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Ceramic Complex of the Post-Antiquity Horizon of Trench R-23 of Olbia (based on material from excavations from 2016–2018, 2021)

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The excavations in 2016–2018 and 2021 in the southeastern part of the Olbia citadel (Trench R-23), carried out within the Ukrainian–Polish project of the Institute of Archaeology of the National Academy of Sciences of Ukraine, the National Museum of Warsaw, and the Institute of Archaeology and Ethnology of the Polish Academy of Sciences, revealed interesting contexts related to the latest horizon of this site. The ceramic complex of this horizon includes fragments of amphorae, red-slip wares, wheel-thrown greyware pottery and handmade pottery from the 4th to the first half of the 5th centuries. These categories of material are most characteristic of the sites of the Cherniakhiv culture of the North-Western Black Sea region.

KEY-WORDS: Olbia, Cherniakhiv culture, Late Roman period, amphorae, red-slip wares, wheel-thrown greyware pottery, handmade pottery

INTRODUCTION

In 2016–2018 and 2021, within the framework of the Ukrainian-Polish project of the Institute of Archaeology of the National Academy of Sciences of Ukraine, the National Museum of Warsaw and the Institute of Archaeology and Ethnology of the Polish Academy of Sciences, research was carried out in the southeastern part of the Roman citadel of Olbia (Trench R-23). On the Ukrainian side, the project was headed by Dr Alla Buiskykh, on the Polish side – by Dr Alfred Twardecki. The research was aimed at a comprehensive study of the Roman and Late Antiquity

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periods of the history of Olbia, since it is this time period that is perhaps the most controversial in the interpretations of the historical and political development of the ancient cities of the Northwestern Black Sea region as a whole and Olbian particular (see: Zubar 2001; Magomedov 2007; 2020; Krapivina 2013; 2014: 146–165; Tvardetskyi *et al.*, 2017). An international group of Ukrainian and Polish researchers was created to process the materials obtained, and a certain category of artefacts was assigned to each of them. The aim of the author of this article was to describe the utilitarian and storage ceramics of Classical times and Late Antiquity, as well as the interpretation of the categories of material of the Late Roman period. The results of this work were presented in the form of appendices to the reports of 2016–2018, and its main conclusion was the thesis that in fact the entire range of materials of the Late Roman period from Trench R-23 is characteristic of the archaeological complex conventionally associated with the Cherniakhiv culture (Didenko 2017; 2018a; 2019). Almost immediately these results were used by heads of the project in several preliminary publications and used for the isolation of a stratigraphic horizon associated with the Cherniakhiv culture on the territory of Olbia (Tvardetskyi *et al.*, 2017; Twardecki 2018; Buiskykh *et al.*, 2020; Twardecki and Buiskykh 2021). This article allows the reader to get acquainted in more detail with the material based on which these conclusions were made.

The main result of the work in Trench R-23 was the discovery of the housing and economic complex from the Late Roman period, which marks the latest horizon of the settlement on the territory of the Olbian citadel. It consists of the remains of two above-ground buildings, in the construction of which stone and mud brick were used, several utility grain pits, accumulations of debris, as well as several other artefacts in archaeological contexts (Fig. 1). The main diagnostic materials that make it possible to establish its cultural and chronological affiliation are amphorae and table ceramics from the production centres of the Late Roman Empire, as well as wheel-thrown greyware pottery and handmade pottery of the Cherniakhiv culture.

WHEEL-THROWN GREYWARE POTTERY

The wheel-thrown cooking and greyware tableware pottery were found in large quantities in all later contexts of the R-23 trench. It is represented by fragments of pots, bowls, vases, jugs, cups, large storage vessels. The specificity of the forms of this pottery, decorative design, technological methods and the fabric make it possible to attribute it to the Cherniakhiv culture and date from 3rd to the first half of the 5th centuries. Numerous analogies can be found in any area of the Cherniakhiv culture (e.g., Diaconu 1965; Mitrea and Preda 1966; Baran 1981: 85–98, fig. XII–XXI; Magomedov 1987: 44–61, fig. 16, 19–26; 2001: 45–56, fig. 24, 28–59;

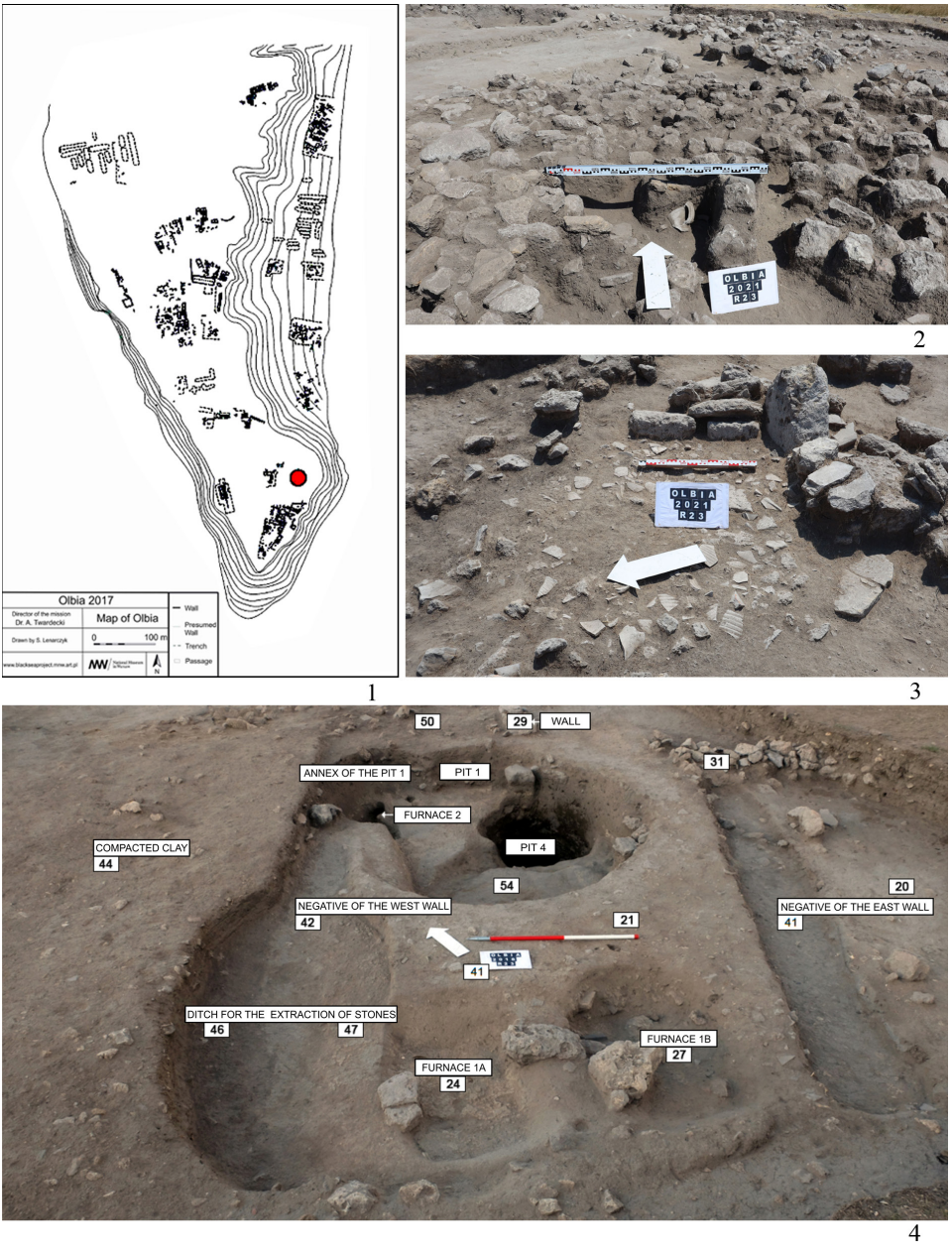

Fig. 1. Olbia, Trench R-23: 1 – location of the Trench on the map of Olbia; 2, 3 – clearing of the building 2; 4 – Pits 1, 4 and contexts of Building 1.
Photos and graphic design: S. Didenko.

Kravchenko *et al.*, 2007; Şovan 2009; Lyubichev 2019: fig. 107–139), including also features from earlier excavations in Olbia itself and adjacent archaeological sites (Schultze *et al.*, 2006; Krapivina and Schultze 2011; Magomedov 2020).

Pots

Pots belong to the category of kitchen utensils (Figs 2 and 3). They are made of clay with a high content of impurities that gave them resistance to all temperature ranges used during cooking on the hearth or in the oven. Their surface can be grey, grey-brown or black. Many fragments of pots came from the R-23 trench area that could have spherical, biconical or elongated proportions. There are three varieties of base known, vessels with a flat base, on a low flat-foot, on a low ring-foot. According to the method of decorating the rim, they are divided into two groups: pots of group 1 with the usual thickened rim in the form of a roller or teardrop in section (Fig. 2); group 2 vessels with complex rim profile (Fig. 3). Most of the fragments have complex rim profile, which is especially characteristic of the final stage of the Cherniakhiv culture.

Bowls

The richest variety of pottery tableware from the latest contexts of Trench R-23 are biconical bowls with a sharp or slightly rounded rim edge (Figs 4 and 5). The vast majority of the found fragments are made of good quality clay fabric. The grey or black surface is well polished, matte or shiny. But there are also examples made from coarse, "kitchen" fabric. The rims are mostly thickened, with a teardrop-shaped or roller-shaped profile. Less common are specimens with a flattened rim. Some vessels are ornamented with incised horizontal stripes, wavy lines or zigzag, the vessels may have plastic decoration in the form of cornices and cordons. There are two main groups of these vessels. Group 1 includes bowls with an open profile, in which the diameter of the rim exceeds the diameter of the body (Fig. 4). Group 2 consists of bowls with a closed profile, where the diameter of the body exceeds the diameter of the rim (Fig. 5). The bases of vessels of both groups are both ring and flat low feet.

Vases

A significant part of the fragments of wheel-thrown greyware table pottery belong to vases, which, in fact, are deep bowls, and can also have three short handles (Fig. 6). Their distinguishing feature is a wide horizontal rim and a rich variety of decoration. Among the material found in Trench R-23 there are fragments of vases with a T-shaped and L-shaped profile of the rim and a highlighted neck (Fig. 6:1–3). They are often decorated with incised ornaments in the form of horizontal stripes, wavy lines, zigzag or oblique grid, they may have relief decoration in the form of cornices, cordons,

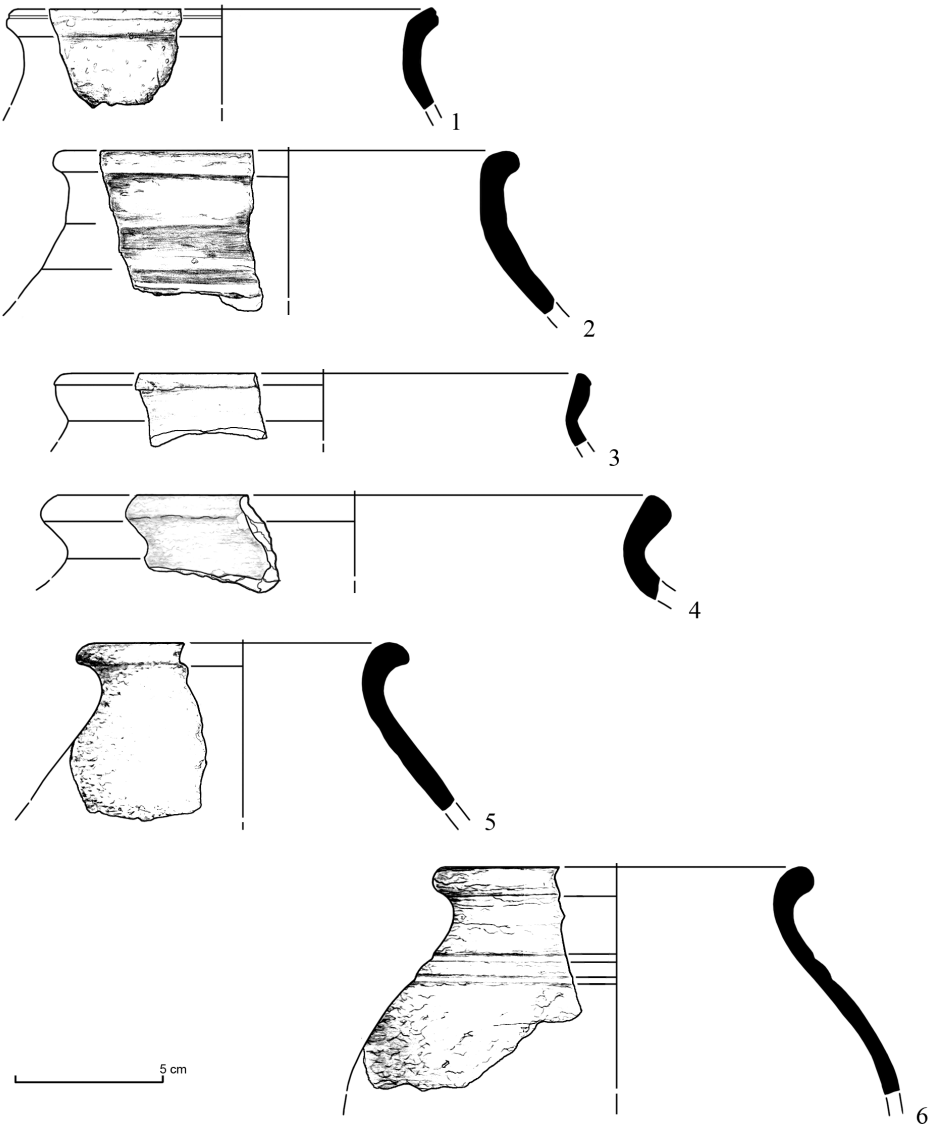

Fig. 2. Wheel-thrown greyware pots group 1 from Trench R-23.
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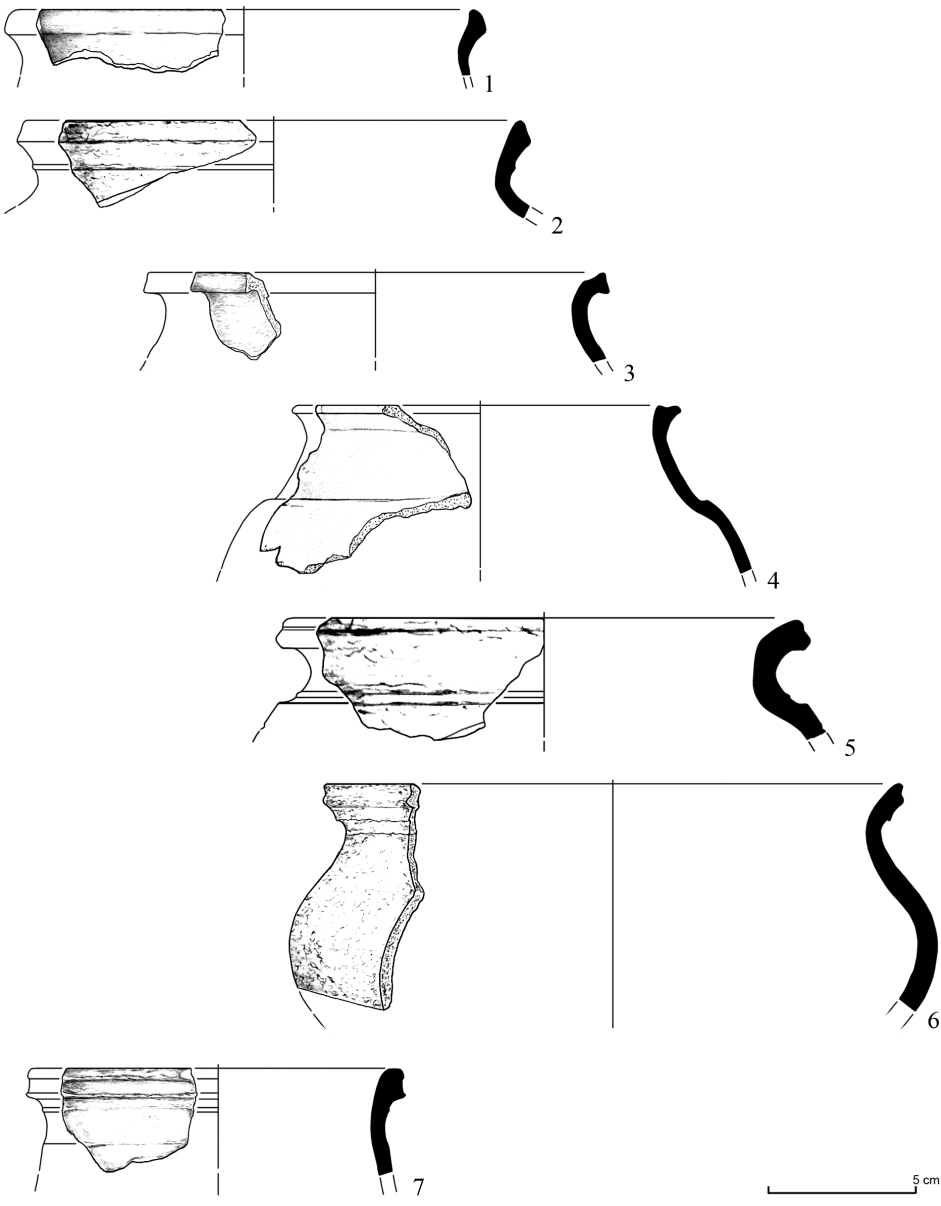

Fig. 3. Wheel-thrown greyware pots group 2 from Trench R-23.
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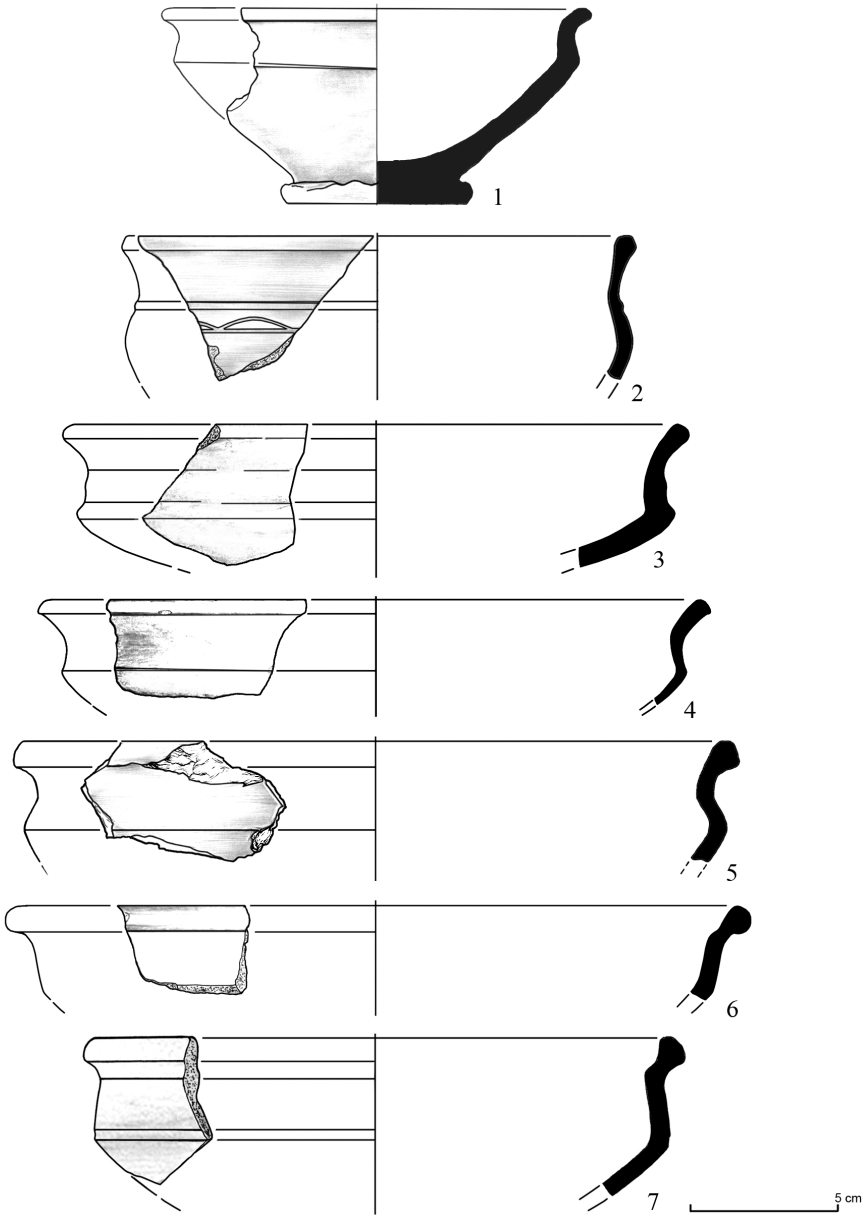

Fig. 4. Wheel-thrown greyware bowls group 1 from Trench R-23.
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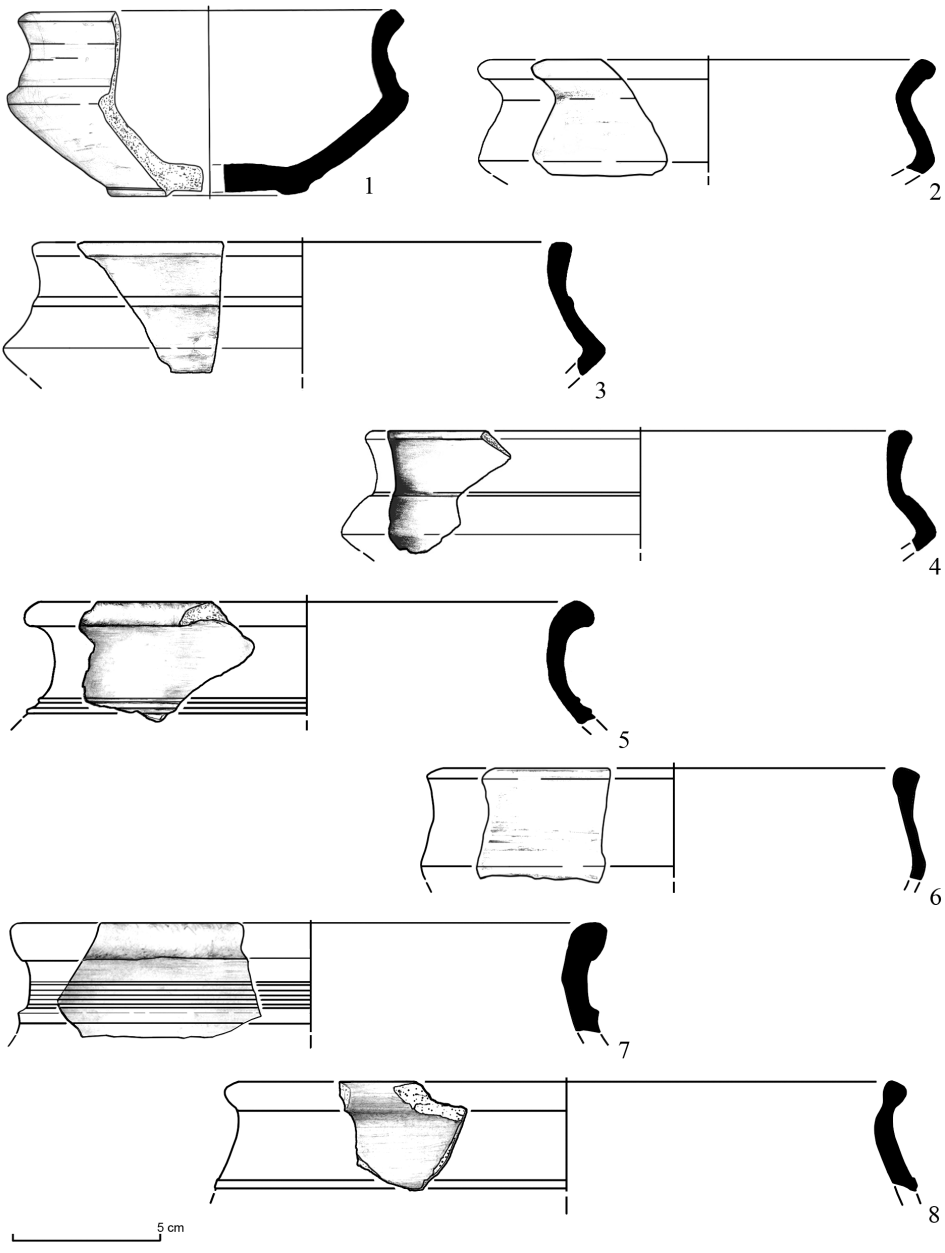

Fig. 5. Wheel-thrown greyware bowls group 2 from Trench R-23.
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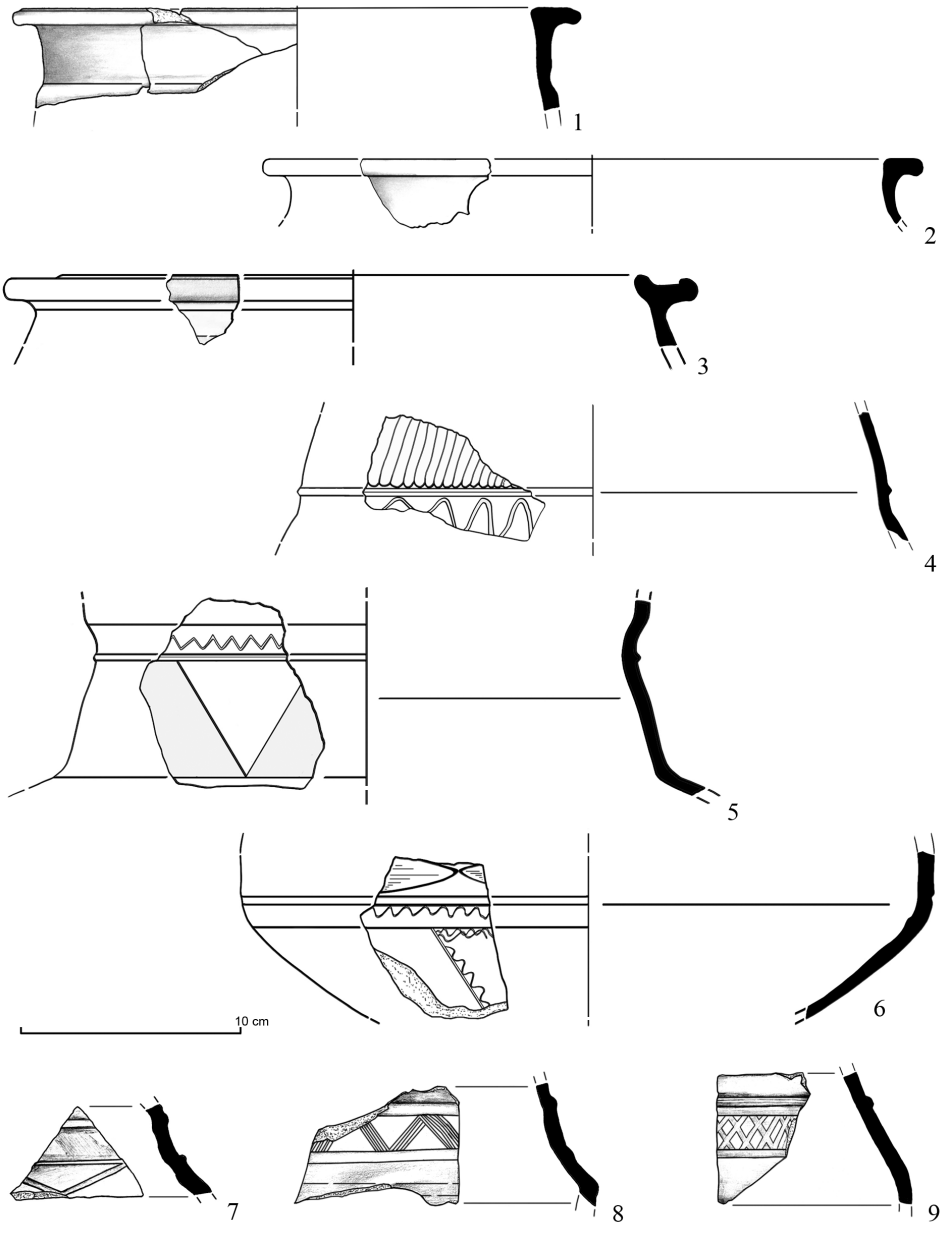

Fig. 6. Wheel-thrown greyware vases from Trench R-23.
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flutes and cut facets. There are also fragments of vases with various combinations of decoration. It should be noted that vessels with a distinct neck and rich decoration were formerly identified by Boris Magomedov as vases of the Olbian type (Fig. 6: 4, 5). The finds of these vases are concentrated mainly in the sites of the Cherniakhiv culture of the Northern Black Sea region. At least five such vessels have been found in other trenches in Olbia (Magomedov 2001: 49, fig. 39:1–4; 2020: 222, fig. 2: 1–4).

Jugs

Jugs can be divided into two groups. Group 1 consists of a few fragments of jugs with two handles (Fig. 7:1). They are made of rough clay fabric, have an extremely wide neck and a thickened rim. B. Magomedov suggests that such vessels were used for cooking dairy products over a fire (Magomedov 2001: 52, fig. 51). Group 2 includes fragments of single-handled table jugs made of good quality clay mass (Fig. 7:2–7). Their grey or black surface is well polished, matte or shiny. Fragments were found with a narrow and wide neck, a straight or slightly everted and thickened rim, as well as a funnel-shaped rim. The most fragments can be attributed to the types 9 and 10 of the jugs of the Cherniakhiv culture according to B. Magomedov (Magomedov 2001: 51, fig. 46:2–12). They have a little highlighted neck, a slightly everted and thickened rim, decorated with a engraved ornament in the form of a grid or oblique stripes. In addition, fragments of jugs with a multi-faceted body were recorded.

Cups

Ceramic drinking vessels from Trench R-23 are currently represented by only one fragment of a cup with a polished surface, a slightly everted rim and a cornice when transitioning to the body (Fig. 8).

Large storage vessels

Typical for the Cherniakhiv culture are large thick-walled greyware storage vessels for storing grain, other dry goods, or liquids (Fig. 9). They are made of clay with a lot of impurities. Their height is 0.4–0.8 m, and the volume can be measured in several tens of liters. B. Magomedov identified three types of storage vessels of the Cherniakhiv culture. Vessels from Trench R-23 correspond to types 2 and 3 (Magomedov 2001: 56, fig. 59:5, 6). Type 2 has an egg-shaped body, a flat bottom, and a massive horizontal rim (Fig. 9:1–3). They are decorated with one or more cordons, which can be decorated with indentations made by finger tips. The closest analogies are known in the settlements of the Cherniakhiv culture in the south of Ukraine: Kamianka-Anchekrak, Horodok, Oleksandrivka, Kaborga-4. The vessels of Type 3 are large pots with a slightly everted rim and rounded contours of the body

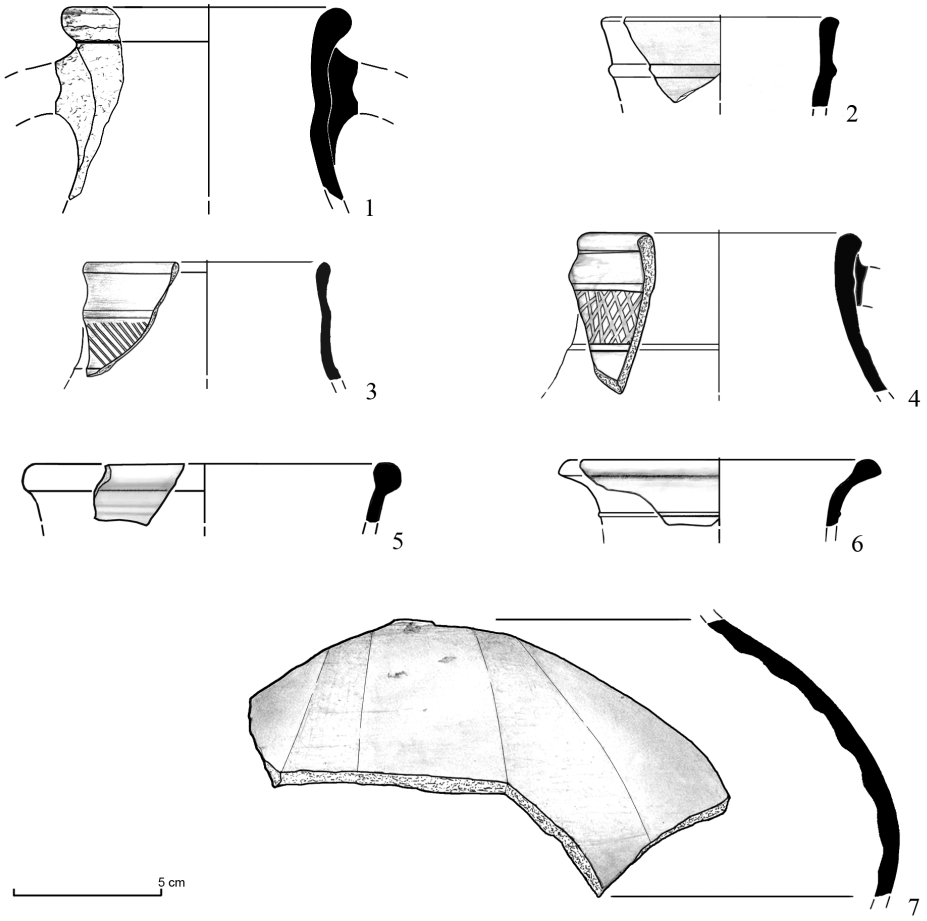

Fig. 7. Wheel-thrown greyware jugs from Trench R-23.
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(Fig. 9:4, 5). They predominate on the sites of the Cherniakhiv culture in Central Ukraine.

The examples of wheel-thrown greyware pottery of the Cherniakhiv spectrum considered in this article are both culturally determining and dating material. There are fragments of the very vessels that make it possible attribute the latest stratigraphic horizon of Trench R-23 to the post-Antiquity/Cherniakhiv period with great confidence.

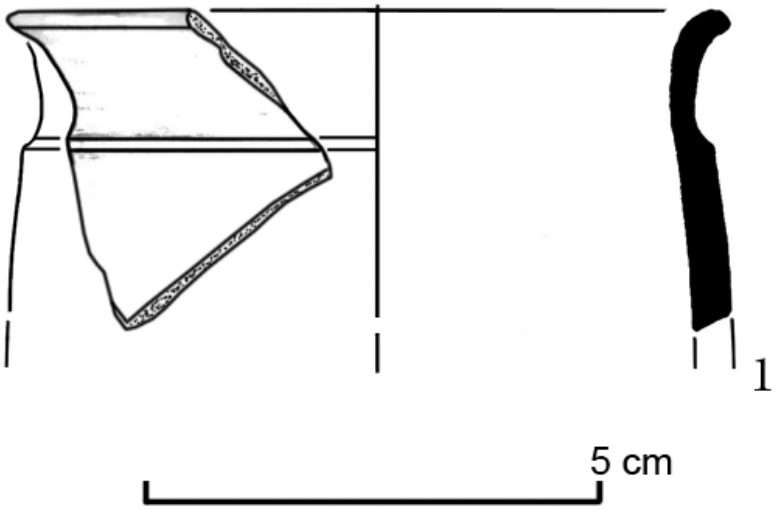

Fig. 8. Wheel-thrown greyware goblet from Trench R-23.
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HANDMADE POTTERY

The handmade pottery from the contexts of the post-Antiquity horizon of Trench R-23 is represented by fragments of pots, bowls, and jugs, which can be divided into two categories.

The first category includes vessels made in the Northwestern (Germanic) tradition (Fig. 10). They are represented by fragments of pots and a jug of types IA, IB, IX A according to Ryszard Wołągiewicz (1993: 12, 16; tabl. 1, 2, 25, 26: 1, 2), as well as bowls of type Xa A according to Oleksandr Mylashevskyi (2017: 81, 82, fig. 2.8: 1–32), which have analogies among the materials of the Wielbark, Przeworsk and Cherniakhiv cultures.

Pots of the type Wołągiewicz IA also appear in the specialist literature as "kumpfs" or "Elbe pots". They are characterized by an inward-inclined rim and an ovoid shape of the body. The profiling of the body is usually asymmetrical. A characteristic feature are the large impurities in the clay fabric and the rough surface of the body (Fig. 10:1–3). Pots of this type are the most common form of handmade ware of the Cherniakhiv culture and exist at all stages of its existence (Mylashevskyi 2017: 67–71).

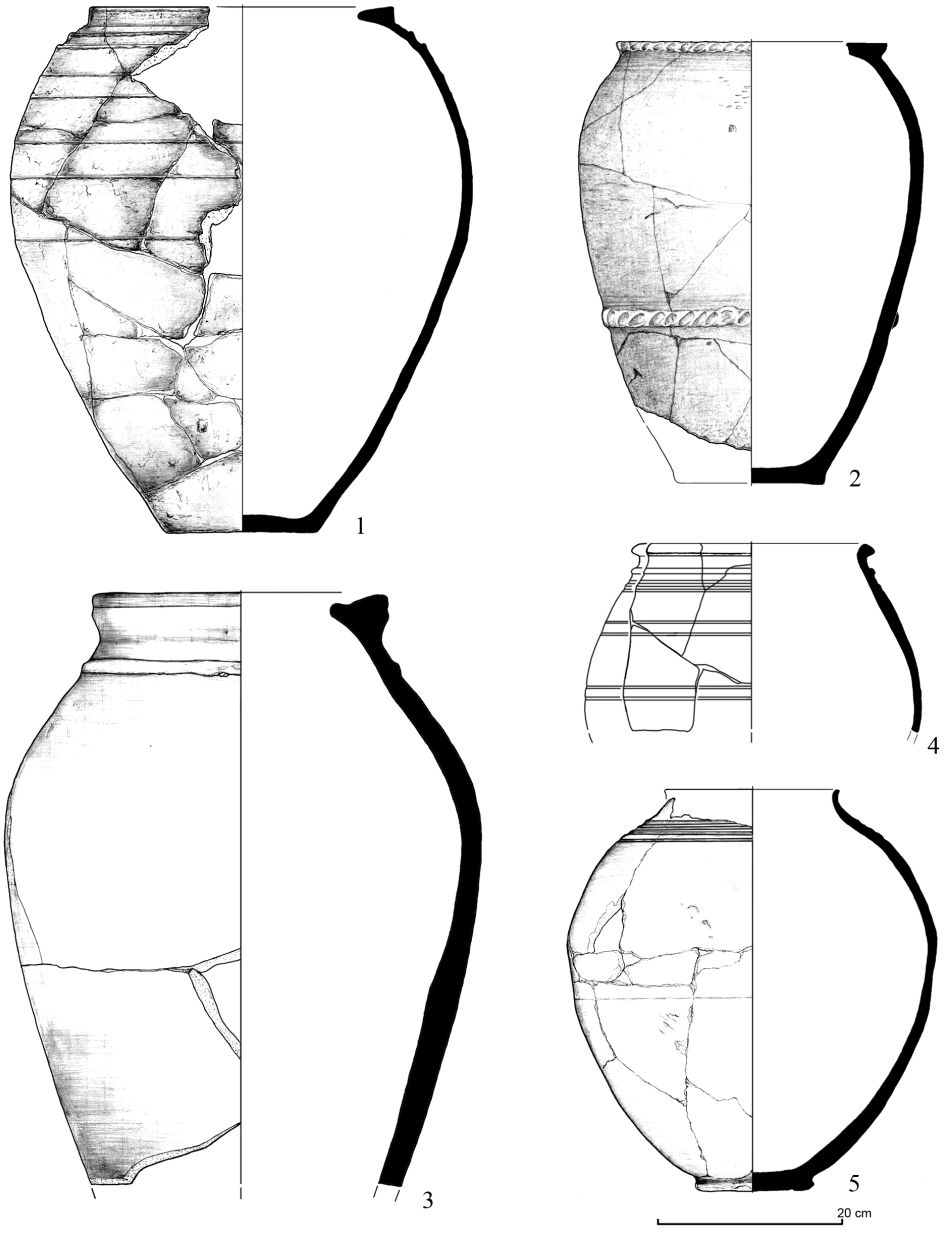

Fig. 9. Wheel-thrown large greyware storage vessels from Trench R-23.
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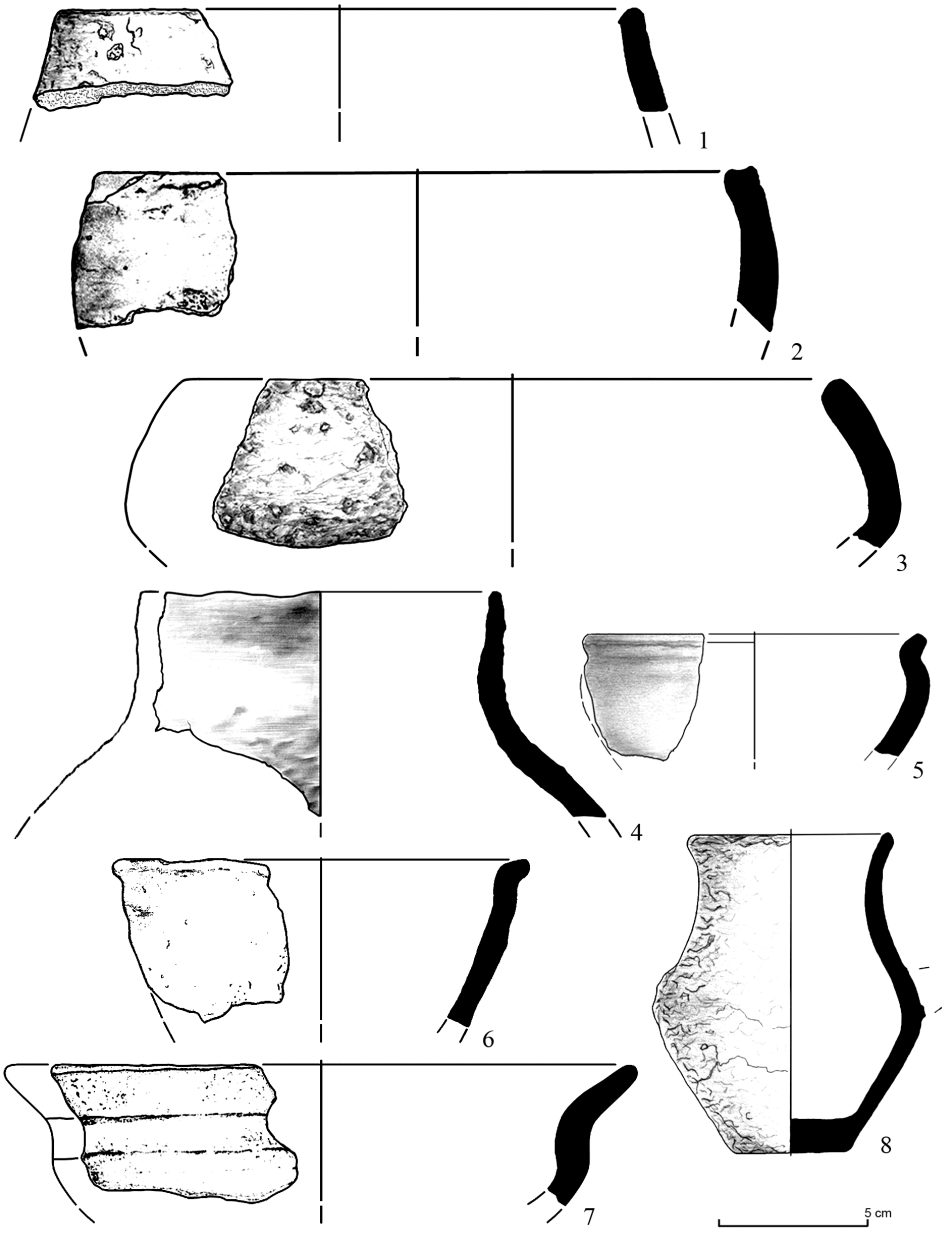

Fig. 10. Handmade pottery of the northwestern (Germanic) tradition from Trench R-23. Graphic design: S. Didenko.

Pots of the type Wołągiewicz IB are characterized by a vertical rim and a smoothed surface (Fig. 10:4). They are characteristic of the second and third phases of the Cherniakhiv culture (about the last third of the 3rd – third quarter of the 4th centuries) and are distributed mainly on the Dnipro Right Bank (Mylashevskyi 2017: 71–73).

Jugs of Wołągiewicz type IX A are represented by one almost intact specimen (Fig. 10:8). Its biconical body has a flat base, a short wide neck smoothly turns into a slightly everted rim. This type of cookware is characteristic for the first to fourth phases of the Cherniakhiv culture (the second third of the 3rd–4th centuries). It is most often found on the sites of the Dnipro-Buh and Buh-Dnister interfluve (Mylashevskyi 2017: 80, 81).

Vessels of Mylashevskyi type Xa A are bowls with an everted rim and a truncated-conical body. Among the materials from the R-23 trench, fragments of low bowls of the Xa A1 subtype (Fig. 10:7) and fragments of tall bowls of the Xa A2 subtype (Fig. 10:5, 6) are known. This type of vessel is known throughout the Cherniakhiv culture. At the same time, bowls of the Xa A1 subtype are present in the complexes of the second and third phases of the Cherniakhiv culture (about the last third of the 3rd – third quarter of the 4th centuries), while the vessels of the Xa A2 subtype are characteristic of the third and fourth phases, that is, about the second quarter – the end of the 4th century (Mylashevskyi 2017: 82).

The second category of handmade pottery from Trench R-23 consists of fragments of vessels that find analogies among the materials of Cherniakhiv sites with a Sarmatian or Late Scythian cultural component. These include fragments of pots with a strongly everted rim, as well as pots with finger pinches on the rim (Fig. 11). Such vessels are characteristic for the Cherniakhiv culture of the Northern Black Sea region and the Lower Danube region (Magomedov 2001: 46, fig. 26). However, it is possible that the fragments of this pottery originated from earlier layers of the R-23 trench.

Thus, handmade utensils from the post-Antiquity horizon of Trench R-23 are represented by the most characteristic forms of the Cherniakhiv culture, made in the Germanic and Late Scythian/Sarmatian traditions. Such an ethno-cultural situation is generally characteristic of the sites of the Middle Dnipro and the North-Western Black Sea region.

AMPHORAE

An important component of the ceramic complex of the post-Antiquity horizon at Trench R-23 are fragments of amphorae. The data obtained after examining of this category of material are the main source for reconstructing the connections between

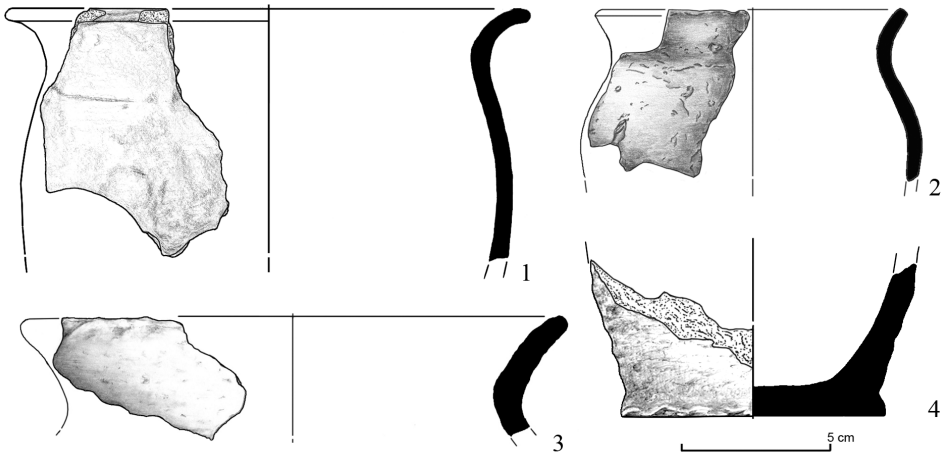

Fig. 11. Handmade pottery of the Late Scythian/Sarmatian tradition from Trench R-23. Graphic design: S. Didenko.

the local population and the Roman Empire, and the relatively rapid evolution of the forms of transport amphorae makes it an important dating material.

Sinopean Amphorae

Most of the fragments of late antique ceramic transport vessels from Trench R-23 belong to amphorae of type C Snp I according to the typology of Dominique Kassab Tezgör (Kassab Tezgör 2010: 128, 129). In the professional literature on amphorae of the Northern Black Sea region, they are also known as the Zeest100 type and the Dalekeu type (Zeest 1960: 120, taf. 39: 100; Rikman 1967: 194, fig. 18: 1). Workshops for their production have been unearthed in the village of Demirci near Sinope (Garlan and Kassab Tezgör 1996). These large vessels with a volume of 17–70 litres have a wide short neck and an elongated conical body with a narrow base (Fig. 12). The rim is formed by applying a wide band to the edge of the neck. Short and oval handles are profiled with one or two ribs seen in the section. Based on the materials of the Demirci production centre, D. Kassab Tezgör dates these vessels to the 4th–5th centuries, possibly the beginning of the 6th century (KassabTezgör 2010: 132). But the peak of their production falls in the second half of the 4th – the first half of the 5th centuries (Didenko 2018b: 102–107). Type C Snp I vessels could be used for transportation of dry products (Kassab Tezgör 2010: 133) or wine (Magomedov 2011: 368).

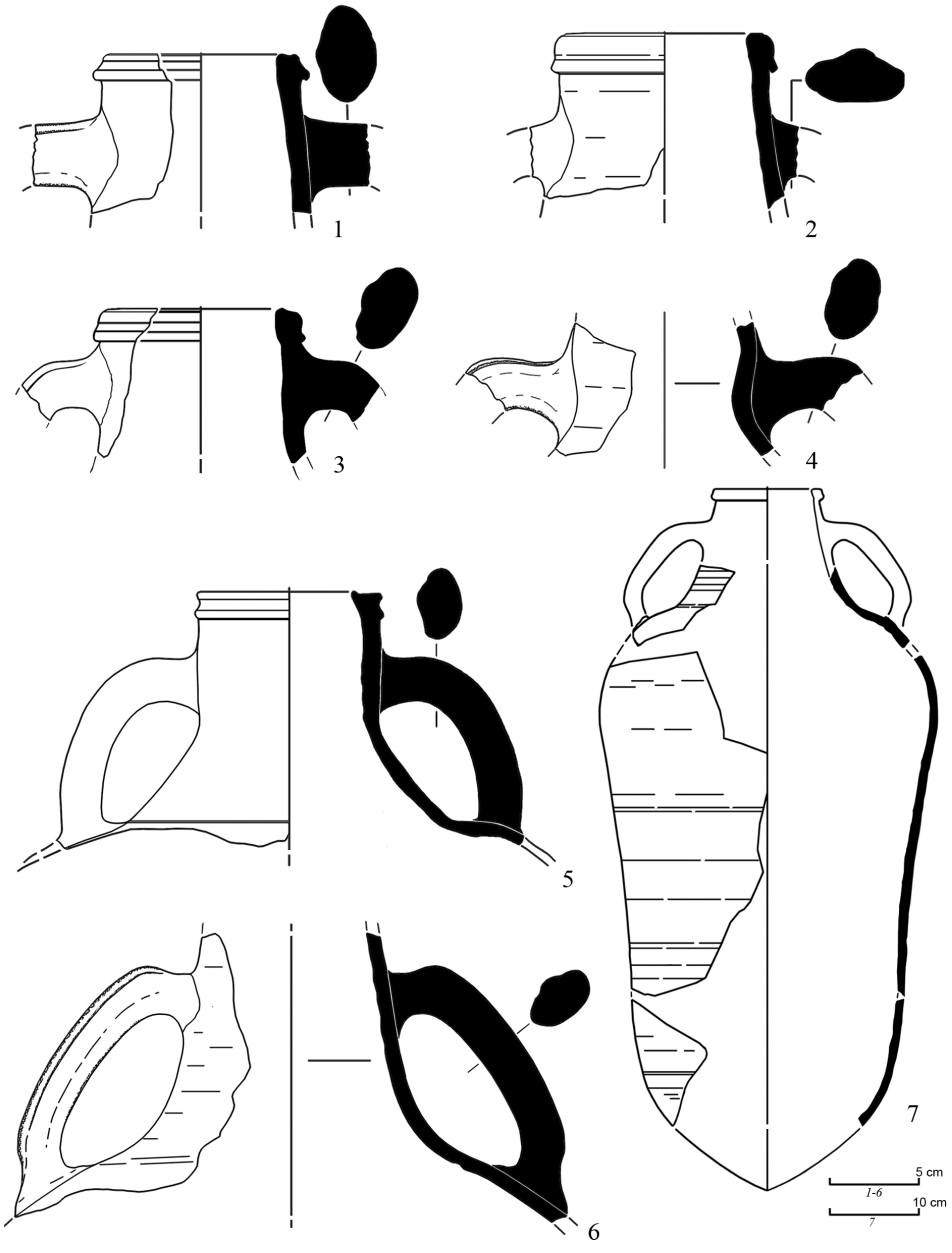

Fig. 12. Amphorae type C Snp I from Trench R-23.
Graphic design: S. Didenko.

In the R-23 trench, numerous fragments of amphorae of this type have been found in the cultural layer, accumulations of stone and debris, in the filling of Recess 1 and Pits 1, 4, 5, as well as in the contexts of Buildings 1 and 2.

The light-clay narrow-necked amphorae from Heraclea Pontica

In the materials of the R-23 trench, these amphorae are represented by types F and E according to Dmitriy Shelov (1978). According to petrological research and the unearthing of a workshop in Alapli (Turkey), the centre of their production was the city of Heraclea Pontica on the southern Black Sea coast – one of the largest suppliers of wine to ancient markets (Arsen'eva *et al*., 1997; Vnukov 2006: 48–57; 2016: 36). Recently, I have developed a detailed typology and chronology of type F vessels, as well as a chronological framework for the existence of type E amphorae (Didenko 2018b: 31–85).

Amphorae of the Shelov F type (Figs 13 and 14) are characterized by a narrow, downward-expanding throat with a roller-shaped rim and an elongated conical body on a ring-foot. The body often has shallow corrugation. Handles are profiled with two to four grooves, oval or round in cross-section. The upper attachment of the handles are on the upper part of the throat, the lower one is on the shoulder. Amphorae of type F originated from many ancient and barbarian sites. But the vast majority of intact forms were found in the Crimean cemeteries of the Ozerne–Inkerman type, where burials are accompanied by coins and other chronological indicators, the time of existence of which does not cause significant disagreement among modern researchers. Drawing on the results of a detailed study of narrowly dated burials, I have concluded that type F amphorae replaced later versions of type D vessels in the late 320s and existed until the 370s inclusive. Based on morphological and metric characteristics, three subtypes of these amphorae were identified, successively replacing each other during the specified period of time (Didenko 2018b: 51–85). The earliest is the F1 subtype. The dating of most of the contexts, in which these vessels were discovered, does not extend beyond the second quarter – middle of the 4th century. In the 350s amphorae of the F1 subtype evolved into the F2 subtype. The complexes in which such vessels were found date to the third quarter of the 4th century. The last link in the evolution of the type F amphorae are vessels of the subtype F3. The possibility of their existence in the 380s and later is doubtful. The identified subtypes may be briefly described:

Subtype F1 – vessels with maximum width in the upper part and rounded shoulders with a volume of 3.8–6.5 litres, a height of 48–65.5 cm and a body diameter of 17–20 cm (Fig. 13:5). The rims are mostly asymmetrical, with a bevelled upper edge and a concave inner wall. The handles are flattened (thickness-to-height ratio

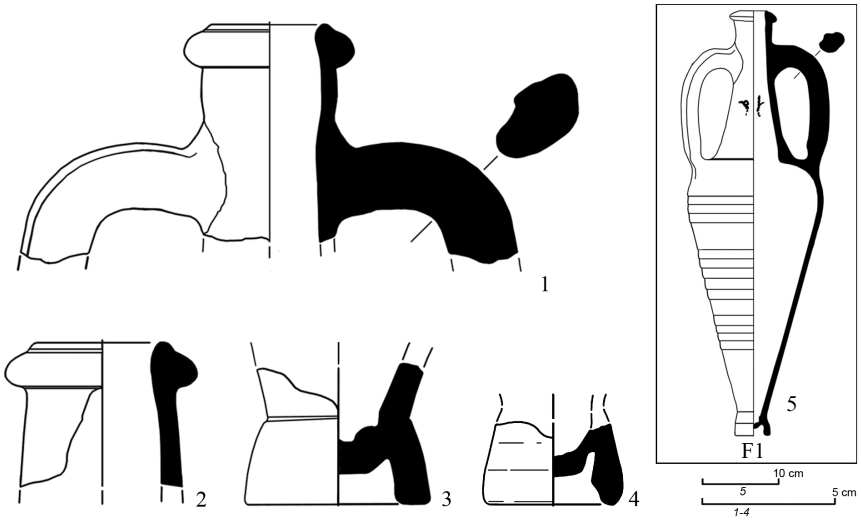

Fig. 13. Amphorae type Shelov F, subtype F1: 1–4 – Trench R-23; 5 – Neizac cemetery (after: Didenko 2018b: Fig. 49:2).

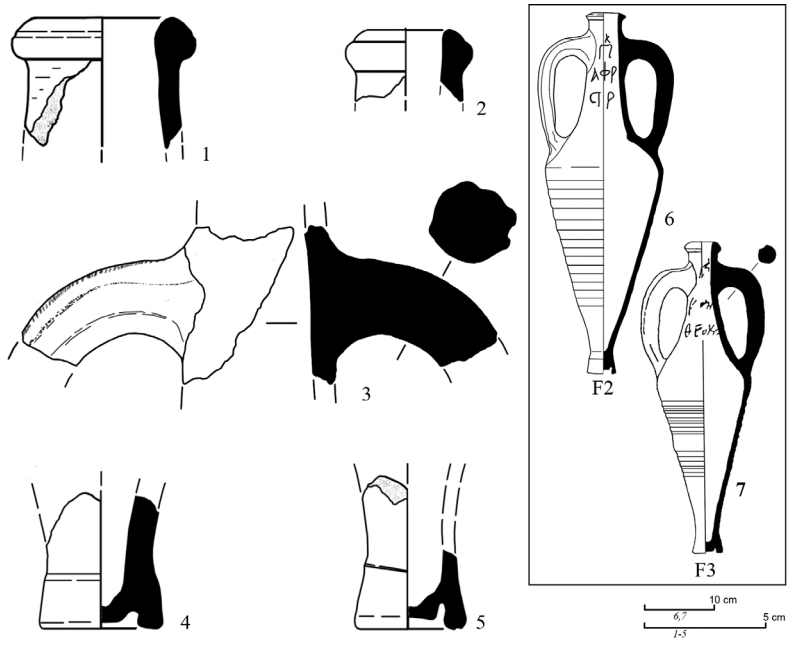

Fig. 14. Amphorae type Shelov F, subtypes F2, F3: 1–5 – Trench R-23; 6, 7 – Druzhne cemetery (after: Didenko 2018b: Figs 52:6, 55:7).

no more than 0.67) or oval in cross-section (thickness-to-height ratio 0.68–0.83). The ring-feet with a diameter of 4.8 cm, neatly formed, have a legible hemispherical or truncated-conical knob in the centre. Date: 325/330s – 350s.

Subtype F2 (Fig. 14:6) includes amphorae with maximum width just above the middle of height and gentle shoulders with a volume of 3.2–3.6 litres, a height of 48–60 cm, and a body diameter of 17–22 cm. The most common types of rims: asymmetrical with a bevelled upper edge and a concave inner wall; subtriangular or roller-shaped with a straight inner wall; massive rims with a wide flattened side edge. The cross-section of the handles is oval (thickness-to-height ratio 0.68–0.83) or round (thickness-to-height ratio more than 0.83). The ring-feet with a diameter of less than 5.3 cm are carelessly formed. Date: 350s – 360s.

Subtype F3 (Fig. 14:7) combines the vessels of biconical form with a volume of 1.5–3 litres, a height of 44–53.5 cm, and a body diameter of 13–16.4 cm. The massive rims with a wide flattened lateral edge dominate. The cross-section of the handles is oval (thickness-to-height ratio 0.68–0.83) or round (thickness-to-height ratio more than 0.83). The ring-feet with a diameter of less than 5.3 cm are carelessly formed. Date: 360s – 370s.

In Trench R-23, amphorae of subtype F1 are represented by a few fragments of rims, handles, and feet, which come from the cultural layer, accumulations of debris, as well as the contexts of Buildings 1 and 2 (Fig. 13:1–4). Fragments of amphorae of subtypes F2 or F3 are recorded in the cultural layer, stone accumulations, flooring over Pit 1, in Recess 1, as well as in the hearth in Building 1 (Fig. 14:1–5).

Amphorae of the Shelov type E (Fig. 15) represent the final stage in the evolution of light-clay narrow-necked amphorae produced by Heraclea Pontica. They are characterized by an oval, corrugated body narrowed downwards and a narrow neck with a massive rim in cross-section roller-shaped, subtriangular, trapezoidal, or quadrangular, often with a highlighted crest on the upper part. Massive, profiled with two or three grooves handles are oval or rounded in cross-section. The base is rounded or with a small knob. The height of these vessels reaches up to 70 cm, and the volume varies between 15–25 litres. Detailed study of auxiliary morphological features of light-clay amphorae of the Late Roman period allows us to assert that the shape of the rim and of the handles of the vessels of type E continues the line of development of the rims and handles of the most recent examples of amphorae of type F. Thus, the emergence of type E is associated with the completion of the production of type F. Finds of fragments of the late subtype of amphorae of type F and fragments of vessels of type E in some layers of a number of sites indicate that the transition to a new type-standard of the Late Heraclea container took place without a break in the chronology at the turn of 370s – 380s (Didenko 2018b: 83). The date of disuse of type E amphorae continues to be

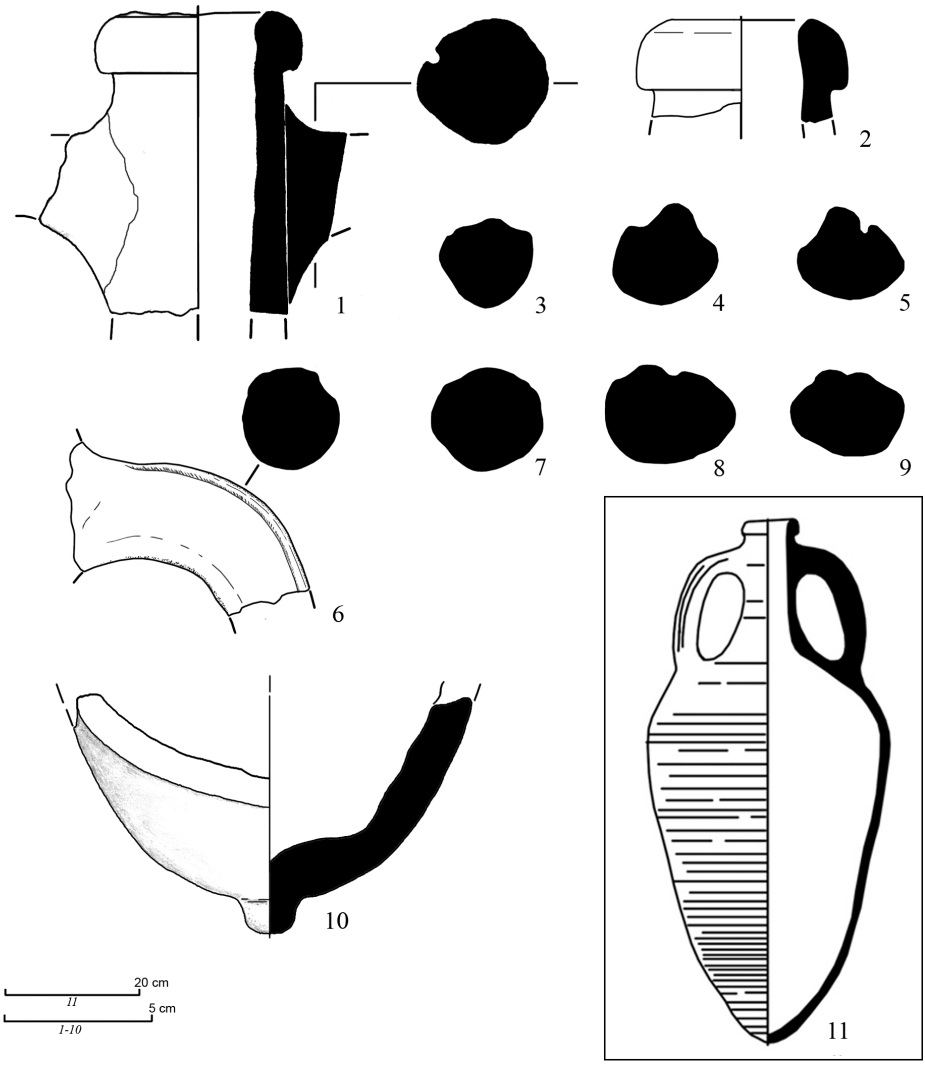

Fig. 15. Amphorae type Shelov E: 1–10 – Trench R-23; 11 – Kamianka-Anchekrak settlement (after: Magomedov 1987: Fig. 35:4).

blurred, generally limited to the middle of the 5th century. Fragments of amphorae of the Shelov E type from Trench R-23 were found in the culture layer, stone accumulations, and pit 4 (Fig. 15:1–10).

Amphorae of the Northeast Mediterranean

This small group of late antique transport vessels is represented in the materials of Trench R-23 by only a few fragments, which belong to the type LRA 1 (Late Roman Amphora 1), isolated by John Riley in the materials from Benghazi (Riley 1979: 212–216). Amphorae of the LRA 1 type (Fig. 16:4) are characterized by a low narrow neck and an ovate or ellipsoidal round-bottomed body with a specific (continuous or zonal) wavy corrugation. The handles, round or oval in cross-section, are most often profiled with grooves. Their upper attachments are located directly under the rim or slightly lower, the lower ones are planted on the shoulder. Rims have a lot of varieties of profiling – from simple roller-shaped to double cuff-shaped.

There is an extensive literature on the morphology, petrography, chronology, and production centres of LRA 1 amphorae, but the most detailed analysis of these issues has been made and summarized by Dominic Pieri. This researcher dated this type of amphorae to the end of the 4th–7th centuries and divided it into variants A, B, C (Pieri 1998: 98, 99; 2005: 69–84, 181–188; 2007). To date, we can confidently talk about at least 17 workshops in which they were produced. Two production centres operated on the islands of Rhodes and Kos. Twelve were located in the south of present-day Turkey: one workshop was found near the city of Içmeler on the southwest coast; eleven are concentrated on the southeast coast in the historical and geographical region of Cilicia (Elaiussa Sebaste, Seleucia, Soles-1; Soles-2, Tarsus, Karataş, Yumurtalik-1, Yumurtalik-2; Arsuz-1, Arsuz-2, Arsuz-3). Four more centres have been found on the southern coast of Cyprus – in Zygi, Amathus, Paphos and Kourion (Empereur and Picon 1989: 236–243; Pieri 2005: 80–84, fig. 38; Diamanti 2010: 203, 204; Demesticha 2003: 470, fig. 1; 2014: 601). Thus, the two main areas where LRA 1 amphorae were produced are Cilicia and Cyprus. According to D. Pieri, the functioning of the Cilician and Cypriot workshops was not synchronous – in the second half of the 6th century or the beginning of the 7th century, the production of these vessels could have been transferred from Cilicia to Cyprus due to a series of upheavals to which the Cilician region was subjected during this period (Pieri 2007: 614–616). For the most part, LRA 1 amphorae were intended for transporting wine, much less often olive oil (Riley 1979: 215; Van Alfen 1996: 190–201; Opaiţ 2004: 10; Pieri 2005: 81), although the possibility of transporting dry goods could be not excluded (Elton 2005: 691, 692; Yashna 2018: 12). In Trench R-23, a few amphorae of type LRA 1 are found in the filling of Pit 1, as well as in the culture layer, accumulations of stone and debris (Fig. 16:1–3).

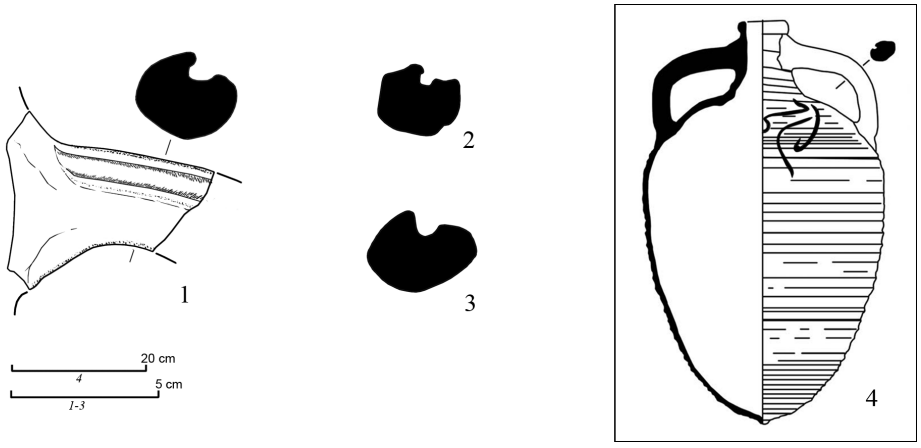

Fig. 16. Amphorae type LRA 1 Benghazi: 1–3 – Trench R-23; 4 – Kellia (after: Egloff 1977, Pl. 58: 2).

AMPHORAE OF THE NORTHERN BLACK SEA REGION

Single fragments of transport vessels from Trench R-23 belong to North Pontic amphorae with grooved handles, type 3 according to S. Didenko, also known as type Böttger I.5 (Böttger 1982: 44; Didenko 2018b: 86–96). Their appearance is associated with the evolution of amphorae such as Zeest 72, and the production time is limited to the 320s – 360s AD. These amphorae have an ovaloid fluted body, maximally expanded in the upper or middle part (Fig. 17:4). The short cylindrical neck passes into the oblique shoulders at the level of the lower third of the height of the arched, wide-set handles. The handles are profiled with several shallow grooves. The rim in the profile is rounded or subtriangular. The production of this type of amphorae is most likely associated with the ancient centres of the Crimean Peninsula. In Trench R-23 their fragments come from the cultural layer, accumulations of stones and construction debris (Fig. 17:1–3).

Thus, for now, five types of late antique amphorae have been recorded in the cultural layer and contexts of Trench R-23 that were produced in the ancient centres of the Black Sea region and the Mediterranean during the second quarter of the 4th–5th centuries. Their fragments make up about 30% of all ceramics of the Late Roman period found at this site.

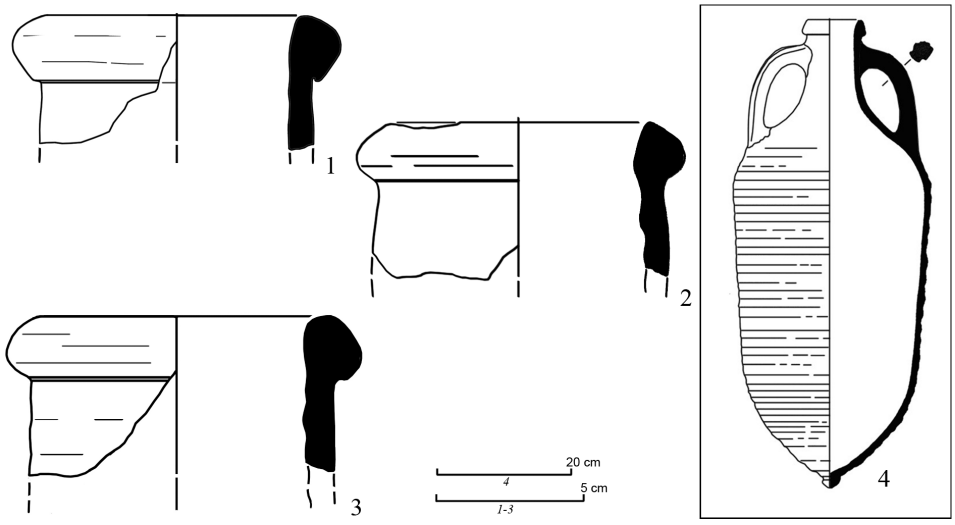

Fig. 17. Amphorae type Böttger I.5: 1–3 – Trench R-23; 4 –Chatyr-Dag cemetery (after: Myc *et al.*, 2006, Taf.4: 1).

RED SLIP WARES

From the contexts of the R-23 trench, a small number of fragments of red slip tableware from the production centres of the Late Roman Empire also derive (Fig. 18). This category of imported ceramics is represented by two groups: the PRS (Pontic Red Slip Ware) group, identified by Krzysztof Domżalski; and ARS (African Red Slip Ware) group, highlighted by John Hayes.

PRS Group

Vessels of this group were produced in northern Anatolia in the western part of the province of Pontus from the 4th to the middle of the 6th centuries (Domżalski 2021: 49, 50, 158). In the materials of Trench R-23, they are represented by fragments of vessels of forms 1A and 3.

Form 1A includes large thick-walled dishes with straight walls slanting towards the broad, flat base on a low ring-foot of a large diameter. The rim with a rounded or sharp edge is an extension of the walls and is only slightly incurved. The foot is separated from the wall by a characteristic undercut. The slip is brownish-pink or brownish-orange in colour, applied unevenly on the outside. Date: 4th century (Domżalski 2021: 57–58). In Trench R-23, fragments of such dishes are found in the cultural layer, accumulations of stone and debris (Fig. 18:1).

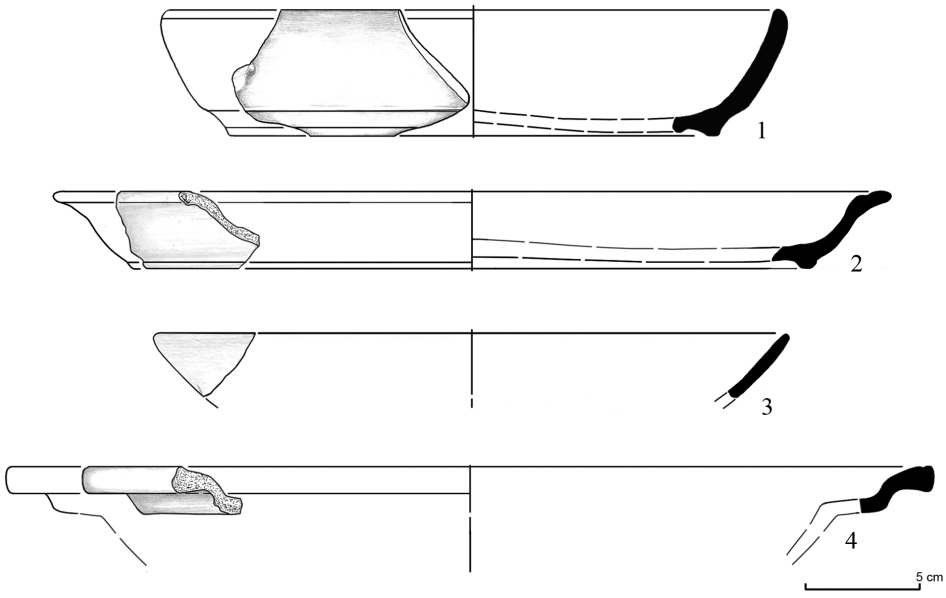

Fig. 18. Red slip wares from Trench R-23: 1 – PRS 1A; 2 – PRS 3; 3 – ARS 50; 4 – ARS 67. Graphic design: S. Didenko.

Form 3 vessels include dishes with a wide rim and rounded walls, gently sloping towards the broad base on a low ring-foot of a large diameter. The wide rim has a rounded edge. The foot is separated from the body by a characteristic undercut. The slip is brownish-orange. Date: end of 4th – third quarter of 5th centuries (Domżalski 2021: 84–86). One fragment of this form of vessel was found in Trench R-23 among animal and fish bones (Fig. 18:2).

It is possible that among the materials of Trench R-23 there are also fragments of vessels of other forms of the PRS group. However, due to their fragmentation, their correlation with a specific form is problematic.

VESSELS OF THE ARS GROUP

This group is represented by single fragments of dishes and plates with red slip, which were produced in North African workshops at the territory of present-day Tunisia and were identified by J. Hayes as the forms ARS 50 and ARS 67.

Form 50 includes thin-walled dishes with a barely allocated ring-foot of large diameter and straight body that pass into a pointed edge. A thick red slip with an orange shade is applied evenly over the entire surface. Date: 4th century (Hayes 1972: 69–73). In Trench R-23, a fragment of such a dish was found in the hearth of Building 1 (Fig. 18:3).

Form 67 vessels are deep plates on a barely separated foot and a two-part flaring rim. The edge is thickened, usually decorated with a groove. The bottom is usually decorated with stamped ornaments or grooves. The red slip is applied evenly over the entire surface. Date: second half 4th–5th centuries (Hayes 1972: 112–116). Only one fragment of this type of plate was so far unearthed in the culture layer of the R-23 site (Fig. 18:4).

Table ceramics of Pontic and African production are quite characteristic for the ancient and barbarian sites of the Northern Black Sea region in the Late Roman period. In addition to the R-23 trench, such items have also been recorded at other trenches of the Olbian citadel (Krapivina and Domzhal'skiy 2008).

POST-ANTIQUITY HORIZON OF TRENCH R-23 – CHRONOLOGICAL AND CULTURAL-HISTORICAL ASPECTS

Among all the categories of pottery obtained during research in the R-23 trench, imported ceramics are the most reliable dating material. Based on the chronology of the types of Late Antique amphorae and red-slip vessels, the post-Antiquity horizon found here as a whole can be dated to the 4th – the first half of the 5th centuries (Fig. 19). Both wheel-thrown greyware pottery and hand-made pottery can be dated to the same range. Other chronological indicators from Trench R-23 do not contradict this date: they include fibulae and buckles typical for the middle and final periods of the Cherniakhiv culture, a late version of the comb of the Thomas type I, as well as fragments of glassware of the Late Roman period.

Such a composition of the finds, the ratio of categories of ceramics (local vessels – about 70%, imported ceramics – about 30%) and the presence of stone constructions are most characteristic for Cherniakhiv sites of the "Black Sea" type (Magomedov 1987). Thus, it can be argued that the post-Antiquity horizon of Trench R-23 is a consequence of the vital activity of the Cherniakhiv culture members. In its heyday, this multi-ethnic cultural and historical community occupied a vast territory of the forest-steppe regions of Ukraine, Moldova, Romania and, in part, Russia, the Dnipro steppes, as well as the North-Western Black Sea region from the mouth of the Dnipro to the Olt River in the lower reaches of the Danube. This culture assimilated various ethno-linguistic

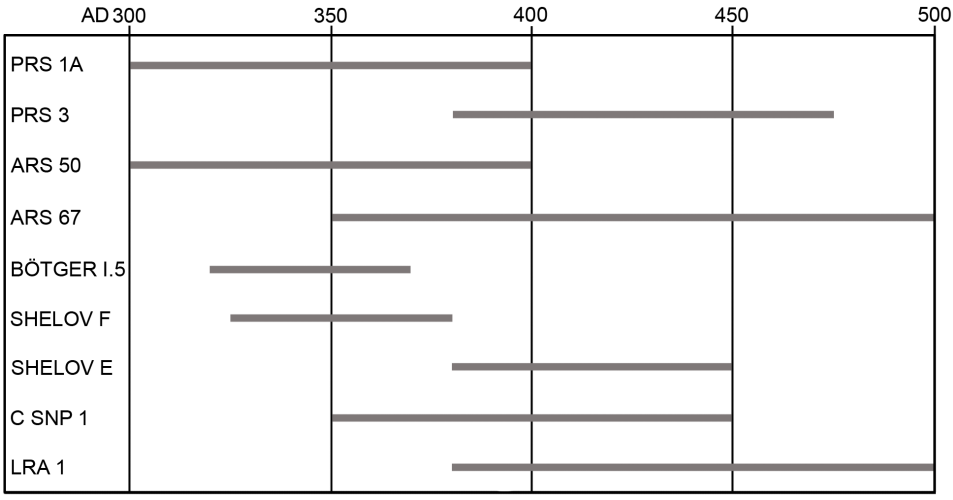

Fig. 19. Chronology of the post-Antiquity horizon of Trench R-23 according to the dates of imported pottery. Graphic design: S. Didenko.

groups – Germanic (Gothic), Slavic, Iranian (Scythian-Sarmatian), etc. The Cherniakhiv culture also correlates with the "the land of Oium" or "State of Hermanarich"– a Gothic association known from written sources. Its economic basis was a highly productive farming system, adapted to the natural conditions, so almost the entire area of the Cherniakhiv culture is located in the forest-steppe zone and steppe chernozems or the black earth. The tribes that created this culture were among the most advanced peoples of European *Barbaricum* in terms of the degree of development of production, the level of crafts and trade relations as well as were strongly influenced by provincial-Roman culture (Magomedov 2001).

The question of the nature of Olbia at the final stage of its existence has long been controversial. B. Magomedov has repeatedly presented compelling arguments in favour of the fact that from the end of the 3rd century AD Olbia became a settlement of the Cherniakhiv culture (2007; 2020). Vitalii Zubar shared the same opinion (2001). Valentina Krapivina believed that Olbia remained an ancient city until the end of its existence. As proof, she indicated the remains of stone buildings, streets, and roads, specific to the culture of classical antiquity, which she dated to the end of the 3rd–4th centuries (Krapivina 2013; 2014: 146–165). But the results of the latest research on Olbia do not allow us to agree with this. We now know that all the building remains mentioned by V. Krapivina, as an example of the 4th century construction, now date back no later than the mid-3rd century AD (Buiskykh and Novichenkova 2021).

It should be especially noted that in Trench R-23, the materials of the Cherniakhiv culture are placed immediately above the cultural strata of the Roman period. Therefore, in the Cherniakhiv complexes, earlier material is present here in large quantities and even predominates (different groups of *terra sigillata*, fragments of amphorae of the last quarter of the 2nd – middle of the 3rd centuries AD). Based on this, it can be assumed that the members of the Cherniakhiv culture, who appeared here at the beginning of the 4th century, settled directly on the ancient ruins of the middle of the 3rd century AD. In the process of construction and economic activities of the barbarians, ancient artefacts from the layer of Roman period fell in large quantities into their dwelling places, hearths and pits, which highly complicates the cultural and chronological interpretation of these assemblages. A similar situation is observed in other parts of the Olbian citadel (Zubar 2001; Magomedov 2020), as well as on some nearby archaeological sites (Schultze *et al*., 2006). Thus, by the time the members of the Cherniakhiv culture appeared here at the beginning of the 4th century, the Olbian citadel would have been abandoned for several decades. From this follows another important assumption that has already been repeatedly expressed by researchers – in the middle of the 3rd century AD (250s / 260s) Olbia ceases to exist as an ancient centre (Kryzhytskiy 1985: 179; Zubar 2001; Magomedov 2020). In European history, this is the height of the Scythian/Gothic wars, when the invasions of the barbarians of the Gothic tribal alliance covered almost all the northern possessions of the Roman Empire, and Roman military garrisons were withdrawn from the cities and fortresses of the Northern Black Sea region to protect the Danube limes (Zubar and Krapivina 1999). Apparently, in connection with these events, the life of ancient Olbia ceases, and at the beginning of the 4th century on its ruins there was established a settlement of the Cherniakhiv culture, which continued to exist in the first decades of the 5th century.

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