our disposal almost two dozen complexes from the second half of the fifth century BCE with synchronous groups of ceramic containers. Most important among them are six amphora storage facilities, one of which contained over a hundred vessels.

Based on the study of the evolution of amphora shapes and on various independently dated groups of other ceramic material, several chronological amphora groups have been identified for this period, with the dates for each group narrowed down to one and a half or two decades. In this case, ceramic containers from Mende and Thasos – and, to a lesser extent, Lesbos – are being used as the most secure indicators, in addition to Chian amphorae.

Certain changes took place in the second half of the fifth century BCE in terms of the directions and dynamics of the trade connections between the Northern Black Sea region and the Greek centers in the Mediterranean. The so-called proto-Thasian amphorae disappeared after the middle of the century. Of all the other Ionian *poleis*, only Samos, Chios, and Erythrai exported their production to the Black Sea region (Figs. 4.2, 4.3).<sup>49</sup> Samian amphorae, however, are found not very frequently, which can probably be explained by the fact that they were used for the transportation of olive oil, not wine. Chios clearly was the leading exporter in the second half of the fifth century BCE, which is evident not only from the frequent finds of amphorae of this center, but also from the variety of types of standard Chian containers. In the 450s, Chios started to manufacture the so-called late bulging-neck amphorae (in which the bulge was often offset distinctly from the part of the neck below). They were produced at least until the 420s BCE. In the 440s BCE, at the latest, amphorae with a tall cylindrical neck started to be produced (along with the bulging-neck amphorae); their evolution can be traced until the very end of the century, when they were replaced by containers with the so-called proto-conical toe. Erythrai imported wine in amphorae with a profiled toe, which are close in their morphology to Samian amphorae.

During those fifty years, the import of wine in gray-clay Lesbian amphorae clearly became more intense – such amphorae have been found in various complexes from that time as often as in the complexes of the Archaic period. At the same time, red-clay amphorae of the “Lesbian type,” which



were represented in the complexes of the previous period, disappeared (Fig. 4.2).

Exports from the northwestern Aegean were increasing steadily. From the second part of the fifth century BCE onwards, the wine trade with Thasos and Mende became particularly important for the Northern Black Sea region (Fig. 4.2). On Thasos, the production of several variants of amphorae known from the complexes of the first half of the fifth century BCE continued in the middle and the third quarter of the century also. However, already in the 440s BCE, the production of “pithoid” amphorae with a spherical body began, along with that of early “biconical” amphorae, which became the predominant type of amphorae by the end of the century and later (at the transition from the fifth to the fourth century BCE) developed into the “classical” “biconical” type.

The production of Mende was also diverse. The origins of the main type of amphorae there can be traced back to the second quarter of the fifth century BCE, while the latest stage of their production dates to the very end of the century. “Pithoid” amphorae with a spherical body, resembling the contemporaneous Thasian vessels, were manufactured in the 440s–430s BCE (Fig. 4.2).

There is also the production of several unidentified centers conventionally referred to as the “Thasian circle.” Thus, imports of “swollen-neck” amphorae continued at least for the third quarter of the fifth century BCE (Fig. 4.3). The Black Sea *poleis*, which later (in the fourth century BCE) became so important in Pontic trade, most likely did not manufacture any ceramic containers in the second half of the fifth century BCE, with the probable exception of Herakleia Pontike (from the very end of the fifth century BCE onwards).

### *Ceramic Complexes of the Late Classical Period*

The number of ceramic complexes dating to the Late Classical period exceeds by far the cumulative number of the complexes dating to the Archaic, the Early Classical, and the Hellenistic periods. During that time the Black Sea polities were at the highpoint of their development, intensive building activities took place in the cities and rural settlements, and, consequently, a large number of ceramic complexes were deposited in these settlements (in cellars, wells, dumpsters, etc.). A large number of barbarian kurgan burials also date to this period, and most of them include black-glazed ware and amphorae.

### **The First Two Decades of the Fourth Century BCE**

Certain changes took place in the Pontic trade in the first two decades of the fourth century BCE. In addition to the traditional centers that already exported their products in the fifth century BCE, new Mediterranean exporters began to manufacture ceramic containers, which soon started to circulate on the Pontic market as well. These new centers included Peparethos, Ikos,<sup>50</sup> Knidos, Kos, an

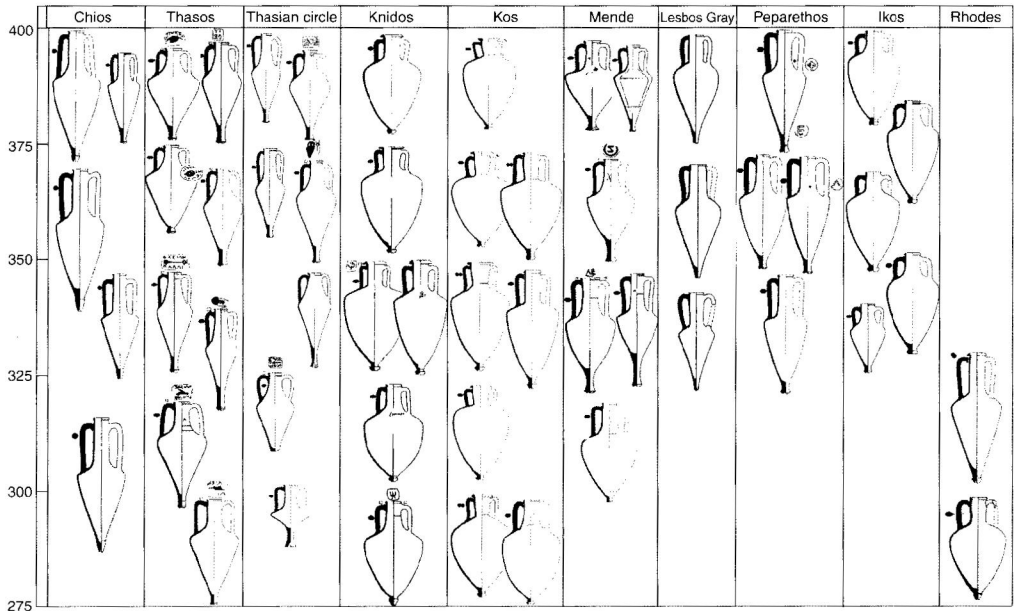


Fig. 4.4. Shapes of Greek amphorae from various centers (400–275 BCE).

unidentified center that manufactured amphorae of the so-called Murighiol type, and some others. Chios produced only one type of amphorae during that time – the “conical” one with conical toe. Lesbos, clearly, lost its leading position to Chios: Lesbian amphorae are rarely found in ceramic complexes and mass material. However, Lesbian wine was imported both in red-clay and gray-clay amphorae (Figs. 4.4, 4.5).

Thasian wine was exported to the Northern Black Sea market in two types of containers. The main type was the early variant of the “biconical” amphora. At the beginning of the 390s BCE, amphorae were not yet stamped, but starting from the middle of the 390s BCE, amphora stamping became a regular practice. This type of “biconical” Thasian container existed, with few modifications, until the beginning of the Hellenistic period (Fig. 4.4). However, another “pithoid” type of Thasian amphorae – the so-called Porthmean type – also emerged in the 390s BCE. The production of the “conical” amphorae must have started at about the same time.

Noticeable changes took place in Mendeian amphora production. Starting from the end of the fifth century BCE, containers of the new “Porticello” type with an angular body on a tall stem toe were manufactured there (Fig. 4.4). No later than the end of the 390s BCE, the famous Peparethan wine started to be exported to the Northern Black Sea region in large-size “conical” amphorae. So far, we can only be sure about one type of containers manufactured in this center. Like Mende, Peparethos did not stamp amphorae with magistrates’ names, but handles and necks of the vessels sometimes bear engraphic stamps

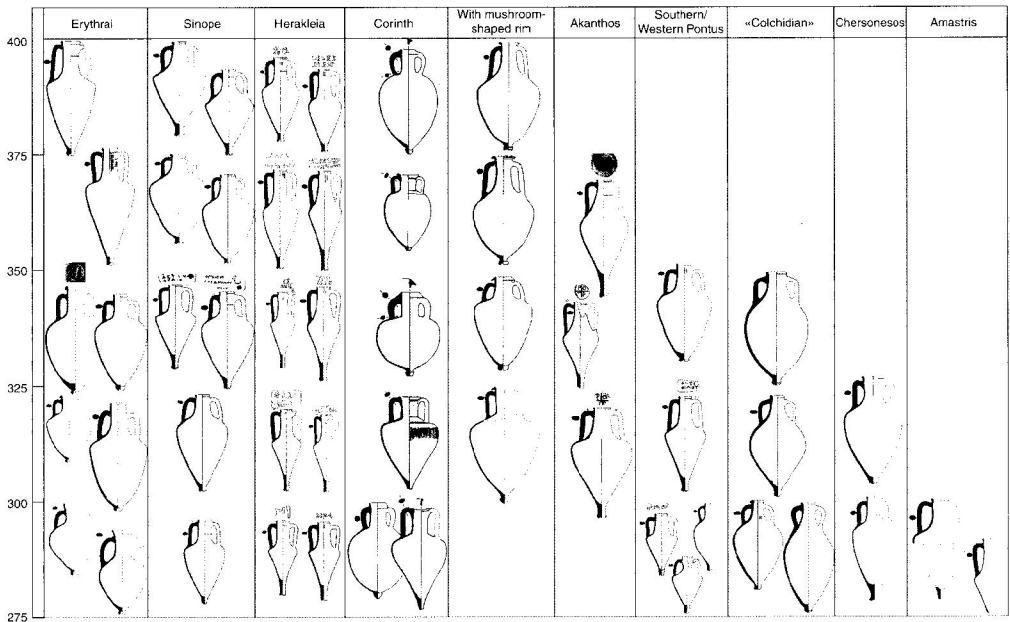


Fig. 4.5. Shapes of Greek amphorae from various centers (400–275 BCE).

featuring individual letters. Ikos also started to export wine to the Northern Black Sea region (Fig. 4.4).

Systematic wine import from Knidos and Rhodes (?) in large amphorae with mushroom-shaped rims presumably started during that time as well. Amphorae of these two centers cannot always be securely differentiated, especially because this type of rim was very popular in the fourth century BCE (Fig. 4.4).

The most important development in the first two decades of the fourth century BCE was the entrance of the South Pontic centers – Sinope and Herakleia – on the Pontic market. Sinope must have started exporting products in amphorae in the 390–380s BCE, long before the practice of amphora stamping was introduced. And Herakleia was undoubtedly the largest exporter in the early fourth century BCE: Herakleian amphorae have been found in the complexes of this period much more frequently than Chian and Thasian containers (Fig. 4.5). The practice of amphora stamping was introduced in Herakleia earlier than on Thasos, which also testifies to the more developed wine production of the former. However, early Herakleian stamps were those of the manufacturers, whereas Thasos witnessed right away the emergence of magistrates' stamping in the 390s BCE. In Herakleia, most amphorae were stamped: about 80 percent of early Herakleian amphorae of type I that are known to us bear on the necks stamps of the manufacturers, and from the 390s BCE onwards, stamps of the magistrates.

### **The 370s to the Middle of the 360s BCE**

Amphora complexes of the 370s to the middle of the 360s BCE contain, more or less, the same sets of imports, demonstrating no notable changes in terms of the directions and dynamics of trade connections. Herakleia, Sinope, Thasos, Ikos, Chios, Peparethos, and Mende remained the main exporters. Magistrates' stamping continued on Thasos and in Herakleia and started in Sinope by the end of this period.

During that time, Herakleia's exports to the Northern Black Sea region increased. Amphorae of type I were replaced by those of type I-A, characterized by more elongated proportions (Fig. 4.5). Most containers were stamped. Imports of wine and olive oil from Sinope became noticeable, and magistrates' stamping of the containers started there in the middle of the 360s BCE. Two types of amphorae were produced: amphorae of type I, with a conical body, very similar to the contemporaneous Thasian containers, and "pithoid" vessels of type II, which later became the main type of containers (Fig. 4.5).

Thasos continued to export wine in "biconical" amphorae known from the previous period, which demonstrated a trend toward elongated proportions. Amphorae of "Porthmean" and "conical" types were also still manufactured. Like Thasos, Mende, Chios, Ikos, and Peparethos also exported products in amphorae that were typical for the previous period, but showed a trend toward elongated proportions (Fig. 4.4).

Some unidentified centers of the "Thasian circle" exported wine in "biconical" amphorae to the Northern Black Sea region at the same time as Thasos did. We do not know the exact number of these centers on the Thracian coast, but in the 370s BCE one of them manufactured containers that were exact copies of Thasian "biconical" amphorae. Another center in the same region produced smaller amphorae of the so-called Murighiol type, starting from the beginning of the century (Fig. 4.4). Other Mediterranean centers, including Knidos, Rhodes, Erythrai, Ikos, Kos,<sup>51</sup> and some unidentified centers exported their products in small volumes and, most likely, not on regular basis (Figs. 4.4, 4.5).

### **The Second Half of the 360s to the Middle of the 320s BCE**

Fewer ceramic complexes are known for the period from the second half of the 360s to the middle of the 320s BCE. The reasons for this are not necessarily clear, but any interruption in the flow of imports can be associated with a number of factors. On the one hand, it is possible that the production centers were no longer able to export wine; on the other hand, it is also possible that there was no demand for such products on the Northern Black Sea market. The latter explanation is more likely, since for the period from the middle of the fourth century BCE onwards not only is the number of available ceramic

complexes, in general, lower, but also the number of amphorae imported from most of the exporting centers (such Chios, Peparethos, amphorae of the “Murighiol” type, and others).

From the 360s to the middle of the 320s BCE, certain changes occurred in the variety of amphorae coming to the Northern Black Sea region. Thasian wine was exported mostly in traditional “biconical” amphorae from the 360s to the first half of the 340s BCE, although amphorae of the “Porthmean” and “conical” types were still manufactured. The available material does not allow us to estimate the volume of Thasian imports, but Thasian amphorae have been found slightly more often in the complexes of this period than in those dating to the preceding decades (Fig. 4.4).

In the middle to the third quarter of the fourth century BCE, Mende remained one of the most important trade partners of the Northern Black Sea region. Some developments occurred in the typology of Mendean amphorae: the containers of the “Porticello” type were replaced by those of the “Melitopol” type, characterized by elongated proportions. At the beginning of the last third of the fourth century BCE, Chian amphorae with a conical toe experienced noticeable modifications: the toe became a simple conical terminal of the body and the upper attachment of the handle moved 5–10 cm below the rim. In the second quarter to the middle of the fourth century BCE, Akanthos started to export products to the Northern Black Sea region, although not in great quantities. This center manufactured amphorae that were copies of the Thasian wheel-stamped containers of the “biconical” type (Fig. 4.4).

The products of Herakleia Pontike still dominated the market until the middle or the second half of the 340s BCE. From the 360s BCE, the main type of Herakleian amphorae were “conical” amphorae of type II. Vessels of “biconical” type III were also produced during the same time (Fig. 4.5).

In Sinope, two types of amphorae were manufactured, which had already existed in the previous period. The continuous tradition of the production of two strikingly different types of amphorae must have been associated with the fact that Sinope was the only Black Sea center where olives were cultivated, so that it exported not only wine, but also olive oil (Fig. 4.5).

In the third quarter of the fourth century BCE, the active trade with Peparethos resumed. The morphology of Peparethan amphorae of that time is characterized by elongated proportions. Knidian amphorae with mushroom-shaped rims circulated during the entire period; in rare cases they bear stamps with the monogram ΠΑΘ(-). Knidian amphorae with stamps featuring a “prow of a ship,” most likely, date to the end of the third and the beginning of the last quarter of the fourth century BCE. Wine from Ikos, Kos, and Erythrai came to the Northern Black Sea region in great volumes (Fig. 4.4).

### *The Hellenistic Period*

Ceramic complexes of the Hellenistic period demonstrate that the dynamics of trade relations remained more or less the same from the beginning of the fourth century until the middle of the 320s BCE. In the last quarter of the fourth century BCE the changes became more conspicuous, which must be associated with important political and economic developments that took place in the Mediterranean after the Macedonian conquest.

Three main characteristics of the Hellenistic ceramic complexes are particularly noticeable. First of all, we have fewer such complexes in comparison to the complexes of the previous period. To a great extent, this can be explained by the fact that the rare complexes associated with burials dating to this period come either from the necropoleis of Greek *poleis* or from the rare inhumation burials of the region around the river Kuban, since the tradition of constructing kurgans stopped abruptly in the Black Sea steppes in the third century BCE. The complexes from settlements prevail, and most of them are associated either with some rebuilding activities (rooms and wells) or with disasters (fires, destructions resulting from military conflicts, etc.). Secondly, the complexes that are known to us mostly date to the first third of the third century BCE and come from the settlements that were destroyed or abandoned under the advancement of the barbarians in the North Pontic region. Thirdly, important changes took place in trade relations. At the end of the fourth century BCE, Samos, Lesbos, Peparethos, and Ikos were no longer actively exporting wine and olive oil to the Northern Black Sea region. By the end of the first third of the third century BCE, or maybe even earlier, export from Herakleia Pontike ceased. Thasos, Chios, Sinope, Chersonesos, Knidos, Erythrai, Rhodes, Kos, and, according to the latest research, Mende continued to actively trade with the North Pontic region, as before.<sup>52</sup> In addition to these main trading partners, Kolophon,<sup>53</sup> Paros,<sup>54</sup> Amastris,<sup>55</sup> and some other centers also exported products, but in small volumes (Figs. 4.5, 4.6).

### **The Last Quarter of the Fourth to the Beginning of the Third Centuries BCE**

In the last quarter of the fourth to the beginning of the third centuries BCE, both the directions and the dynamics of the economic relations of the Northern Black Sea region changed considerably. Amphora production in Sinope reached its highest point during that period, which is evident from the versatility of the shapes of standard-size Sinopean amphorae and their fractional counterparts. The number of known types of Chersonesian amphorae and their fractional versions was also the highest at that time (Fig. 4.5).

At the end of the fourth to the beginning of the third centuries BCE, fractional versions of type-II amphorae (well known from the previous periods)

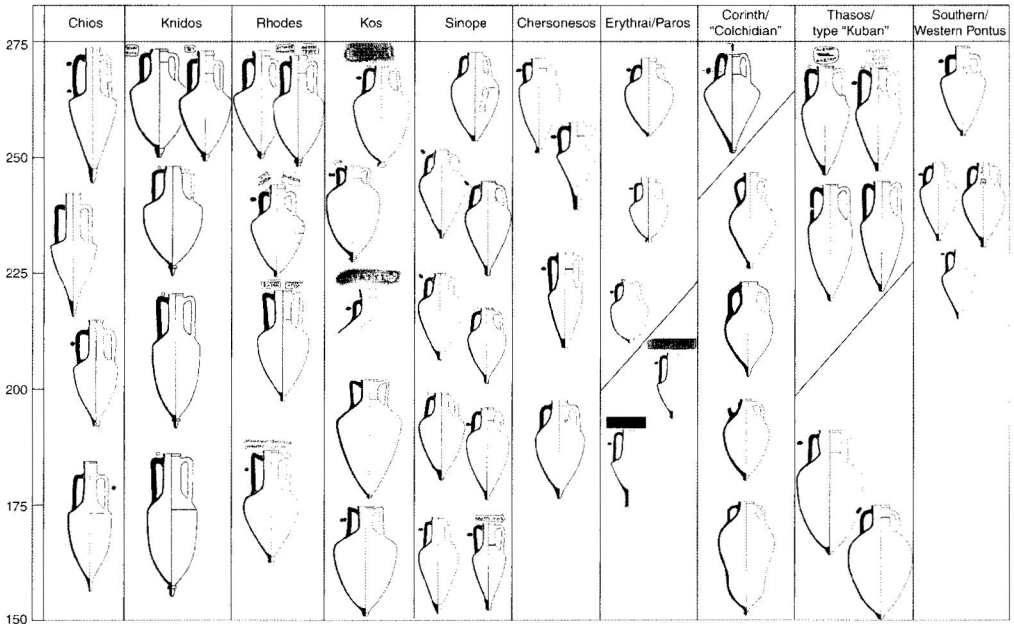


Fig. 4.6. Shapes of Greek amphorae from various centers (275–150 BCE).

were the most popular ones in Herakleian amphora production. At the very end of the fourth century BCE, Herakleia stopped stamping amphorae with magistrates' names, but the tradition of stamping them with manufacturers' names continued. In addition to Amastris, some other South and West Pontic centers may have started to produce amphorae and use englyphic stamps. The so-called Colchidian amphorae made out of brown clay, found in some ceramic complexes, must have originated in one of the South Pontic production centers (Fig. 4.5).

During the first fifty years of the Hellenistic period, some of the Mediterranean centers also continued to export their products to the Northern Black Sea region in great quantities. On Thasos, amphorae of the "biconical" type were replaced by those of the new "late-conical" type. By the end of the first third of the third century BCE, imports from Thasos decreased considerably, although the stamping of amphorae continued there until the beginning of the last quarter of the third century BCE (Fig. 4.4). In addition to Thasos, some Thracian centers also exported wine during the period from the end of the fourth to the first third of the third centuries BCE. One of these centers (possibly on the western coast of the Black Sea) produced amphorae of the "conical" type, with a stamp featuring the name of Antiphilos (Fig. 4.4).

Imports of wine from Rhodes, Knidos, Kos, and Erythrai were constantly increasing, starting from the fourth quarter of the fourth century BCE. A massive mushroom-shaped rim was characteristic of the Rhodian amphorae of

the end of the fourth century BCE. Later, the body of the Rhodian amphorae acquired a “pithoid” shape and retained it for a long time. The Knidian containers of the end of the fourth to the first third of the third centuries BCE had a “pithoid”-shape body on a ringed toe and bore stamps of the “Zenon group.” More and more imports were coming also from Kos (Fig. 4.4).

Chian wine was exported to the Northern Black Sea region in small quantities in “conical” amphorae until the third quarter of the third century BCE (Fig. 4.4). The level of imports from Corinth and Kolophon was rather low. Finds of various amphorae from unidentified Mediterranean production centers are much more frequent – the proportion of their products in the overall trade of the end of the fourth to the first third of the third centuries BCE must have been higher than during the previous period (Fig. 4.6).

### **The Middle of the Third to the First Half of the Second Centuries BCE**

There are only very few complexes dating from the middle of the third to the first half of the second centuries BCE. Based on this sparse material, we can trace the evolution of amphora shapes for about seven to ten leading exporters and identify some shapes for two or three other centers. It appears that Sinope, Thasos, Rhodes, Knidos, Kos, Erythrai, Chersonesos, and Paros, along with some unidentified centers, were the most active trade partners of the Northern Black Sea region from the middle of the third to the middle of the second centuries BCE. Rhodes clearly held the leading position in this respect; from the 260s BCE onwards, standard amphorae of a new shape with more elongated proportions and the traditional rolled rim were produced there (Fig. 4.6). An unidentified Aegean center producing amphorae of the so-called Kuban type (Fig. 4.7)<sup>56</sup> and an unidentified South Pontic center producing the so-called “Colchidian” amphorae (Fig. 4.6)<sup>57</sup> continued to export their products to the Northern Black Sea region. Thasian imports stopped coming by the end of the third century BCE, and Sinopean and Chersonesian ones in the first quarter of the second century BCE. Strictly speaking, one cannot be sure whether these centers, indeed, were no longer exporting products, since the systematic stamping of amphorae there stopped (although we know of some individual amphorae that were produced there afterwards, in the second half of the second century BCE) (Fig. 4.7).

#### THE ANALYSIS OF CERAMIC COMPLEXES AND THE TYPOLOGICAL AND CHRONOLOGICAL CLASSIFICATIONS

Based on the analysis of ceramic complexes undertaken by various scholars and on the typological and chronological classifications that were based on this analysis, one can draw the following conclusions, which are important for the



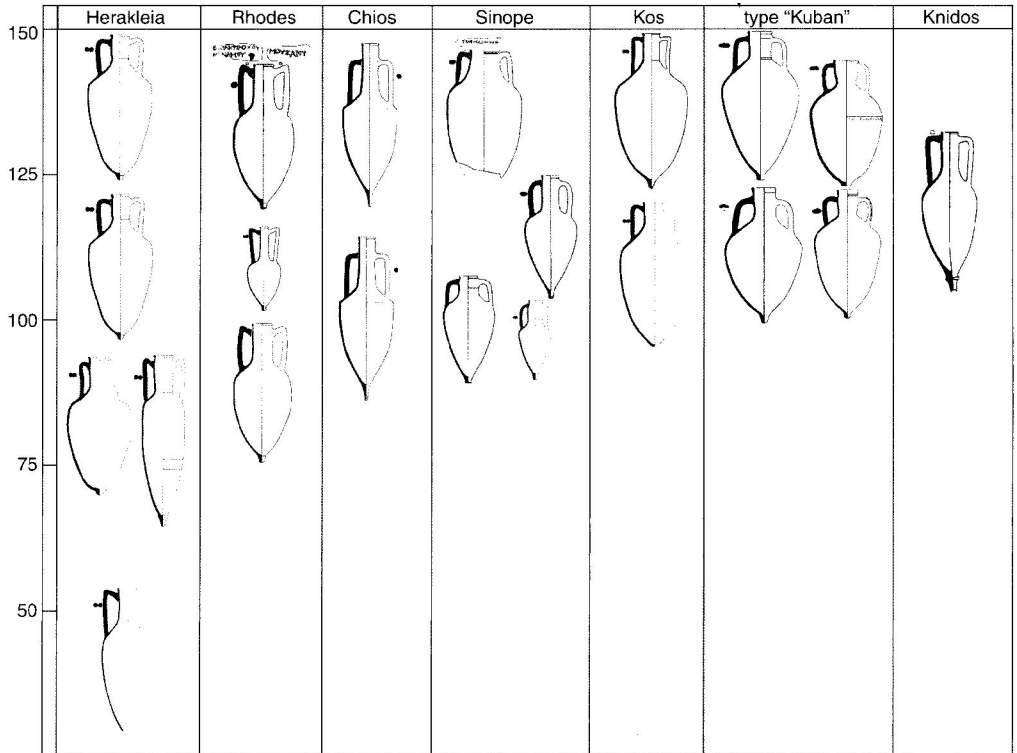


Fig. 4.7. Shapes of Greek amphorae from various centers (150–25 BCE).

reconstruction of the dynamics of overseas trade in the Northern Black Sea region from the Archaic to the Hellenistic period:

- 1 Overseas trade in the ancient Northern Black Sea region was an arrhythmic process: commodities were imported to the North Pontic market in large quantities, with irregular intervals in between.
- 2 Ceramic complexes do not fully represent the real situation in trade in antiquity: most often, they include amphorae from the most famous wine- and olive-oil-production centers and reflect only some of the diverse trade connections, while other trading partners (especially those that participated in trade only for a short time) are not represented at all.
- 3 Analysis of the morphology of amphorae from specific production centers and improvement of their chronologies resulted in the creation of comprehensive systems of typological and chronological classifications of ceramic containers, which allow one to trace not only the dynamics of the evolution of whole vessels, but also that of profile parts (rims, toes, etc.).<sup>58</sup>
- 4 These classifications are sometimes of a rather general character, mostly because of the limitations of the available ceramic assemblages, but also because standard capacities have not been established yet for most amphorae. The reconstructions

of these standards and of the dynamics of their evolution require special research,<sup>59</sup> which has to be undertaken before we can tackle the most important problem in studies of ancient trade – the comparative analysis of the dynamics of import and export.

Research in the field of ceramic epigraphy has been much more successful. Stamps on amphora handles and necks have always attracted scholarly attention, and, unlike amphorae themselves, have been meticulously collected and studied. Presently, museum collections have preserved over 300,000 ceramic stamps of about fifty production centers – first of all, Rhodes, Thasos, Knidos, Herakleia Pontike, Sinope, and Chersonesos.<sup>60</sup> Several corpora featuring ceramic stamps from specific sites or areas in the Northern Black Sea region have been compiled.<sup>61</sup> The most important among them is the fundamental corpus of North Pontic stamps by Evgeniĭ M. Pridik and Boris N. Grakov (IOSPE III).<sup>62</sup> This work served as a basis for the first comparative analyses of the dynamics of import and export, for which special statistical and combinatorial methods were applied as well.<sup>63</sup>

Special catalogues used for the identification of various kinds of stamps have also been published. For a long time, the only example of such a catalogue was the assemblage of ceramic stamps from Thasos published by Anne-Marie Bon and Antoine Bon.<sup>64</sup> In the last twenty years, similar catalogues of Chersonesian and Knidian stamps have come out,<sup>65</sup> followed by monographs on Thasian and Sinopean stamps from the Western Black Sea region.<sup>66</sup> Yvon Garlan has published his fundamental works on Thasian and Sinopean stamps.<sup>67</sup> Recently, Nikolai Fedoseev has released a catalogue of the Bosphoran stamps on roof tiles from the Kerch Archaeological Preserve.<sup>68</sup> Such catalogues serve several purposes, but, above all, they are a reliable instrument for the initial identification of stamps.<sup>69</sup> They are also necessary for the creation of a comprehensive database of all presently known stamps.<sup>70</sup> In general, one can say that ceramic epigraphy has experienced a real breakthrough, making this material the most reliable source for the chronology of ancient monuments and providing a basis for paleoeconomic reconstructions for the Late Classical and the Hellenistic period.<sup>71</sup>

At the same time, amphora stamps are not by any means the most numerous category of finds, so that focusing our attention on this material alone may result in a historical reconstruction that will not accurately reflect the situation in ancient trade. First of all, amphora stamps can be considered frequent finds only for the period starting at the transition from the fifth to fourth century BCE, thus not reflecting the situation in the previous period at all and only very poorly for the time after the second century BCE. Secondly, systematic stamping took place in relatively few *poleis*, and epigraphic evidence from ceramic material does not allow us to evaluate the volume of exports in ceramic containers even of such famous exporting centers as, for example,

Chios, Mende, Peparethos, Erythrai, Kos, Ikos, and certain others. Moreover, the practice of stamping was not synchronous in the main production centers, which makes a comparative export–import analysis problematic and requires special criteria to be used. In fact, such an analysis based on epigraphy material from ceramics is presently possible only for the following periods and production centers:

Period	Center
first quarter of the fourth century BCE	Thasos, Herakleia
second to third quarter of the fourth century BCE	Thasos, Herakleia, Sinope, Akanthos
last quarter of the fourth century BCE to the first third of the third century BCE	Thasos, Herakleia, Sinope, Knidos, Chersonesos
second third to the end of the third century BCE	Thasos, Sinope, Knidos, Chersonesos, Rhodes, Kos
first half of the second century BCE	Sinope, Knidos, Chersonesos, Rhodes, Kos
second half of the second century BCE	Knidos, Rhodes, Kos

Finally, the study of the dynamics of the export in ceramic containers from a particular center and the comparative analysis of the relative export volumes for different centers are impeded by the fact that such criteria as the coefficient of stamping (i.e., the ratio between stamped and unstamped amphorae)<sup>72</sup> and the evolution of the average amphora standards in each center are unclear. However, the epigraphic evidence from ceramic material contributes to the creation of some important paleoeconomic reconstructions, which will be presented later in this chapter.

#### THE ANALYSIS OF AMPHORA PARTS: RIMS AND TOES

The analysis of amphora parts found in large quantities, such as rims and toes, also allows us to draw some conclusions of a paleoeconomic character. The study of such mass material requires a certain approach and uniformity of methodology. The analyzed amphora parts have to be contemporaneous and comparable, i.e., of the same kind; they also have to be present at all of the sites in question.<sup>73</sup> The methods of study used for this material have been formulated and tested and can be summarized as follows:

- 1 Attribution, dating, and division of the material into individual chronological groups (each group usually corresponds to a quarter-of-a-century-long period).
- 2 Statistical calculations: when analyzing the data from chronological periods of various extents, one has to use the *index of the absolute density of the distribution* (or the so-called annual coefficient),<sup>74</sup> which allows us to trace qualitative changes in trade balance.

- 3 When studying assemblages of different sizes, one has to apply the *index of the relative density of the distribution*,<sup>75</sup> which allows us to overcome the quantitative differences between the assemblages.
- 4 Results of metrological studies have to be taken into consideration as well. Certain standards were clearly followed in amphora production,<sup>76</sup> but almost every center simultaneously produced amphorae of various standard capacities. For statistical calculations, we have to use the average capacity of amphorae in a particular chronological period (i.e., the sum of the known amphora capacities divided by the number of measured amphorae). It may appear more logical to use the *index of the standardization* (i.e., the sum of the known amphora standard capacities divided by their number). However, we do not know the correlation between the amphorae of standard capacities and the fractional ones. Presently, we do not have enough data in this respect, and the use of the average standard capacities may lead to erroneous results. For example, numerous measurements of the Chian amphorae of the so-called developed bulging-neck variant demonstrate that at least five standards and their fractional versions coexisted in the second quarter of the fifth century BCE.<sup>77</sup> The average *index of the standardization* in this case is calculated as 16.8 l. However, the statistics showed that only twelve out of forty measured vessels had volumes that corresponded to this number (i.e., from 13.5 to 18 l), while all the other amphorae were of a larger capacity. At the same time, the average capacity calculated for the same amphorae is 19.6 l, which, for the time being, reflects the correlation between the vessels of various capacities in a more realistic way. The extent to which the amphora standards of the main production centers have been studied varies because of the difference in the number of preserved intact vessels whose capacity can be measured by filling them up.<sup>78</sup> For damaged vessels, scholars have also presented and tested some formulae that would allow one to calculate the capacities of the containers of most shapes.<sup>79</sup>

The elimination of the average capacity of amphorae from the calculations may lead to predictably erroneous conclusions. The correlation between the fragments of the amphorae from Herakleia and Sinope – two major exporters on the Northern Black Sea market – provides a good illustration. When a site yields the same amount of amphora parts (such as rims and toes) from these two centers, the usual conclusion is that their contribution to trade was equal, while the differences in the capacities of the vessels are not considered. However, we know that vessels of a larger capacity prevail among the available intact Sinopean amphorae, which is not the case with the Herakleian containers.<sup>80</sup> Thus, even if the numbers of the amphora fragments from these two centers found at a particular site are the same, it would still mean that the volume of Sinopean imports was greater.

Thus, to reconstruct the trade connections of a specific region one would need to have information about the number of amphora fragments discovered at particular sites and to be able to identify and to date these fragments. Published material rarely provides such data.<sup>81</sup> In reality, the only reliable information in this respect is that obtained by personal handling and study of the material. To perform such a task for the entire North Pontic region is close to impossible, not only because of the scale of the work required, but also because mass material, such as amphora fragments, is rarely kept preserved. Most often, archaeologists handle it in the field, make some drawings, and discard the larger part of the material. For this reason, our description of the trade connections presented below is limited in terms of the territory, focusing mostly on the Asiatic Bosphorus and including some data from sites of the European Bosphorus and some Maeotian sites of the Kuban region.

For the analysis, we used assemblages of mass ceramic material from urban sites (Hermonassa and Phanagoreia) and rural settlements (Volna-4, Beregovoi-4, Chubovo, Krasnoarmeiskoe-1, Usatova Balka-3, and Usatova Balka-4) of the Asiatic Bosphorus,<sup>82</sup> as well as data from Patraeus.<sup>83</sup> For the European Bosphorus, we have information about the trade relations of Pantikapaion (from the end of the fifth to the first third of the third centuries BCE) and some rural settlements, including General'skoe-zapadnoe, Ťugo-zapadnyĭ sklon, Pustynnyĭ Bereg-1, Pustynnyĭ Bereg-2, Pustynnyĭ Bereg-3, and Baklan'ia skala (Fig. 4.14).<sup>84</sup> Imports found at the Maeotian sites of the Kuban region have been analyzed for the period from the end of the seventh to the second centuries BCE,<sup>85</sup> but a detailed overview can only be presented for the fourth to second century BCE, since the material from the earlier periods is sparse.

Some other specific characteristics of the studied assemblages have also to be taken into consideration. The material from Hermonassa, for example, dates to the period from the middle of the sixth to the end of the fifth centuries BCE, while that from the settlement of Krasnoarmeiskoe-1 dates to the period from the fourth century BCE onwards.<sup>86</sup> Therefore, it seems logical to analyze the trade relations within two broader periods: from the last third of the sixth to the end of the fifth centuries BCE and from the fourth to third century BCE. This division would also allow us to use some data from other sites.

### *The Last Third of the Sixth to the End of the Fifth Centuries BCE*

The gradual increase in the volume of the imports at various Bosphoran settlements must have started about the third quarter of the sixth century BCE, but in most cases the highpoint of this process fell within the second quarter of the fifth century BCE. Only at Phanagoreia and Volna-4 does it date to other periods – the first and the third quarter of the fifth century BCE, respectively (Fig. 4.8a, b).<sup>87</sup>

For the second half of the fifth century BCE, data from all the sites (with the exception of Volna-4) points toward the continuous decrease in import volume, which was the lowest in the last quarter of the fifth century BCE. It is noteworthy that the *index of the relative density of the distribution* for this period is almost the same for all the monuments in question (0.1–0.27), which indicates that the volume of imports was approximately the same at all these sites during this period (Fig. 4.8a, c).

Materials from Patraeus, however, present a somewhat different picture: the first peak of import fell within the last two decades of the sixth century BCE (when the import volume was also the highest for the entire period under discussion). Some decrease has been recorded for the beginning of the fifth century BCE, with a subsequent increase from 480 to 465 BCE. The latter was followed by another decrease, with the lowest import volume recorded in the period from the 450s to 430s BCE, after which it continued to grow until the end of the fifth century BCE.

Unfortunately, we cannot analyze data from other North Pontic regions since there are no comprehensive publications on the dynamics of their trade. It is certain that in Olbia the volume of imports dropped in the second half of the fifth century BCE.<sup>88</sup> It is noteworthy that scholars also register economic recession in Asia Minor, in general, especially in the second half of the fifth century BCE, stating that the reasons for it are not very clear.<sup>89</sup>

Several publications that came out in the last decade offered a reconstruction of the situation in the Asiatic Bosphorus in the Archaic and the Early Classical periods, based on the analysis of settlement patterns and studies of the necropoleis.<sup>90</sup> The authors maintain that at the end of the sixth to the first third of the fifth centuries BCE, many new rural settlements emerged in the environs of the cities in the territory of the Asiatic Bosphorus. Starting from about the 470s BCE, the situation was becoming increasingly unstable, as a demographic crisis occurred in the area and armed conflicts took place. After the middle of the fifth century BCE, the rural surroundings of the cities shrank and the volume of the imports decreased, but at the end of the fifth century BCE, the situation became more stable, with an evident trend toward growth of the population and increase in the volume of imports.

The results of our analysis of the import volumes at different sites in the territory of the Asiatic Bosphorus, in general, correspond to the above scenario. However, our data indicates a small decrease in imports in the second quarter of the fifth century BCE only for Phanagoreia (Fig. 4.8a, b). This development can be explained either by a decrease in the volume of imports coming from the cities that were affected by the Greco-Persian Wars, including the North Aegean centers, with which Phanagoreia apparently had special relations, or by the growing political instability on the Taman Peninsula. At the same time, this does not explain why the situation at Phanagoreia was different from the

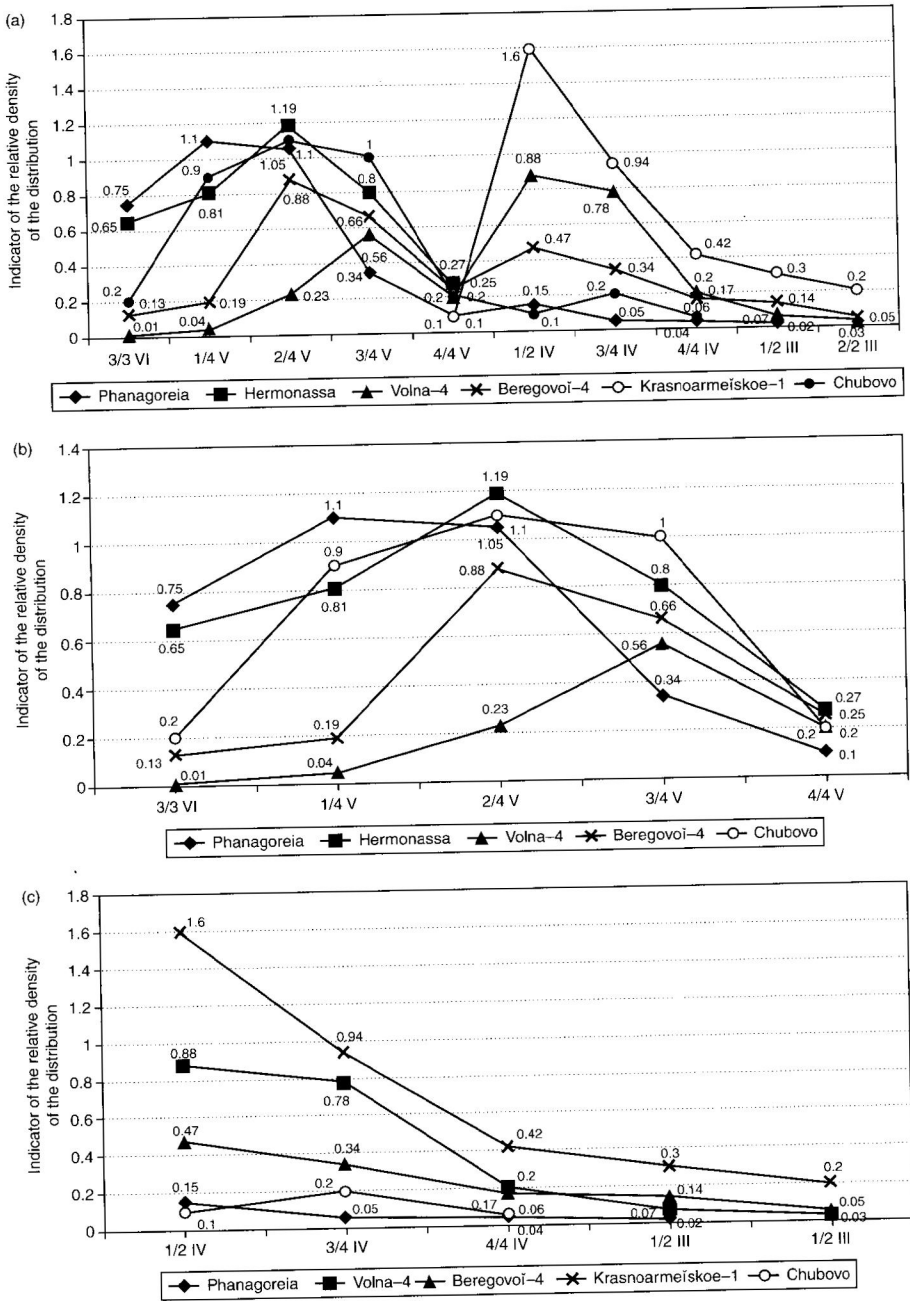


Fig. 4.8. Dynamics of the trade connections from the end of the sixth to the third centuries BCE: *a* – the entire period; *b* – the end of the sixth to the fifth centuries BCE; *c* – the fourth to third century BCE.

situation at most of the other sites, where the peak of imports fell within the second quarter of the fifth century BCE. If we assumed that in the 470s BCE there had been a migration of the rural population to urban centers (including Phanagoreia, which was not even fortified), then there would have been an increase in imports (since the urban population would have grown), and not the opposite. There may, however, be an alternative explanation: the influx of population to urban centers could have caused a certain crisis in the cities, which, in turn, could have resulted in general economic instability.<sup>91</sup>

The data from the site of Volna-4 is even more surprising, since it testifies to an increase in the volume of imports in the third quarter of the fifth century BCE, which was not characteristic of any other site in this region (Fig. 4.8*a, b*). At the same time, the materials from the other sites in the *chora* of Hermonassa demonstrate that in the second half of the fifth century BCE their development slowed down, becoming more intensive again only in the fourth century BCE.<sup>92</sup>

For the rest of the region, the situation in the second half of the fifth century BCE was similar – there was a noticeable recession in trade. At the same time, the results obtained by Abramov for Patraeus do not exclude the possibility that an increase in trade activity could already have started in the last third of the fifth century BCE. Since, however, we cannot divide other amphora material into such narrow chronological groups as Abramov did for Patraeus, we can only hypothetically suggest that this increase started at the very end of the fifth century BCE.

The comparative analysis of the contents and proportions of imports from various production centers undertaken for specific chronological periods at various sites produced interesting results. Since the list of the centers exporting their products in containers to the settlements in the Northern Black Sea region is fairly standard, closer attention should be paid to the proportions of the products from various centers represented at each site, which can be calculated by using the known capacities of the containers (Figs. 4.9–4.11).

Finds of the last third of the sixth century BCE include amphora fragments from four to six production centers. Chian imports are not necessarily predominant in all cases. Only at two sites (Hermonassa and Beregovoi-4)<sup>93</sup> do Chian amphorae form the largest group, only slightly surpassing the finds of the so-called Samos-Miletos group (at Hermonassa) and Lesbos (at Beregovoi-4 and Patraeus).<sup>94</sup> At Volna-4, the absolute majority of amphorae are from the Samos-Miletos group. At the settlement of Chubovo, containers of this group also surpass in number the Chian ones. At Phanagoreia, products from the North Aegean centers are prevailing during this period. The proportion of products from Klazomenai is rather high at all sites under discussion (varying from 7.5 percent at Chubovo to 21.1 percent at Volna-4) (Fig. 4.9*a*). Klazomenian imports are also well represented in the Kuban region. Vladislav Ulitin states that from the very end of the seventh to the



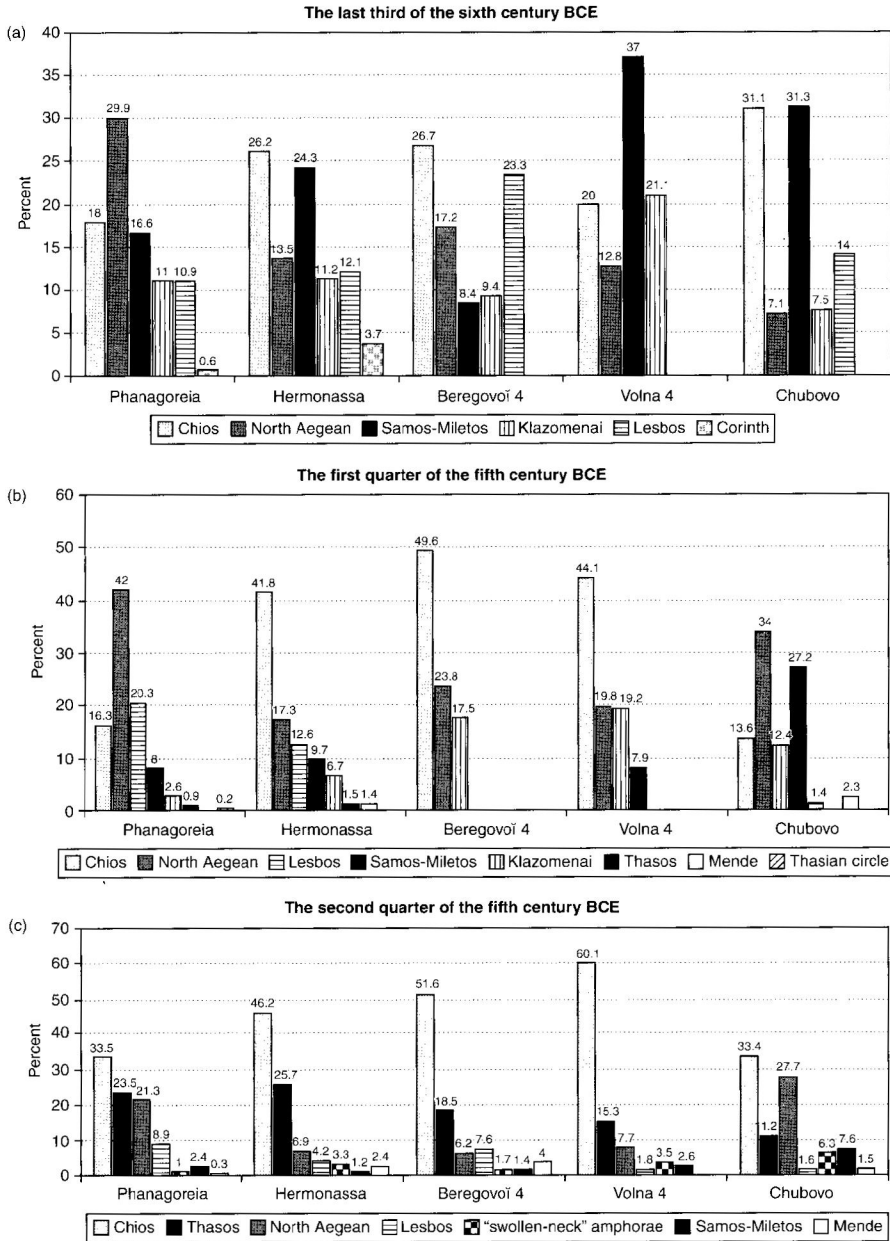


Fig. 4.9. Imports of the end of the sixth to the first half of the fifth centuries BCE: *a* – the last third of the sixth century BCE; *b* – the first quarter of the fifth century BCE; *c* – the second quarter of the fifth century BCE.

beginning of the fifth century BCE Klazomenai was one of the most active participants in trade with the local population of the Northern Black Sea region.<sup>95</sup>

In the first quarter of the fifth century BCE the amount of Chian imports increased dramatically, and Chios remained the leading exporter until the middle of the fourth century BCE. The only exception in this case was Phanagoreia, where products from the North Aegean centers prevailed. At the settlement of Chubovo, in addition to the predominant imports from these centers, the proportion of containers of the “Samos-Miletos” group is also very high. The rest of the studied assemblages demonstrate similar trends, i.e., the decrease in products from Klazomenai, Lesbos, and those imported in the amphorae of the “Samos-Miletos” group. Only the finds from Phanagoreia, Hermonassa, and Patraeus revealed the presence of containers from Thasos (at Patraeus, from the end of the sixth century BCE onwards) and Mende (only in Hermonassa, Patraeus, and the site of Chubovo) (Fig. 4.9*b*).

The end of the second quarter of the fifth century BCE witnessed practically identical trends everywhere in respect of the list of exporters: Chios still held the leading position, North Aegean imports decreased (to a lesser extent in Phanagoreia and Chubovo, in comparison to other centers), and so did those from Lesbos, while imports from Thasos increased considerably.<sup>96</sup> In addition, there was some increase in volume of imports from Mende (with the exception of Volna-4, where containers from this center have not been found so far) (Fig. 4.9*c*). About that time, production from Mende also appeared in the Kuban region.

Similar trends can also be detected in the third quarter of the fifth century BCE: the absolute prevalence of Chian products and the decrease in imports from all the other production centers. Only for Phanagoreia is the picture somewhat different: imports from Thasos, although decreasing almost by half, still comprise 37.6 percent of all imports. At Chubovo, the proportion of products from Thasos is also rather high – 19.9 percent. At Patraeus, Thasos is the second-largest exporter, although its products comprise only 10.2 percent, which corresponds closely to the data from the other sites, where it does not go over 13.6 percent (Fig. 4.10*a*).

The situation became more “balanced” in the last quarter of the fifth century BCE: the role of products from Thasos and Mende increased at all the sites of the region, including Patraeus.<sup>97</sup> However, at Phanagoreia, it was still different – products from Mende comprised a much smaller part of all the imports than they did at the other sites.<sup>98</sup> A similar picture also emerges for the site of Chubovo, where no amphora fragments from Mende dating to the last quarter of the fifth century BCE have been found (Fig. 4.10*b*).

Thus, the study of the ceramic containers from the last third of the sixth to the fifth centuries BCE shows that at the beginning of this period (until about the

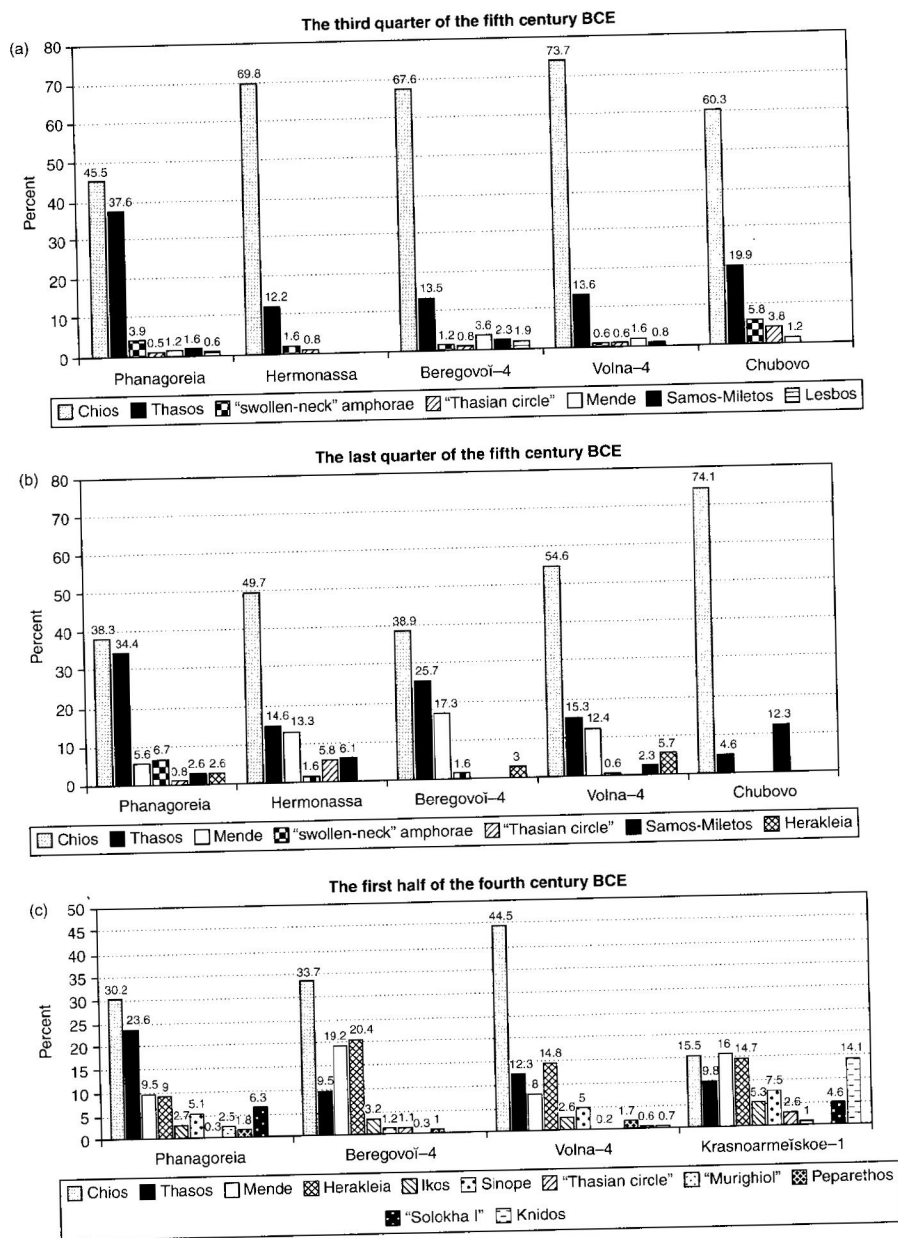


Fig. 4.10. Imports of the second half of the fifth to the first half of the fourth centuries BCE: *a* – the third quarter of the fifth century BCE; *b* – the last quarter of the fifth century BCE; *c* – the first half of the fourth century BCE.

second quarter of the fifth century BCE) the trade relations of the settlements under discussion evolved in different directions. The list of exporters and the proportion of their products in the overall volume of imported products varied from site to site, often significantly. From the second quarter of the fifth century BCE, however, a certain “unification” was taking place – for almost all the sites, the lists of the centers exporting their products in amphorae are identical. Moreover, the proportion of imports from various centers is about the same at all the sites. The situation was slightly different only at Phanagoreia and at the settlement of Chubovo, which, most likely, was close to Phanagoreia in terms of its development.

#### *The Fourth to Third Century BCE*

The increase in volume of imports, which started at the end of the fifth century BCE, continued also at the beginning of the fourth century BCE, reaching its peak in the second quarter of the fourth century BCE. However, the broadly accepted view about the economic upswing of the first half of the fourth century BCE has not been confirmed for all the sites. Thus, materials from Phanagoreia, Chubovo, and Beregovoï-4 prove that the respective *indices of the relative density of the distribution* do not surpass those calculated for the peaks of the economic development in the fifth century BCE (Fig. 4.8c).

At the same time, the volume of imports at the settlement of Volna-4 during this period grew by 1.5 times in comparison to the third quarter of the fifth century BCE. The lack of data from fourth-century-BCE Hermonassa does not allow us to determine any differences or similarities in the development of this part of the Asiatic Bosphorus. Scholars point out that cultural layers of this period revealed at the site are rather scarce in comparison to those of the preceding century,<sup>99</sup> but this observation is not enough to draw any reliable conclusions. At the same time, Sergeï Solovyov, who analyzed the situation in the *chora* of Hermonassa, including the settlement of Volna-1, maintains that the peak of the latter’s development fell within the fourth to third century BCE.<sup>100</sup> Moreover, according to him, the highpoint of the development of the entire *chora* of Hermonassa can be dated to the fourth century BCE.<sup>101</sup> At the site of the settlement of Volna-4, excavations revealed that a second construction period must have started there also at the beginning of the fourth century BCE.<sup>102</sup> It is, therefore, possible that at the beginning of the fourth century BCE an intensive growth of settlements started in the environs of Hermonassa, which led to the growth of the associated trade network.

The increase in volume of imports has been also recorded for the *chora* of Gorgippeia during this period, based on the materials from the settlements of Usatova Balka-3 and Usatova Balka-4.<sup>103</sup> In addition, there may have been similar developments at the settlement of Krasnoarmeïskoe-1 (Fig. 4.8c). By

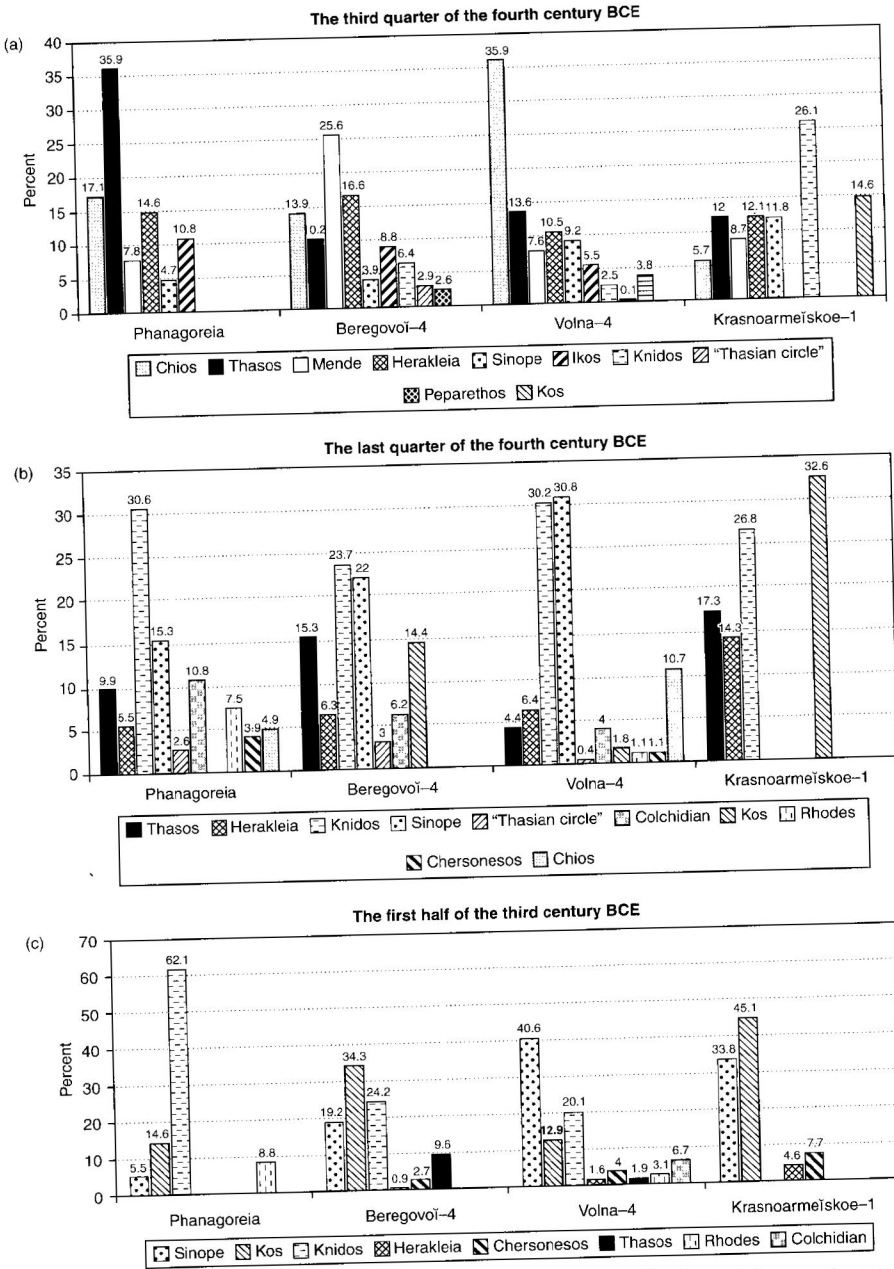


Fig. 4.11. Imports of the second half of the fourth to the first half of the third centuries BCE: *a* – the third quarter of the fourth century BCE; *b* – the last quarter of the fourth century BCE; *c* – the first half of the third century BCE.

contrast, the recent work at the *chora* of Phanagoreia – in particular, at the settlement of Solënyĩ-3 and the so-called sites 5 and 7 – revealed that in the first half of the fourth century BCE the volume of imports was lower than it had been in the second quarter of the fifth century BCE.<sup>104</sup>

From the middle of the fourth century BCE onwards, the volume of imported products started to decrease gradually, and this process continued during the third century BCE at all the sites in question.<sup>105</sup> Only materials from Beregovoi-4 demonstrate that there was an insignificant increase in the volume of imports in the first half of the third century BCE (Fig. 4.8c).

The data from the European Bosphorus shows a similar trend, i.e., a gradual increase in imports from the fifth century BCE to the second or third quarter of the fourth century BCE.<sup>106</sup> The data from the Kuban region, however, provides a somewhat different picture: the absolute peak of imports there fell within the third quarter of the fourth century BCE, followed by a gradual decrease in volume. Another relatively small increase has been recorded only for the third quarter of the third century BCE, i.e., a hundred years later.<sup>107</sup>

At the same time, the list of exporters and the proportions of their products at each site differ considerably from site to site. For the first half of the fourth century BCE, Chian imports prevail in most cases. Only at the settlement of Krasnoarmeiskoe-1 does the leading position belong to Mende (although here imports from Mende do not surpass those from Chios by much). In addition, the proportion of products from this center is high at Patraeus (where it prevails over imports from other centers),<sup>108</sup> Beregovoi-4, Usatova Balka-3, and Usatova Balka-4 (Fig. 4.10c). At the large settlements of the European Bosphorus – Pantikapaion and General'skoe Zapadnoe – the volume of imports from Mende is also rather high.<sup>109</sup> In the Kuban region, products from this center surpass products from other centers in the fourth century BCE.<sup>110</sup> The case is different only at Phanagoreia, Chubovo, and Volna-4. At Phanagoreia, the proportion of products from Thasos is very high, only slightly surpassed by Chian imports, while at Pantikapaion Thasian imports prevail. At Volna-4 and Beregovoi-4, the second-largest exporter is Herakleia. A high volume of Herakleian products has also been recorded at the settlements of the Kuban region, but only for the first quarter of the fourth century BCE.<sup>111</sup>

For the third quarter of the fourth century BCE, the situations at different sites are even more diverse. At Phanagoreia and Pantikapaion the leading position was taken over by Thasian imports. In general, the volume of Thasian imports is high at all the sites, but only at urban settlements do they prevail over products from other centers. At Beregovoi-4, the proportion of products from Mende is quite high, unlike any other site in the Bosphorus or the Kuban region. At all the sites, there are large quantities of Herakleian imports, as expected (Fig. 4.11a).

In the last quarter of the fourth century BCE Knidian and Sinopean imports increased at all the sites. However, in the Asiatic Bosphorus Sinopean products prevail only at Volna-4 (Fig. 4.11*b*), which contrasts with the situation in the European Bosphorus, where their prevalence is evident at all the sites under discussion. At the same time, the volume of Sinopean imports in the Kuban region is also rather low.<sup>112</sup>

The analysis of the list of exporters represented at the sites of the Asiatic Bosphorus reflects the very diverse trade relations of these settlements. Although certain similar trends can be detected at all the sites, there was still a considerable variety in terms of imported products. This refers not only to the largest exporting centers, but also to the less active trading partners of the North Pontic cities. At the same time, the situations in the capitals of the European and Asiatic Bosphorus, Pantikapaion and Phanagoreia, are similar to one another and different from the situations at the other sites: at the former, the proportion of Thasian products is very high, and from the middle of fourth century BCE (in Pantikapaion, from the beginning of the century) onwards, Thasos was the leading importer there. On the other hand, imports from Mende prevail at Patraeus, Krasnoarmeiskoe-1, Usatova Balka-3, Usatova Balka-4, and in the Kuban region and are very well represented at Beregovoi-4. However, their volume is rather low in both capitals and at the site of Volna-4.

These conclusions are especially interesting in the context of the reconstruction of the main routes in the Asiatic Bosphorus suggested by T̄akov Paromov.<sup>113</sup> Analysis of his map of ancient roads reveals that the similarities in terms of the contents of imports – and, especially, of imports from Mende – are characteristic of the sites that are located near the road going from the crossing over the Cimmerian Bosphorus toward the central settlement of the region, Fontalovskaia 1.6. The fact that all ancient roads in this region led to the largest city, Phanagoreia, does not necessarily prove Phanagoreia's leading role in the distribution of products: this must have been the case for the rural settlements located near the city (which, to a certain extent, has been demonstrated by comparative analysis of materials from Phanagoreia, Chubovo, and Volna-4, which revealed the presence of common features in the contents of the imports found there), but not for the entire region. It is unlikely that all trade routes went via the capital of the Asiatic Bosphorus, Phanagoreia. Some of them must have gone directly from the crossing to the areas farther inland, as far as the central part of the Kuban region. Moreover, if Labrys, the capital of Sindike, had access to one of the sea straits at least until the Hellenistic period, as has been recently suggested,<sup>114</sup> then it seems more reasonable to assume that products were exported directly to Labrys rather than to Phanagoreia, from where they would have been consequently redistributed.<sup>115</sup> Equally plausible is the hypothesis that the main transit station in trade with the population of the Kuban region was Gorgippeia, which was conveniently located.

Unfortunately, mass amphora material from Gorgippeia and Labrys has not been studied in detail yet, so that we cannot undertake a comparative analysis of the dynamics and contents of the imports dating from the end of the sixth to the fifth centuries BCE found at these two sites. But the results of the analyses of the ceramic stamps from Phanagoreia,<sup>116</sup> Gorgippeia, Labrys, and Elizavetovskoe are available,<sup>117</sup> which allows a comparison between the volumes of imports at these centers for the period from the fourth to third century BCE.

In general, the methods of ceramic-stamp analysis used for the reconstruction of trade connections are fairly reliable.<sup>118</sup> To a great extent, they are similar to those described above (see “The Analysis of the Ceramic Complexes and the Typological and Chronological Classifications”) and employ the so-called coefficient of stamping, which deserves special attention here. Iosif Brashinskiĭ, following Dmitriĭ Shelov, has already emphasized that the numbers of amphorae stamped by each center varied – on average, every fifth or sixth was stamped, according to the scholar.<sup>119</sup> This statement was made in reference to Herakleia, Sinope, Chersonesos, and Thasos, i.e., the centers with systematic stamping practices. Despite the numerous attempts to determine the indices of stamping for various centers, this question still remains open. The study of dump pits for ceramic rejects from amphora-production workshops on Thasos and in Sinope revealed that the numbers of amphora toes from each of these centers did not correspond to the respective numbers of stamps,<sup>120</sup> so that the coefficient of stamping varied from 0.4 to 1.0.<sup>121</sup> Nikolaĭ Fedoseev also pointed out that the proportion of stamped Sinopean containers must have been rather high and may have changed with time.<sup>122</sup> Vladimir Kačš, who analyzed the correlations between the numbers of amphora toes and stamps from various centers found at different sites, reached the same conclusion.<sup>123</sup> When calculating the coefficients of stamping for the main production centers (Herakleia, Sinope, Chersonesos, and Thasos), he noticed that the results were rather similar for different centers and reasonably concluded that these coefficients do not necessarily have to be employed in the analysis of the ceramic assemblages that contain only the stamps from the main production centers. He maintained, however, that the presence of the stamps from Rhodes in the material makes it necessary to use the coefficient of stamping in the calculations.<sup>124</sup> Presently, it is not possible to determine the coefficient of stamping for the other trade partners of the Northern Black Sea region (such as Knidos, Kos, Mende, Amastris, Akanthos, and others), which sometimes were as active in trade as the main centers were.

Scholars who study trade relations do not aim to obtain the absolute numbers of products exported to a particular site (which would be impossible,



in any case).<sup>125</sup> The main goal of such studies is to identify the trends that existed during a particular period and to determine the dynamics of import and export at a site. Therefore, we suggest that it may not be necessary to use the coefficient of stamping in the calculations, while working with the stamps from all the main production centers, including Rhodes. For the latter, it is usually maintained that all amphorae were stamped (in most cases, twice), so that the coefficient of stamping used in the calculations equals two. At the same time, John Lund notes that at the beginning of the third century BCE, the ratio of stamped amphorae to unstamped ones on Rhodes may have been 1:12, and in later periods, 1:2 or 1:2.5.<sup>126</sup> According to him, scholars must have paid more attention to stamped amphora fragments than to unstamped ones, which would explain these results. Our own studies showed that out of forty-eight intact amphorae from Rhodes known to us twelve did not have stamps.<sup>127</sup> Thus, it may not be necessary to use the coefficient of stamping in calculations involving amphorae from all the main production centers mentioned above, including Rhodes. However, this suggestion still needs further proof.

Statistical calculations on ceramic stamps allow one to trace the dynamics of imported products and to determine fluctuations in trade within rather short chronological periods (10–15 years).<sup>128</sup> At the same time, if we compare the results of the study of Phanagoreia's trade connections that are based on the analysis of amphora stamps with those based on the analysis of amphora toes and rims, we will notice that the emerging pictures of the dynamics of imports from a specific center to Phanagoreia will be almost the same in both cases. The discrepancies could be explained by the differences in the number of fragments that were studied in each case and by the fact that sometimes all the fragments come from one and the same area of the site, as well as by other factors.<sup>129</sup>

Thus, the results of the analysis of amphora stamps published by Tatiana Kutinova and Vladimir Kač̆ allow us to compare the contents and the volume of imports at Phanagoreia, Gorgippeia, Labrys, and Elizavetovskoe. In their work, these scholars used the same chronological intervals and the same average volumes of the containers. The comparative analysis of import volumes shows that the peak of imports at all four sites fell within the period from 360 to 336 BCE. From 335 to 306 BCE, the volume of imports decreased, and from the end of the fourth century BCE onwards (from 305 to 271 BCE), the differences in the dynamics of trade at these sites become apparent – some decrease has been registered at Phanagoreia and Labrys, along with a short-term increase at Gorgippeia and Elizavetovskoe. During the next period (from 270 to 221 BCE), the volume of imports at Gorgippeia and Elizavetovskoe decreased as well, while staying at the same

level at Phanagoreia. The gradual decrease of the volume of imports continued through the end of the third and the entire second centuries BCE (Fig. 4.12*a*).<sup>130</sup>

For the Kuban region, the peak of imports fell within the third quarter of the fourth century BCE, according to Ulitin.<sup>131</sup> The data obtained from the analysis of amphora stamps does not contradict this conclusion. At the same time, Ulitin also studied unstamped material and noticed an insignificant increase in imports in the third quarter of the third century BCE, which has not been evident from the analysis of amphora stamps.

The comparative analysis of the import contents at Phanagoreia, Labrys, Gorgippeia, and Elizavetovskoe also produced interesting results. At the beginning (from 410 to 360 BCE), Thasian products prevailed at Phanagoreia and Labrys, followed by imports from Herakleia, which at Gorgippeia and Elizavetovskoe surpassed by far imports from the other centers. Products from Mende and Akanthos are also present in great quantities everywhere except Elizavetovskoe (Fig. 4.12*b*). During the next period (from 360 to 336 BCE), imports from Thasos still prevailed at Phanagoreia and Labrys, followed by Sinopean products, which surpassed those from Herakleia. Imports from Mende and Herakleia comprise the third-largest group at these sites. At the same time, over half of imported products at Gorgippeia were from Sinope, followed by those from Thasos, Herakleia, and Mende. At Elizavetovskoe, by contrast, Herakleian products prevailed, while Sinopean imports were also very well represented, followed by those from Thasos and Mende. Products from Akanthos and Knidos are also represented at all these sites, in approximately equal proportions (Fig. 4.12*c*).

The next period (from 335 to 306 BCE) witnessed changes on the Northern Black Sea markets. The imports at Phanagoreia during that time were almost identical to those at Gorgippeia (in particular, the prevalence of Sinopean products and the increase in imports from Knidos have been recorded). At Elizavetovskoe, imports from Sinope also prevailed, followed by those from Chersonesos. Thasos was the second-largest importer at Phanagoreia, Gorgippeia, and Labrys, and the third-largest at Elizavetovskoe. Knidian products were completely absent at the latter site, while at Labrys they surpassed by far imports from all the other centers. As at Elizavetovskoe, a relatively high proportion of products from Chersonesos was also characteristic of Labrys (Fig. 4.13*a*). From 305 to 271 BCE, the contents of imports at all these sites were almost the same: Sinopean products prevailed almost everywhere, followed by imports from Thasos at Phanagoreia and Gorgippeia and by those from Herakleia at Elizavetovskoe (Fig. 4.13*b*).

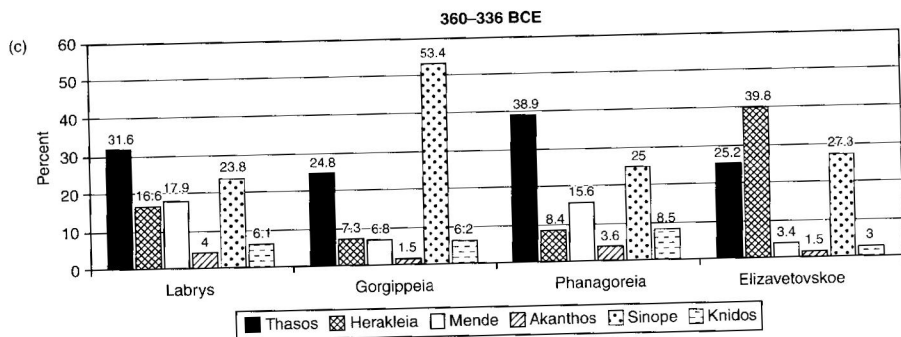
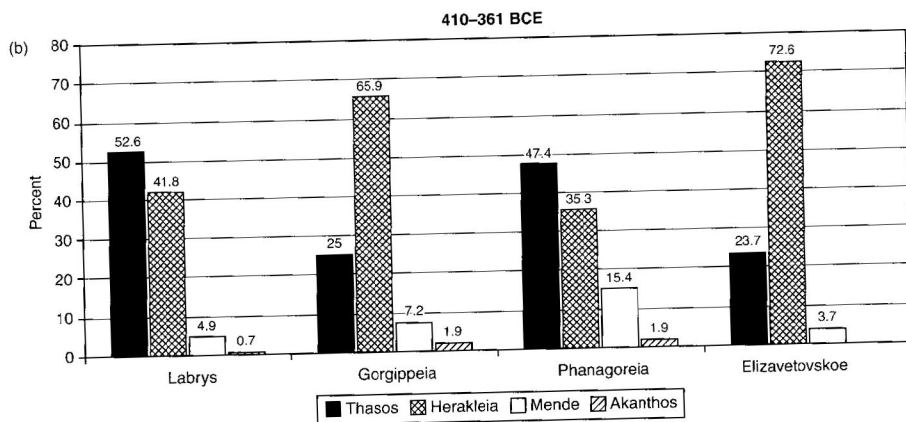
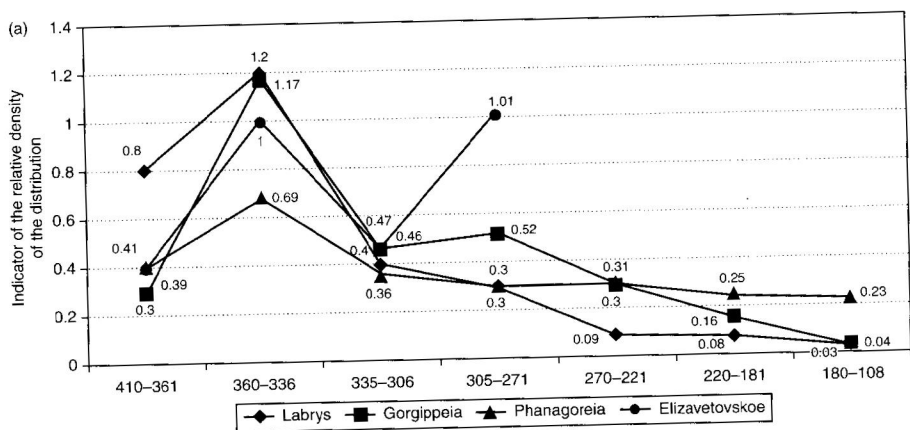


Fig. 4.12. Results of the comparative analysis of amphora stamps: *a* – dynamics of trade connections from the end of the fifth to the second centuries BCE; *b* – imports in 410–361 BCE; *c* – imports in 360–336 BCE.

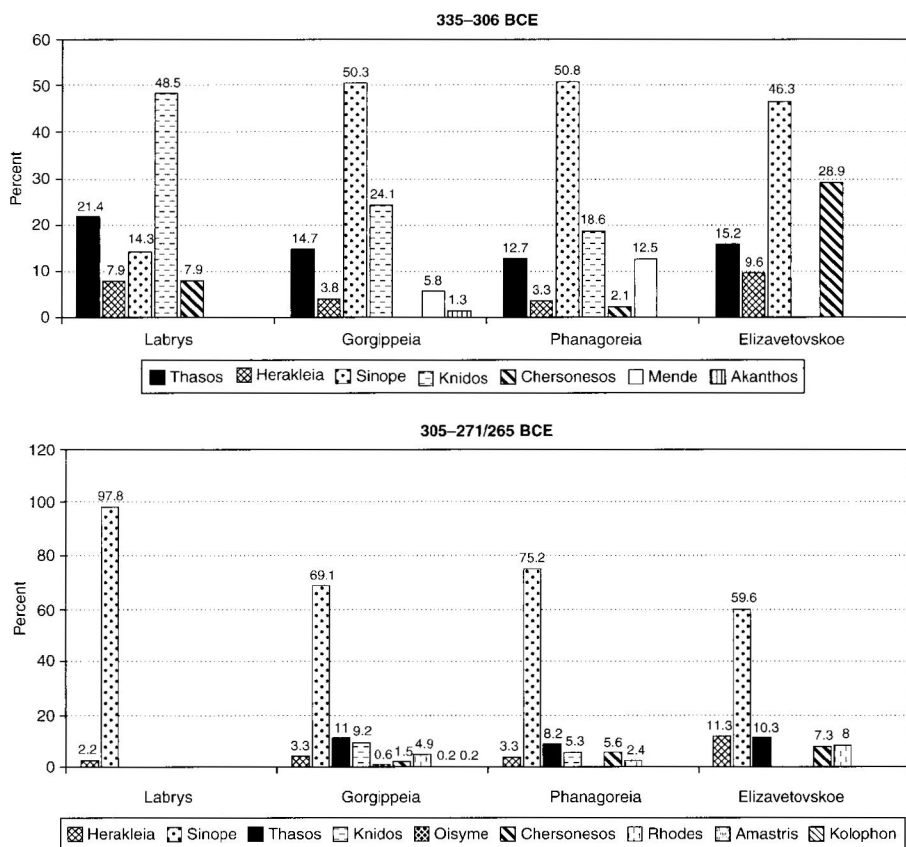


Fig. 4.13. Imports in 335-271/65 BCE: *a* - in 335-306 BCE; *b* - in 305-271/65 BCE.

Thus, it is evident that in the 330s BCE the Asiatic Bosphorus witnessed events that not only prompted a decrease in import volumes at all the sites in question, but also some major changes in the contents of the imported products. This is particularly true for Labrys, where Knidian imports prevailed after 335 BCE, with products from Thasos and Chersonesos present in high proportions. At the same time, imports at Phanagoreia, Gorgippeia, and Elizavetovskoe became almost identical, which was not the case during the previous period. The obtained results do not shed any light on the trade routes used for importing products to the Kuban region.

Presently, it would not be feasible to offer any reconstruction of the dynamics of Bosphorus trade connections for the later period. This is associated, first of all, with the absence of detailed typological schemes of the evolution of amphorae at various centers during the third and second centuries BCE, which makes the

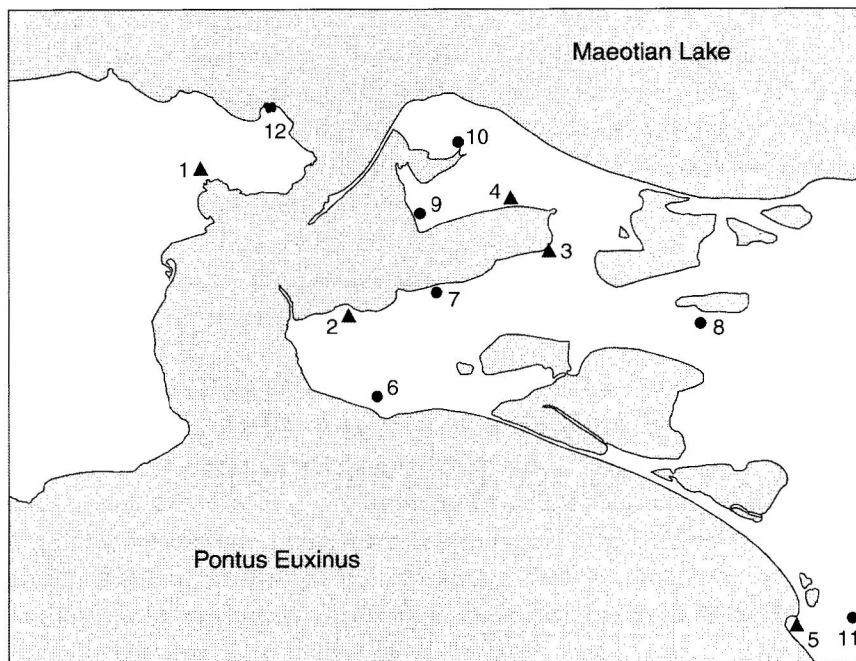


Fig. 4.14. Map of the Bosphorus: ▲ – cities (1 – Pantikapaion; 2 – Hermonassa; 3 – Phanagoreia; 4 – Patraeus; 5 – Gorgippeia); ● – rural settlements (6 – Volna-4; 7 – Taman – 3; 8 – Chubovo; 9 – Beregovoi – 4; 10 – Krasnoarmeiskoe – 1; 11 – Usatova Balka – 3, 4; 12 – General'skoe Zapadnoe, Pustynnyi Bereg I, Pustynnyi Bereg II, Pustynnyi Bereg III).

attribution of amphora fragments (toes and rims) within short chronological periods very difficult. In addition, the practice of amphora stamping ceased at most production centers in the beginning of the second century BCE. For all these reasons, we had to confine the paleoeconomic reconstruction offered above to the period from the fourth to second century BCE.

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