SPRAWOZDANIA ARCHEOLOGICZNE 77/2, 2025
PL ISSN 0081-3834
DOI: 10.23858/SA/77.2025.2.3975

Svitlana Ivanova[1], Igor Bruyako[2]

BEAKERS WITH CORDED ORNAMENTATION IN THE NORTHWESTERN PONTIC REGION (EARLY BRONZE AGE)

ABSTRACT

Ivanova S. and Bruyako I. 2025. Beakers with corded ornamentation in the Northwestern Pontic Region (Early Bronze Age). *Sprawozdania Archeologiczne* 77/2, 119-148.

Corded ornamentation is known on pottery from various Eneolithic and Bronze Age archaeological cultures in the Northwestern Pontic region. The ornamental patterns vary and are not associated with any particular type of vessel. This article examines beakers decorated with compositions of cord impressions. These have predominantly been found in the burials of the Budzhak/Yamna culture. Their distribution may be related to the influence of different cultural blocks – the northern block, associated with the Corded Ware culture, and the western block, linked to the cultures of the Early Bronze Age in the Balkan and Danube region.

Keywords: Northwestern Pontic, Balkan and Danube area, Budzhak/Yamna culture, Corded Ware culture
Received: 06.12.2024; Revised: 04.08.2025; Accepted: 29.08.2025

1 Department of Archeology of Crimea and the North-Western Black Sea Region of the Institute of Archeology of the National Academy of Sciences of Ukraine, vul. Pushkinska 37; 65048 Odessa, Ukraine; svi1956@gmail.com; ORCID: 0000-0002-3318-8244
2 The State Institution 'South Ukrainian National Pedagogical University named after K. D. Ushynsky' (Ushynsky University). vul. Staroportofrankivska 26; 65020 Odessa, Ukraine; igorbruyako@gmail.com; ORCID: 0000-0001-6359-2806

INTRODUCTION

Corded ornamentation in the Eneolithic and Bronze Age was widespread in communities with marked differences in culture, economy, environment and social development. Researchers identify in it peculiar 'markers' – signs of wider interaction, such as the exchange of experiences on a pragmatic, technological, and cognitive-semiotic level (Kośko and Szmyt 2010, 58). In the Northwestern Pontic region, corded ornamentation has been found on pottery from various Late Eneolithic and Early Bronze Age archaeological cultures. Some cultures are considered incoming, while others are considered indigenous. Therefore, to determine the sources of the corded ornamentation in these cultures, specialised studies of ornamentation techniques and archaeological context are required. However, the stylistics of vessel ornamentation may indicate the influence of a particular society, as reflected in the similarity of ceramic forms and in the perception of specific ornamental features. Openness to cultural dialogue could have facilitated cultural exchange, the perception, transformation, and adaptation of new cultural elements, including corded ornamentation.

THE NORTHWESTERN PONTIC REGION AS A FRONTIER ZONE

The Northwestern Pontic area is highlighted in many studies as a distinct geographic and cultural-historical region, bounded to the east by the Southern Buh River, to the west by the Prut and Danube Rivers, to the north by the boundary between the steppe and forest-steppe, and to the south by the Black Sea.

In the Late Eneolithic, this area was considered a 'zone of contacts', or frontier. At the end of the 4th and the beginning of the 3rd millennium BCE, an Eneolithic population existed that can be termed the proto-Budzhak (proto-Yamna) horizon (Ivanova 2015). This includes groups from the late stage of the Trypillia culture, graves of the Zhivotylivka-Volchansk group, and graves with extended ('stretched') skeletons; some researchers associate them with the population of the Kvitianska culture (Rassamakin 1997), while others link them to various types and chronological periods of the Eneolithic (Manzura 2013). Some Eneolithic graves cannot be attributed to specific cultures.

The chronological range, spanning from the last quarter of the 4th millennium BCE to the first quarter of the 3rd millennium BCE, marks both the end of the Eneolithic period and the beginning of the Bronze Age. The beginning of the Bronze Age in the steppe zone of Ukraine is dated to 3300/3200 BC, which corresponds to the beginning of the CII stage according to the Tripillia chronology (Videiko 1999). The transition to the Middle Bronze Age is dated to 2700-2500 BC, and to the Late Bronze Age, about 1800 BC (Otroschenko *et al.* 2008, 219, 245, 304). During the Early Bronze Age, the region maintained its frontier status. The Early Bronze Age includes the Usatove culture and the Budzhak/Yamna culture,

one of the most prominent cultures not only in the Pontic steppe but also across the entire Yamna cultural area (YC). The Usatove chronology currently spans from 3550 to 2750 BCE, coinciding with the Trypillia stage CII of the chronological periodisation of the Pre-Cucuteni-Cucuteni-Trypillia Culture Complex (Nikitin and Ivanova 2022). According to Yuri Rassamakin and Alla Nikolova (2008, 65, 66), the chronological span of the YC in the Dnister-Danube rivers region can be defined as 2900-2200 BC; however, it is also possible to accept two groups of dates for this region: 3000-2600 BC and 2550-2200 BC. In the region, the graves of the Catacomb culture (CC), which coexisted with the Budzhak culture for a certain period, date back to the second half of the 3rd millennium BC. The population of the Early Bronze Age not only mastered the territory of the Northwestern Pontic zone but also moved westward: a small group of Catacomb burials was excavated in Romania, and burial mounds of the YC are known not only in the Balkan-Carpathian area but also in Hungary and Serbia (Jarosz *et al.* 2021).

Researchers have substantiated the concept of the Northwestern Pontic as a link between the Western world of farmers and the steppe pastoralists (Shmagliy and Cherniakov 1970), as a 'contact zone' of different cultures (Dergachev 1991). According to Igor Manzura, in the Middle Eneolithic, a communication system ('East – West bridge') was formed, where the Carpathian-Dnister region acts as a peculiar indicator of cultural processes in the European territories, and at the same time, as a medium of transmission, within which cultural transformation appears especially dynamic and multifaceted. In the Eneolithic and Early Bronze Age, the development of local groups in this area was determined by the interaction of two cultural blocks: the Eastern European and the Balkan-Danubian. In some stages, impulses coming directly (and more often, indirectly, through the forest-steppe formations of the Carpathian-Dnister lands) from the communities of the Central European circle intervened in this process (Manzura 1993).

Valentin Dergachev also noted that in the Carpathian-Dnister region, there is interaction between different cultural communities, and the region itself appears as a zone of interaction between several cultural-historical factors. The dominant factor throughout all the periods considered by the author (from the Neolithic to Antiquity) was the southeastern European one, with its position linked to Southeastern Europe's susceptibility to impulses from advanced cultural centres (the Mediterranean, the Near East). The Eastern European factor was the second most significant; the third (Central European) was quite secondary. The role of each factor changed in different eras, weakening or strengthening and blocking one another; in their interconnection, they formed a unified cultural-historical context, characterising the peculiarities of the development of the Carpathian-Danube region (Dergachev 1999, 211-218).

Piotr Włodarczak notes the effects of influence from four factors on the Northwestern Pontic in the Late Eneolithic and Early Bronze Age. These were:

– local Late Tripillian (Usatove),

– eastern, associated with the Pontic and Caspian steppe pastoral communities,

– western – with the Early Bronze Age cultures of Anatolia and the Balkans,

– northern, defined by the appearance of the Globular Amphora culture (GAC) near the region. The 'Western branch' of the YC was formed under significant influence from the Eneolithic communities of Southeastern Europe (Włodarczak 2010, 302, 303).

BUDZHAK CULTURE

In works dedicated to various aspects of the Yamna cultural and historical community, the sites of the Northwestern Pontic zone are consistently highlighted as a distinct society with its own defining features. There is a paradox: the existence of a separate culture was substantiated by Leo Kleyn (1975), who called it the 'Nerushay culture', but the most commonly used name is the one later proposed by Ivan Cherniakov (1979), in its various modifications (Budzhak culture, group, variant). In our opinion, the sites of this region deserve the status of a distinct culture, and the well-established, familiar name Budzhak culture should be preserved. The distinction of this culture is fully justified not only by its material culture's peculiarities but also within the framework of a systematic approach to reconstructing ancient history.

The terms 'archaeological culture' and 'cultural-historical community' are generally used as the central taxonomic units. The classic definition of an archaeological culture was formulated by Gordon Childe: 'We find certain types of remains – pots, implements, ornaments, burial rites and house forms – constantly recurring together. Such a complex of associated traits we shall call a cultural group or just a culture' (Childe 1929, v-vi).

The delineation of archaeological cultures is a traditional procedure in archaeology that, on the one hand, facilitates the study of ancient human societies and, on the other, structures archaeological material. Defining the concept of culture is an important step in archaeological research. Any study of a particular culture must first determine what it represents – the specific time period, geographical region, and group of people that constitute this culture (Roberts and Vander Linden 2011). It is assumed that the concept of an archaeological culture remains useful today for the classification and organisation of artefacts, particularly in European archaeology, which often tends towards cultural-historical archaeology (Johnson 2019).

A cultural-historical community is defined as a group of related «cultural variants» or cultures, united by an extensive territory, related material culture, economic structure and social organisation, as well as common developmental trajectories, and concentrated within a defined, bounded area. Almost fifty years ago, archaeologists proposed designating the Yamna culture as the Yamna cultural-historical community/area (Merpert 1974). This concept is broader than simply 'Yamna culture'; it reflects the diversity within the vast distribution area, as well as the existence of cultural variants and several distinct cultures that are part of the Yamna cultural-historical community. One of these is the Budzhak

culture. There are archaeological cultural traditions considered by some archaeologists to be separate cultures, while others include them within the Yamna cultural-historical area: the Kemi-Oba culture in Crimea (Toschev and Kashuba 2017), the Novotitorovka culture in the North Caucasus (Pustovalov 2000, 162) and the Poltavka culture in the Volga-Ural region (Morgunova 2014, 206).

Some archaeologists dispute the status of the Budzhak culture within the Yamna cultural-historical community, instead defining it as a 'cultural variant' (Merpert 1974; Dergachev 2023). The renowned cultural theorist and archaeologist Leo Kleyn examined the concept of archaeological culture from various theoretical perspectives, devoting a part of his monograph to it (Kleyn 1991). He repeatedly wrote about the existence of this distinctive archaeological culture (Budzhak/Nerushay) in the Northwestern Pontic region (Kleyn 2016). We share L. Kleyn's view: the Budzhak culture meets the principal criteria for classification as an archaeological culture.

The complexes in question are concentrated in a specific territory (the Northwestern Pontic region) and local features. Often, the Budzhak culture is associated with the late phase of the YC (Cherniakov 1979; Dergachev 1986). However, as the analysis of sources reveals, the characteristic features of this culture are already evident in the early stage. This pertains to various aspects of material culture, primarily pottery (Ivanova 2021) and metallurgy (Ivanova *et al.* 2021).

In the burial complexes from this area, there is a noticeable predominance of flat-bottomed ceramic forms (in contrast to the ovoid or rounded-bottom forms found in other regions of the YC) and the presence of vessels typologically similar to forms known in the Balkan-Carpathian area and Central Europe. Some of these vessels serve as a kind of 'trademark' of the culture (amphorae, beakers, 'Budzhak jars'), both unornamented and decorated with cord impressions. On the other hand, the distinctiveness of the Budzhak culture is determined by its geographic location — at the border with the late Neolithic/Early Bronze Age cultures of the Balkans (including the Cernavodă III-II, Coţofeni II-III, and Ezero cultures) (Włodarczak 2010, 302). It is also significant that in the Northwestern Pontic, there are sites of late Tripillia groups (phase C/II): Usatove, Ofatinţi (Vykhvatintsy), Brînzeni, and Gordineşti, as well as Zhivotylivka-Volchansk.

Contacts with surrounding cultures are reflected in the presence of ceramic types that have analogues in the contemporary cultures of neighbouring and distant territories, as well as in the assimilation and reworking of new traditions. Researchers have noted that in the ceramic complexes of the Budzhak culture, the connections are more pronounced with the cultures of Central and Southeastern Europe rather than with the Steppe cultures (GAC, Corded Ware culture (CWC), Ezero, Cernavodă II, Coţofeni, Glina III-Schnekenberg, and others) (Cherniakov and Toschev 1985, 18; Dergachev 1999, 209; Alekseeva 1992, 50).

What seems particularly interesting to us are the beakers decorated with cord impressions. Complete information about the burials with these beakers is presented in the Appendix (Catalogue) to this article.

BEAKERS AND BEAKER-SHAPED VESSELS FROM THE BURIALS OF THE BUDZHAK CULTURE

In the Budzhak pottery assemblage, certain similarities with CWC pottery are noted in two vessel types: amphorae (Iwanowa *et al.* 2014) and beakers. A few weapons finds are also attributed to the CWC (Klochko 2006). Beakers with corded decoration constitute a sufficiently representative group that, in our view, could be addressed in a separate article. The significance of these vessels also emerges in the context of one of the most topical subjects in European archaeology: the westward expansion of the Yamna culture, *i.e.*, a process associated with ancient population movements. Within this context, the Yamna culture was long presumed to have played a leading role in shaping the Central European Bronze Age cultures, particularly the CWC. These issues have gained renewed prominence in recent years, following advances in genetic research (Allentoft *et al.* 2015; Haak *et al.* 2015; Mathieson *et al.* 2015), which have revived the theories of Gordon Childe and Marija Gimbutas (Childe 1926; Gimbutas 1956).

Fig. 1. Map of sites mentioned in the article. The numbers on the map correspond to entries in the catalogue (drawn from public-domain Natural Earth data):
1 – Kartal/Orlovka, 2 – Bashtanivka, 3 – Butor, 4 – Cazaclia, 5 – Dyvizia, 6 – Efymivka, 7 – Găvănoasa, 8 – Hlinaia, 9 – Kamyanka, 10 – Kholodna Balka, 11 – Kurchi, 12 – Mayaki, 13 – Mologa, 14 – Myrne, 15 – Olăneşti, 16 – Ostrivne, 17 – Pererîta, 18 – Trapivka

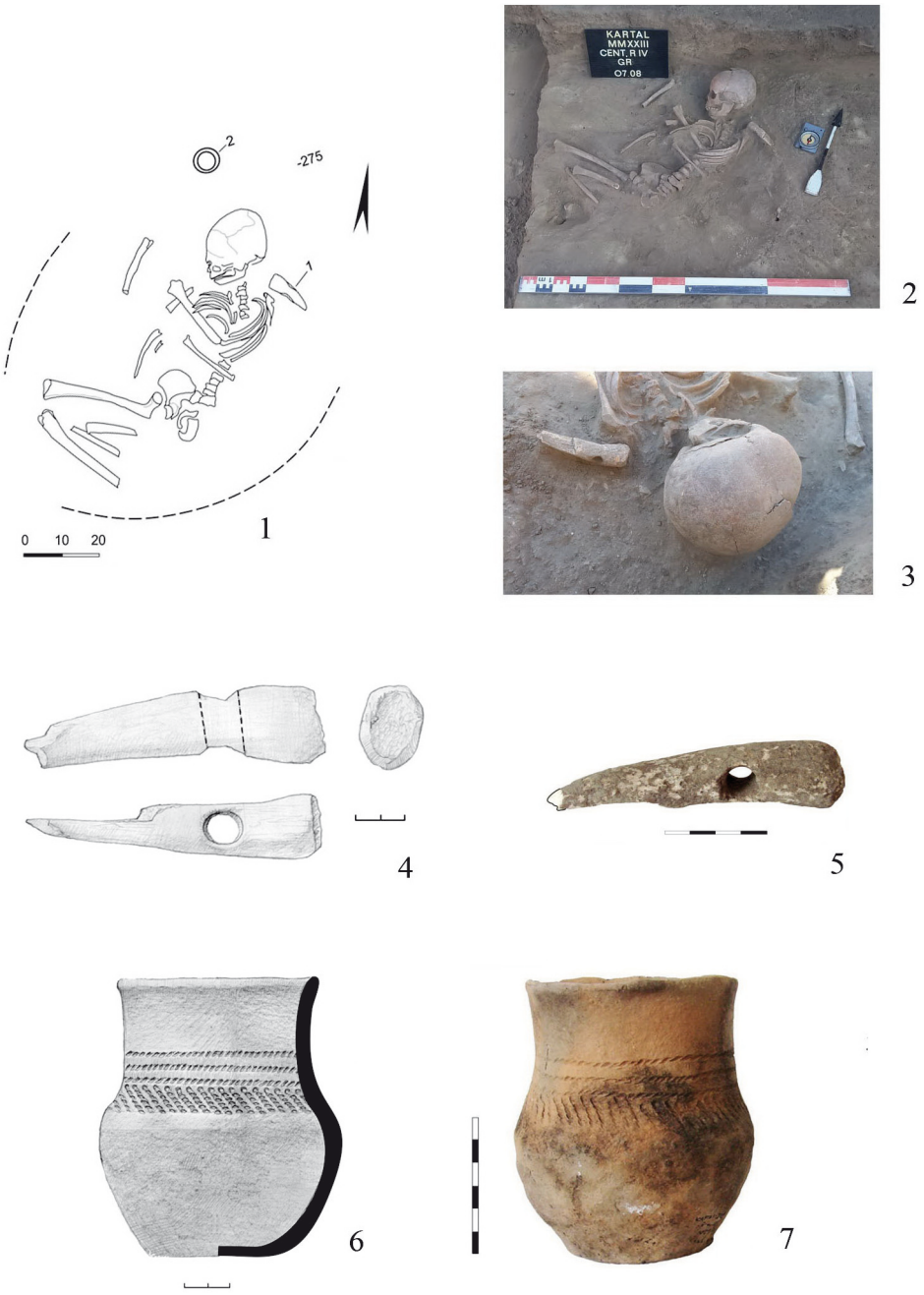

Fig. 2. Kartal/Orlovka, central area, excavation IV, burial 16:
1, 2 – burial 16; 3-5 – horn hammer (hoe?); 6, 7 – beaker from the burial site

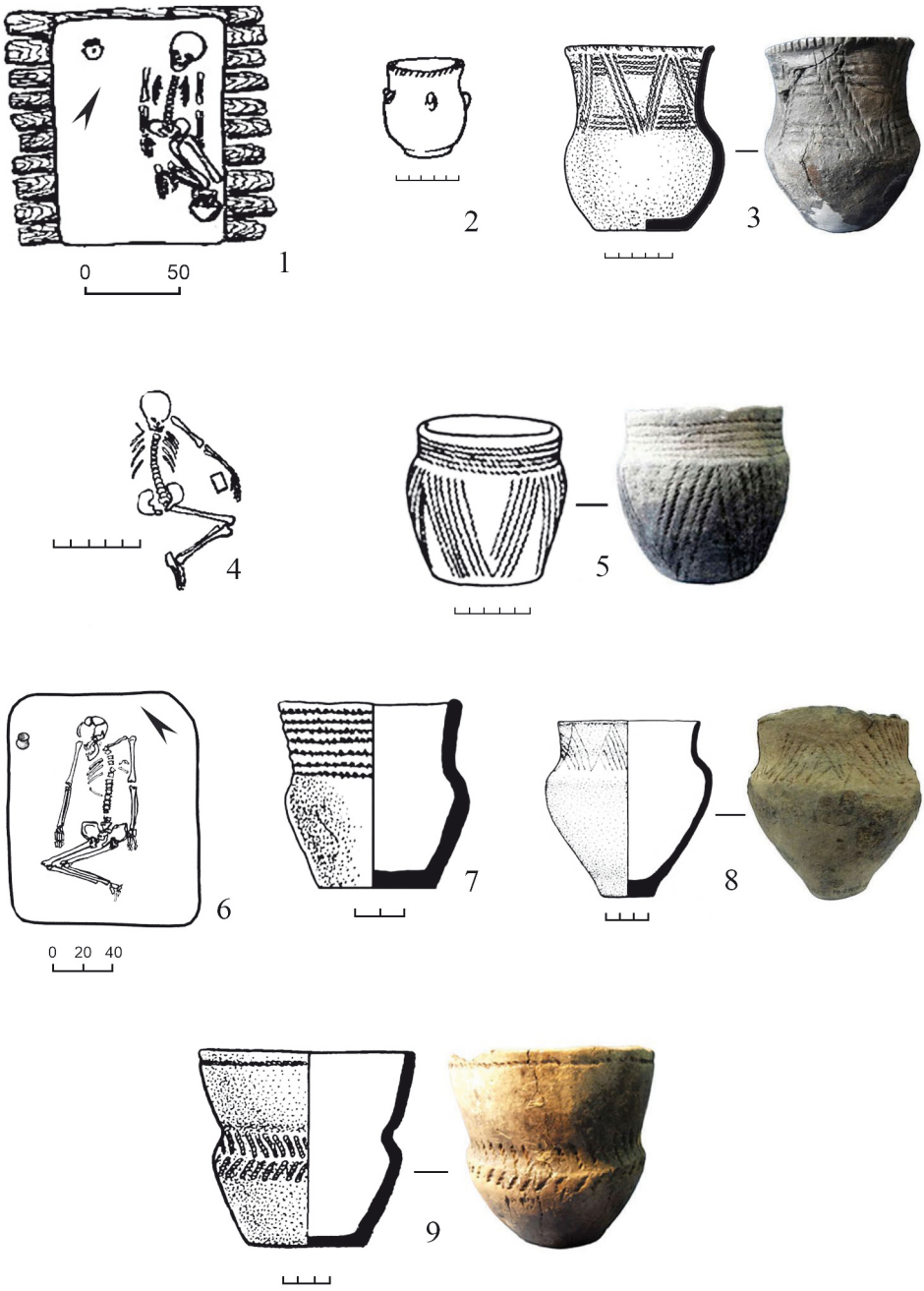

Fig. 3. Budzhak culture beakers with cord ornaments:
1-3 – Bashtanivka 7/12; 4,5 – Bashtanivka 7/21; 6, 7 – Butor 9/3; 8 – Cazaclia 5a/1; 9 – Dyvizia II 2/5

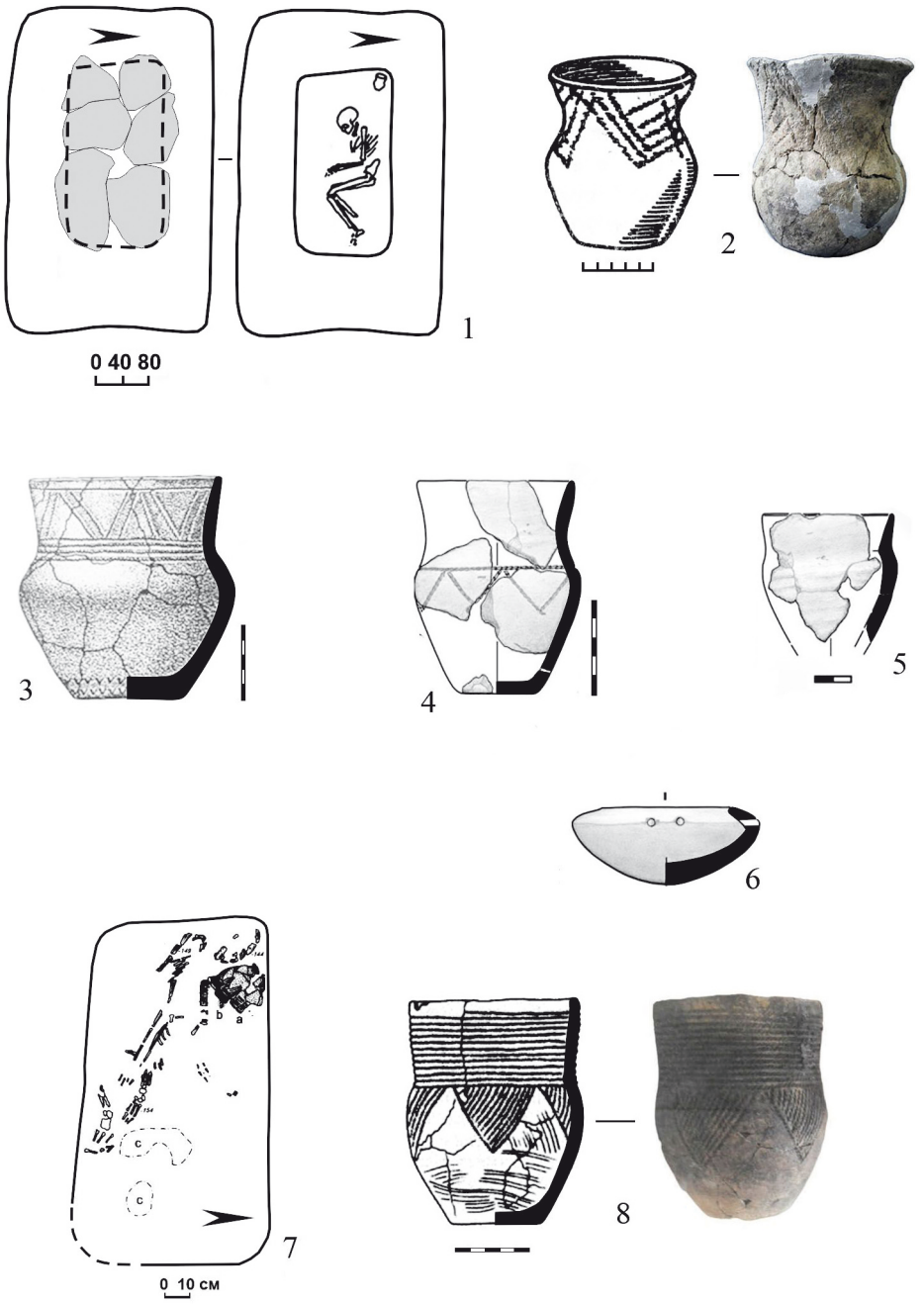

Fig. 4. Budzhak culture beakers with cord ornaments:
1, 2 – Efymivka 9/17; 3 – Găvănoasa 8/2; 4-6 – Hlinaia 'Dot' 1/6; 7, 8 – Kholodna Balka 1/13

Fig. 5. Budzhak culture beakers with cord ornaments:
1,2 – Kurchi 3/9; 3 – Mayaki III 2/13; 4-6 – Mologa 2/3; 7,8 – Myrne 1/12

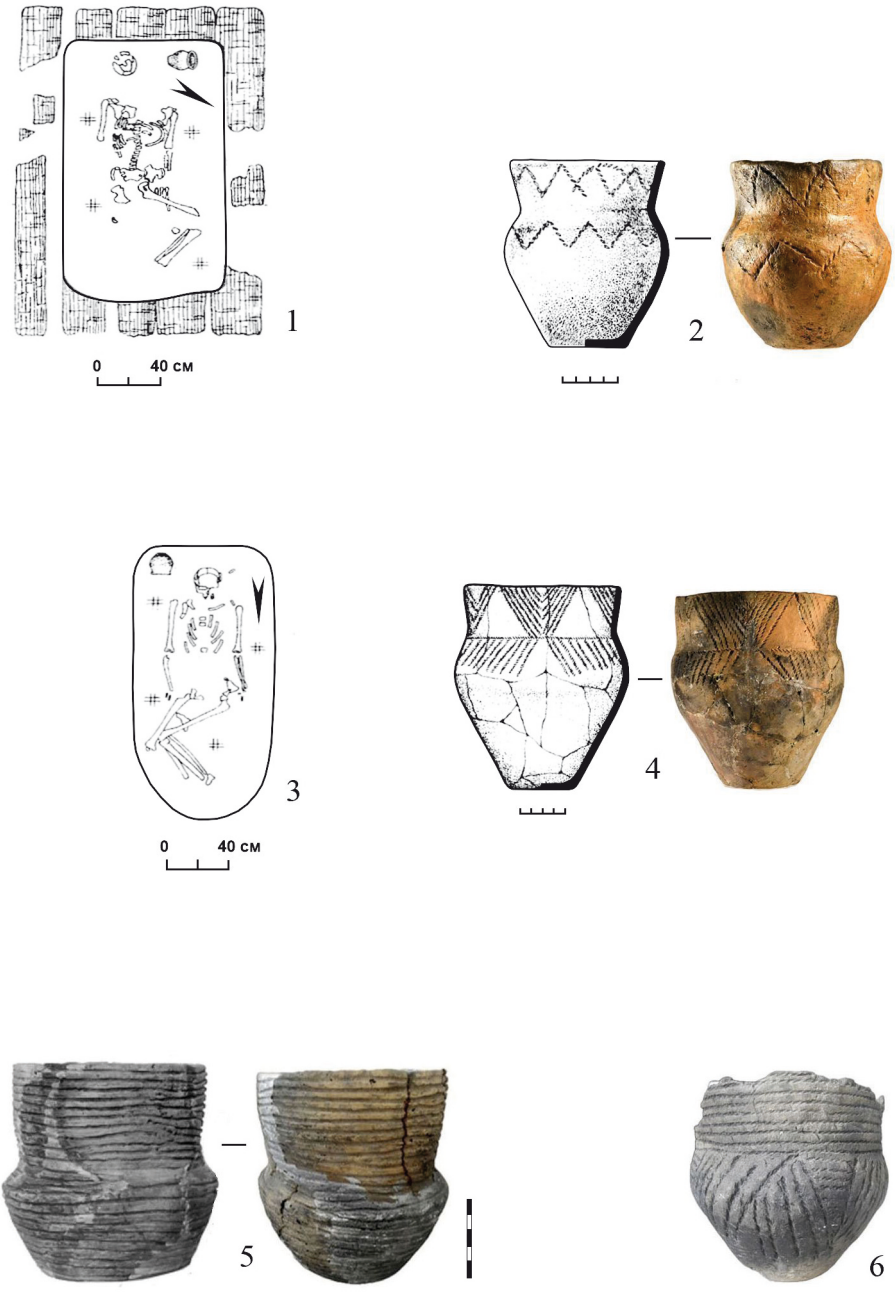

Fig. 6. Budzhak culture beakers with cord ornaments:
1,2 – Olăneşti 5/5; 3,4 – Olăneşti 15/4; 5 – Kamyanka, k. 1; 6 – Ostrivne, k. 2

Fig. 7. Budzhak culture beakers with cord ornaments:
1-3 – Pererîta 1/9; 4,5 – Pererîta 2/1; 6 – Trapivka 4/5; 7-9 – Trapivka 6/20

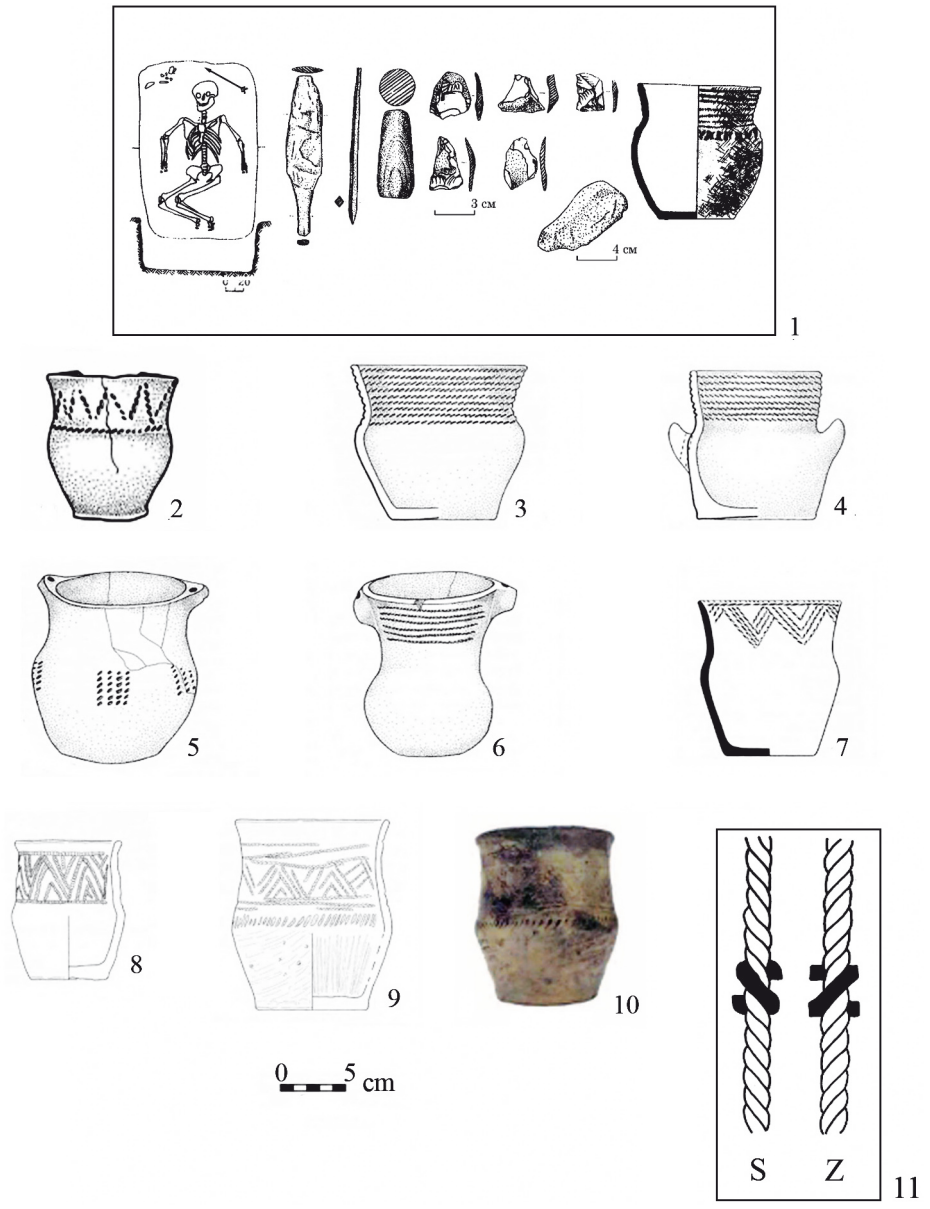

Fig. 8. Cord-decorated beakers of the Yamna culture in the Balkan-Carpathian area and Crimea:
1 – Istochne 12/5 (northern Crimea); 2 – Viile (Romania); 3 – Ploiești Triaj 2/20 (Romania); 4 – Ploiești Triaj 2/15 (Romania); 5 – Gurbănești 2/3 (Romania); 6 – Gurbănești 2/4 (Romania); 7 – Tarnava 2/1 (Bulgaria); 8 -Brăilița cemetery, grave 34 (Cernavodă II?) (Romania); 9 – Brăilița cemetery, grave 8 (Cernavodă II?) (Romania); 10 – Brăilița cemetery, grave 144 (Cernavodă II?) (Romania); 11 – S- and Z-spun thread (after: 1 – Gening and Korpusova 1989; 2, 10 – Frînculeasa *et al*. 2015; 3-9 – Semmoto 2023; 11 – Andersson Strand 2012)

In our opinion, it is more appropriate to speak not of an invasion, but of a gradual infiltration of Yamna populations to the west. Likewise, there are grounds to speak not of direct Yamna influence, but of bilateral intercultural contacts. Certain features in the CWC indicate some influence from the Yamna culture, while the Budzhak/Yamna culture also shows traits attributable to the CWC. We include among such traits pottery showing similarities to the CWC, specifically amphorae and beakers with corded ornamentation. The distortion of 'classical' ornamentation and canonical patterns may indicate that almost all of these beakers are not imports but imitations. Imports could point to a one-off contact, whereas the relatively large number of imitations may suggest longer-term (and non-hostile) connections.

The beakers and beaker-shaped vessels from the Budzhak culture burials (38 specimens, or 8.1% of the ceramic complex) exhibit considerable variety in shape and size. These vessels are traditionally characterised by a rounded or elongated body and a high, outward-turned rim (less frequently, a straight rim). Most beakers have slender, tall proportions, but rounded, sharply ribbed, or squat forms have also been recorded. Based on the shape of the body, two types can be conditionally distinguished: 1) with maximum expansion in the upper third of the body, and 2) with expansion in the middle part of the body. The majority of these vessels are of medium size, measuring up to 20 cm in height, although examples of greater and lesser heights are also present.

Among this group of vessels, 21 beakers have corded decoration. This ornament is quite varied, featuring parallel impressions along the rim, shaded triangles with their tips pointing downward along the shoulders, zigzags, and tree-like impressions. One specimen features a vessel decorated with incised parallel horizontal lines along its entire surface (Kamianka, Kurgan 1). This beaker is not decorated with cord impressions. However, it is in the same style as some beakers with cord ornamentation, so we felt it was possible to include it in this Catalogue.

In discussing the origins of the beakers within the ceramic complex of the Budzhak culture, it is necessary to focus on the mutual influence between two Early Bronze Age communities – the CWC and the YC.

Researchers note the influence of the YC on the CWC, particularly in burial practices: burial mounds, the use of ochre, wooden grave covers, and 'craftsmen's graves'. In the southern CWC groups, some types of copper knives are associated with YC influence (Włodarczak 2010, 306, 323-325). However, typical YC vessels have not been found in CWC burials, except for the 1149B complex at Święte 11 (Jarosław District, Lesser Poland). This vessel is described as a pot with a rounded bottom and a short rim decorated with diagonal stanchions impressed on the rim. The closest analogy is a vessel from the Cherkasy region on the Southern Buh River (Kośko *et al*. 2018, 74, 84).

Piotr Włodarczak has noted that 'oval' amphorae are known from the Early Bronze Age throughout the entire Balkan-Carpathian basin. However, in the CWC, they are found only in areas adjacent to the zones of YC distribution — specifically, in the vicinity of the Dnister region and in southern groups, including Bohemia, Moravia, and Lower Austria. According

to him, the Yamna people played a significant role in these transformations, acting as a transmission medium that facilitated the spread of innovations along the 'Danubian route'. It was through the Yamna population that the Corded Ware cultures adopted amphora types characteristic of some Carpathian cultures and some aspects of burial rites (Włodarczak 2010, 302, 305). According to Jaroslav Peška, elements linking the Moravian region with Eastern Europe appear in the Moravian CWC (MCWC) funeral ritual and inventory:

'…we can trace several links and contacts with Eastern Europe and, more specifically, with the North Pontic-Caucasian region in the context of cultures at the turn of the 4th/3rd millennium BC. The archaeological findings so far, in the form of individual (mound) burials and a selection of artefacts, demonstrate the interpenetration of individuals (or small groups) rather than the direct intervention of steppe nomads, but better still the influence of progressive commodities as part of the 'Yamna package' in the regions lying west of the Tisza' (Peška 2023, 169). He adds: 'The frequent representation of multiple types of selected artefacts in the North Pontus area (for example, the Budzhak Culture) found its reflection precisely in the content of the MCWC' (Peška 2023, 160).

In our opinion, this movement was not one-way, exclusively in a western direction; there was also a reverse movement of the Budzhak population from west to east, as well as a transfer of ideas, artefacts, and copper and silver ore.

The Budzhak culture was influenced by various factors and was in contact with different cultures. The population was open to cultural dialogue, adopting and reworking various traditions, reflected in the material culture's syncretic nature. Only the burial rite connects the Budzhak culture with the vast Yamna cultural and historical community, while the ceramics show distinct differences.

Some of the vessels found in Budzhak culture burials are imports from the Lower Danube cultures and from the GAC area (Szmyt 1999, 152-164). However, there are also coarsely made examples that local potters probably produced as imitations (for example, Novoselitsa 19/13, with GAC traditions).

Undoubtedly, all (or nearly all) of the beakers decorated with cord impressions were made by potters from Budzhak culture communities, as indicated by the similarities in decoration and technological techniques to other types of Budzhak culture pottery. However, the influence of the CWC is evident in some beakers with ornamentation that bears stylistic similarities, albeit with deviations from the 'standards' (for example: Figs 3: 7; 4: 3; 5: 2; 7: 2 and 7: 9).

The influence of 'foreign' ceramic styles does not necessarily imply their exact copying; instead, only certain details and elements of decoration may be adopted:

'Cultural forms are reproduced but also transformed by humans and things, like pots, potters, pottery mongers, and pottery users that are intermittently on the move… Many of the possible creative and mutual processes – appropriations, rejections, alignments, creolizations, etc. – that encounters with otherness can trigger, might become materialised in pottery vessels too. The vessel could have been made by local potters, taking a translocal

pot with its non-local style as a model… Only specific material properties, designs, shapes, decorative and/or functional features or technical solutions can be appropriated, integrated, or aligned to the local pottery production practices' (Heitz 2017, 282, 283).

Maintaining the standards of form and ornamentation is crucial for potters producing local pottery in accordance with local conventions. It is assumed that the practice of decorating vessels with cord or textile impressions was inspired by the magical and mythical meanings associated with these materials. Cords, representing decorative elements on vessels, can be seen as an example of their many ritual applications. The strength and power of the cord, braiding, and other textile patterns were probably transferred onto the cord-decorated objects. However, in this case, there is no contradiction between imbuing objects with power and cohesion and endowing them with aesthetic qualities. It seems that cord ornamentation retained these magical qualities while also carrying aesthetic value (Kowalski 2010, 72).

Over time, the 'sacred meaning' of ornamentation may have been lost, but potters probably continued to adhere to their own traditions.

For potters reproducing 'foreign' vessel types, the ornamentation appears only as decoration. Therefore, it is comparatively easy to transform, distort, or 'break down' into elements, depending on the potter's taste. Consequently, only some aspects of the ornamentation, its style, etc., can be 'appropriated'; on the other hand, the shapes of the vessels are not always identical to the prototype, though there is a tendency toward general similarity. Budzhak potters transformed not only beakers but also other types of pottery. Some oval amphorae, whose shape was most likely borrowed from the Lower Danube region, had additional small handles, similar to those known on other types of Budzhak pottery and were a local element.

CORD DECORATION TECHNIQUES

Researchers emphasise the importance of a comparative analysis of the cord-decoration technique to illustrate the cultural origins of the pottery makers (Semmoto 2023, 163). According to studies of ancient textiles, the method of making cords depends on the makers' cultural background (Andersson Strand 2012, 31-33).

The fibres can be twisted to the left, 'S', or to the right, 'Z' (Fig. 8: 11). Yamna burials in the Northwestern Pontic zone have yielded many vessels with cord decoration. Masao Semmoto's studies of Budzhak ceramics revealed no significant difference in the ratio between Z- and S-twisted cords. It is noteworthy that in the cord-decorated pottery of the Usatove group, Z-twisted cord predominated almost entirely over S-twisted cord. In the Horodiştea-Gordineşti group, most vessels had S-twisted cord (94%), while the remaining ones had Z-twisted cord (6%). Most vessels with cord decoration discovered in Yamna burials in the Lower Danube valley were decorated with Z-twisted cord. However, some vessels with S-twisted cord decoration were also found (Semmoto 2023, 173-176).

According to P. Włodarczak's observations, the S-twisted cord is more characteristic of the CWC, while the Z-twisted cord is more typical for the Lower Danube. At the same time, there are known situations where different CWC groups (but close territorially) used different cord directions. For example, there are differences between Western and Eastern Swiss CWC, and the cords for the typical decoration of vessels were even wound in opposite directions (Schultrich 2023, 295).

A study of the cord-decoration technique for the beakers from the Budzhak burials reveals that potters mastered both techniques, although the S-twisted cord predominates (Table 1). The presence of different techniques is probably linked to the influence of various cultural communities and the synthesis of different traditions by Budzhak potters.

By studying the making and mobility of pots, potters, pottery makers, and pottery users, researchers shift the focus from one-sided notions of stable 'cultures' to ideas of appropriations, transformations, and thus the negotiation of cultural forms (Heinz and Stapfer 2017, 11).

The Budzhak population likely contributed to the spread (both westward and eastward) of other types of vessels, besides amphorae, particularly beakers influenced by CWC traditions. Some vessel types similar to Budzhak pottery have been found in the YC burials of Crimea, as well as a wooden wagon find. However, in the context of this study, the most interesting find is the burial at Istochne 12/5 (northern Crimea), where a beaker similar to CWC beakers was found (Fig. 8: 1), as well as a beaker from Trapivka 6/20, Northwestern Pontic (Fig. 7: 9).

In the YC burials of the Balkan-Carpathian area, vessels with cord decoration have been found (Frînculeasa *et al.* 2015, 70, fig. 13), and several are in the shape of beakers (Fig. 8: 2-10). Some of these resemble those found in the Northwestern Pontic. For example, a vessel from Viile (Fig. 8: 2) resembles a beaker from Olăneşti 5/5 (Fig. 6: 2); a beaker from Ploieşti Triaj 2/20 (Fig. 8: 3) resembles a beaker from Butor 9/3 (Fig. 3: 6, 7); a beaker from Ploieşti Triaj 2/15 (Fig. 8: 4) resembles a beaker from Pererîta 1/9 (Fig. 7: 1.); a beaker from Târnavă 2/1 (Fig. 8: 7) resembles a beaker from Hlinaia 'Dot' 1/6 (Fig. 4: 3); beakers from Brăiliţa (Fig. 8: 8-10) resemble beakers from Bashtanivka 7/12 (Fig. 3: 3), Efymivka 9/17 (Fig. 4: 2), Olăneşti 15/4 (Fig. 6: 4), and Trapivka 4/5 (Fig. 7: 6). Some beakers (Fig. 8: 5, 6) are also similar to a vessel found in the North-Western Pontic (Taraclia II 14/16), but they should be attributed to the influence of the Coţofeni culture.

According to Alin Frînculeasa, Bianca Preda and Volker Heyd:

'This type of cord-decorated beakers, sometimes with handles, and amphora-type vessels, is also well known from Hungary and Serbia (site of Srpski Krstur). At the same time, they are relatively rare in Bulgaria. Amazingly, these cord-decorated beakers resemble the typical Corded Ware beakers of Central and Northern Europe remarkably. In fact, some of them are absolutely interchangeable, while both occupation areas always maintain a distance of at least several hundreds of kilometres between them' (Frînculeasa *et al.* 2015, 67).

Table 1. Cord types and their imprints of S-twisted and Z-twisted cord (left – twisted cord, right – twisted cord imprint)

N	Location	Type	Photo
1.	Bashtanivka 7/12	 S	
2.	Bashtanivka 7/21	 S	
3.	Dyvizia II 2/5	 S	
4.	Efymivka 9/17	 S	
5.	Kartal/Orlovka, gr. 16	 Z	
6.	Kholodna balka 1/13	 Z	
7.	Kurchi 3/9	 Z	

8.	Myrne 1/12	 S	
9.	Mologa 2/3	 S	
10.	Olăneşti 5/5	 Z	
11.	Olăneşti 15/4	 S	
12.	Ostrivne b. 2	 Z	
13.	Trapivka 4/5	 Z	
14.	Trapivka 6/20	 S	

Most likely, the movement of beakers followed the same 'Danube route' associated with the spread of amphorae: both the adoption of these vessels from the CWC regions and the dissemination of already transformed variants of these vessels into the Balkan-Carpathian region. Another possible route to the CWC area could have been along the Dnister River. In this context, particular attention should be given to the recently excavated flat Burial 16 at the Kartal/Orlovka site, located near the Danube crossing, 70 km from the Brăiliţa burial site— the first location of cord-decorated beakers along the 'Danube route,' in burials attributed to the Cernavodă II culture (Fig. 1). Burial 16 from Kartal can be dated to the Early Bronze Age (Fig. 2), and the vessel and the position of the deceased have certain similarities with CWC. This burial may serve as a 'link' between the cord-decorated beakers from the Northwestern Pontic and those from the Balkans-Carpathian area. However, a horn hammer (or hoe) was found in the burial, which is atypical for the CWC area, where stone or flint axes are typically found in graves. Deer antler artefacts are known in different cultures and territories, from the Neolithic to the Middle Ages. In the Northwestern Pontic, artefacts of a similar type are known in the Usatove culture (Razumov *et al.* 2023, 55) and in the Budzhak culture (Subbotin 2003, 214). An explanation for this may be connected to the semantics of the burial ritual: the deceased at Kartal was not an outsider from the CWC environment, but rather, the influence of this culture was reflected in the burial. It is likely that the symbolism of the artefacts, rather than their specific type or function, was important to the people who made this burial.. If we interpret this find not as a hammer, but as a hoe, then its semantics in the context of the burial rite change. In this case, there is no longer any need to look for analogies to the 'horn hammer' in the CWC burials.

CONCLUSIONS

The population of the Budzhak/Yamna culture was receptive to innovations in material culture, particularly within its ceramic complex. This influence came from various territories and was manifested in the culture of the Eneolithic and Early Bronze Age. These diverse impulses shaped the culture itself and fostered its 'openness to cultural dialogue.' This was reflected not only in the westward movement and intercultural connections within trade and exchange networks, but also in the reception of 'foreign traditions' and their transformation in relation to local ceramic forms. Therefore, in addition to actual imports from contemporary cultures, the ceramics of the Budzhak culture also include a series of imitations, in which the original features are distorted and conveyed only in general terms, focusing more on stylistic aspects than on creating exact copies. This transformation is evident in a series of beakers, whose appearance can be linked to the influence of the Corded Ware culture. Subsequently, these transformed forms spread westward along the 'Danube route,' which was already navigated by the Budzhak population by the end of the 4th millennium BC.

The finds of beakers are mainly associated with the southern part of the north-western Black Sea region (Lower Dnister and near the estuaries). The same can be said about amphorae (Iwanowa *et al.* 2014, 359, fig. 4.3.3:3). Metal artefacts were also found mainly in the same region (Ivanova 2021, 300-302, figs 5: 9-11).

There are two possible explanations for this situation:

1. The territory was convenient for living and extracting salt in the estuaries. Salt was used for exchange and trade.

2. The 'Danube route' (according to Włodarczak 2010) could probably also have worked in the opposite direction.

Acknowledgments

Many thanks to Piotr Włodarczak and Paweł Jarosz for their consultation during my work on this article.

Appendix 1

CATALOGUE

(symbols: D1 – diameter of the rim; D2 – maximum diameter of the body; D3 – diameter of the bottom; H – height of vessel; all measurements are in centimetres)

Flat Burials

1. Kartal/Orlovka, central area, excavation IV, burial 16 (Fig. 2). This burial with a beaker is the only one not associated with a kurgan, so we will examine it in more detail. The Kartal settlement is located on the left bank of the lower Danube River, near the village of Orlovka (Reni district, Odesa region). It is multilayered, but a layer corresponding to a settlement with a continuous habitation cycle for most of the Bronze Age has not yet been identified. The Eneolithic era is the first significant period in the site's history, concluding with the settlement of the Cernavodă I culture (Bruyako 2020). The subsequent major settlement at Kartal appears only in the Late Bronze Age. Meanwhile, the Early and Middle Bronze Age is comparatively well-studied in the surrounding regions between the Kagul and Yalpug lakes. The focus is mainly on kurgan-type burial sites. However, flat burials of the Bronze Age have been discovered in the nearby outskirts of the Kartal settlement (Bruyako and Agulnikov 2017).

Burial 16 was excavated in 2023. The level of the skeleton's burial was 275 cm from the reference point. According to the stratigraphy, the burial was inserted into a Late Eneolithic layer and covered by cultural deposits from the Late Bronze and Early Iron Ages. Presumably, the pit was oval in shape, oriented SSW-NNE. The skeleton, disturbed by earthworms, was lying on its back, with a turn to the right side. The arm bones were dis-

placed. Possibly, the right arm was extended along the body. The left arm was bent at the elbow and placed across the torso. The legs, bent at the knees, were positioned to the left. The skull was raised, with the parietal region facing upward (perhaps resting on a pillow?). The skeleton's orientation was north-south. Near the left shoulder, a small hammer (or hoe?), made from the branch of a red deer antler, was found. The sharpened end was broken, and a longitudinal fracture from it extended along the branch for 4.5 cm. The total length of the item was 12 cm, the diameter of the striking part was 2.3 × 3.5 cm, and the diameter of the hole was 1.6-1.7 cm. Below the hammer/hoe, an astragalus was found. Approximately 15 cm from the skull, between it and the northern side of the excavation, a beaker was found, with an ornamental design created with a cord impression. Height (H) – 11.2 cm, diameter of the rim (D1) – 8 (8.1) cm, diameter at the bottom (D3) – 10 (9.9) cm (Bruyako 2024).

Kurgans

2a. Bashtanivka 7/12 (secondary) was found 7 m to the northeast of the centre of the kurgan, at a depth of 2 m, in a burial with a ledge (Fig. 3: 1-3). The pit, measuring 1.15 × 0.8 m, was covered with 10 horizontally placed slabs. The walls of the grave were plastered with clay. At the bottom of the grave, under the northeastern wall, was the skeleton of an adolescent. The skeleton was lying on its back, with the legs flexed and the head facing northwest (325°). Its arms were extended along the body, and its legs were bent at the knees to the left. At the bottom of the pit, there was decay from what appeared to be bark bedding (?). In the northwest corner of the pit, there was a miniature amphora (D2 – 6; H – 7), and in the southeast corner, a beaker ornamented with cord impressions (D2 – 13; H – 14.3) (Shmagliy and Cherniakov 1970, 83).

2b. Bashtanivka 7/21 (secondary) was located 12 m to the southeast of the centre of the kurgan, at a depth of 1.8 m (Fig. 3: 4, 5). The buried person was lying on its back, with the legs flexed and the head facing southwest (240°). The left arm was extended, with the hand facing the knees. The bones of the right arm were not preserved (Fig. 3: 4, 5). Near the head, to the left, was a beaker-shaped vessel decorated with cord impressions (D1 – 11.5; D2 – 12; D3 – 8.8; H – 13.3). Near the skull, a bone awl (13 cm long) was found, and near the left hand, a fragment of a grain grinder was discovered. Beneath the skeleton were traces of bark bedding (Shmagliy and Cherniakov 1970, 85).

3. Butor 9/3 (secondary) was located 8 m to the northwest (300°) from the centre of the kurgan, at a depth of 2 m (Fig. 3: 6, 7). The pit, measuring 1.6 m × 1.2 m and 0.5 m deep, was covered with wood. The skeleton, painted with ochre, lay curled on its back, the head facing northeast (45°). The arms were extended along the body, and the right leg was bent at the knee. At the bottom of the burial, there were traces of plant bedding. In the northern corner of the pit, a beaker was found, decorated with seven horizontal rows of cord impressions (D1 – 8; D3 – 5, H – 7) (Sinika *et al.* 2013, 61).

4. Cazaclia 5a/1 (main?), cenotaph, was located 1.87 m to the south (180°) from the centre, at a depth of 0.6 m. The burial pit measured 1.59 × 1.02 m and was 0.68 m deep. The bottom was covered with dark brown decay. In the southeast corner of the pit, a beaker-shaped vessel was found (Fig. 3: 8), decorated with cord impressions (D1 – 10.5; D3 – 4.2; H – 14) (Sava *et al.* 2019, 125).

5. Dyvizia II 2/5 (secondary) was located 8 m to the northeast (30°) from the centre of the kurgan at a depth of 0.85 m, in a burial with a ledge. The ledge had dimensions of 2.7 × 2.2 m, and a depth of 0.54 m, with the pit measuring 1.5 × 1 m and a depth of 1 m. In the earth filling of the pit, there were remains of wooden twigs from the covering. Only a fragment of a hand bone, covered with ochre, remained from the skeleton. At the bottom of the chamber, traces of plant bedding were discovered. Near the bone, a beaker-shaped vessel was found (Fig. 3: 9), decorated with cord impressions (D1 – 13; D2 – 13; D3 – 7; H – 11.6) (Subbotin *et al.* 2001-2002, 569).

6. Efymivka 9/17 (secondary) was found 2.5 metres north of the centre of the kurgan, at a depth of 1.3 metres (Fig. 4: 1, 2). The burial pit had a ledge measuring 3.5 × 2.5 metres, and the pit itself measured 1 × 0.8 metres. The pit was covered with limestone slabs (sizes: 1.6 × 1.1 m; 1 × 0.8 m). The deceased was crouched on the right side, with the head facing west (265°). The right arm was extended toward the hips, and the left arm was bent at the elbow and placed across the body. The skeleton was stained with ochre. In the northwest corner of the grave, there was a beaker decorated with cord impressions (D1 – 10.5; D3 – 7; H – 11). It was made of clay with a coarse-grained sand admixture (Shmagliy and Cherniakov 1985, 109).

7. Găvănoasa 8/2 (main) was located in the centre of the kurgan at the level of the ancient surface, surrounded by a semi-ring of 'thrown out soil' on the south side. The pit was trapezoidal (1 × 0.7-0.6 metres) in size, with a depth of 0.35 metres. The burial was disturbed in antiquity. In the fill, scattered human bones were stained with bright red ochre. At the bottom, in the southwest corner of the grave, there was a beaker (Fig. 4: 3) decorated with cord impressions (D2 – 14; H – 15). It was made of clay with an admixture of fine chamotte, grey-brown in colour (Dergachev 2023, 339).

8. Hlinaia 'Dot' 1/6 (secondary) was located 6 metres southwest (230°) from the centre of the kurgan, in a pit measuring 0.75 × 0.5 metres (Fig. 4: 4-6). The burial was made on the edge of a ditch, with a strip of 'thrown out soil' on the southern side. Only fragments of the leg bones of a small child were preserved, lying in the southeast part of the pit. At the bottom of the pit was a dark-brown layer of bedding organic matter. On the ancient surface, between the edge of the pit and the moat, there were fragments of two vessels. One was a beaker, ornamented with cord impressions (D2 – 9, H – 11), and the

second was an undecorated pot (D2 – 7; H – 7.5). Under the northwest wall, a small bowl with two holes along its rim was found (D2 – 10; H – 3.8). It was made of clay with a chamotte admixture. Inside the bowl were small bone fragments and fish scales (Dergachev 2023, 68).

9. Kamyanka Barrow 1. A beaker made of clay with an admixture of chamotte, decorated with incised horizontal lines, was found 10 metres northeast of the centre of the kurgan at a depth of 1.8 metres (D1 – 12; D2 – 14; D3 – 10; H – 14) (Fig. 6: 5) Eight burials were found in the kurgan, seven secondaries belong to the Budzhak culture, and the primary burial is unidentified (Dergachev 2023, 282).

10. Kholodna Balka 1/13 (secondary) was located 10 metres south (175°) from the centre of the kurgan, at a depth of 1.41 metres (Fig. 4: 7, 8). The pit measured 1.4 × 0.8 metres. The bottom showed traces of dark-brown bedding decay. Scattered human skeletal parts (*juvenis*?) were found diagonally across the grave. The excavation's author suggests the body was dismembered. Near the skull, in the southwest corner of the grave, was a beaker decorated with cord impressions. The beaker's exterior was covered with soot. It was made of clay with an admixture of sand and rare microscopic fragments of crushed shell or bone (D1 – 11.8-12.6, D2 – 13, D3 – 6.8, H – 16) (Petrenko 2010, 334).

11. Kurchi 3/9 (secondary) was located 3.2 metres northwest (300°) from the centre of the kurgan, at a depth of 1.2 metres (Fig. 5: 1, 2). The burial was made with a ledge measuring 2.3 × 1.78 metres, and the pit measured 1.45 × 0.8 metres. The skeleton was poorly preserved, oriented with the head to the northeast (30°), and laid in a supine position, with the arms extended along the body. The skeleton was stained with ochre. Near the skull was a beaker decorated with cord impressions (D1 – 11.8, D2 – 13, H – 14.5) (Toschev 1992, 22).

12. Mayaki III 2/13 (main) was found in the centre of the kurgan. The pit measured 1.8 × 0.9 metres. The skeleton was destroyed. Near the northeast wall of the grave, there was a miniature beaker (Fig. 5: 3) with cord decoration (D2 – 5, H – 6.5) (Dergachev 2023, 99).

13. Mologa 2/3 (secondary) was found 6.2 metres southwest of the centre of the kurgan at a depth of 0.55 metres (Fig. 5: 4-6). The skeleton was missing (possibly destroyed by ploughing). Identified by a patch of dark grey decay from a mat (0.7 × 0.4 metres), fragments of clay-covered wood, and two vessels placed on the mat. Vessel 1 was a miniature amphora with a rounded body, a rounded bottom, and a short cylindrical neck. It had two horizontal handles with perforated holes. The clay contained an admixture of fine chamotte, slag, and sand (D1 – 4.7, D2 – 6.8, H – 7). Vessel 2 was a fragment of a beaker's rim, broken at the junction with the body of the beaker. The outer surface was decorated with two rows of horizontal cord ornaments, and the space between them was

adorned with cord impressions forming isosceles triangles with their apices pointing downward. The clay contained an admixture of coarse chamotte and plant material. Dimensions: fragment has a height of 7 cm (Maliukevich *et al.* 2017, 56).

14. Myrne 1/12 (secondary) was located 4.5 metres southeast (150°) from the centre of the kurgan, at a depth of 2 metres (Fig. 5: 7, 8). The burial was made with a ledge measuring 1.8 × 1.6 metres, and the pit was 1.3 × 1.1 metres. The pit was covered with wooden planks laid out in a longitudinal pattern. The skeleton was lying diagonally across the grave, crouched on the left side, with the head to the northeast (40°). The arms were bent at the elbows, and the hands were in front of the face. In the northern corner of the pit, there was a beaker decorated with cord impressions (D1 – 10, D2 – 10, D3 – 8, H – 11). At the bottom of the pit were remnants of chalk bedding (Alekseeva 1992, fig. 17: 2).

15a. Olăneşti 5/5 (main) was found in the northwest sector of the kurgan at a depth of 1.3 metres from the reference point (Fig. 6: 1, 2). The grave measured 2 × 1.6 metres and was 0.9 metres deep. It was covered with five oak beams, laid longitudinally. These beams were up to 2.5 metres long and covered with white clay. The skeleton was lying on its back, with the head facing southwest (225°). The left arm was straight, with the hand under the left femur. The right humerus lay along the body. The forearm bones were not preserved. The legs were slightly bent at the knees to the left. The skeleton was intensely stained with red ochre. At the bottom, there was brown decay from bedding (up to 0.5 cm thick). A thin layer of red ochre was found beneath the skeleton, and white traces of clay were found in other parts of the pit. In the western corner of the pit was a beaker decorated with cord impressions, made of clay with a significant admixture of finely ground shell and coarse chamotte (D1 – 12, D2 – 12.5, D3 – 6, H – 14) (Yarovoy 1990, 170).

15b. Olăneşti 15/4 (primary) was found in the southwest sector of the kurgan at a depth of 1.5 metres from the reference point (Fig. 6: 3, 4). The pit measured 2 × 0.8-0.95 metres, with a depth of 0.45 metres from the covering. The pit was longitudinally covered with oak planks, but a portion of it had already been destroyed in antiquity. The male skeleton lay supine, its head facing south. Both arms were lying along the body, legs bent with the knees to the right. The skeleton is intensely stained with ochre. Brown decay from the bedding was noted beneath it. In the south-eastern corner of the grave was lying a beaker decorated with cord ornament (D1 – 13.5; D2 – 15; D3 – 6; H – 17.5). The clay contains admixtures of fine chamotte, sand and vegetation (Yarovoy 1990, 211).

16. Ostrivne, Kurgan 2. The beaker was found in a kurgan, without a burial (Fig. 6: 6)**.** D1 – 10, D2 – 11,2; D3 -6; H – 11,2. Fifteen burials were found in the mound, including seven secondary burials and a single primary burial, which belongs to the Budzhak culture (Alekseeva 1976).

17a. Pererîta 1/9 (secondary) was located 7 metres to the northeast (70°) from the centre of the kurgan, at a depth of 1.4 metres (Fig. 7: 1-3). The burial measured 1.45 × 1.1 metres and was 0.3 metres deep. The deceased was lying in a crouched position on the left side, with the head facing northwest (330°). The arm bones were not preserved. Near the pelvic bones was a lump of red ochre. The entire bottom of the pit was covered with dark brown bedding decay. Behind the pelvis was a beaker decorated with cord impressions and with two handles on the shoulders (D1 – 9; D2 – 10.5; D3 – 6; H – 11). It was made of clay with a fine chamotte admixture, and the surface was burnished. Near the vessel was a flint flake measuring 2.3 × 2.1 × 0.6 cm (Kurchatov 2006, 275).

17b. Pererîta 2/1 (main) was located in the centre of the kurgan, at a depth of 1metre. The grave measured 2.1 × 1 metres, with a depth of 0.5 metres (Fig. 7: 4, 5). On the bottom, at the corners and along the walls, eight holes from stakes were recorded. The burial contained the skeletons of an adult and a child. The adult was lying on the right side, with the head facing west (270°). The right arm was extended toward the knees, while the left arm was bent, with the hand resting on the pelvis. The bones were evenly stained with red ochre. A lump of scarlet ochre was found in front of the facial bones. The child was lying in front of the adult, in a crouched position on the left side. The bottom of the chamber contained dark brown bedding decay. Near the eastern wall, an upside-down beaker was decorated with cord impressions (D1 – 7.5; D2 – 9; D3 – 5.2; H – 10). It was made of clay with a chamotte admixture (Kurchatov 2006, 275).

18a. Trapivka 4/5 (secondary, cenotaph) was located 11 metres to the southeast (100°) from the centre of the kurgan, at a depth of 2.7 metres, in a pit with a ledge. The ledge measured 1.5 × 1.4 metres, and the pit itself measured 0.9 × 0.55 metres, with a depth of 0.6 metres. The ledge contained remnants of poles from a transverse covering. In the northern corner of the pit, there was a beaker (Fig. 7: 6), decorated with cord impressions (D1 – 10.2; D2 – 10.4; D3 – 7.5; H – 11.9). Fragments of a second vessel were found along the western wall (Subbotin *et al.* 1995, 27).

18b. Trapivka 6/20 (secondary) was located 17 metres to the northeast (45°) from the centre of the kurgan, at a depth of 3 metres (Fig. 7: 7-9). The pit measured 1.1 × 0.7 metres, with a depth of 0.45 metres, and was covered with three stone slabs (measuring 0.65 × 0.25; 0.4 × 0.2 metres). The deceased (adolescent) was lying in a crouched position on the left side, with the head facing northwest (320°). The left arm was extended along the body, while the right arm was bent, with the hand raised toward the chin. The bottom of the pit contained remnants of bark bedding. Above the skull was a flint scraper (4 × 2.2 cm). Behind the head was a beaker, decorated with cord impressions (D1 – 9.4, D2 – 10.2; D3 – 4.8; H – 11). Behind the deceased's heels was the lower half of an undetermined pot with traces of soot, made of clay with an admixture of plant material and chamotte (Subbotin *et al.* 1995, 51).

References

Allentoft M. E., Sikora M. and Sjögren K.-G. 2015. Population genomics of Bronze Age Eurasia. *Nature* 522, 167-172.

Alekseeva I. L. 1976. *Otchet o rabote Nizhne-Dnestrovskoy novostroechnoy expeditsii IA AN USSR v zone stroitelstva i ocheredi Nizhne-Dnestrovskoy orositelnoy sistemy v 1976 godu*. Nauchnyi arkhiv IA NANU 1976/87.

Alekseeva I. L. 1992. *Kurgany epokhi paleometalla v Severo-Zapadnom Prichernomorie*. Kiev: Naukova dumka.

Andersson Strand E. 2012. The textile chaîne opératoire: Using a multidisciplinary approach to textile archaeology with a focus on the Ancient Near East. *Paléorient* 38, 21-40.

Bruyako I. V. 2020. *Poselenie kultury Chernavoda I na gorodische Kartal (raskopki 2001 i 2015 gg.)*. Odessa: Irbis.

Bruyako I. V. 2024. *Zvit pro rozkopky Nyzhniodunayskoi arkheologichnoi expeditsii gorodyscha Kartal v 2023 r*. Odessa.

Bruyako I. V. and Agulnikov S. M. 2017. Pogrebeniya epokhi rannego – srednego bronzovogo veka na territorii predmestia gorodischa Kartal. *Revista Arheologică* 13/1-2, 86-103.

Cherniakov I. T. 1979. Kulturno-khronologicheskoe svoeobrazie pamiatnikov epokhi bronzy *Severo-Zapadnogo Prichernomoria*. In *Problemy epokhi bronzy yuga Vostochnoy Evropy:* tezisy dokladov konferentsii; Donetsk 3-6 dekabria 1979 g. Donetsk: DonGU, 8-10.

Cherniakov I. T. and Toshcev G. N. 1985. Kulturno-khronologicheskie osobennosti kurgannykh pogrebeniy epokhi bronzy Nizhnego Dunaya. In V. N. Stanko (ed.), *Novye materialy po arkheologii Severo-Zapadnogo Prichernomorya*. Kiev: Naukova dumka, 5-31.

Childe V. G. 1926. *The Aryans: A study of Indo-European origins*. New York: Alfred A. Knopf. https://en.wikisource.org/wiki/The_Aryans%3A_A_Study_of_Indo-European_Origins.

Childe V. G. 1929. *The Danube in Prehistory*. Oxford: Oxford University Press.

Dergachev V. A. 1986. *Moldaviya i sosednie territorii v epokhu bronzy*. Chişinău: Ştiinţă.

Dergachev V. A. 1991. O ponyatii 'kontaktnaya zona'. In V. M. Masson (ed.), *Arkheologicheskie kultury i kulturnaya transformatsiya. Materialy metodologicheskogo seminara*. Leningrad: LOIA, 76-82.

Dergachev V. A. 1999. Osobennosti kulturno-istoricheskogo razvitiya Karpato-Podnestrovia. K probleme vzaimodeistviya drevnikh obschestv Srednei, Yugo-Vostochnoy i Vostochnoy Evropy. *Stratum plus* 2, 169-221.

Dergachev V. A. 2023. *Yamnaya kultura Karpato-Podunavia*. Chişinău: CEP USM.

Frînculeasa A., Preda B. and Heyd V. 2015. Pit-Graves, Yamnaya and Kurgans along the Lower Danube: Disentangling IVth and IIIrd millennium BC Burial Customs, Equipment and Chronology, *Praehistorische Zeitschrift* 90/1-2, 45-113.

Gening V. V. and Korpusova V. N. 1989. *Arkheologicheskie pamiatniki Krymskogo Prisivashiya. Kurgany u s. Istochnoe i s. Bolotnoe*. Kiev: Institut zoologii.

Gimbutas M. 1956. *Prehistory of Eastern Europe, Part I. Mesolithic, Neolithic and Copper Age cultures in Russia and the Baltic area*. Cambridge, Mass: Peabody Museum.

Haak W., Lazaridis I., Patterson N., Rohland N., Mallick S., Llamas B. *et al*. 2015. Massive migration from the steppe was a source for Indo-European languages in Europe. *Nature* 522, 207-211.

Heitz C. 2017. Making things, being mobile: Pottery as intertwined histories of humans and materials. In C. Heitz and R. Stapfer (eds), *Mobility and Pottery Production. Archaeological and Anthropological Perspectives*. Leiden: Sidestone Press, 257-291.

Heitz C. and Stapfer R. 2017. Mobility and pottery production, what for? Introductory remarks. In: C. Heitz and R. Stapfer (eds), *Mobility and Pottery Production. Archaeological and Anthropological Perspectives*. Leiden: Sidestone Press, 11-38.

Ivanova S. V. 2015. 'Protobudzhakskiy gorizont' Severo-Zapadnogo Prichernomorya. *Stratum plus* 2, 275-294.

Ivanova S. V. 2021. *Istoriya naseleniya Severo-Zapadnogo Prichernomoria v kontse IV-III tys. do n.e.* Zhitomir: Buk Druk.

Iwanowa S., Kośko A. and Włodarczak P. 2014. Komponent tradycji kultur ceramiki sznurowej. Amfory w grobach kultury jamowej północno-zachodniego Nadczarnomorza. In A. Kośko, M. Potupczyk and S. Razumow (eds), *Naddniestrzańskie kompleksy cmentarzysk kurhanowych społeczności z III i z pierwszej połowy II tysiąclecia przed Chr. w okolicach Jampola, obwód Winnicki* (= *Archaeologia Bimaris* 6). Poznań: Wydawnictwo Poznańskie, 351-386.

Ivanova S. V., Videiko M. Yu. and Burdo N. B. 2021. Metalloobrabotka v Severo-Zapadnom Prichernomorie v rannem bronzovom veke. *Slovenská archeológia* 1, 273-283.

Jarosz P., Koledin J. and Włodarczak P. eds 2021. *Danubian route of the Yamnaya Culture: the barrows of Vojvodina*. Budapest: Archaeolingua.

Johnson M. 2019. *Archaeological theory: an introduction*. Hoboken: Wiley-Blackwell.

Kleyn L. S. 1975. (Review). Kurgany stepnoy chasti mezhdurechia Dunaya i Dnestra. MASP. Odessa, 1970, 6. *Sovetskaya arkheologiya* 1, 297-304.

Kleyn L. S. 1991. *Arheologicheskaya tipologiya*. Leningrad: AN SSSR.

Kleyn L. S. 2016. Obshie problemy kulturogeneza eneolita i bronzovogo veka stepnoy zony Severnoy Evrazii. In V. A. Alekshin (ed.), *Vneshnie i vnutrennie svyazi stepnykh (skotovodcheskikh) kultur Vostochnoy Evropy v eneolite i bronzovom veke (V-II tys. do n. e.)*. Sankt-Peterburg: IIMK RAN, 6-13.

Klochko V. I. 2006. *Ozbroiennia ta viyskova sprava davnoho naselennia Ukrayiny*. Kyiv: ArtEk.

Kośko A. and Szmyt M. 2010. Corded ornamentation on clay vessels in the Vistula and Dnieper interfluvial region: 5th-4th mill. BC. An outline of historical and cultural contexts. *Baltic-Pontic Studies* 15, 57-63.

Kośko A., Klochko V., Olszewski A., Włodarczak P. and Goslar T. 2018. Święte 11, feature 1149: sequence of funerary rites practised by Corded Ware peoples and early bronze North Pontic cultures. *Baltic-Pontic Studies* 23, 69-92.

Kowalski A. P. 2010. Neolithic pottery ornamented with 'cord' impressions: an anthropological – semiotic interpretation. *Baltic-Pontic Studies* 15, 64-74.

Kurchatov S. I. 2006. Issledovaniya kurganov epokhi bronzy na Srednem Prute. *Revista Arheologică* 2/1-2, 263-292.

Maliukevich A. E., Agulnikov S. M. and Popovici S. S. 2017. *Kurgany pravoberezhia Dnestrovskogo limana u s. Mologa*. Chişinău: Lexon-Prim.

Manzura I. 1993. The East-West interaction in the mirror of the Eneolithic and Early Bronze cultures in north-west Pontic. *Revista arheologică* 1, 23-53.

Manzura I. V. 2013. Kultury stepnogo eneolita. In I. V. Bruyako and T. L. Samoilova (eds), *Drevnie kultury Severo-Zapadnogo Prichernomoria*. Odessa: SMIL, 115-152.

Mathieson I., Lazaridis I., Rohland N., Mallick S., Patterson N., Alpaslan S. *et al.* 2015. Genome-wide patterns of selection in 230 ancient Eurasians. *Nature* 528, 499-503.

Merpert N. Ya. 1974. *Drevneyshie skotovody Volgo-Uralskogo mezhdurechia*. Moskva: Nauka.

Morgunova N. L. 2014. *Priuralskaya gruppa pamyatnikov v sisteme volzhsko-uralskogo varianta yamnoy kulturno-istoricheskoy oblasti*. Orenburg: OGPU.

Nikitin A. G. and Ivanova S. V. 2022. The Origins and Chronology of the Usatove Culture. *Archaeologia Lituana* 23, 148-156.

Otroschenko V. V., Rassamakin Yu. Ya. and Chernykh L. A. 2008. Doba bronzy na terenakh Ukrainy. In: P. P. Tolochko (ed.), *Ukraina. Khronologiya rozvytku*. Vol. 1. Kyiv: KVIZ, 219-331.

Peška J. 2023. Following the traces of the earliest Corded Ware in Moravia and steppe elements in its content. *Sprawozdania Archeologiczne* 75/1, 141-174.

Petrenko V. G. 2010. Kurgan epokhi paleometalla na poberezhe Khadzhibeiskogo limana. *Materialy po arkheologii Severnogo Prichernomoria* 11, 303-368.

Pustovalov S. Z. 2000. Etnosotsialna kharakterystyka yamnoho suspilstva Pivnichnoho Prychornomoria. *Naukovi zapysky* 18. 156-165.

Razumov S. N., Taschi E. V., Siminenko S. O. and Fidelskiy S. A. 2023. *Reka vremen. Otkrytiya arkheologov na beregakh Dnestra*. Chişinău: Stratum Plus; Tiraspol.

Rassamakin Yu. Ya. 1997. Svit skotariv. In P. P. Tolochko (ed.), *Davnia istoriia Ukrayini*. Kyiv: Naukova dumka, 273-301.

Rassamakin Yu. Ya. and Nikolova A. V. 2008. Carpathian Imports and Imitations in Context of Eneolithic and Bronze Age of the Black See Area. In: P. F. Biehl and Yu. Ya. Rassamakin (eds), *Import and Imitation in Archaeology*. Langenweibach: Beier & Beran, 51-88.

Roberts B. W. and Vander Linden M. (eds) 2011. *Investigating Archaeological Cultures: Material Culture, Variability and Transmission*. Berlin: Springer.

Sava E. N., Agulnikov S. M. and Manzura I. V. 2019. *Issledovaniya kurganov v Budzhakskoy stepi (1980-1985 gg.)*. Chişinău: Bons Offices.

Schultrich S. 2023. The emergence of the Corded Ware Culture in Northern Central Europe. In B. Preda-Bălănică and M. Ahola (eds), *Steppe Transmissions* (= *The Yamnaya Impact on Prehistoric Europe* 4). Budapest: Archaeolingua, 281-304.

Semmoto M. 2023. Tracing the root of cord decoration on Early Bronze Age pottery in Upper Thrace. In B. Preda-Balanica and M. Ahola (eds), *Steppe Transmissions* (= *The Yamnaya Impact on Prehistoric Europe* 4). Budapest: Archaeolingua, 163-190.

Shmagliy N. M. and Cherniakov I. T. 1970. Issledovaniya kurganov v stepnoi chasti mezhdurechia Dunaya i Dnestra. *Materialy po arkheologii Severnogo Prichernomoria* 6, 5-90.

Shmagliy N. M. and Cherniakov I. T. 1985. Kurgany na levoberezhe Nizhnego Dnestra. In V. N. Stanko (ed.), *Novye materialy po arkheologii Severo-Zapadnogo Prichernomoria*. Kiev: Naukova dumka, 95-132.

Sinika V. S., Razumov S. N. and Telnov N. P. 2013. *Kurgany u sela Butor*. Tiraspol: Poligraphist.

Subbotin L. V. 2003. *Orudiya truda, oruzhie i ukrasheniya yamnoy kultury Severo-Zapadnogo Prichernomoria*. Odessa: Polis.

Subbotin L. V., Ostroverkhov A. S. and Dzygovskiy A. N. 1995. *Arkheologicheskie drevnosti Budzhaka. Kurgany u s. Trapovka i Novoselitsa*. Odessa: Hermes.

Subbotin L. V., Sapozhnikov I. V. and Subbotin A. V. 2001-2002. Kurgannyi mogilnik Diviziya II v mezhdurechie Khadzhidera i Alkalii. *Stratum plus* 2, 563-581.

Szmyt M. 1999. Between West and East. People of the Globular Amphora Culture in Eastern Europe 2960-2350 BC. *Baltic Pontic Studies* 8.

Toshcev G. N. 1992. *Kurgany epokhi bronzy mezhdurechia Yalpuga i Kagula*. Zaporozhie: ZGU

Toschev G. N. and Kashuba M. T. 2017. Kemi-Oba. K 60-letiyu otkrytiya kurgana i kultury rannego bronzovogo veka. *Arkheologicheskie vesti* 23, 336-344.

Videiko M. Y. 1999. Radiocarbon chronology of the Late Tripolye Culture. *Baltic Pontic Studies* 7, 34-72.

Włodarczak P. 2010. Dunajski szlak kultury grobów jamowych a problem genezy kultury ceramiki sznurowej. In S. Czopek and S. Kadrow (eds), *Mente et rutro. Studia archaeologica Johanni Machnik viro doctissimo octogesimo vitae anno ab amicis, collegis et discipulis oblata*. Rzeszów: Mitel, 299-325.

Yarovoy E. V. 1990. *Kurgany epokhi eneolita-bronzy Nizhnego Podnestrovia*. Chişinău: Ştiinţă.