

# The Chronology of Settlements in the Lower Dnieper Region (400-100 BC)

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The Lower Dnieper region was settled by several population groups in the period under review. The creation of a unified chronology and a division into periods for the settlements of the Lower Dnieper region has been made possible as a result of the expansion of archaeological efforts in the 1980s and 1990s. Based on recent advances in dating, the analysis of new archaeological evidence and the revision of results derived from earlier materials is thus an important task.<sup>1</sup>

The chronology for the settlements in the region is based on the stratigraphy (although stratigraphical observations are complicated by the poor state of preservation of the cultural layer) and typology of the material culture. The chronological indicators are primarily ceramic, (amphora and tile stamps, imported pottery), but coins and fibulae also play a role.

The correlation of the stratigraphy and the chronology of the artefacts themselves are difficult, since we do not have at our disposal archaeological data from excavation in every settlement. But excavations have been conducted within every group of settlements known in this territory in the period under consideration, and the results may be accepted as representative in so far as no discrepancies have been revealed in the data from excavations and surveys. Specifically, we can use materials from the settlements Usad'ba Litvinenko (Stanislav 2), Glubokaja Pristan' (Sofievka 2) and Belozerskoe, located in territories to the east of the boundary of the Olbian *chora* of the Archaic period (Fig. 1). Out of eight excavated settlements in the inner Scythian lands of the Lower Dnieper we can select four in which fairly large areas were excavated in the 1980s-1990s – Pervomaevka 2, Černeča (Pervomaevka 3), Lysaja Gora, Kamenskoe (Fig. 1). As for the Late Scythian settlements (of which there are 15), the most complete data come from five of them – Znamenskoe, Zolotaja Balka, Gavrilovskoe, Annovskoe, Ljubimovskoe (Fig. 1).

Three settlements in the eastern part of the rural territory of Olbia offer much greater possibilities in this regard than synchronous Scythian sites in the inner territory. For Usad'ba Litvinenko we can use data from the excavations by M. Abikulova<sup>2</sup> and by the author of this article in 1990.<sup>3</sup> Stratigraphically we can clearly differentiate an early layer of yellow clay with several dug-out structures and a later layer of grey clay with above-ground dwellings and pits. Structures from the first building period contained a fill of pure clay without

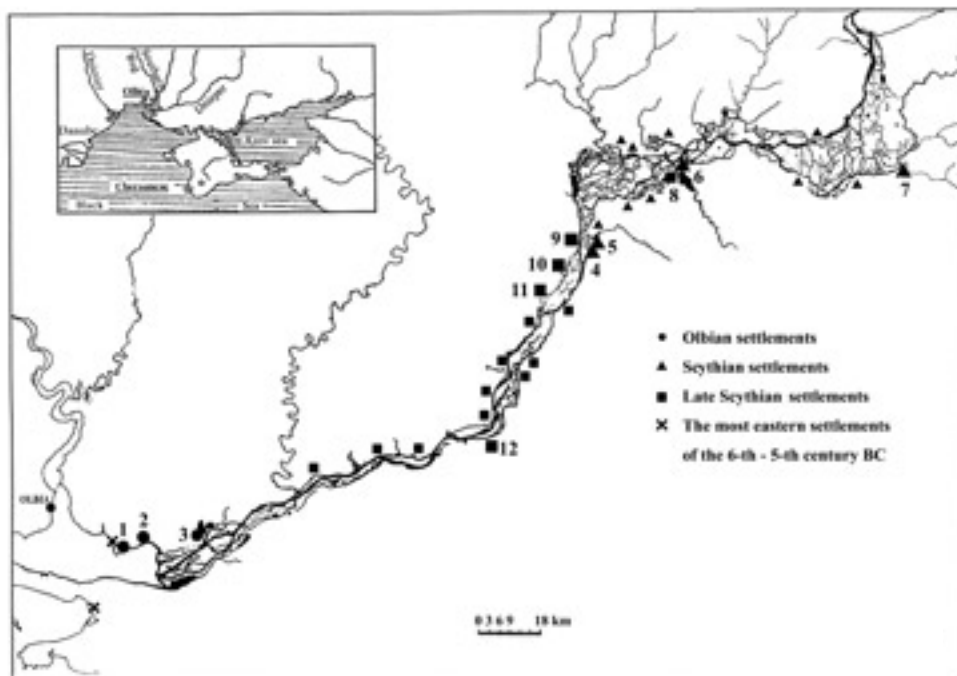


Fig. 1. Settlements in the Lower Dnieper region: 1) Usad'ba Litvinenko (Stanislav 2); 2) Glubokaja Pristan' (Sofievka 2); 3) Belozerskoe; 4) Pervomaevka 2; 5) Černeča (Pervomaevka 3); 6) Kamenskoe; 7) Lysaja Gora; 8) Znamenskoe; 9) Zolotaja Balka; 10) Gavrilovskoe; 11) Annovskoe; 12) Ljubimovskoe.

any artefacts. The earliest chronological indicator in the cultural layer is a Herakleian stamp ΑΦΑΙΣ | ΤΙΩΝ (in two lines) of the 1st group, dating to the first quarter of the 4th century BC.<sup>4</sup> Two stamps of the same group with the fabricants' names, ΑΡΧΕΛΑΣ and ΕΥΡΥΔΑΜΟΣ, were found in the fill of an ancient ravine. Such a combination of stamps is known from grave 64 of the Olbian necropolis, dating to 390 or the early 380s<sup>5</sup> and in an Olbian deposit discovered in 1947, and containing the same range of amphoras as the ravine fill – Thasian, Herakleian, Chian, and Murighiol type (Fig. 2.1-17). The date suggested for the Olbian depot of 1947 was in the 380s-370s<sup>6</sup> or the end of the 390s BC.<sup>7</sup> Contemporary with the stamps are vessels of Olbian production, consisting of cup-kantharoi (Fig. 2.20) from the end of the 5th century BC – first quarter of the 4th.<sup>8</sup> The mass of material in the cultural layer (including that from the first limited investigations by A.P. Mancevič, who discovered this settlement in 1947) is from the 4th century BC.<sup>9</sup> Amphora stamps are also encountered in a storage complex outside the settlement – there are two Herakleian amphoras with stamps ΕΥΦ[ΡΑΙΟΣ] | ΕΠΙ ΑΝΔΡΟΝΙ and ΜΥΣ ΕΠΙ | ΑΝΔΡΟΝΙ from the early third quarter of the 4th century, together with amphoras from Peparethos with letter-stamps.<sup>10</sup> In storage pit 11 of the second

building period were found: Chian cap-toes of the late amphora type<sup>11</sup> dated by M. Lawall to c. 300 BC; a Chersonesean stamp belonging to Group 1A from the 290s in V.I. Kac's classification, with the magistrate's name Agasikles;<sup>12</sup> several fragments of black-glazed kantharoi dating to the last third of the 4th century down to 300 BC;<sup>13</sup> and sherds of Thasian and Herakleian amphoras (Fig. 3.3-9). Synchronous types of amphoras and black-glazed vessels are encountered in the stratigraphically synchronous pit 13 (Fig. 3.10-15). On the floor of a dwelling destroyed by fire a stamped Chersonesean amphora (Fig. 3.1) was found *in situ*, with the name of Herodotos, one of the last magistrates in the 1st chronological group – 300-285 BC.<sup>14</sup> Thus, it appears that the settlement Usad'ba Litvinenko sprang up early in the 4th century BC, underwent reconstruction, probably at the end of the third quarter or early in the fourth quarter of the 4th century BC, and ceased to exist in the 280s BC. The archaic date for Usad'ba Litvinenko proposed by M.I. Abikulova<sup>15</sup> has not been confirmed.

The fortified settlement of Glubokaja Pristan' is situated to the east of Usad'ba Litvinenko. It was excavated by I.D. Ratner in 1950 and S.B. Bujskich in 1988-1991 (in 1991 together with the author of this article). Stratigraphically, the early yellow clay layer and the later grey clay layer with ash are differentiated. In several cases the lowest thin layer, identified as the remains of the levelled ancient surface, can be distinguished.<sup>16</sup> The early layer contains material from the first third of the 4th century BC, including a partly preserved Herakleian stamp of the 1st chronological group.<sup>17</sup> Finds of fragments of the Type-1 amphoras of Herakleia and early stamps, i.e. materials from the first quarter of the 4th century, are characteristic of the initial period of life in the settlement. Two Herakleian stamps were found above the floor of a dwelling in excavation area 9<sup>18</sup> – one of the first group, with the name ΣΩΤΕΡΟΣ in two lines,<sup>19</sup> dating to 390-380s,<sup>20</sup> and another with the name ΑΛΚΕΤΑΣ, a magistrate of the second half of the 370s.<sup>21</sup> There are isolated finds which do not belong to the 4th century BC. A decorated boar's tusk from a *zol'nik* (accumulation of ash) stands out from all the other finds by reason of its stylistic details and its early date, the end of the 6th-first half of the 5th centuries BC.<sup>22</sup> An Olbian cast "aes" dating to the second half of the 5th century BC was found in the fill of a ditch.<sup>23</sup> The toe of an Aeolian amphora (Fig. 4.15) – of the 5th century BC type<sup>24</sup> was found in pit 12 (1991). These finds cannot be linked with the general mass of artefacts, which come from the 4th century BC (Figs. 4 and 5), and mainly from the second and third quarters. To the small number of stamps from excavations we can add a chance find, made in 2002, of several amphoras. They include a Herakleian amphora stamped by ΣΩΤΕΡΟΣ | ΕΠΙ ΑΡΙΣΤΩ, dating to the second quarter of the 4th century BC.<sup>25</sup>

The last phase of occupation on the site is indicated by objects and finds from the end of the 4th-beginning of the 3rd centuries BC. A black-glazed kantharos with plain rim, spur handles, ribbed lower body and upper wall decorated with a simple garland of leaves applied in thinned clay over the

glaze (Fig. 5.1), dating from the last quarter of the 4th-first quarter of the 3rd century BC<sup>26</sup> and unguentaria, decorated with bands of dark red paint (Fig. 5.4), which in the northwest region of the Black Sea coast are found alongside materials from the end of the 4th century BC-first quarter of the 3rd,<sup>27</sup> were encountered in a dwelling surrounded by pits (excavation area 1, 1950). In the fill of semi-pit house 23 a Chersonesean stamp was found with the name Agathon Gnathonos, which occurs at the beginning of Group 2A, of the 280s BC.<sup>28</sup> There is a mention of the find of a Sinopean stamp of Demetrios<sup>29</sup> belonging to the beginning of the 4th chronological group dated 300-280 BC<sup>30</sup> or the early 270s;<sup>31</sup> the Herakleian stamp ETY | MOY of the last decades of the 4th century BC<sup>32</sup> is represented,<sup>33</sup> and a find of an Olbian "Borysthenes" coin is also mentioned.<sup>34</sup> Thus, the fortified settlement of Glubokaja Pristan' was founded at the beginning of the 4th century BC and existed until the early 70s of the 3rd century BC. In the opinion of S.B. Bujskich a first reconstruction occurred approximately in the middle of the 4th century and a general reconstruction is observed in all the excavations in, roughly, the early fourth quarter of the 4th century BC.

The settlement of Belozerskoe was excavated by the author in 1989, 1991-1993, 1995, 1997-1999, and 2001-2002. On the whole one can distinguish a layer of yellow clay lying directly on the subsoil, a layer of brick and stone debris, and, above them, a dark, disturbed layer. In cases where an ash-filled layer overlies the clay, its formation is connected with the levelling of the sector prior to new construction works. The earliest layer, lying directly on the subsoil, is a layer of quite dense yellow clay, containing almost no finds. In those cases where it was possible to identify undisturbed sections of the yellow clay layer, they contained only small, isolated fragments of pottery and bone. This makes it difficult to establish the date of the foundation of the settlement. No early Herakleian stamps have been found, but fragments of Type-1 amphoras are represented, and there are isolated fragments of Murighiol-type amphoras, which date to the first, or more rarely to the second quarter, of the 4th century BC<sup>35</sup> (Fig. 7). Chian import may aid in establishing chronology because of its predominance (30%). Fragments of early Chian straight-necked amphoras with conical cuff toes from the first decades of the 4th century (dated 390-380 by Lawall) are also found (Fig. 6.1). There are only a few sherds that could be of an earlier date. The earliest dates are provided by the few small toes of the late bulging-necked Chian amphoras, which are usually dated to the third quarter of the 5th century BC.<sup>36</sup> One toe was found in a pit with sherds of Sinopean roof tiles. It is small and short and hollow, but the hole is simple, and the edge of the hole is not incurved (Fig. 6.2). The colour of the clay is 5YR 6/6 on the Munsell chart, and the clay itself has dark, white, and micaceous inclusions. We cannot use such isolated fragments as evidence for the date at which life began in this settlement. We can observe a similar situation in the settlement of Novo-Fedorovka in the Crimea – Chian amphoras of the same type are found, though the main mass of material is dated to the second half of

the 4th century BC.<sup>37</sup> In Chersonesos the late bulging-necked Chian amphoras are encountered in the layer C-1 along with Chian cap-toed amphoras and early types of Thasian and Herakleian amphoras.<sup>38</sup> It has been noted that the late bulging-necked Chian amphoras are met in Olbia, in various complexes dating to the second half of the 5th century BC, and they are one of the most widespread groups, whereas early straight-necked Chian amphoras are represented in relatively small numbers.<sup>39</sup> The earliest dates provided by the coins which have been found in the settlement, Olbian cast specimens with a gorgoneion, are possibly 438-420 and 400-380.<sup>40</sup> The first date can only be established by taking into consideration the report of M. Dmitrenko in 1946 on the finds of two cast coins with a gorgoneion together with Solocha 2 type amphoras on the floor of a dug-out. The coins themselves, however, have not been preserved. The earliest coin from my excavation suggests a date of 400-380<sup>41</sup> for the stratigraphically early pit 57 (1999), while copper coins from the 380-350s are found in dwellings.

The upper layer has been destroyed by ploughing. Late stamps were found during surface investigations, but they relate directly to the destroyed cultural layer. There is a Chersonesean stamp which belongs to Group 1 dated to 325-285 BC, with the name of the magistrate Herodotos of the 280s according to Kac<sup>42</sup> and a Knidian stamp with a "prow" of 305-280.<sup>43</sup> Two similar stamps from Herakleia, with the name ETY | MOC, showing a lunate sigma, belong to the last decades of the 4th century BC.<sup>44</sup> It is interesting that, despite the large number of Sinopean stamps overall, they are not represented in the layer of the last period. Chian cap-toed amphoras of the very late 4th-early 3rd centuries BC are encountered in pits (Fig. 6.7) and in the upper cultural layer, along with Knidian amphoras of the same date (Fig. 7.3). Types from the beginning of the 3rd century BC are represented amongst the large collection of Koan amphora fragments (Fig. 7.4). Contemporary with the types of amphoras mentioned above are black-glazed kantharoi with thin rims and bodies that are not completely ribbed. They have a thin clay decoration in the form of simple garlands of leaves on the upper part (Fig. 8.17).<sup>45</sup> The coins of the last period are "Borysthenoi" from 300-280 BC.<sup>46</sup> They are found singly in the upper layer, among the ploughed-over material, and in a hoard. Their date coincides with that of the Chersonesean stamp. Thus, we have evidence indicating that life here ceased in the 280s BC.

The greater part of the material obtained from the deposits and the layers of the pre-reconstruction and reconstruction period dates to the second and third quarters of the 4th century BC.<sup>47</sup> This is true for all the stamps from a cultural layer. V.I. Kac, in a letter to the author dated Oct. 12 1994, proposes a date in the middle of the 4th century BC for the following Herakleian stamps: ΜΑΛΑΚΩΝ | unclear emblem | ΗΡΑΚΛΕΔΑΣ (this is identified as a new die); ΕΠΙ ΚΑΡΑΚΥΔΕΟΣ ΔΑΜΟ around a bunch of grapes; ΙΑΧΧΟΥ ΕΠΙ | caduceus | ΦΟΚΠΙΤΟΣ. Kac has attributed to the third quarter of the 4th century BC the Herakleian stamps ΤΙΜΩΛΥ | caduceus | ΣΠΙΝΘΑ (a new die);

ΣΤΡΟΥ | caduceus | ΘΕΥΜ; ΜΥΟΣ | caduceus | ΣΠΙΝΘΑΡΟ; ΜΑΤΡΙΟΣ | bunch of grapes | ΘΕΟΜ[ΕΝΗΣ] (a new die). Contemporary with them is a stamp on an amphora of Type 3 – ΑΜΦΙΣΤΡΑ | ΕΠΙ ΙΦΙΚΡΑ (line 2 is retrograde). There is a Herakleian stamp of the magistrate Kronios (middle of the 320s BC) and another ΗΡΑΚΛΕΙΔΑ | ΕΠΙ ΣΚΥΘΑ dating to the first half of 350s.<sup>48</sup> It is difficult to decipher correctly the rest of the Herakleian stamps, but all of them contain two names. Two fabricants' names – Damophon and Amphikrates – can be read.

Thasian stamps of Group F and the beginning of G are found. Of the names of magistrates, one can read ΠΑΝΦΑΗΣ, ΔΑΜΑΣΤΗΣ, ΑΜΦΑΝΑΡΟΣ, ΑΡΙΣΤΟΚΛ( ), ΤΙΜΑΡΧΙΔΑΣ. A stamp with name of the fabricant Bion and a bee as emblem can be placed in the group dated 342-330 BC.<sup>49</sup> Another specimen with ΜΕΓ[- -]ΩΝΟΣ | ΚΑΛΛΙΚΡ | ΑΤΗΣ (with the emblem of a gazelle) has been identified by Kac, in a letter of Oct. 12 1994 as a new die, and dated to the third quarter of the 4th century BC. In a closed complex in a cistern, filled with rubbish during a major reconstruction of a sector in the settlement of Belozerskoe, a stamp was found with the name of the magistrate Nauson, c. 335-325 BC in Debidour's chronology,<sup>50</sup> or the last quarter of the 4th century BC according to Avram.<sup>51</sup> Sinopean amphora stamps are represented along with the city's tiles. The tiles were manufactured by Poseidonios when Apollodoros and Histiaios were in office, though in one case the *astynomos* Philonikos is encountered. On the amphoras the stamps of the 1st- and 2nd-group magistrates Menalkes, Histiaios, Philon, Aischines, Theogeitos, Kallistratos, Epielpos, Charixenides, and Mantitheos are represented. The latest official is dated to about 317 BC according to Conovici<sup>52</sup> or to the third quarter of the 4th century BC according to Fedoseev.<sup>53</sup> Single letters and monograms are represented on Corinthian and Knidian amphoras, but they are no help in narrowing the dating. Finds of the Olbian coins are represented by bronzes with the Demeter's head on the obverse and an eagle on a dolphin on the reverse, dated to 380-360 BC, as well as by late cast specimens from 350-330 BC.<sup>54</sup> The date of the great reconstruction is determined by the finds in the early mud-brick debris (Sinopean stamps of Theogeitos and Mantitheos). Apparently it took place at the beginning of the last quarter of the 4th century BC. An absolute date can principally be established by the selection of amphoras and also by the black-glaze pottery as well as the numismatic material. Group 2 Sinopean amphora stamps from the brick debris are dated to the middle – third quarter of the 4th century BC in Fedoseev's chronology<sup>55</sup> or to the first decade of the last quarter of the 4th century BC according to Conovici.<sup>56</sup>

In these three settlements (Usad'ba Litvinenko, Glubokaja Pristan', Belozerskoe), located within a relatively limited area, the material is marked by its uniformity despite the abundance of finds. The truth is that, in analysing the mass of material rather than individual artefacts, chronological differences are only faintly discernible. Nevertheless, in all the settlements of this group we can distinguish an initial period of life, followed in the 2nd and 3rd quarters

of the 4th century by a period characterised by a very high level of imports, and then, after rebuilding, a last period of existence, ending in the first quarter of the 3rd century BC. The dates of the main periods of existence coincide in these neighbouring settlements. Inasmuch as the general set of amphoras in each of these settlements includes the same types, I propose to give a brief description of them in summary form.

In the main period, the amphora assemblage in the Belozerskoe settlement is distinguished especially by the predominance of Chian types; however the same types are encountered in every settlement under consideration although in different proportions. Amphoras of Herakleia Pontike comprise approximately 20% of the fragments in Belozerskoe and are predominant in the other two settlements, with Type-2 amphoras being characteristic of the main period. The amphoras of Thasos, dating to the 4th century BC, are represented in large numbers. While the biconical type is absolutely predominant in early types represented,<sup>57</sup> other types are encountered: fragments of amphoras with straight necks and wide shoulders, and others of pithoid shape. The amphoras of Sinope with rolled rims and cylindrical toes represent shapes belonging to the 4th century BC: Monachov's Types 1 and 2<sup>58</sup> are represented, along with Sinopean tiles and other vessels. The set of amphoras from the main period of life in the settlements includes Chalkidian amphoras, insofar as "Mendeian" amphoras were made at more than one centre,<sup>59</sup> and those of Peparethos, along with Solocha-1 type. Fragments of the Type-1 amphoras from Tauric Chersonesos are also found, among them types which some scholars consider to be of Bosporean manufacture.<sup>60</sup> To the second half of the 4th century BC also belong the "wheel-shaped" stamps of the amphoras of Akanthos.<sup>61</sup> The centres of manufacture of amphoras with different types of peg toe ("*kubarevidnaja*" in Zeest's typology) are not fully understood. Usually they have double-barrel handles and large mushroom rims. They probably belong to different centres, with some of them of Koan and Knidian manufacture. Fragments of Koan amphoras of the second half of the 4th century BC-beginning of the 3rd have been found. A few sherds from Usad'ba Litvinenko and Belozerskoe show similarities to Amastrian amphoras, but there are no stamps. Among the Corinthian amphoras, those of Koehler's Type B predominate in Belozerskoe, but there are also fragments of Type A vessels in Belozerskoe and Glubokaja Pristan'.<sup>62</sup> Single fragments of "brown-clay" Kolchian amphoras of the middle-second half of the 4th century<sup>63</sup> are also found (Fig. 2.11), and three fragments of grey-clay Lesbian amphoras of the same date<sup>64</sup> and one of red-clay amphora with part of a stamp were encountered in Belozerskoe. There are finds of small fragments of amphoras which are similar to Rhodian examples of the end of the 4th century BC, but not a single Rhodian stamp has been found.

Thus, from this description of the selection of amphoras, one may note a clear predominance of types from the second and third quarters of the 4th century BC. This corresponds with the dating of the black-glazed pottery

found in all the settlements. There are no 5th century types among the black-glazed pottery, and it is not even possible to identify narrowly dated material from the first quarter of the 4th century BC. The incised and stamped types of decoration characteristic of Attic black-glazed ware of the late 5th-early 4th centuries BC<sup>65</sup> are not represented among the materials obtained (Figs. 5 and 9). This may be explained by particularities in the flow of imports, but it possibly does determine the actual date of the beginning of life in these settlements. The selection of black-glazed pottery in the three settlements includes the common types, though with differences in quantity. A comparison demonstrates the relative differentiation in the selection of black-glazed pottery on the three sites, but no divergence in chronology.

Fragments of red-figured vessels are present in small numbers (Figs. 2, 4 and 9). "Bosporan" pelikai are of the early Kerch style of the first half of the 4th century BC.<sup>66</sup> In the settlement of Glubokaja Pristan' a fragment of a painted krater was found. Skyphoi are represented by a small number of fragments of types from the first half of the 4th century BC.<sup>67</sup> Contemporary with them in the group of plain black-glazed pottery are bolsals.<sup>68</sup> Light-walled cup-skyphoi with stamped decoration, and tall slender handles of square section rising above the edge of the rim are constantly encountered. They stand on a low ring foot, decorated with bands of glaze on the outer surface of the bottom and stamped ornamentation on the inner. They are dated to the second-third quarters of the 4th century BC.<sup>69</sup> With some fragments it is unclear whether they belong to one- or two-handled vessels. In the main these are represented by the bottoms on a low ring foot and with stamped and incised decoration (linked palmettes within rouletting) on the inner surface. Such vessels achieved wide distribution in the second quarter of the 4th century BC.<sup>70</sup> One-handled cups set on a low ring foot were a popular shape; the body walls are slightly profiled, with an out-turned rim, and the handle is triangular. They are completely covered by the glaze. This is predominantly a shape of the second quarter of the 4th century BC.<sup>71</sup> Other vessels are analogous to finds in Attica dated to the second half of the 4th century BC.<sup>72</sup> Cup-kantharoi of the second half of the 4th century BC are found, with moulded rims of almost triangular section, often massive and overhanging.<sup>73</sup> Kantharoi are represented by common types with a smooth body and plain rim. They may be assigned to the second-third quarters of the 4th century BC.<sup>74</sup> Fish-plates and ordinary dishes show a wide range of dates within the 4th century, as do bowls with incurved rims. Bowls with out-turned rims have completely straight walls and are covered with a thick, shiny glaze. They belong to types of the third quarter of the 4th century BC, though the latest date to the last quarter.<sup>75</sup> The large numbers of lekythoi represent shapes of the 4th century BC - "reticulated" ("netted"), red-figured examples with palmettes, and large ones with spherical bodies.<sup>76</sup> Askoi-gutti with small looped and fluted handles are found in Belozerskoe, dated to the second-third quarters of the 4th century BC.<sup>77</sup> The lamps belong to a type widespread in the first half-third quarter of the 4th century BC, which char-



acteristically have a high, smoothly rounded body completely covered, inside and out, with glaze, and a bottom in the form of a solid base.<sup>78</sup> Round lamps covered with glaze are also found with massive, elongated nozzles of square section, more characteristic of the second half of the 4th century BC.<sup>79</sup>

The earliest finds and structures in these settlements are from the first quarter of the 4th century BC and do not establish whether or not these settlements were founded simultaneously; finds from the first quarter of the 4th century BC are encountered more or less widely in every excavation area. Because of the chronological coincidence now revealed, it is possible to propose 390-380s as the date for the foundation of these settlements. In these settlements in lands to the east of the boundary of the Olbian *chora* of the Archaic period, we can trace two building periods at least within the limits of the 4th century and first quarter of the 3rd century BC, followed by a cessation of life there. Thus, the cessation of life at the mouth of the Dnieper River must be dated to the end of the first quarter of the 3rd century BC. Above all, the date is determined on the basis of the current chronology of Chersonesean stamps worked out by Kac. Further refinement and any fundamental changes in the chronology of the *astynomoi* of the first two groups may entail a change in the upper date for the settlements' existence, but it fits the numismatic and amphoric data and the latest black-glazed vessels. It was earlier thought that in the eastern part of the rural hinterland the settlements survived down to the 2nd century BC,<sup>80</sup> but the chronology presented here overturns that view. As far as our settlements are concerned, they contain no traces of hostile attack, but some of them were probably hurriedly abandoned. This situation contributes to the general picture of crisis in the northern Black Sea region in the first half of the 3rd century BC.

The fortified settlements under review which arose in this part of the region in the 1st century BC<sup>81</sup> lie outside the scope of this paper.

The difficulty of chronological reconstruction and division into periods for the inner Scythian settlements derives from the fact that these sites often have only a slender cultural layer, with extremely fragmented ceramics and a meagre quantity of dating material. The chronology of the settlements in Scythia is based mainly on the largest and most thoroughly investigated Kamenskoe fortified settlement. One can now combine the results of the first investigations on the site<sup>82</sup> with information from the excavations of 1987-1998.<sup>83</sup> The earliest finds from Kamenskoe are a Thasian stamp ΔAMA | ΘΑΣΙΟ | ΣΑΤΥ, published by Plešivenko,<sup>84</sup> one of the first stamps in Group B, of the early 380s,<sup>85</sup> and an Istrian coin<sup>86</sup> from the end of the 5th beginning of the 4th century BC.<sup>87</sup> N.A. Gavriljuk, who distinguished two excavation areas as being the earliest, dated one of them, on the basis of finds, to the second half of 5th-first half of 4th centuries BC and the other to the end of 5th-first half of the 4th century BC.<sup>88</sup> She has postulated a fifth century date on the basis of Thasian stamps and fragments of two light clay vessels with stripes painted in a reddish-brown colour ("Ionian"). However, Thasian stamps cannot serve as

a foundation for such an early date since the stamping of Thasian amphoras is thought to begin only in the 4th century BC, c. 395-390.<sup>89</sup> Wheel-made pots decorated with red and brown stripes were widespread on the north coast of the Black Sea in the Classical and Hellenistic periods, a large number of them of local manufacture, including Olbian; it has been noted that Olbian painted decoration was always reddish in colour<sup>90</sup> (Fig. 2.18-20). Thus such an early date for the foundation of Kamenskoe is not convincing. As regards the upper date one can point to the Group-3 Sinopean stamps and a stamp from early Group 4 along with Chersonesean stamps. The Chersonesean stamps (ΑΠΟΛΛΟΝΙΔΑΣ, ΕΥΚΛΕΙΔΑΣ, ΝΑΝΩΝ, ΗΡΟΔΟΤΟΣ, ΗΡΟΞΕΝΟΣ, ΑΘΑΝΟΔΩΡΟΣ ΝΙΚΕΑ, ΗΡΟΚΑΣ) belong to Group 1 and sub-group A of Group 2, i.e. they date from 325 to 272 BC.<sup>91</sup> Only two *astynomoi* belong to the 2nd group, and then only to the first part of the list, which is dated to 280-270 BC. The latest coins are Olbian "Borysthenoi" of 300-280 BC, which show up in the excavations and in hoards.<sup>92</sup> The Thasian and Herakleian stamps fall within the limits of the 4th century BC, to the last quarter of which belongs a stamp ΕΤΥ|ΜΟΥ. Among the Sinopean stamps, Group 1 is represented by Endemos, Apollodoros, Philon, and Aischines 2. From the 2nd group we have Mnesios 1, Epielpos 1, Apollodoros 2, Poseidonios 3, Poseidonios, son of Hephaistodoros, Theopeithes; from the 3rd group Hikesios, Phorbas 2, Borys, Mnesikles, and from the beginning of the 4th group (279-258 according to Conovici 1998), Hekataios 1. Unstamped ceramic containers belong to 4th century types, as do the few fragments of black-glazed pottery. This is true both for Grakov's finds and those from the new excavations<sup>93</sup> (Fig. 10). Fourth century finds include coins from Histiaia in Euboeia, Macedonia, Chersonesos, Pantikapaion and Olbia. All this demonstrates, contrary to Gavriljuk's opinion, that the settlement of Kamenskoe was founded in the early 4th century and was occupied down to the 270s BC.

In the settlement of Lysaja Gora the earliest material comes from surface surveys and belongs to the first quarter of the 4th century. It consists of an early Herakleian stamp of the fabricant Theoxenos and a Thasian stamp ΦΑΣΙΩΝ|ΑΠΙΣΤ.<sup>94</sup> Among wheel-made vessels fragments of Thasian and Herakleian amphoras predominate (Fig. 11.1-13). The latest find in the excavation is a Chersonesean stamp of Xenon, dated to 300-285 BC,<sup>95</sup> and encountered in the upper layer.<sup>96</sup> Coin finds are concentrated in the largest fortified settlement of Kamenskoe, which is considered to be the centre of trade.

The author conducted excavations in Pervomaevka 2 in 1985-1987. An area of almost 1000 m<sup>2</sup> was uncovered, but few chronological indicators were found. Among the finds there is only one, Sinopean, stamp, belonging to the 2nd group, with only the name of the fabricant Philokrates clearly legible. According to Fedoseev it dates to the third quarter of the 4th century BC. Only four amphora toes were encountered in the excavations (two Herakleian and two Sinopean) and another Sinopean was found in the survey. Among the amphora fragments, Herakleian (types 1, 2, 3) and Thasian containers

dominate. Thasian amphoras are predominantly of the biconical type, but one is conical. Sinopean jars belong to variant 1D of the third quarter of the 4th century BC and to variant 2A, dating from the turn of the 1st and the 2nd centuries.<sup>97</sup> No Chian cap-toes were found, but fragments from the upper parts of straight-necked Chian amphoras are present. One small fragment of a black-glazed cup was also encountered. Thus, all the imported vessels may be dated to the 4th century BC (Fig. 11.14-24).

In the settlement of Černeča an area of 510 m<sup>2</sup> was uncovered by the author. No stamps or black-glazed ceramic are present. Three amphora toes belong to Thasian, Chalkidian and Herakleian jars respectively. There are other parts of Chian and Sinopean amphoras as well as Koan examples with the double-barrel handles. Such a combination of amphoras would seem to be characteristic mostly of the second and third quarters of the 4th century BC (Fig. 11.25-32).

The stratigraphy and the material from the Scythian settlements offer fewer possibilities for working out the chronology. The foundation of Kamenskoe and Lysaja Gora may be dated by the finds of amphora stamps to the 90s or 80s of the 4th century BC. According to the latest material – again amphora stamps and numismatic data – the cessation of life in these two Scythian settlements occurred in the 80s (Lysaja Gora) and the late 70s (Kamenskoe) of the 3rd century BC. Two other settlements existed in the 4th century BC.

In reviewing these results one may note that the material in the “Greek” and Scythian settlements is synchronous, but there are no early Thasian stamps in settlements of the southern territory in the initial period of their existence. There is also an essential difference in the contemporary numismatic finds in the two groups of settlements. As for the dating material for the last period of existence of the settlements in the Lower Dnieper region, one notes the coincidences in the set of stamps and the “Borysthenoi” in the outer and inner groups, but there is more of the late material, in particular Chersonesean and Sinopean stamps, at Kamenskoe. In the outer settlements only the first magistrate in Group 2 of Chersonesean stamps is represented while in Kamenskoe we find the second and the fifth. Sinopean stamps of the 3rd group are prominent only in Kamenskoe, but the latest Sinopean stamps are of the early 4th group in both Kamenskoe and Glubokaja Pristan’. Chronologically, no real distinction emerges between the settlements located in the two zones of the territory under consideration. On the evidence just set out we may conclude that the inner and outer settlements existed synchronously and ceased to exist more or less simultaneously.

Later, new sites appeared in Scythian territory. Some of these new fortified settlements are apparently located on the sites of earlier seasonal camps in the region of the river crossings, insofar as there are isolated finds from the 4th century. In the 1950s-1960s some materials were dated to the 3rd-2nd centuries, and this was the basis for the belief that there was a continuous Scythian presence in the Lower Dnieper region and an uninterrupted tran-

sition to the Late Scythian culture. The revised chronology invalidates this hypothesis, and the archaeological data indicate a temporary abandonment of this region.

Among the Late Scythian fortified settlements Znamenskoe is the only one with an early layer of the 4th century BC.<sup>98</sup> The corrected dates show a group of finds at the settlement of Znamenskoe dating to the 4th and first quarter of the 3rd centuries BC, with the main mass not earlier than the middle of the 2nd century BC. Amphoras widely dated to the 4th-3rd centuries BC by N.N. Pogrebova<sup>99</sup> are of types which belong to the 4th century BC, as do the Thasian and Herakleian stamps. The latest of these is a Herakleian stamp with the name ETY|MOC, discussed above. Chersonesean stamps with names Apollonidas (Group 1A) and Kotytion (Group 2A) date from the end of the 4th to the 280s BC in Kac's classification.<sup>100</sup> The Rhodian amphoras were dated by N.N. Pogrebova to the 3rd century BC and the Koan to the end of the 3rd and the 2nd century BC. Seven fragments of Rhodian amphoras were found, including three stamps. Two stamps contain the month ΠΑΝΑΜΟΥ, with the magistrate ΑΡΧΕΜΒΡΟΤΟΣ in one case; the third is round, with a flower as the emblem.<sup>101</sup> Archembrotos 1 belongs to the 5th chronological group dated c. 145-108 BC, and his year is c. 134/133.<sup>102</sup> The Koan stamps can hardly be considered a reliable tool for narrow determinations of chronology, but we may note that a Koan stamp, ΑΔΑΙΟΥ, of the early 1st century BC<sup>103</sup> was found in Znamenskoe and another, which reads ΒΑΣΙΛΕΙΔΟ, recorded also from the 2nd century layers of the Scythian Neapolis.<sup>104</sup> These were initially dated to the 3rd century BC by N.N. Pogrebova. There are also two Sinopean stamps of a date not earlier than the second quarter of the 2nd century BC (according to Fedoseev), ΓΑΥΚΟΥ and ΝΟΥΙΟΥ; the latter was found with a Rhodian stamp of Group 5 in layer D at Neapolis, which is dated not earlier than c. 137-130 BC.<sup>105</sup> Two fragments of lagynoi have been found, one perhaps of Rhodian manufacture, and there are finds of "Megarian" bowls. According to Rotroff's data, lagynoi are characteristic for the period from the 3rd to the 1st centuries BC, being especially popular from 150 to 50 BC.<sup>106</sup> J. Bouzek, who worked with the collection of "Megarian" bowls from both the settlement of Znamenskoe and from the graves, has distinguished five different groups:

- “1. The “Ephesus” black-glazed Ionian bowls are most common. 2. The thinner Ionian two-coloured low bowls are second in number. 3. Very low one-coloured bowls with broad leaves and rosettes, probably of Samian fabrication (2 pieces). 4. One fragment of a Late Pergamene bowl with an S-profiled rim. 5. Several crude unglazed fragments, which might be local Pontic products.”<sup>107</sup>

The chronology of the mould-made bowls, especially from Ionia, is not firm, but the period of maximum distribution is the second half of the 2nd century BC.<sup>108</sup> “Megarian” bowls in the late Scythian fortified settlement of Kara-Tobe

in the Crimea (where the cultural layer is dated to the second quarter of the 2nd-first half of the 1st century BC) are mainly of Ionian manufacture. Some types have been identified that belong to 175-150 and 150-100 BC.<sup>109</sup> From the settlement of Znamenskoe comes a find of a single fibula of middle La-Tène form, datable to the second half of the 2nd century BC, according to K.V. Kaspárova.<sup>110</sup> An Olbian coin, once dated to the end of the 3rd century,<sup>111</sup> but more recently to 160-150 BC<sup>112</sup> is known from survey. The main mass of material is the same in all the Late Scythian settlements. It is described summarily in the following, and dates from the 1st century BC. The earliest artefacts may place the foundation of Znamenskoe in the second half of the 2nd century BC with the 130s BC as *terminus ante quem*.

In the fortified settlement of Gavrilovskoe<sup>113</sup> isolated finds from the 4th century BC are present, but finds on the original floor of the earliest dwelling were dated by Pogrebova to the end of the 2nd-1st century BC. These include a skyphos from the first half of the 1st century BC and a cup from the 1st century BC.<sup>114</sup> Also found at Gavrilovskoe was the bottom of an Egyptian alabastron made of coloured glass of the Hellenistic period.<sup>115</sup> Analogous articles in Samothrace are dated to the 1st century BC.<sup>116</sup> Among the finds a sherd of a red-glazed "Megarian" bowl<sup>117</sup> and a fragment of a lagynos are mentioned.

In the settlement of Zolotaja Balka two building periods were identified, the earlier lasting from the end of the 3rd century through the 2nd-1st centuries BC.<sup>118</sup> M.I. Vjaz'mitina concluded that the settlement was preceded by a Scythian camp of the 4th-3rd centuries BC. Now, however, all amphora fragments are dated to the 4th century. Vjaz'mitina's date for the foundation of the settlement rests first of all on Sinopean import of the 3rd-2nd centuries BC.<sup>119</sup> The Sinopean amphora toes<sup>120</sup> belong to the 4th century types. A Sinopean stamp was found and dated to the 3rd-2nd centuries BC.<sup>121</sup> N.F. Fedoseev now reads ΖΩΠΥΡΙΩΝΟΣ | ΑΣΤΥΝΟΜΟΥΝ | ΤΟΣ ΚΟΥΡΥΛΟΥ (with two emblems) and dates the stamp to the 320s BC. This stamp belongs to chronological group 3, and the latest date proposed for it is the very end of the 4th century BC.<sup>122</sup> Vjaz'mitina further considered certain amphora fragments to be Koan of the 3rd-2nd and the 2nd-1st centuries BC, which in fact come from later products of other centres.<sup>123</sup> The materials obtained do not support a date for the foundation of the settlement in the 3rd century or at the turn of the 3rd and the 2nd centuries BC as proposed by M.I. Vjaz'mitina and later by M.B. Ščukin.<sup>124</sup> The earliest layers and objects contain fragments of Pergamene kantharoi with white painting, glazed cups and bowls. Vjaz'mitina made no mention of finds of Rhodian amphoras or Megarian bowls. Thus, in this settlement she noted finds of imported pottery from Asia Minor with a broad range of dates in the 2nd-1st centuries BC, but no finds are identified with a narrow 2nd century date.<sup>125</sup>

At Annovskoe an area of 900 m<sup>2</sup> was uncovered in 1984, 1986, and 1987.<sup>126</sup> The date proposed by one of the authors for the earliest buildings, the end

of the 3rd and the 2nd century BC, may have to be revised. The Chersonesean stamp of Bathyllos, of 325-315 BC according to Kac<sup>127</sup> was incorrectly read and dated to the end of the 3rd-2nd centuries BC.<sup>128</sup> A "Hellenistic cup" was found on the lowest floor of a stratigraphically early building. This cup (no. 566 in the collection of 1987, Fig. 12.2) of cylindrical shape with typical ring foot is analogous to finds in Zolotaja Balka with a date in the 2nd-1st centuries BC.<sup>129</sup> Gavriljuk also considers a fragment of a glazed vessel with painted decoration and some bronze earrings to be a basis for an early date in the 3rd-2nd centuries BC.<sup>130</sup> This fragment of the kantharos - no. 332 in the collection of 1987 (Fig. 12.1) - has analogies in Zolotaja Balka, in a group of Pergamene ceramic of the 2nd-1st centuries BC.<sup>131</sup> With regard to the earrings as a chronological indicator for the second half of the 3rd century BC, one may have doubts about their narrow dating, since even the grave in the necropolis of Zolotoe in the Crimea, which contains the earrings proposed by Gavriljuk as an analogy and basis for her date, is dated to the 1st century AD by V.N. Korpusova.<sup>132</sup> This settlement is similar to Zolotaja Balka in its material culture and is situated close to it.

In the settlement of Ljubimovskoe, following work by various scholars in 1926, 1927, 1929, 1951, 1952, 1972, and 1978, excavations were renewed by M.I. Abikulova in 1988-1990. She identifies two building periods, with an early one lasting from the 2nd-1st centuries BC until the end of the 1st century AD.<sup>133</sup> The early structures include the usual set of amphoras from the 1st century BC, and fragments of "Megarian" bowls (Ionian) are mentioned along with them. Sherds of glazed pottery from Asia Minor were also found and a chance find of a cup is known (Fig. 12.4-5).

Thus, we see a divergence between the dating of the amphoras and the isolated ceramic material. In the northern Black Sea littoral Rhodian amphoras are found en masse in the 2nd century BC sites, but they are absent from our settlements with the exception of Znamenskoe. These isolated artefacts may determine the beginning of renewed occupation in the second half of the 2nd century BC of the territory abandoned earlier. The presence of lagynoi and "Megarian" bowls is the main reason for updating to the 2nd century BC, but lagynoi are current in the late 2nd-early 1st century BC along with "Ionian" relief-ware.<sup>134</sup> If we set aside the settlement of Znamenskoe, the earliest group of amphoras in all the Late Scythian settlements dates from the 1st century BC-1st century AD, according to Vnukov's chronology (Fig. 13). The most common amphora type in the early strata is wide-necked, with double-barrel handles, a cigar-shaped body and cone-shaped or acorn-shaped toe (Type C 1). They are probably late Koan or come from the south coast of the Black Sea - from Sinope and Herakleia.<sup>135</sup> Fragments of amphoras are also found with oval-sectioned handles (Type C 2). Amphoras with profiled handles, an elongated body and conical toe are represented (Type C III A). Their date, based on the materials from the north-western Crimea, may be narrowed down to the last quarter of the 1st century BC-first half of the 1st century AD.<sup>136</sup>

As for the numismatic evidence, two Olbian coins of the second half of the 2nd century BC were found by chance on the Lower Dnieper settlements. One is mentioned above (in Znamenskoe), the other – a coin of Skilouros – is known from surveys in the settlement of Kopulovka 4,<sup>137</sup> and is dated 130-120 BC according to Anochin.<sup>138</sup>

It is possible that the foundation of Znamenskoe marks the first penetration of a new population into the Lower Dnieper region in the second half of the 2nd century BC after a gap in occupation, but it is more likely that the foundation of the other fortified settlements occurred at the end of the 2nd-beginning of the first century BC.

In summing up the results of the new investigations into the chronology of the settlements of the Lower Dnieper, one may distinguish several periods in the life of the population of the region, periods which are linked to changes in the historical situation in Olbia, in Scythia and in the north Black Sea littoral as a whole. Despite cultural differences within the population, the division into periods of the settlements shows the same periods of existence with small chronological distinctions. The first period of settling begins in the early 4th century BC and continues down to the first quarter of the 3rd century. Furthermore, from the second third of the 3rd century to the middle of the 2nd BC, there is no archaeological evidence of the presence here of a Scythian or any other population. This is equally true for settlements and not only burials, as has been asserted.<sup>139</sup>

The third period embraces the chronological interval from the second half of the 2nd century BC to the first centuries AD, but the return to a settled way of life, judging by the mass of material in the lower strata of the settlements, occurred more or less simultaneously in the 1st century BC. Nevertheless, the presence of isolated finds from the second half of the 2nd century BC requires explanation. One may suggest that separate population groups gradually penetrated into the territory where the nomadic Scythians had formerly lived, and the continuous deliveries of goods in amphoras began when the *chora* of Olbia was reborn. The earliest material of the 2nd century BC is present only at Znamenskoe, which was perhaps founded earlier than the other settlements. There is no stratigraphic confirmation of this; there are no complexes which do not contain amphoras of the 1st century BC. Likewise, the material from the burials provides no early dates.

As a result of the more precise chronology, shifts in the material culture and the ethnic composition of the population in the territory of Scythia can be traced. Comparison of the chronology derived from archaeological data with the epigraphic or literary evidence is difficult, since the sources at our disposal do not relate directly to this territory at this time. Because of the chronological discrepancies now revealed, it is no longer possible to link the decree in honour of Protogenes with the population of the Lower Dnieper settlements.<sup>140</sup> The revised chronology of their existence has thus allowed us to make corrections to the earlier reconstruction of the historical situation in the region.



Fig. 2. Pottery [1-17] amphoras, 18-20) painted tableware; 21-24) black-glazed ware] from filling of the ancient ravine in the Usad'ba Litvinenko settlement (collection of the Cherson regional museum).



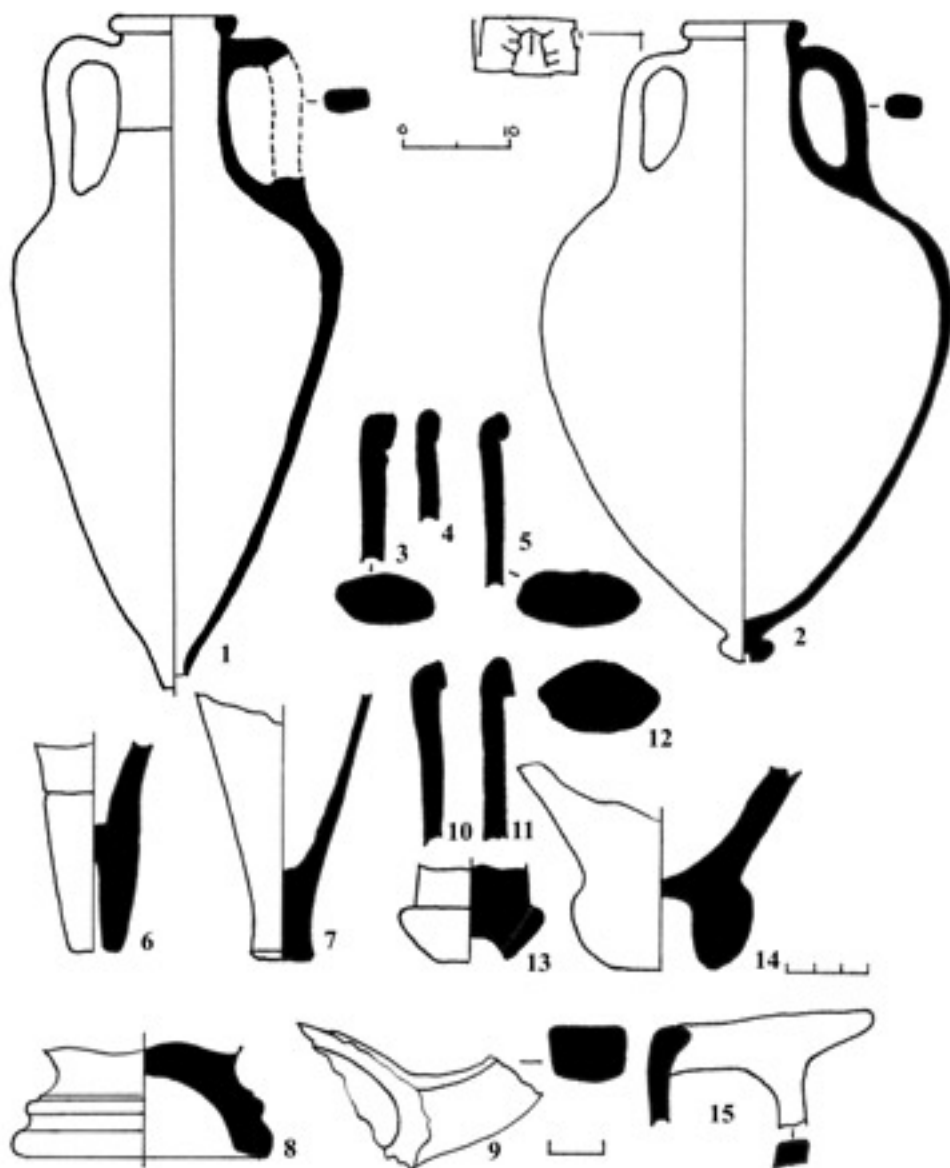


Fig. 3. Pottery [1-7, 10-14] amphorae; 8-9, 15] black-glazed ware] from the dwelling (1-2), pit no. 1 (3-9), pit no. 3 (10-15) in the Usad'ba Litvinenko settlement (collection of the Cherson regional museum).

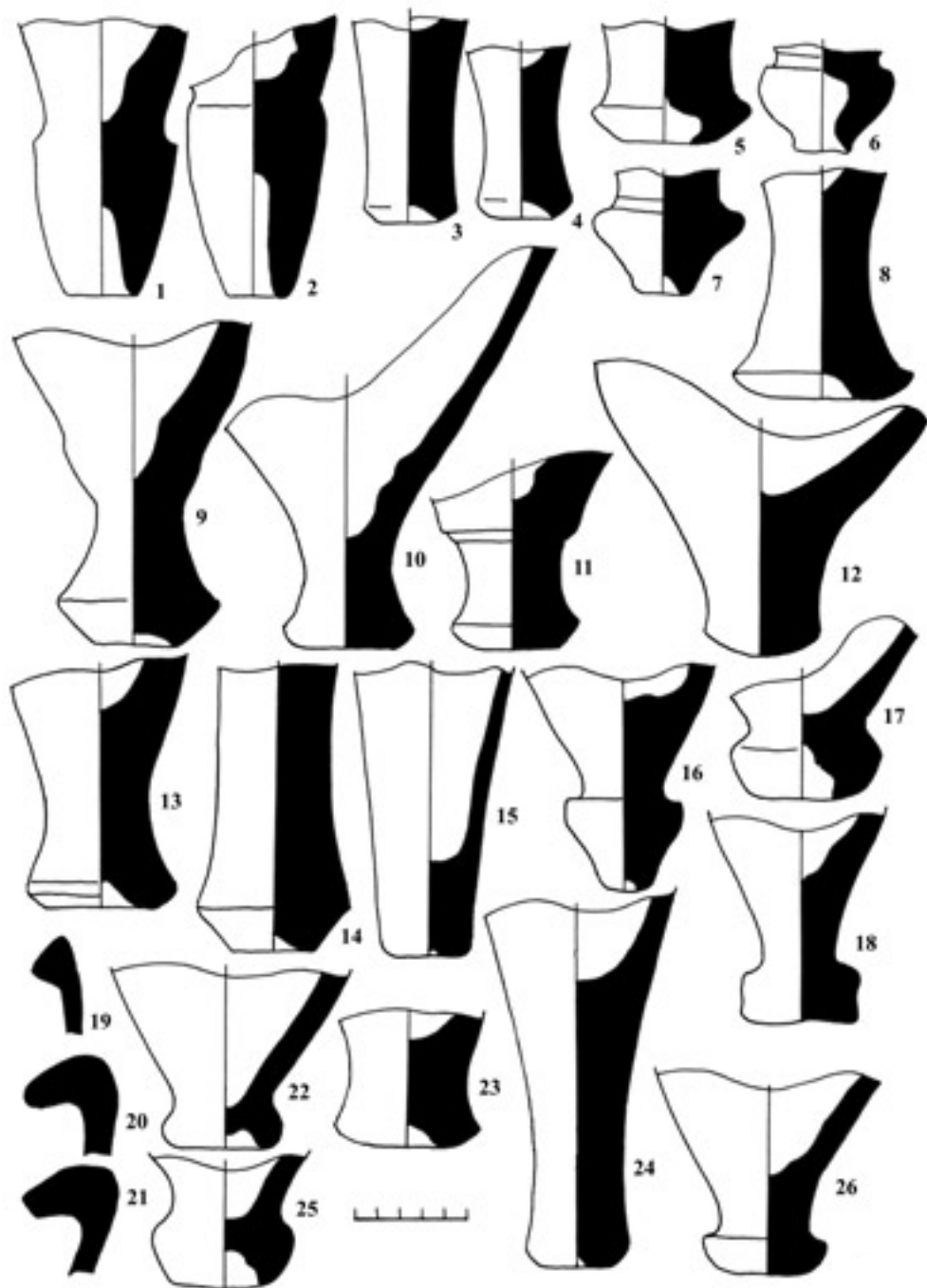


Fig. 4. Types of amphoras from excavations of 1950 and 1991 in the Glubokaja Pristan' settlement (collection of the Cherson regional museum).



Fig. 5. Black-glazed pottery and unguentarium from excavations of 1950 and 1991 (5-10) in the Glubokaja Pristan' settlement (collection of the Cherson regional museum).

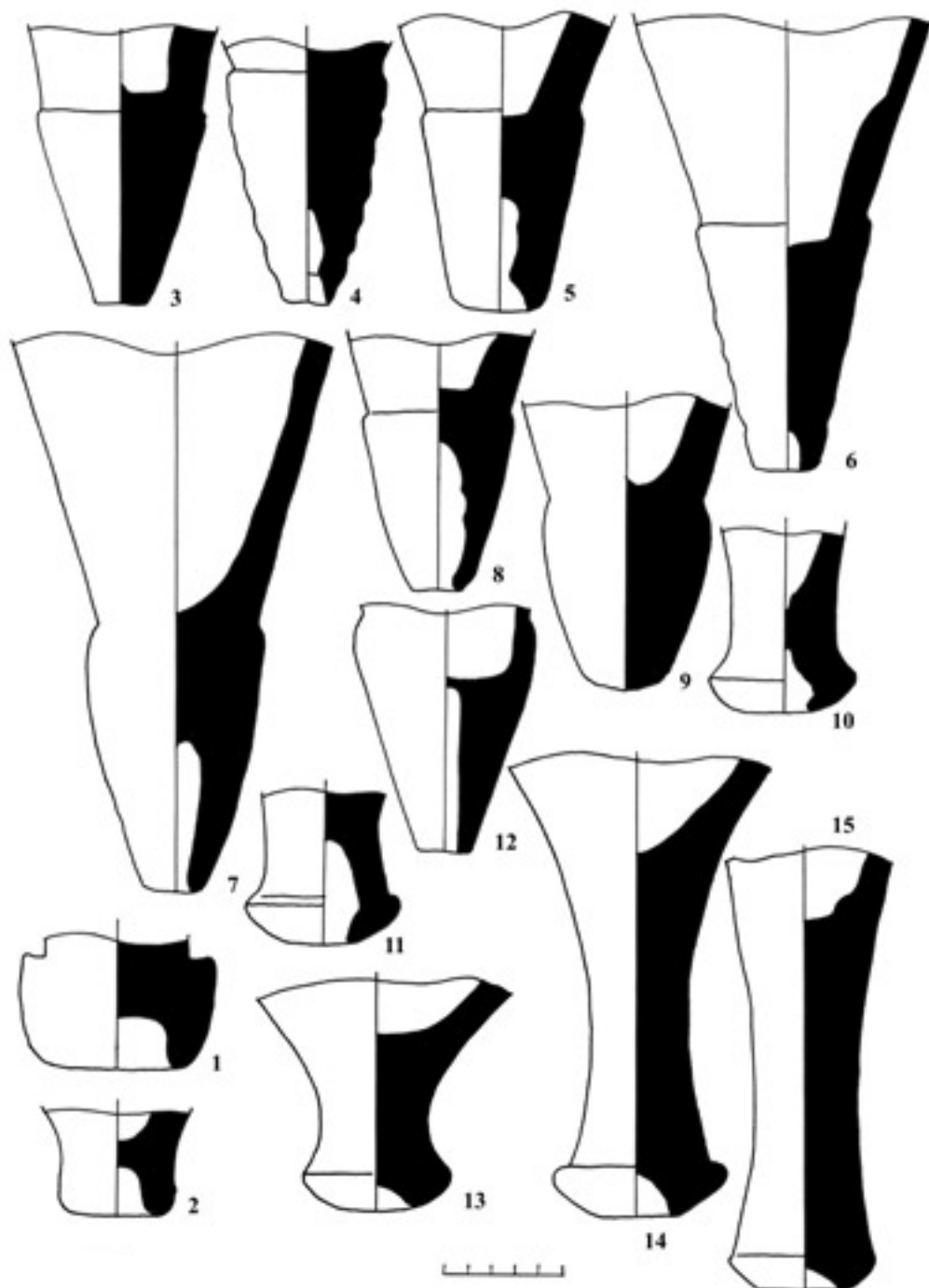


Fig. 6. Types of Chian and Thasian amphoras from the Belozerskoe settlement (collections of the Cherson regional museum and the Cherson State University).

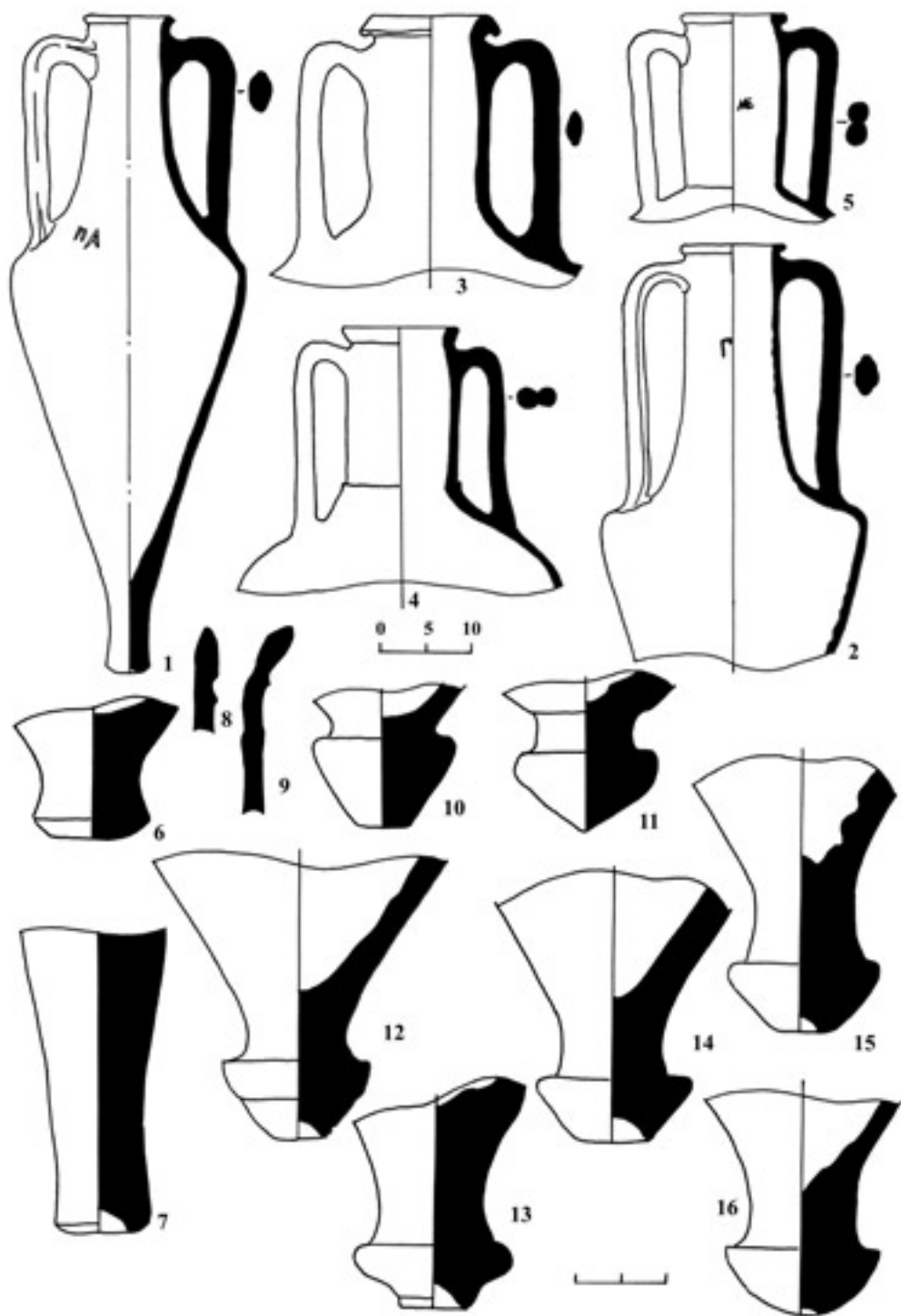


Fig. 7. Types of amphoras from the Belozerskoe settlement (collections of Cherson regional museum).

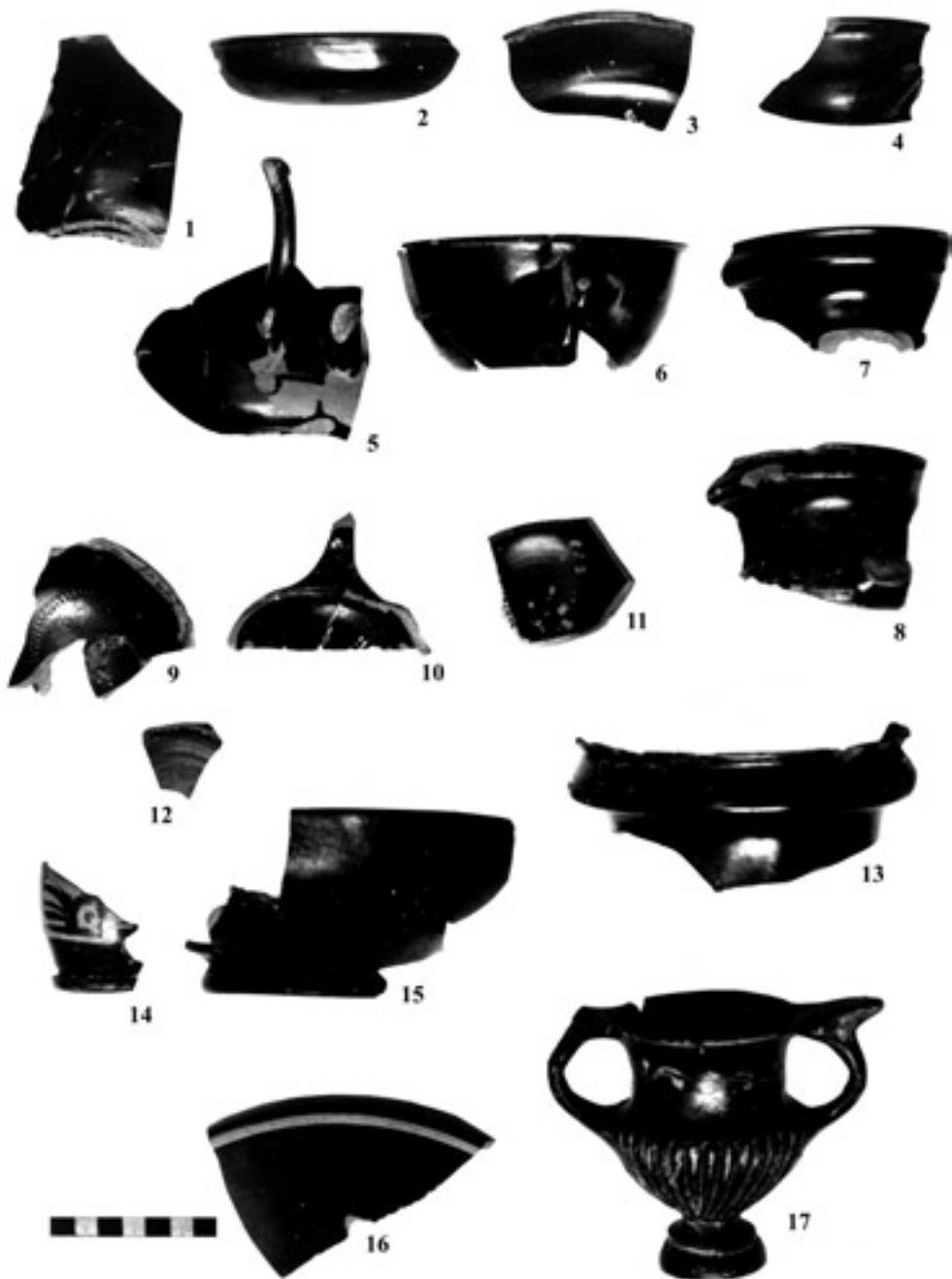


Fig. 8. Black-glazed pottery from the Belozerskoe settlement, excavations 1989 (collection of the Cherson regional museum).

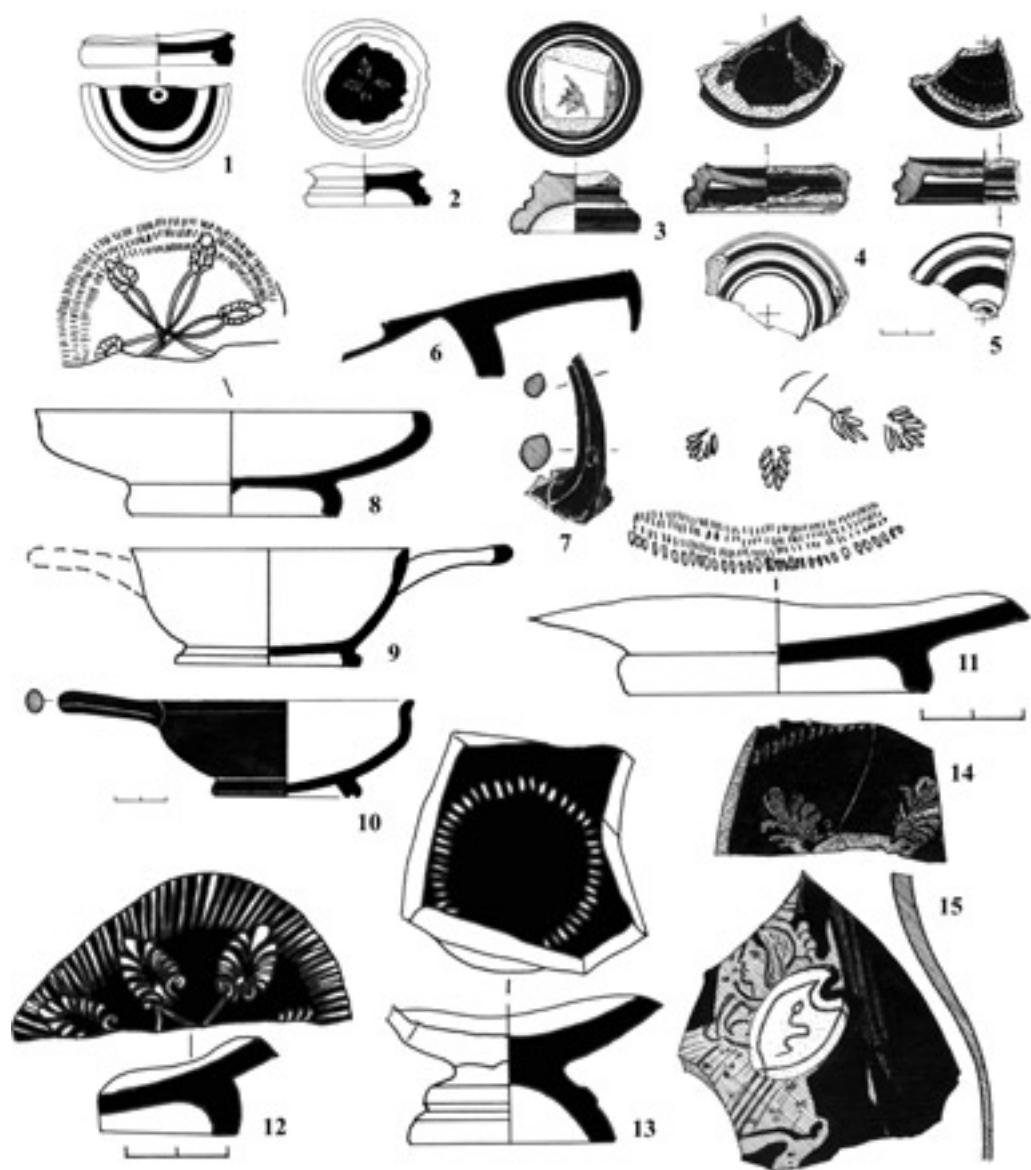


Fig. 9. Black-glazed pottery from the Belozerskoe settlement (collections of the Cherson regional museum and the Cherson State University).

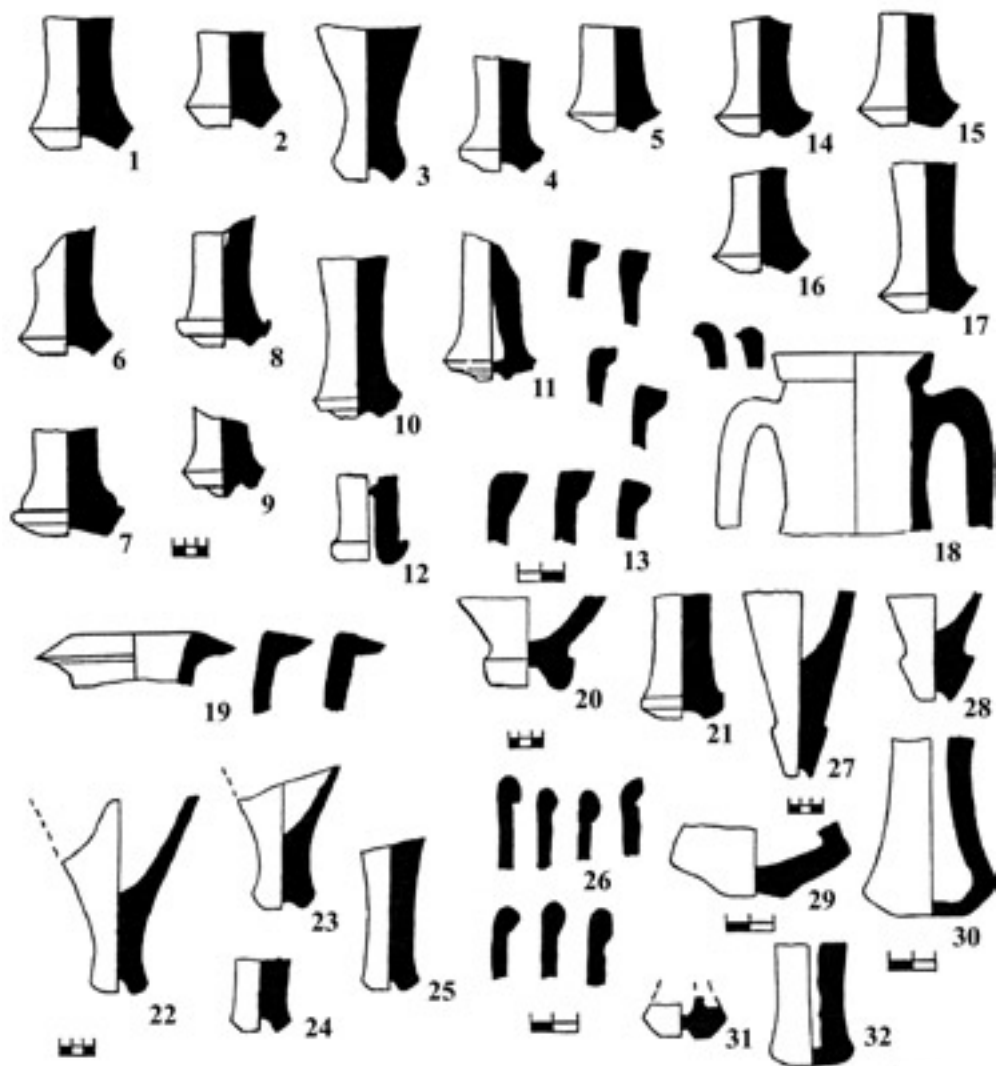


Fig. 10. Amphoras from the Kamenskoe settlement (after Karjaka 1997, 112, 115, figs. 1 and 2).



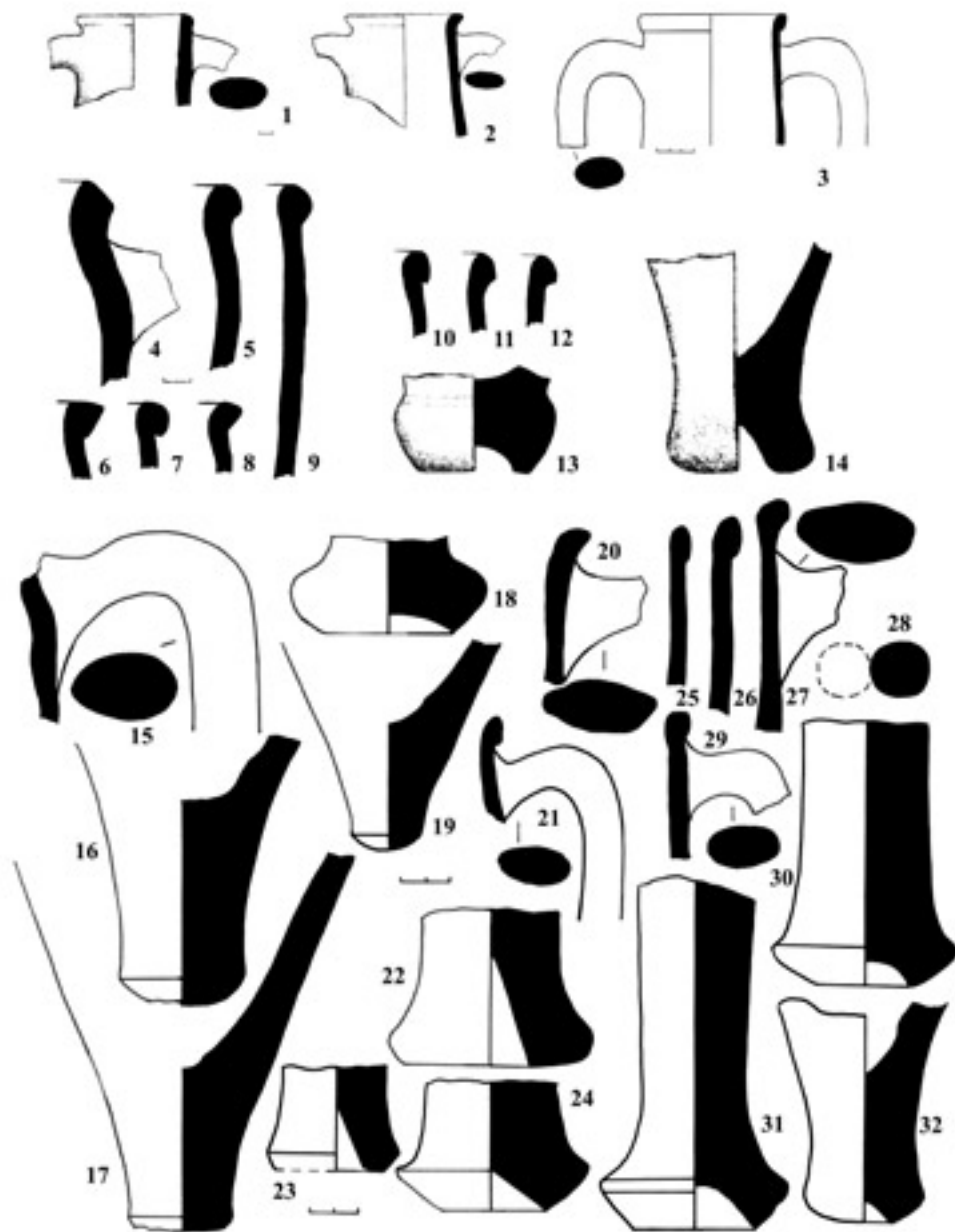


Fig. 11. Amphoras from the Lysaja Gora settlement (1-13) (after Gavriljuk, Bylkova & Kravčenko 1992, 46, fig. 6); the Pervomaevka 2 settlement (14-24) and the Černeča settlement (25-32).

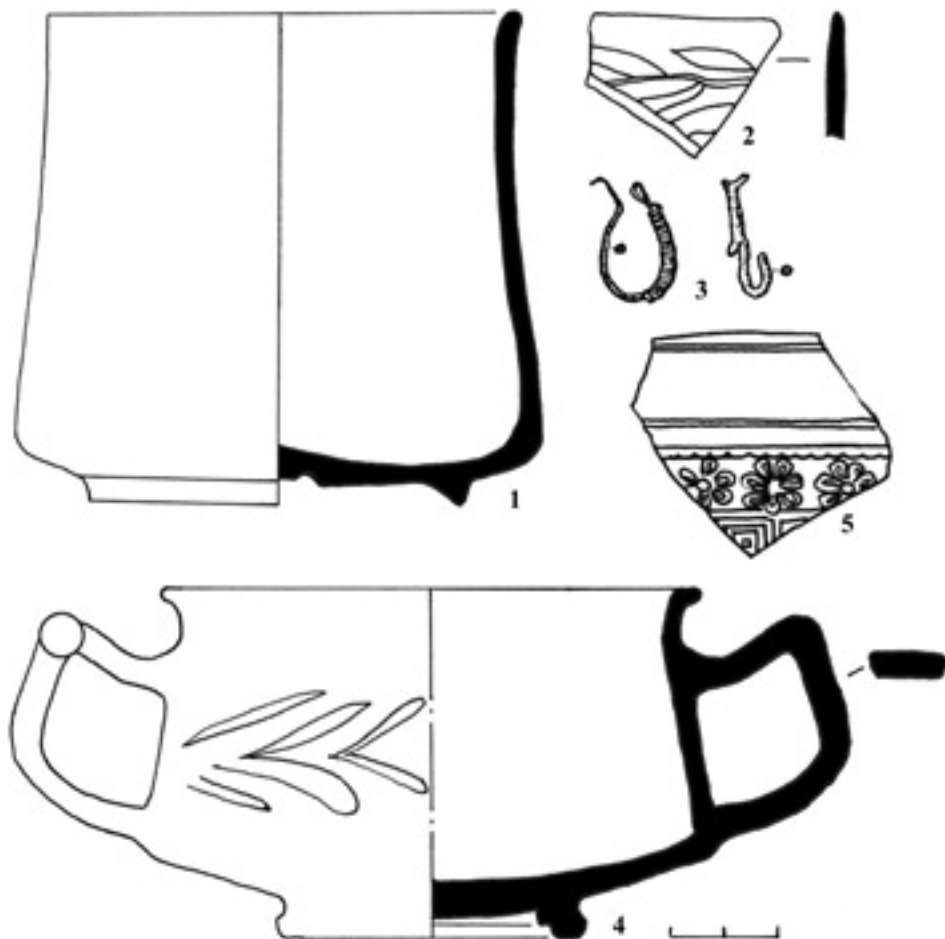
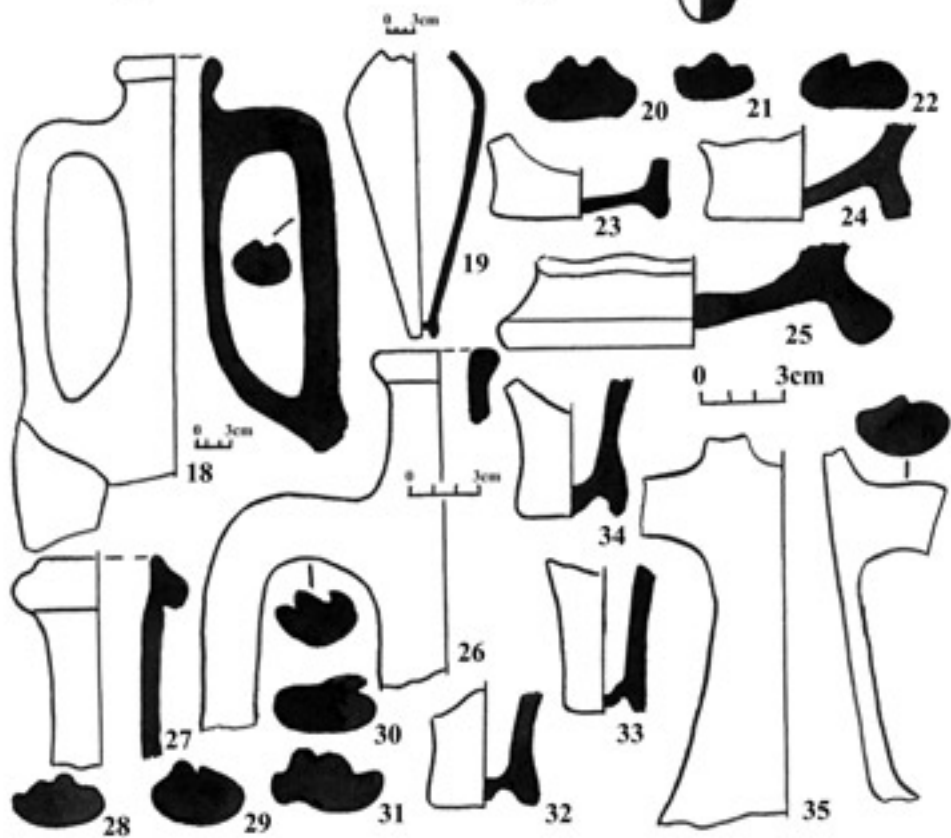
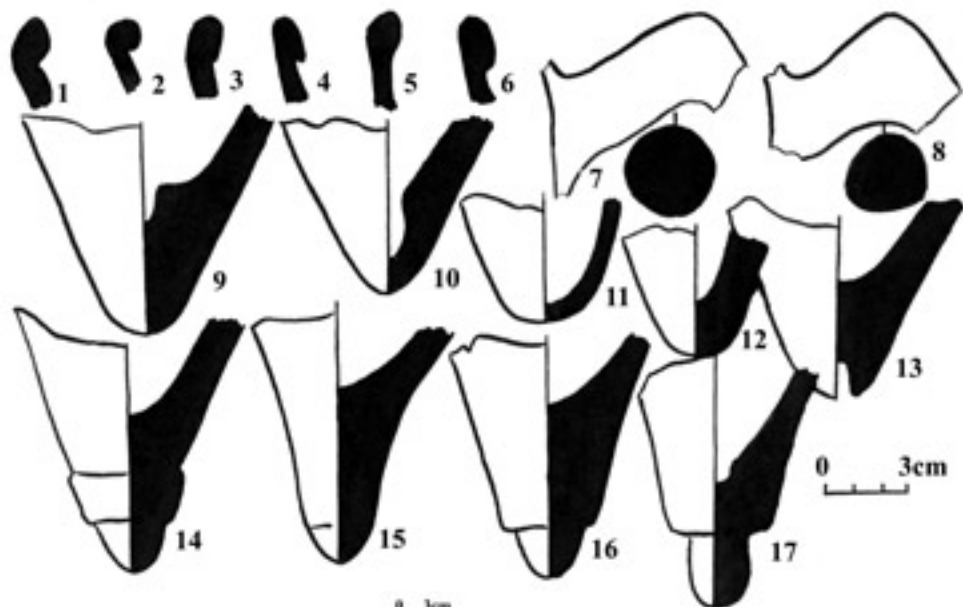


Fig. 12. Glazed pottery, bronze earrings from the Annovskoe (1-3) and Ljubimovskoe (4-5) settlements: 3-8) after Gavriljuk & Abikulova 1991, part 1, 46, fig. 18.5; 4) no. A-101/1685 in the Kachovka museum; 5) collection of 1988 in the Cherson museum.

Fig. 13. Types of amphoras in the Late Scythian settlements in the Lower Dnieper region according to M. Abikulova (Gavriljuk & Abikulova 1991, part 2, 42, fig. 6). →



## Notes

- 1 I would like to thank the organizers and participants in the conference for the opportunity to establish contacts and discuss chronological questions. I am especially grateful to Mark Lawall for his input on amphora dating. I am also much indebted to S. Djačenko, Cherson regional museum, who took the trouble to prepare illustrations for my paper.
- 2 Abikulova 1977; 1979.
- 3 Bylkova 1996.
- 4 Brašinskij 1984b.
- 5 Monachov 1999a, 167-168.
- 6 Brašinskij 1965.
- 7 Monachov 1999a, 194-201.
- 8 Zajceva 1984, 111-120, table VI.
- 9 Bylkova 1996b.
- 10 Bylkova 1992.
- 11 Anderson 1954, 175, fig. 9 k.
- 12 Kac 1994, 83.
- 13 Rotroff 1997b, 87, pls. 80 and 81.
- 14 Kac 1994, 52-53, 76.
- 15 Abikulova 1979; Kryžickij, Bujskich & Otreško 1990, 40, 69-70.
- 16 Bujskich 1989, 20; 1988, 5-9; 1990, 22.
- 17 Bujskich 1988, 9-10.
- 18 Ratner 1950.
- 19 Brašinskij 1980, 160, no. 242, 111, no. 48, 115, no. 75.
- 20 Monachov 1999a, 160-161.
- 21 Monachov 1999a, 275.
- 22 Bujskich 1993, 80-82; Bujskich & Ostroverchov 1994.
- 23 Kryžickij, Bujskich & Otreško 1990, 72, fig. 13.
- 24 Abramov 1993, 87, no. 2.62.
- 25 Monachov 1999a, 271, 282-283, 317.
- 26 Shear 1969, 392, pl. 103.f; Vanderpool et al. 1962, 37, pl. 20, no. 37; McCredie 1966, 11; Korovina 1983, no. 63; Rotroff 1997b, no. 26; Hannestad, Stolba & Ščeglov 2002, 132-133, no. B 8.
- 27 Čičikova 1984, 79, 110, no. III 109; Parovič-Pešikan 1974, 109-110, fig. 93.6.
- 28 Kac 1994, 83 no. 1.
- 29 Bujskich 1990, 7.
- 30 Fedoseev 1994.
- 31 Conovici 1998, 39.
- 32 Alekseev 1986.
- 33 Bujskich 1989, 16.
- 34 Bujskich 1990, 13.
- 35 Monachov 1990, 14.
- 36 Anderson 1954, 175, fig. 9.f; Abramov 1994, 76, no. 2.12; Monachov 1999a, 137, fig. 45.9.
- 37 Lancov 1994, 84-85, fig. 9.17.
- 38 Zolotarev 2002, 70.
- 39 Lejpunskaja 1981, 56-57.
- 40 Anochin 1989, 104.

- 41 Anochin 1989, no. 26.
- 42 Kac 1994, 96-97.
- 43 Efremov 1992, 258-259.
- 44 Alekseev 2001, 75.
- 45 Analogies are: Čičikova 1984, 68-69; Edwards 1975, 20, pl. 69 et al.
- 46 Anochin 1989, 107-108.
- 47 Bylkova 1994; 1996a.
- 48 Monachov 1999a, 330-331.
- 49 Avram 1996, no. 173.
- 50 Debidour 1986, 331.
- 51 Avram 1996, no. 269.
- 52 Conovici 1998, 33.
- 53 Fedoseev 1994.
- 54 Anochin 1989, 105-106.
- 55 Fedoseev 1993b; 1994, 189.
- 56 Conovici 1998, 32-33.
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