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AND ART HISTORY OF ROMANIAN
ACADEMY CLUJ-NAPOCA



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No. 12-3/2025

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ISSN 2360 266x
ISSN-L 2360 266x

Design & layout: Francisc Baja



EDITURA MEGA | www.edituramega.ro
e-mail: mega@edituramega.ro

THRACIANS IN THE EAST. CULTURAL TRANSFORMATIONS IN THE LATE BRONZE AGE OF KAZAKHSTAN

Abstract: In the 14th–10th centuries BC, a family of Cordoned Ware Cultures existed in the Eurasian steppe between the Carpathians and Altai. In the western zone, it included the Noua, Coslogeni, Sabatinovka, and Belozerka cultures, and in the east, the Ivanovka and Sargary. The formation of these cultures occurred against the background of a decrease in solar activity, which ended with a minimum in 1385 BC. Two major volcanic events occurred close in time. Together, these processes led to the movement of the forest-steppe population to the south and the beginning of these cultures formation. Around the middle of the 12th century BC, a major volcanic eruption took place, causing a large-scale migration from the Carpathian Basin to the east. As a result, the Belozerka culture was formed in the Northern Black Sea region, and between the Urals and Altai, transformations began that formed the second stage of the Sargary culture. At this time, rod-shaped cheek-pieces of the Carpathian type, as well as bone objects decorated with Carpatho-Mycenaean ornaments, spread across the steppe up to the Altai. As a result of this process, the Thracian language was established in the Northern Black Sea region, where it survived until the time of Greek colonies. Thracian enclaves also apparently appeared in Central Kazakhstan, but there is no evidence of the preservation of the Thracian language there. The eruption of 1031 BC led to another climatic crisis and the disintegration of the family of Cordoned Ware Cultures. After a sharp drop in solar activity in the 8th century BC, the steppe began to empty. As a result, a new Iranian ethnic component came there from the east, and it was not associated with the previous cultural formations.

Keywords: *Eurasia, Final Bronze Age, Thracians, chronology, volcanic eruptions, migration.*

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INTRODUCTION

The appearance of the Thracians in the Balkan-Carpathian region was associated with migration from Anatolia around 2000 BC in radiocarbon chronology or in the first half of the 18th century BC in the Middle Chronology of the Near East (with a probable date in the 19th century BC). Initially, they came to Southern Thrace (Galabovo, layer 3), but went from there to the north of the Danube, where the Monteoru culture arose. Their further spread is associated with the appearance of the Wietenberg culture in Transylvania and the Otomani-Füsesabony culture in Eastern Hungary. At the same time, the Mureş and Tei cultures were formed, but in this case we are not sure that the Thracian language became dominant in this population, although the Thracian component was certainly present. At the beginning of the

Late Bronze Age, which coincides with the beginning of the Reinecke's phase Br B, the pressure of the Tumulus culture began from the northwest, and on the Lower Danube and in Moldova, under the influence of the Sabatinovka culture of the North Pontic area, the Coslogeni and Noua cultures were formed, and the latter penetrated also into the southeastern part of Transylvania. Around the beginning of the HaA period, new changes began, caused by the influence of the Urnfield culture, which appeared in the west of the Danube-Tisza interfluvium, and from the 12th century BC, the expansion of the Thracian area began. We can see this in the formation of Gáva culture, which covered the entire Carpathian Basin up to the Danube. Then the Thracians penetrated into Southern Thrace (Čerkovna-Zimnicea-Plovdiv culture) and into the Prut basin up to the Dniester (Chişinău-Corlăteni culture). As a result, by the end of the 2nd millennium BC they populated the entire region they occupied during the Classical period.¹

However, in reality, the area penetrated by the Thracians in this last phase of their migration was much wider. We can see this process in the formation of the so-called family of the Cordoned Ware Cultures of the Final Bronze Age², whose sites are known from the Carpathians to the Altai and to the south of Central Asia. The objective of this article is to show the Thracian migrations far to the east, up to the Altai.

CULTURAL LANDSCAPE IN THE STEPPE AND FOREST-STEPPE OF EURASIA IN THE LATE BRONZE AGE

At the beginning of the Late Bronze Age, tribes from Syro-Anatolia penetrated into the steppe Transurals, resulting in the emergence of the Sintashta culture there. Within the framework of radiocarbon chronology, this event is dated around the 20th century BC, and within the historical chronology around 1740 BC, with some delay relative to the emergence of the MBA cultures in Thrace. Under the influence of this impulse, the early Alakul culture was formed almost simultaneously in the forest-steppe Transurals, and the Petrovka culture in the steppe of Western and Northern Kazakhstan. Sintashta impulses in the Volga region lead to the formation of the early Srubnaya culture. However, soon, still in the Sintashta period, the Seima-Turbino tribes migrated from the east along the southern part of the forest zone, reaching the Volga-Kama region, and individual groups

¹ GRIGORIEV 2023.

² The term "Final Bronze Age" is not widely used. In particular, in European archaeology this period is considered within the second part of the Late Bronze Age. In the literature on the Eurasian steppe, this era also has different names. Archaeologists of Kazakhstan and Southern Siberia usually use the term "Late Bronze Age" for this period, and sometimes it is used by archaeologists of the Volga region and the Urals. As a result, this concept includes a huge number of cultures, starting with Sintashta and the genetically related Srubnaya and Alakul cultures that replaced it. However, with the emergence of the family of the Cordoned Ware Cultures, such a sharp break with the previous cultural tradition occurred that I prefer to separate this period and use the term "Final Bronze Age", although this terminological problem is not so fundamental. It is necessary to understand one more terminological difference. The Middle Bronze Age of Europe began slightly earlier, but was generally synchronous with the Eurasian Late Bronze Age. Likewise, the European Late Bronze Age partly corresponded to the Final Bronze Age of the Eurasian steppe discussed here.

reached Central Europe. This led to the spread of tin ligatures and new types of objects: cast socketed spearheads and celts (axes with a vertical socket).

The next migration took place around the end of the 17th century BC (in the chronology of the Near East and dendro-chronology). It was associated with the movement of the Fyodorovka (Andronovo) tribes from the Altai and Upper Irtysh region along the forest-steppe zone. In the forest-steppe Transurals, contact between these tribes and the Alakul tribes led to the formation of the Cherkaskul culture, and further migrations of the Fyodorovka and then Cherkaskul tribes to the west ended with the formation of the Suskan culture in the Volga-Kama region. However, a significant part of the Alakul tribes were forced out of the forest-steppe to the south, where they assimilated the related Petrovka tradition. As a result, the entire steppe zone from the Urals to Central Kazakhstan became the area of the Alakul culture. This process did not affect Eastern Kazakhstan, and the Fyodorovka culture preserved there. In the steppe zone of Eastern Europe between the Urals and Dnieper, the early Srubnaya culture was transformed into the Srubnaya culture. As a result of these processes, Indo-Aryan languages, introduced by the Sintashta people, became established throughout the steppe zone and in part of the forest-steppe. This is confirmed by the Indo-Aryan inclusions in the Finno-Ugric languages. It was assumed that in the late 2nd millennium BC, Indo-Aryan languages were replaced by Iranian ones, surviving until the Classical period only in the region of the Sea of Azov among the Sindi and Meotians.³

At the turn of the 15th/14th centuries BC, transformations began throughout Eurasia. In Southern Siberia, the Karasuk and Irmen cultures were formed, associated with a large migration from Iran,⁴ and between the Carpathians and Altai, a series of cultures formed that had many common characteristics.

THE BEGINNING OF THE FORMATION OF THE CORDONED CHRONOLOGICAL HORIZON CULTURES

In the Final Bronze Age, a family of Cordoned Ware Cultures was formed between the Carpathians and the Altai (Fig. 1). This term was proposed by E. N. Chernykh, who identified two zones within this family: western and eastern. The western zone is represented by the Sabatinovka culture and the Belozerka that replaced it between the Lower Danube and the Dnieper and in part of the Azov region, Noua in Moldova, and Coslogeni on the Lower Danube (Fig. 1). The eastern zone is more extensive, it unites the post-Srubnaya Ivanovka sites from the Left Bank of the Dnieper to the Volga region, the Sargary in the Transurals and Kazakhstan, the Trushnikov in Eastern Kazakhstan, the Begazi-Dandibay in Central Kazakhstan, and the Yaz I in the south of Central Asia.⁵ Currently, the Trushnikov sites are considered within the framework of the Sargary culture, although they have some specific features due to the preservation of the

³ GRIGORIEV 2024a, 127–130.

⁴ CHLENOVA 1976.

⁵ CHERNYKH 1983.

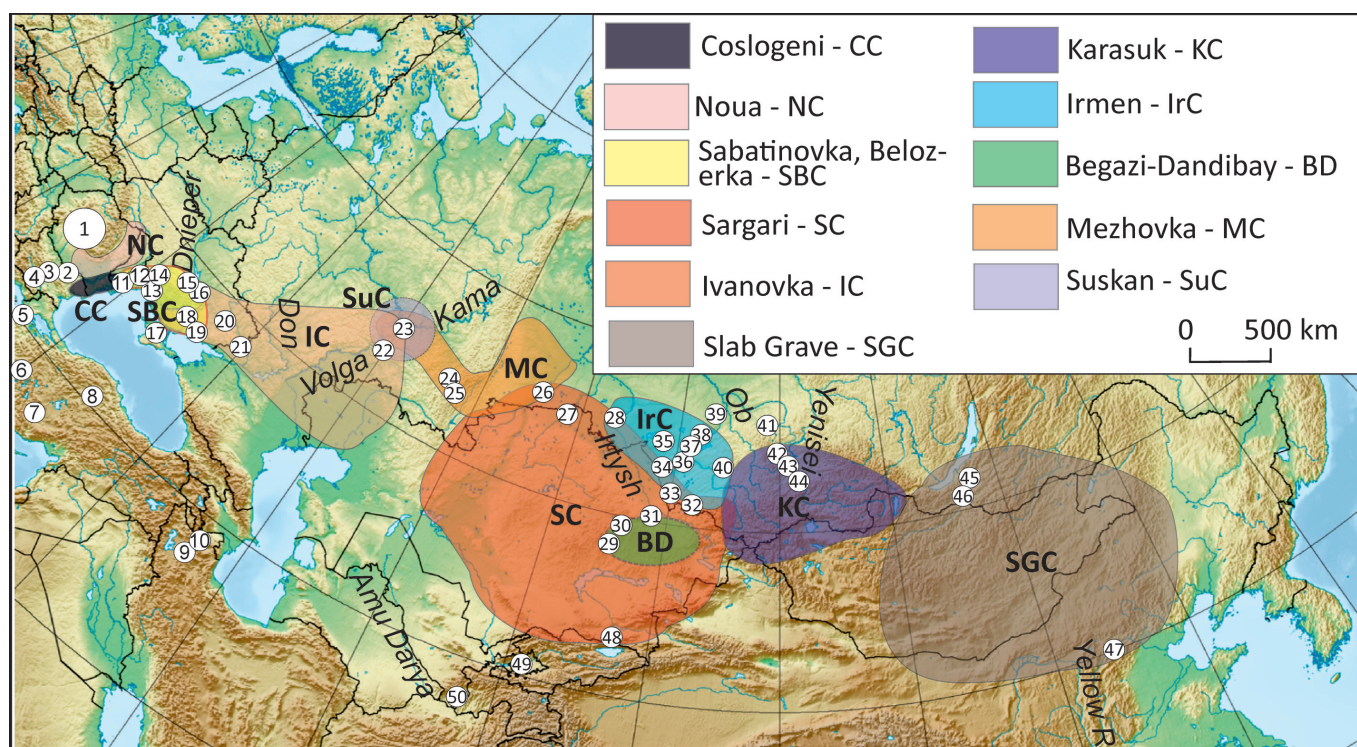


Fig. 1. Cultures of the Cordoned Ware chronological horizon and rod-shaped cheek-pieces in Eurasia: 1 – Area of cheek-pieces of Transylvania, 2 – Belokopitovo, 3 – Asenovets, 4 – Galabovo, 5 – Troy, 6 – Beycesultan, 7 – Karahöyük, 8 – Alaca Höyük, 9 – Kodlartepe, 10 – Jafar Abad/Tu ali Sofla, 11 – Usatovo, 12 – Ushkalka, 13 – Diky Sad, 14 – Tashlyk, 15 – Subotov, 16 – Dereivka, 17 – Fontan, Bay-Kiyat, Druzhny, 18 – Ushkalka, 19 – Bezymennoye, 20 – Slavyansk, 21 – Ilyichevka, Usovo Ozero, Glubokoe Ozero, 22 – Postnikov Ovrag, 23 – Devichy Gorodok, 24 – Akhmetovo, 25 – Novokizganovo, 26 – Yazevo, 27 – Novonikolskoye, 28 – Bolshoy Log, 29 – Karatal, 30 – Kent, 31 – Myrzhik, 32 – Chekanovsky Log, 33 – Rublevo VI, 34 – Gusinaya Lyaga, 35 – Chicha, 36 – Om-1, 37 – Chingis, 38 – Irmen, 39 – Elovka, 40 – Firsovo, 41 – Tambarovskoye Reservoir, 42 – Ustinkino, 43 – Kamenny Log, 44 – Torgazhak, 45 – Sotnikovo, 46 – Tapkhar, 47 – Baifu, 48 – Tauturgen, 49 – Chust, 50 – Dalverzin.

Fyodorovka substrate there. The Begazi-Dandibay monuments are represented by bright mausoleums, but there are no Begazi settlements. Most of the ceramics in the burials and settlements belong to the Sargary type, so it is more correct to consider them as a specific type of monuments within the Sargary culture. The Yaz I sites were formed as a result of impulses from Iran. Ceramics with cordons are not typical for them, and they were included in this cultural family in vain. However, all other cultures have many common features in the metal complex, based on the post-Seima tradition of the forest-steppe, and they are distinguished by the applied cordons on the upper part of the vessels. However, the forms and sources of this cordoned tradition in the western and eastern zones were different.

In the North Pontic region, the Babino culture existed in the previous period, for which the cordoned ornamentation was extremely characteristic. Therefore, it was initially called the “culture of multi-cordoned ware”. Under the influence of impulses from the Volga-Kama region, which brought post-Seima metalworking traditions, as well as, probably, some Srubnaya impulses, the Sabatinovka culture was formed in this region. Then the Sabatinovka influence in the Balkan-Carpathian region ended with the emergence of the Noua and Coslogeni cultures.⁶

In the eastern zone, the processes were different. At the end of the Srubnaya-Alakul period, there was a widespread shift of the forest-steppe population to the north of the

steppe zone. In the Transurals and in Northern Kazakhstan, the Cherkaskul-Mezhovka people appeared, and in the Volga region, the Suskan groups began to influence the Srubnaya substrate. All these forest-steppe tribes were characterized by vessels with cordons in the upper part of the neck, and these cordons were always decorated with incised ornamentation in the form of notches or “herringbone” design.⁷

These contacts of the forest-steppe people with the steppe Srubnaya and Alakul tribes led to the formation of the Ivanovka culture in the steppe zone between the Dnieper and the Volga, and the Sargary culture between the Urals and Altai (Fig. 2). Their characteristic feature is the appearance of cordons decorated with incised ornamentation. Thus, the cordoned tradition in the west and east had different origins. In the west, it went back to the Babino culture, and in the east to the Fyodorovka and Mezhovka cultures. Therefore, at this stage, the ceramic types of the Cordoned horizon cultures in the west and east were rather different from each other. They are united only by the fact of the presence of cordons, as well as the spread of post-Seima metalworking traditions.

The formation of the Sargary culture, based on radiocarbon

⁷ This ornamentation first appeared on the Fyodorovka settlement pottery. The Fyodorovka culture is characterized by two main ceramic types. The first is represented by tableware decorated with lush geometric ornamentation. This type is widely known, and when non-specialists recall the Andronovo (Fyodorovka) culture, they recall, first of all, this type. The second type is represented by simpler forms from settlements, some of which contain this cordoned pottery. Everywhere in the east, this ceramic type was the source of the early cordoned tradition.

⁶ DERGACHYOV 1997; CHERNIENKO 2014.

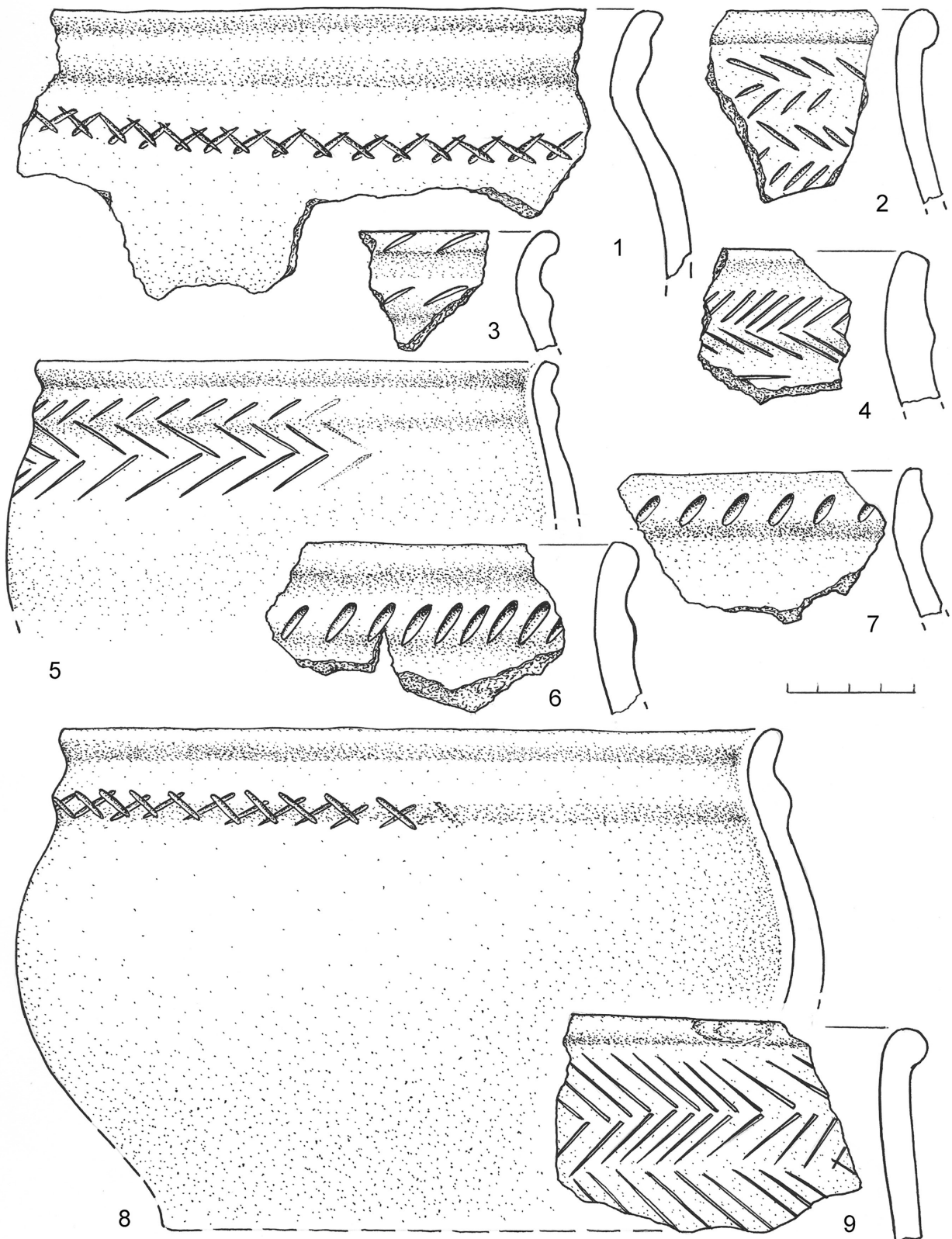


Fig. 2. Sargary ceramics: 1–4, 6, 7, 9 – Kent (after VARFOLOMEEV/LOMAN/EVDOKIMOV 2017, Fig. 32, 37, 38, 61, 79, 134); 5, 8 – Sovetsky Put’-1 (after SITNIKOV 2015, Fig. 48, 51).

analyses, is dated to the turn of the 15th/14th centuries BC.⁸ However, around the 12th century BC, the processes of convergence of the cultures of the western and eastern zones began, which is the main problem of our discussion.

⁸ MOLODIN/EPIMAKHOV/MARCHENKO 2014, 144.

BELOZERKA CULTURE OF THE NORTH PONTIC AREA

The transformations of the Cordoned chronological horizon cultures began in the west. We discussed above that in the 12th century BC, the Gáva culture and related cultural formations were spreading beyond Transylvania, including

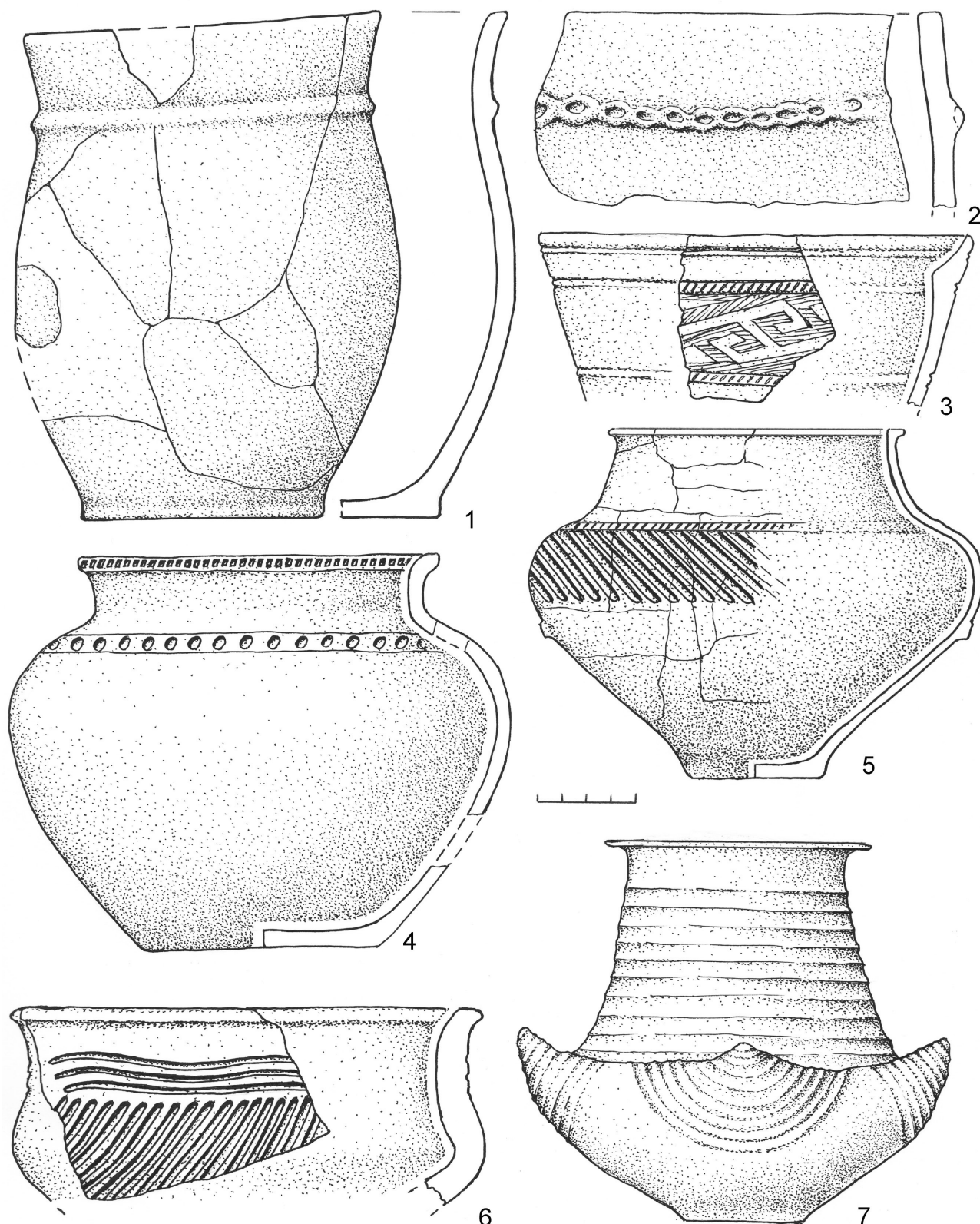


Fig. 3. Pottery of cultures of Noua (1, 2), Wietenberg (3–5) and Gáva (6, 7) in the Carpathian Basin: 1 – Jigodin, 2 – Sibîşeni, 3 – Adamuş, 4 – Bistriţa, 5 – Sebeş, 6 – Augustin–Tipia, 7 – Gávavencsellő (1, 2, 6 – after CIUGUDEAN 2010, Pl. V, VII, XVI; 3 – after BERECKI 2009, Pl. 2; 4, 5 – after BĂLAN/QUINN/HODGINS 2016, Pl. I; 7 – after METZNER-NEBELSICK 2012, Fig. 1).

the Prut-Dniester interfluvium (Fig. 3). As a result, in the latter region, based on the Sabatinovka culture, but under the influence of these Carpathian impulses, the Belozerka culture formed, which then spread throughout the Northern Black Sea region. Researchers highlight the influence of the Coslogeni and Noua cultures from the Lower Danube region,

and with some delay, the Gáva culture and the Chisinau variant of the Thracian Hallstatt. Many specific Carpathian forms appeared in the Belozerka culture, including cups with handles, but we will focus only on those features that manifest themselves in the east, thereby marking this entire chronological horizon. First of all, these are polished

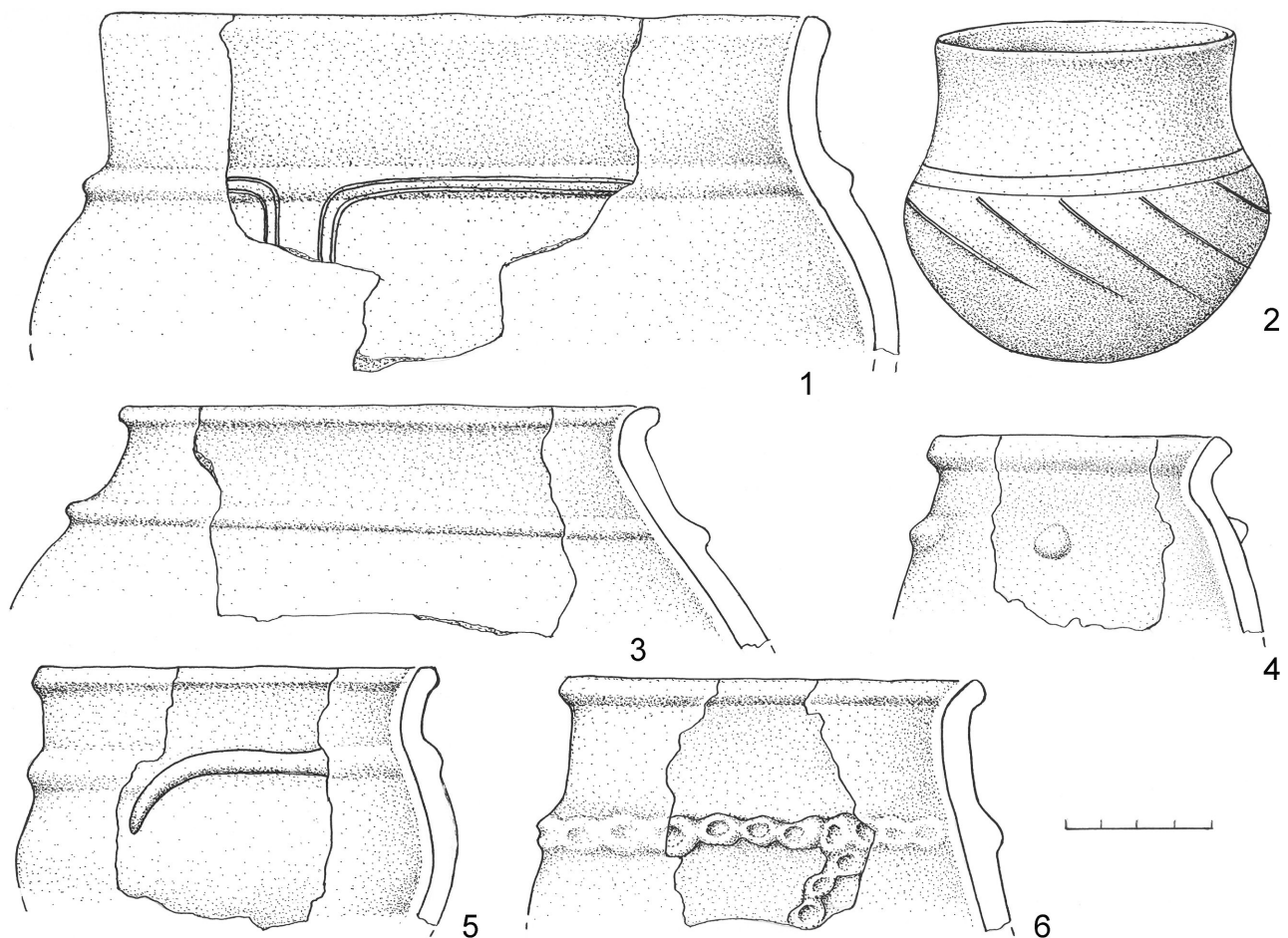


Fig. 4. Pottery of the Belozërka culture: 1, 2 – cemetery of Budurjel; 3 – settlement of Tudorovo; 4–6 – settlement of Balta (after VANCHUGOV 1990, Fig. 17, 27, 31).

channeled ceramics with flutes, grooves (in some instances oblique) and round extruded knobs, the presence of thin undecorated cordons and cordons with round impressions. Rims beveled on the outside also appeared. Horn-like protrusions typical of the Gáva culture are also known (Fig. 3/1, 2, 4–7; 4). Striking changes occurred in the burial rite. In the preceding Sabatinovka culture, contracted burials on the left side dominated (80%) as well as the eastern orientation. Contrary to this, in the Belozërka culture, burials in a strongly contracted position with a southern orientation are widespread, and the proportion of burials on the right side somewhat exceeds the proportion of burials on the left one (48.4% and 41.4%). Parallels to this rite are found in the Noua culture of Moldova. These processes are dated to the first half of the 12th century BC.⁹

The above-mentioned features are widely known in the ceramic complexes of the Carpathian Basin, primarily in the Noua and Gáva cultures (but also pre-Gáva and some others). Polished channeled ceramics first appeared in the Otomani-Füzesabony culture, from where it penetrated into Transylvania in the 16th century BC.¹⁰ Thin, undecorated cordons and round impressions on cordons may be associated with the Noua culture. The earliest source of the Belozërka burial rite was also the Otomani-Füzesabony culture, where

contracted burials on the right side with the head to the south and southwest dominated.¹¹ All this together led researchers to the correct conclusion about the Balkan-Carpathian impulses in the formation of the Belozërka culture.

The above is confirmed by the study of metal in the North Pontic region, the majority of which is associated, unfortunately, not with settlements or graves, but with hoards and chance finds. Nevertheless, by studying the occurrence of certain metal types in individual complexes, as well as by typological analysis, E.N. Chernykh identified three types of metalworking for this region: the Ingul-Krasnomayatsk type of the Sabatinovka culture, the Zavadovo-Loboykovka type of the late Srubnaya (in modern terminology, Ivanovka) culture, and the Kardashinka type of the Belozërka culture. Chronologically, the earliest of these types is the Ingul-Krasnomayatsk. Later on its basis the Kardashinka metalworking was formed, but during its formation there were undoubted western relations with the Balkan-Carpathian region. Zavadovo-Loboykovka metalworking developed with some delay compared to the Ingul-Krasnomayatsk one, and then for some time it coexisted with the Kardashinka type of metalworking. Ingul-Krasnomayatsk type has been synchronized with BrD and HaA1 periods, and HaA2 forms were no longer characteristic of it. Therefore, it has received a date of the 13th–12th centuries BC. Kardashinka metalworking has been synchronized mainly with HaB and HaC

⁹ BEREZANSKAYA *et alii* 93, 131, Fig. 9, 20, 21; VANCHUGOV 1990, 51, 52, 122–135, Fig. 17, 18, 20–28–32; AGULNIKOV 2019, 149.

¹⁰ SAVA 2020, 253.

¹¹ SZEVEÉNYI *et alii* 2021, 52.

periods and has been dated from the 11th to 9/8th centuries BC.¹² However, based on Bayesian statistics of radiocarbon dates, the BrC period is determined to be around 1485–1365 BC (95.4% probability).¹³ Consequently, the BrD period began near the end of this interval, so the formation of the Sabatinovka culture can be attributed closer to the beginning of the 14th century BC. We also draw attention to the fact that the proposed date for the beginning of Kardashinka metalworking is also somewhat later than the accepted date of the Belozerka culture, so it is possible that the impulses for its formation should be dated by the HaA1 period, but most of the Kardashinka metal belongs to a later time span.

Then the Belozerka culture spread quite quickly to the east along the steppe Black Sea region, and its easternmost sites are found on the Taman Peninsula, although there are areas (Lower Don and Northern Azov) where they are absent.¹⁴ Belozerka groups also penetrated into Crimea, where in the 11th century BC, on their basis, the Kizil-Koba culture was formed in the foothills of Crimea, surviving until the early Scythian period. The crisis and collapse of the Belozerka culture is dated to the 11th–10th centuries BC.¹⁵

ETHNIC IDENTIFICATION OF THE BELOZERKA CULTURE

The Balkan-Carpathian origin of the Belozerka culture allowed scholars to connect it with the spread of the Thracians. Its supposed continuity with the Cimmerian stage led to the conclusion that the Belozerka sites reflect the history of the Cimmerians at an early stage. It was also based on the opinion of I. M. Dyakonov that the Greeks became acquainted with the name of the Cimmerians through the Thracians.¹⁶ However, the issue is not so clear-cut, since it is difficult to show the Thracian affiliation of the Cimmerians in the Near East. An analysis of Near Eastern sources, as well as data on the North Pontic Cimmerians, allow us to assert that they spoke an Iranian language, and it is a generally accepted opinion now.¹⁷ In addition, the spread of material culture does not at all mean that a new language was established along with it. The latter should be confirmed by linguistic facts.

This is indicated by a steadfast ancient tradition which has localized the Cimmerians in the North-Eastern and North-Western Pontus and attributed to them Thracian language. In spite of the fact that the names of some Cimmerian chiefs have an Iranian origin, there are Thracian names among those of Bosphoran archons. Therefore, the names of some chiefs are not a basis for concluding that all Cimmerians spoke Iranian languages.¹⁸ Although we can only surmise Iranian sources for the self-name of this people, it is also supposed that the Greeks heard it from the Thracians, which is indicated by the occurrence of the sound 'k' at the beginning of the word (in contrast to 'Gamir' of the Near Eastern

sources).¹⁹ This suggests that the Thracians lived in the Northern Black Sea region by the time when the Greek colonies appeared there. Such linguistic facts exist.

The study of toponymy and ethnonyms from ancient sources of the North Pontic area, the Azov region and the Western Caucasus revealed about 300 units of linguistic relics of the Thracian, early Proto-Baltic and Proto-Slavic types. It is assumed that they were left by the Scythians who contacted the Thracians.²⁰ The problem, however, is that when studying the toponymy of the Bosphorus (Eastern Crimea, Northern and Eastern Azov, the Taman Peninsula and the coastal regions of the Northern Caucasus) out of 175 toponyms and ethnonyms, 45 (26%) were Greek, 40 (23%) Indo-Aryan, 26 (15%) Thraco-Dacian, 25 (15%) Adyghe-Abkhaz, 15 (9%) Iranian, and 24 (13%) unidentifiable. At the same time, Thraco-Dacian and Indo-Aryan toponyms and ethnonyms are concentrated mainly in the European part of the Bosphorus, and Adyghe-Abkhazian in the Asian part. Iranian toponymy is not only rarer, it is also later, appearing mainly from the Roman period. Some Thracian names were transferred in the last third of the 7th century BC or the first half of the 6th century BC from the Thracian Bosphorus, but others are earlier, supposedly going back to the Sabatinovka and Belozerka cultures.²¹ However, we discussed above that the Sabatinovka culture was not originated from the Balkan-Carpathian region, it itself influenced this area. Therefore, only the Belozerka culture can be responsible for this toponymical layer.

Previously, it was shown that there was a large presence of Indo-Aryan toponyms of the Mitannian type in this region and that the Indo-Aryan substrate survived until the Classical period.²² This substrate is associated with the Catacomb and Srubnaya cultures.²³ Therefore, the coming of the Belozerka culture into the region can be associated with the Thracians, which means that the Thracian language in the region survived for a long time. Judging by the small number of Iranian toponyms and their growth since the Roman period, the number of Iranian speakers in the Northern Black Sea region was not very large during the Scythian period. The region was dominated by the former Indo-Aryan and Thracian substrates, although with many elements of Scythian culture. Only with the appearance of the Sarmatians in the 3rd century BC did the number of Iranian speakers increase sharply, and an assimilation of the Thracian and Indo-Aryan populations of the region began. However, it is necessary to keep in mind that changes in toponymy occur a little slower than changes in the ethnic situation.

The above facts clearly show that the spread of the Balkan-Carpathian culture to the North Pontic region was connected with the Thracian migration in the 12th century BC. Consequently, we can also consider the Balkan-Carpathian elements further east within the framework of the same process of Thracian migration.

¹² CHERNYKH 1983, 153–156, 185–190.

¹³ BRUNNER *et alii* 2020.

¹⁴ BOGACHUK/SIROVIN 2018.

¹⁵ LUCHINSKIY 2022.

¹⁶ VANCHUGOV 1990, 138, 139.

¹⁷ IVANCHIK 2001.

¹⁸ TRUBACHEV 1987, 123; TRUBACHEV 1999, 42, 137.

¹⁹ DYAKONOV 1981.

²⁰ SHAPOSHNIKOV 2012, 252, 303.

²¹ YAILENKO 2015, 386, 392, 425, 428; YAILENKO 2018, 39.

²² TRUBACHEV 1999.

²³ GRIGORIEV 2024a, 127–131, 245.

TRANSFORMATION OF THE SARGARY CULTURE AT THE TRANSITION TO ITS SECOND STAGE

The Belozerka culture influenced the Middle Volga, and this is less visible in the Volga-Ural region, in the form of the presence of bronze objects characteristic of the Kardashinka metalworking. Even in the forest-steppe western Urals, sev-

the ceramics of the late Sargary sites, those features of Carpathian origin that we discussed above appeared, albeit in small quantities. In the steppe Transurals, the Bersuat type has been distinguished as late Sargary, named after the settlement of Bersuat XVIII. Its ornamentation is significantly poorer than that of the earlier Sargary complexes, and the cordons are absent. Therefore, this type is more compa-

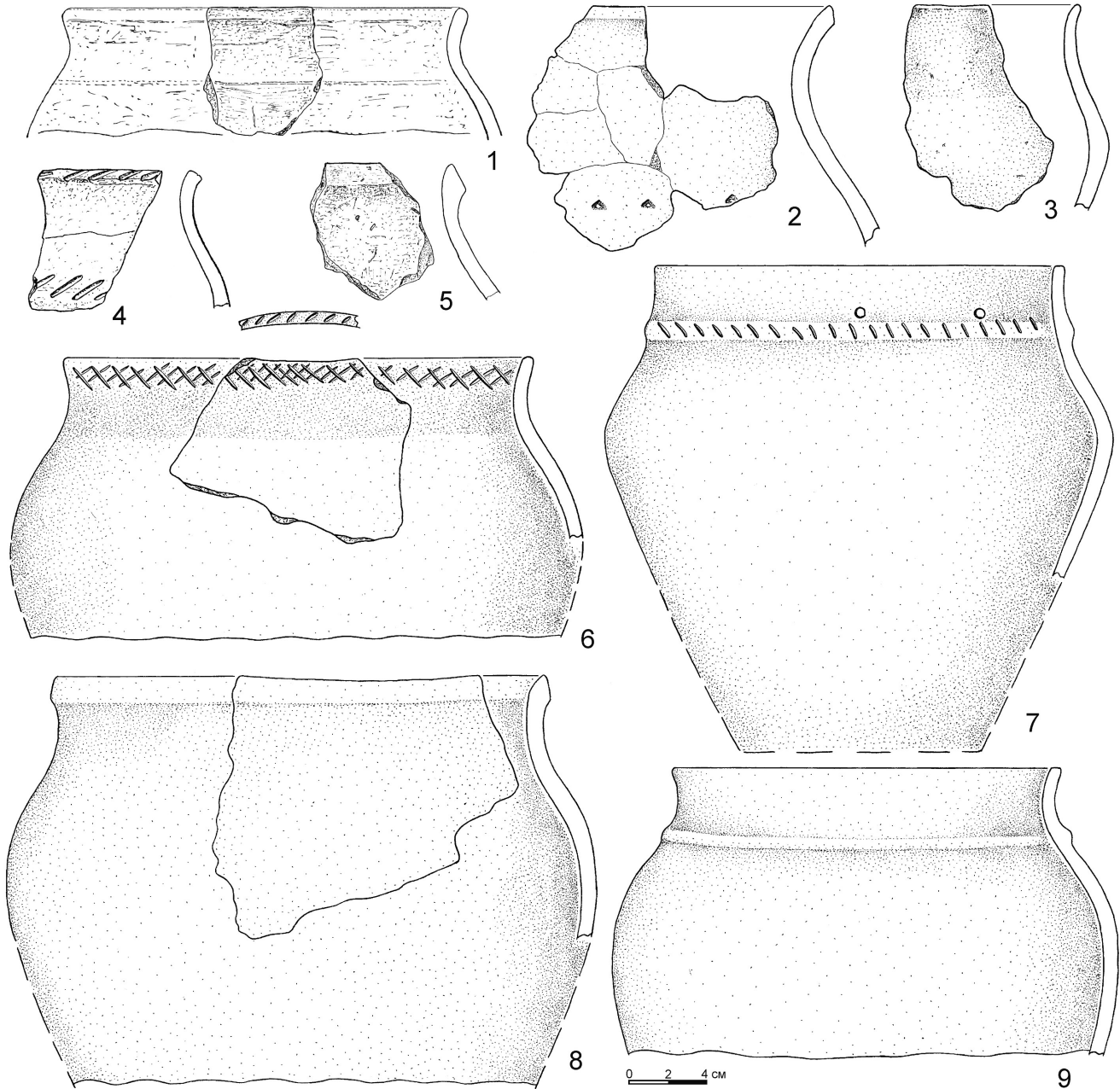


Fig. 5. Late Sargary ware from the Mochishche settlement (GRIGORIEV *et alii* 2018).

eral Kardashinka type objects are known in the materials of the late stage of Mezhovka culture: two-looped celts with a concave-lenticular side and a rim raised above the loops, tanged knives with parallel blades, a fragment of a dagger, a mold for casting a knife-razor with a notch at the end and with a ring stop.²⁴

In the Transurals such metal is unknown, but in

parable with the Ivanovka ware of the Volga region than with the Sargary ones proper. The western features of this type include rims beveled from the outside and grooves on the neck. Along with this, there are individual features of the Irmen culture of the Ob basin, as well as unornamented vessels with a narrow neck, close to the pottery of Central Asia. The latter are supplemented by rare examples of wheel-made ware.²⁵ Beveled rims, as well as thin, undecorated cordons,

²⁴ see OBYDENNOV/SHORIN 1995, 78–80, Fig. 47, 53, 54, 61; CHERNYKH 1983, 87, 88, 117, 122, tabl. XLIII.

²⁵ MALYUTINA/ZDANOVICH/PETROVA 2006, 159–163, 169–171.

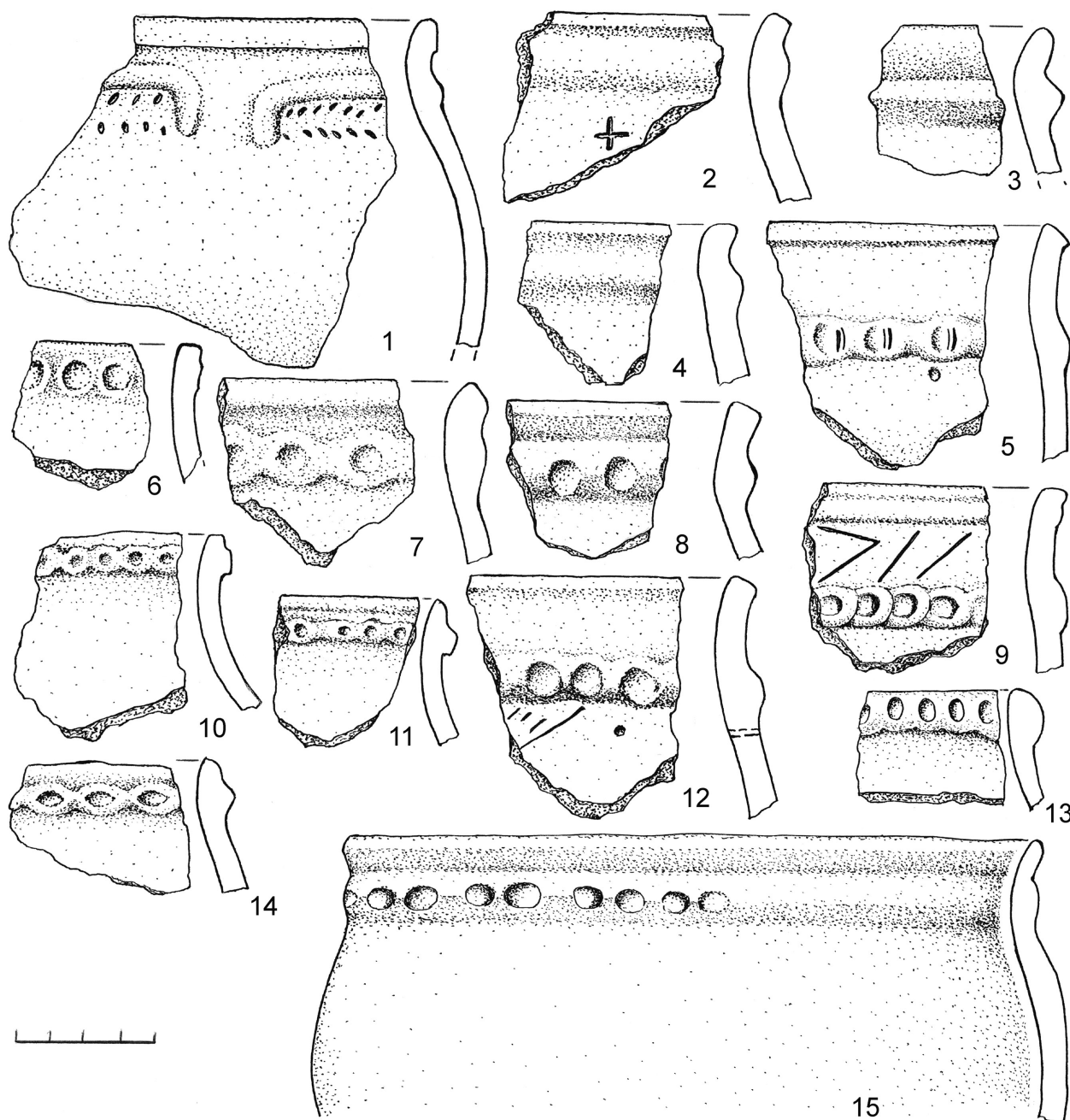


Fig. 6. Ceramics with a thin cordon and round impressions on the cordon of the Sargary sites: 1–14 – Kent (after VARFOLOMEEV/LOMAN/EVDOKIMOV 2017, Fig. 32, 35, 37, 38, 79), 15 – Sovetsky Put'-1 (after SITNIKOV 2015, Fig. 47).

are characteristic of late Sargary pottery of the Mochishche settlement in the forest-steppe Transurals,²⁶ which can also be seen as a result of the western influence (cf. Fig. 3/1; 4/1, 3, 5; 5/2, 5, 8, 9).

These western features are also present in Central Kazakhstan and Altai. These are the same thin, undecorated cordons, but also cordons decorated with round impressions, as in the Balkan-Carpathian and Belozerka cultures (cf. Fig. 3/1, 2; 4/1, 3, 5, 6; 6). More indicative is the very rare channeled ware with a polished surface. In the Altai, it was found in the amount of 22 fragments in only two settlements (Rublyovo VI and Zharkovo-3), and in Central Kazakhstan, in the Kent settlement (Fig. 3/5–7; 4/2; 7). It is indicative that the channels can be oblique, and in one case

they are placed very close to each other, filling the entire surface of the vessel. Under the rim of this vessel there is an incised ornament in the form of an oblique grid, but, unlike similar Siberian Irmen ornaments, this grid is very fine (Fig. 7/1). In addition, small round-shaped knobs appeared in the ceramics of this period (Fig. 8), but one vessel from the Kent settlement has a horn-like protrusion.²⁷ This ornamentation is completely alien to the ceramic traditions of the steppe Eurasia, but is identical to the Gáva pottery in the Carpathian Basin (cf. 3/7; 8/3).

When compiling the molding masses, differences are observed between this pottery and other ceramic complexes of these sites: there are no mineral additions and there are

²⁶ GRIGORIEV *et alii* 2018, 121–123.

²⁷ VARFOLOVVEV/LOMAN/EVDOKIMOV 2017, Fig. 5, 32, 35, 37, 38, 46, 49, 57, 61, 79, 99; SITNIKOV, 2015, Fig. 16, 47, 73.

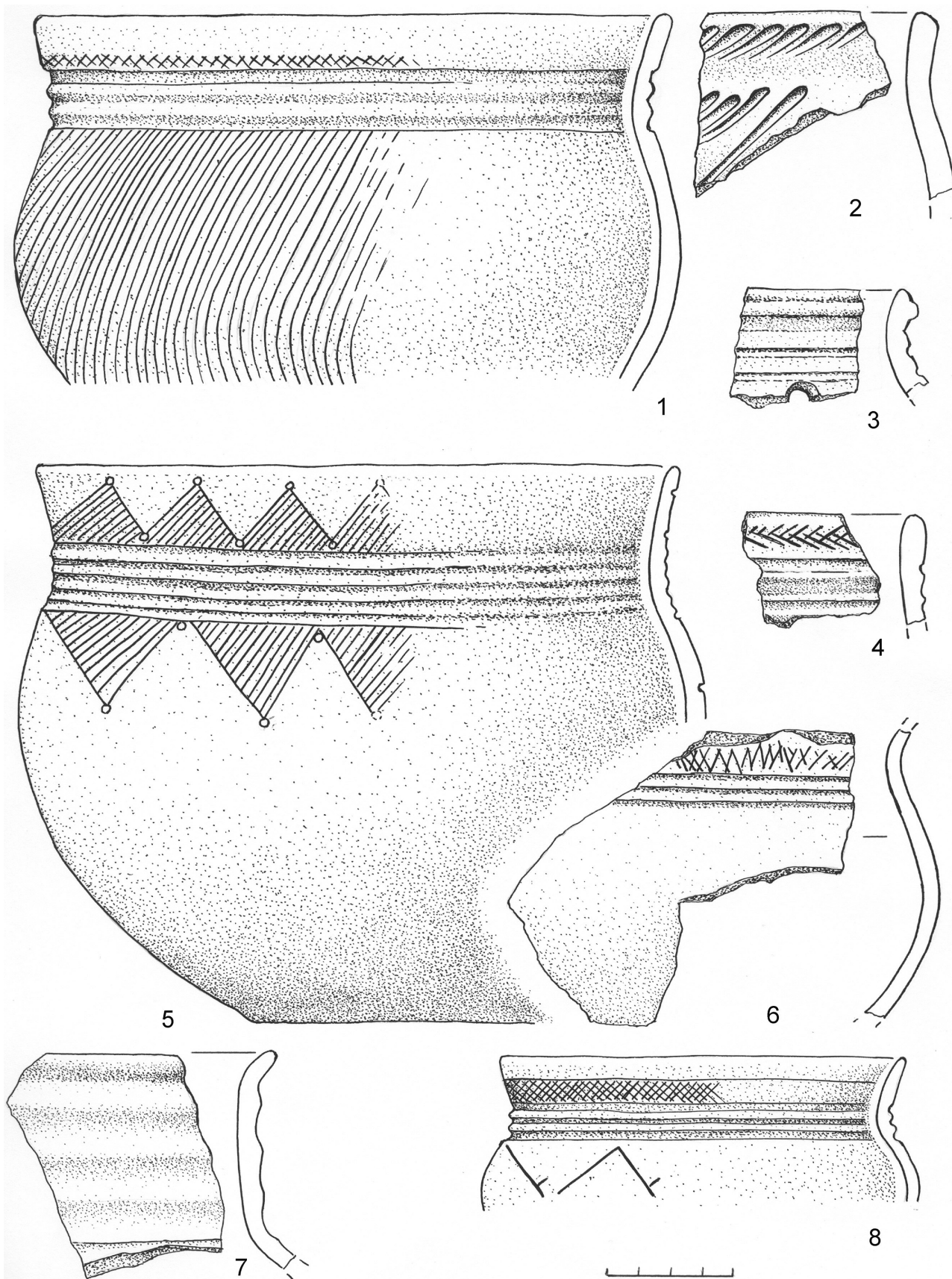


Fig. 7. Channeled ceramics of the Sargary sites: 1, 5, 8 – Rublevo VI; 2, 3, 7 – Kent; 4, 6 – Zharkovo 3 (2, 3, 7 – after VARFOLOMEEV/LOMAN/EVDOKIMOV 2017, Fig. 35, 49, 79; 1, 4–6, 8 – after PAPIN/STEPANOVA/FEDORYUK 2018, Fig. 4).

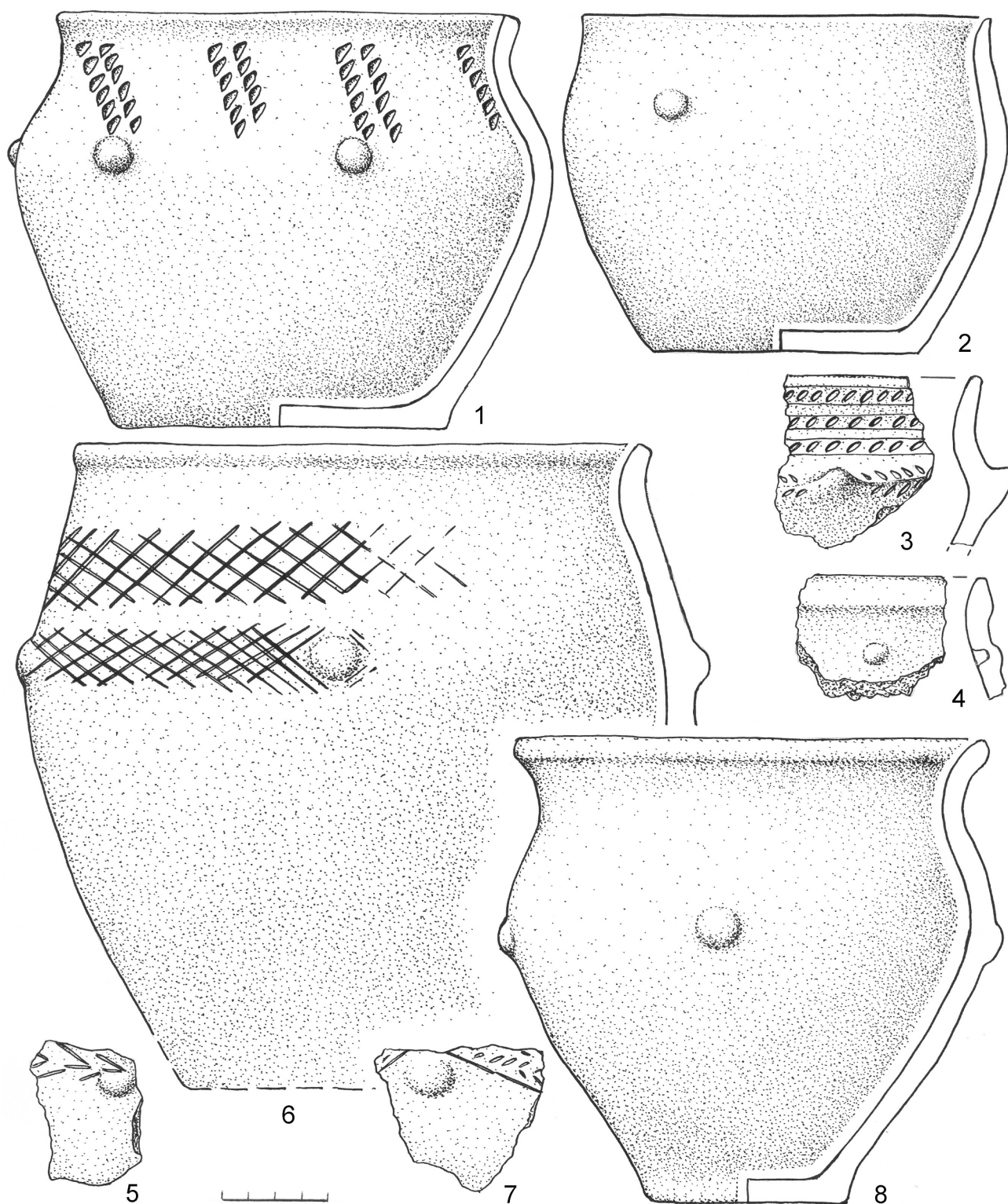


Fig. 8. Ceramics with knobs (1, 2, 5–8), horn-shaped (3) protrusions and “pearls” (4) from Sargary sites: 1–5, 7 – Kent; 6 – Chekanovsky Log-1; 8 – Zharkovo-3 (after VARFOLOMEEV/LOMAN/EVDOKIMOV 2017, Fig. 5, 46, 57, 61, 99; 6, 8 – after SITNIKOV 2015, Fig. 16, 73).

crushed bones. The use of chamotte in this group is the highest (82%). There are other alien technological features which has allowed a conclusion to be drawn that this was a foreign ware, although its exact affiliation has not been determined.²⁸ However, these technological traditions also

point to the West. The polished Belozerka ceramics of the Northern Black Sea region also typically used chamotte with manure as an admixture (62%), although due to mixing with other traditions, crushed stone was sometimes added to this recipe.²⁹

²⁸ PAPIN *et alii* 2015, 131, 132, 136, 140, 141, Fig. 12, 13; PAPIN/STEPANOVA/FEDORYUK 2018, 25, 26, Fig. 4.9–14.

²⁹ KLEMESHOVA 2018, 207, 208.

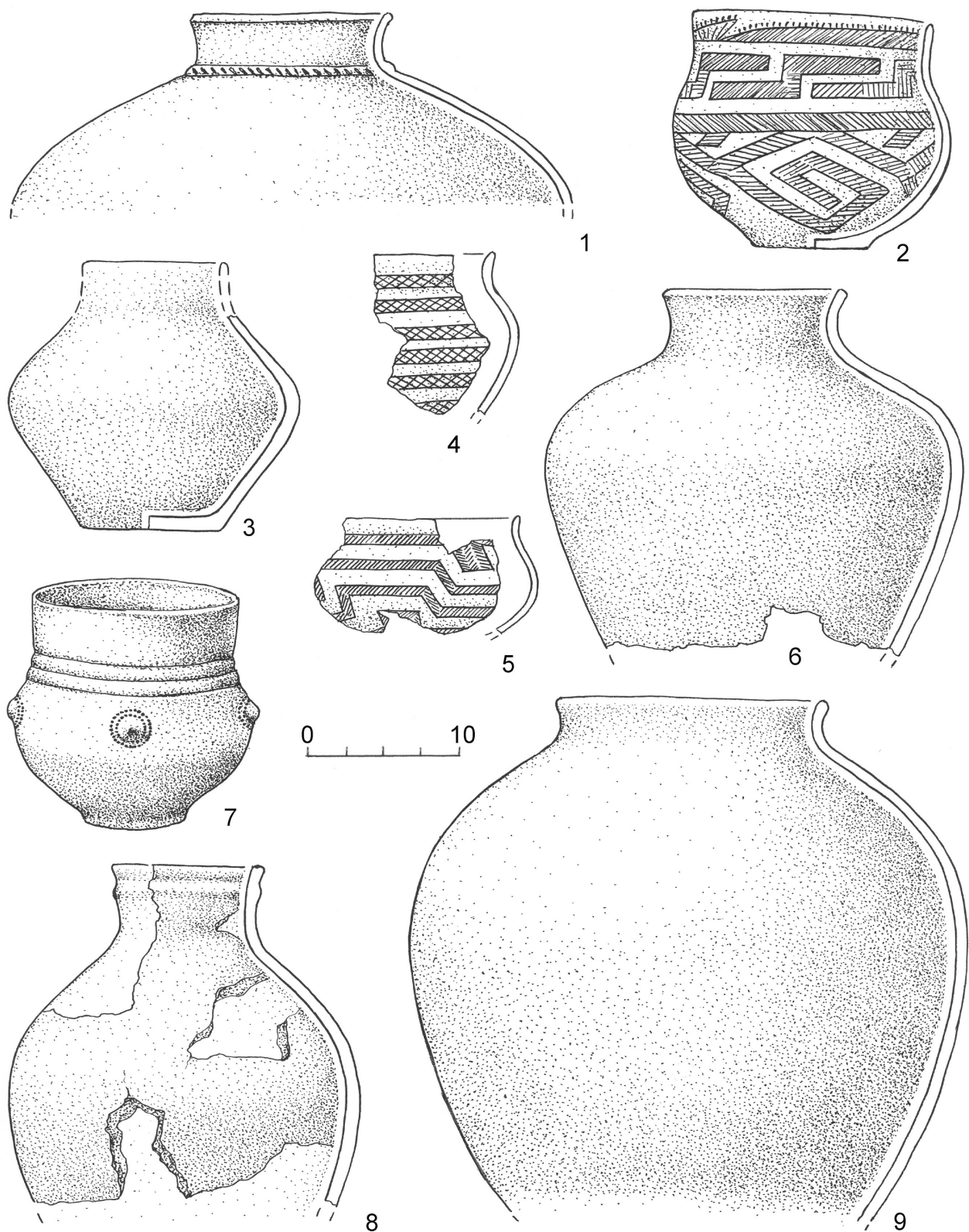


Fig. 9. Alien ceramics of the Sargary sites: 2, 4, 5, 7 – Begazi-Dandibay ware, 1, 3, 6, 8, 9 – Central Asian forms. 1, 4–6, 8, 9 – Kent (after VARFOLOMEEV/LOMAN/EVDOKIMOV 1917, Fig. 45, 49, 57), 3 – Chekanovsky Log-1 (after SITNIKOV 2015, Fig. 76), 2 – Dandibay grave, 7 – Begazi (after LOMAN 2013, Fig. 4, 5).

SOUTHERN INFLUENCES IN THE SARGARY CERAMIC COMPLEX

No less significant for the transformation of the Sargary culture in this time span were the influences from the south of Central Asia. They explain the decrease in ornamentation of the pottery, as well as the appearance of new inflated

forms, sometimes with a narrowed neck (Fig. 9/1, 3, 6, 8, 9).³⁰ We will not dwell on them in detail, since they are not directly related to our problem, although they help to understand the nature of the period.

The southern inclusions cannot be explained by

³⁰ LOMAN 2013, 257.

influences, we are talking about direct migrations, since a number of sites have the wheel-made pottery, and there are facts of its local production. This is especially evident in the east, where at the settlement of Burla-3 in the Altai the proportion of this ware reaches 72.7%. A pottery kiln, ceramic slag from unsuccessful firings, clay accumulations, ceramic forms characteristic of Central Asia were also found there, and its study has shown that the technological methods correspond to those in the south of Central Asia.³¹ Such finds are best represented in the east, but individual fragments of the wheel-made pottery are known even in the Transurals. Two circumstances are important for us in this case: in the Transurals the wheel-made pottery is present in the settlement of Bersuat XVIII, which we mentioned above, and in Altai it was found in the same layers as the channeled ware.

This allows us to believe that the appearance of these types of pottery in the steppe occurred at a close time.

ROD-SHAPED CHEEK-PIECES

Another fact pointing to western influences are rod-shaped cheek-pieces (Fig. 1). In Romania, rod-shaped cheek-pieces, often decorated with Carpatho-Mycenaean ornamentation, have been found in the context of the cultures of Monteoru, phase Ic3 (in the same context as a disc-shaped cheek-piece), Ia, IIa (Sărata Monteoru), Wietenberg (Cheile Turzii, Nușeni), Tei (București), Noua (Cavadinești, Cîrbovăț, Horoiata, Poienești, Coroteni), Otomani II-III (Socodor, Vârșand, Sălacea, Otomani), Babadag II (Babadag, Niculițel, Siliște), possibly Coslogeni (two less reliably dated finds at the settlement of Coslogeni) and in the Hallstatt

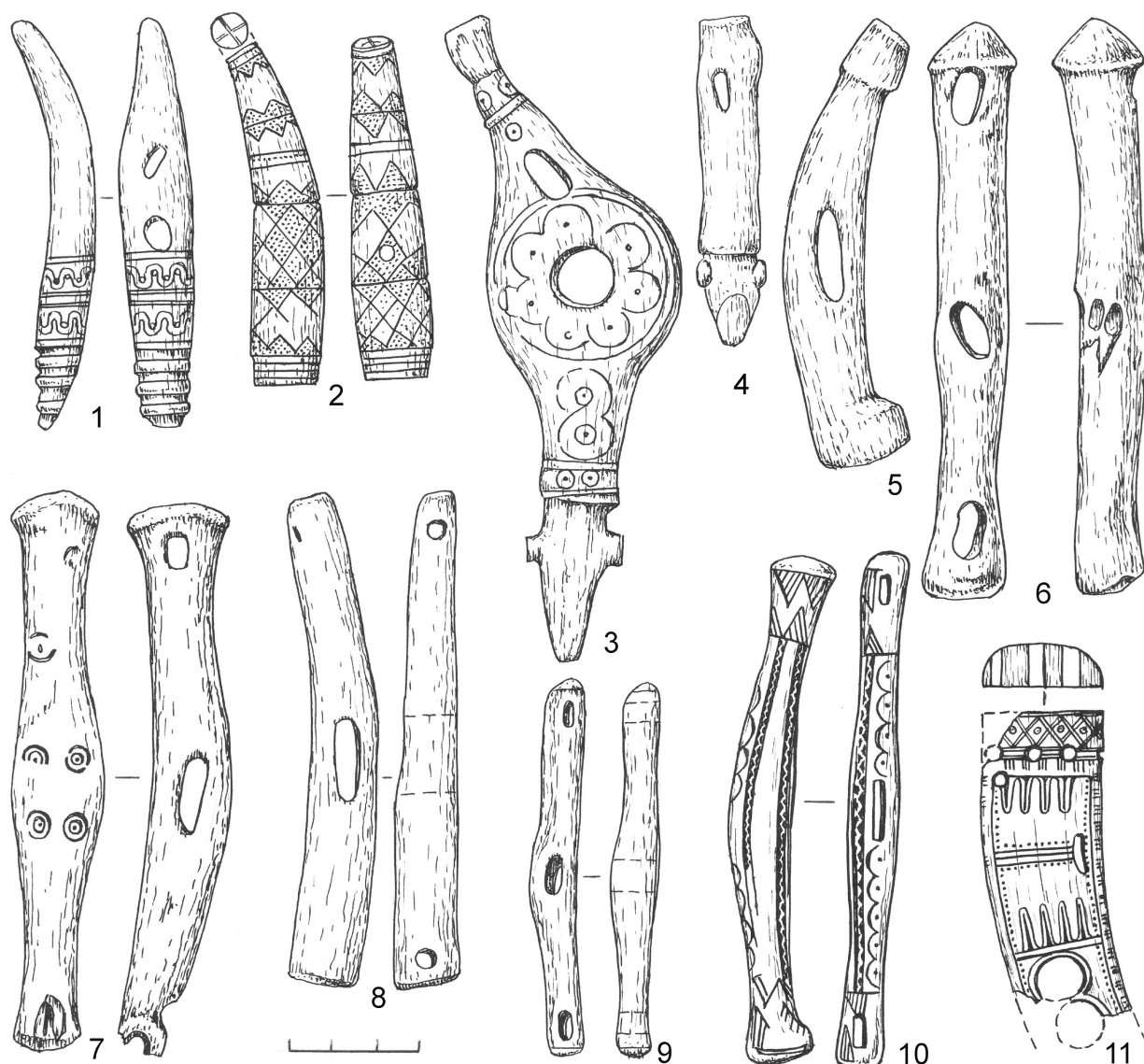


Fig. 10. Rod-shaped cheek-pieces of the Balkan-Carpathian region (1-6) and the Northern Black Sea region (7-11): 1, 2 – Sărata Monteoru, 3 – Toszeg, 4, 5 – Pecika, 6 – Babadag, 7 – Fontany, 8, 10 – Subotov, 9 – Usatovo, 11 – Usovo Ozero (1, 2, 4, 5 – after BOROFFKA 1998; 3 – after BOCHKAREV/KUZNETSOV 2013; 6-8 10 – after PODOBED/USACHUK/TSIMIDANOV 2014, Fig. 7, 8; 9 – after VANCHUGOV 1990, Fig. 35; 11 – after BROVENDER 2008, Fig. 1).

³¹ LOMAN 2015, 79; PAPIN *et alii* 2015, 135; SITNIKOV 2015, 76, 79; LOMAN/PAPIN/FEDORYUK 2017, 32, 34; PAPIN/STEPANOVA/FEDORYUK 2018, 19; PAPIN *et alii* 2021, 175.

A1 period (Cioclovina) (Fig. 10/1-6). Early cheek-pieces of the Monteoru and Mureș cultures can be richly decorated. Ornaments in the form of a circle with a dot in the center on

bone plates, known on such cheek-pieces, are also present on bone plates of the Wietenberg culture.³² It is also significant that in the early period of the existence of rod-shaped cheek-pieces in the Carpatho-Danubian Basin, disc-shaped cheek-pieces were known, and forms combining a disc with a central hole and projecting rods are found (e.g., Toszeg) (Fig. 10/3). These cheek-pieces are dated to the Middle Bronze Age and may indicate an evolution from disc-shaped to rod-shaped cheek-pieces.³³ However, in reality, cheek-pieces of both types coexisted.³⁴ Thus, rod-shaped cheek-pieces are known in this region as early as the Reinecke's A2 phase and existed until the HaB period (which is dated to about 1050–800 BC).

The Monteoru, Otomani and Tei cultures were generally synchronous. They formed around 2000 BC and existed until the mid-2nd millennium BC. At the Monteoru site, the early layers Ic4, Ic3 and Ic2 are radiocarbon dated to 2200–1800 BC. Layers Ia and IIa are dated to 1800–1700 BC. The later layer IIb is dated to 1700–1500 BC, and the Campina (post-Monteoru) phase was synchronous with the Noua culture and is dated to 1500–1100 BC. The Wietenberg culture formed synchronously with the Otomani and Monteoru phase Ic2–1, as well as with the final part of the Central European A1 phase, but it already definitely existed by the beginning of A2 phase. Radiocarbon dates for the Noua culture have an interval between 1500 and 1200 BC, and the Coslogeni culture was generally synchronous with it.³⁵

We have already discussed that chariots were brought to the Carpathians from Anatolia around the late 3rd – early 2nd millennium BC in radiocarbon chronology or in the 18th century BC (or slightly earlier) in the Middle chronology of the Near East. This happened before the appearance of 8-spoke wheels in the Near East in the middle of the 18th century BC. Therefore, chariots with four-spoke wheels spread to the Balkans and then throughout Europe. At first, a population whose material culture had parallels in Northern and Central Anatolia came to Southern Bulgaria (Galabovo, layer 3), but did not stay there, moving into the Carpathians. This process marks the migration of the Thracians from Anatolia.³⁶ It is noteworthy that it was in the Galabovo 3 layer that rod-shaped cheek-pieces were discovered (Fig. 12/5), which, therefore, preceded not only the rod-shaped, but even the disc-shaped cheek-pieces of the Carpathians. After this, cheek-pieces appeared in Southern Bulgaria (Asenovets, Belokopitovo) only in the Late Bronze Age (Fig. 12/6), around the 12th century BC.³⁷ This is explained by the fact that at this time the Gáva culture migrated from the Carpathians to the south.

Thus, rod-shaped cheek-pieces in the Carpathian Basin quite definitely appeared at least from around 1800 BC in historical chronology (or around the turn of the 3rd/2nd millennia BC in radiocarbon chronology), although a significant part of them belong to the second half of the 2nd millennium

BC. The cheek-piece from Galabovo is typologically the most archaic, and it is dated to a slightly earlier time span than the cheek-pieces from Romania, marking, apparently, the first appearance of rod-shaped cheek-pieces in the Balkans. It also follows from this that the cheek-piece from Toszeg does not reflect the evolution of disc-shaped cheek-pieces into rod-shaped ones. It is most likely a symbiosis of two types.

From time to time, as a result of Balkan-Carpathian impulses, rod cheek-pieces appeared in the Northern Black Sea region. The earliest examples belong to the early Srubnaya culture (Usovo Ozero), they are richly ornamented (Fig. 10/11),³⁸ but this tradition was not continued in the steppe Eurasia. A more representative series was found in the area of Belozerk culture of the North Pontic region, and some of these cheek-pieces are decorated with a circular ornamentation (Fig. 10/7–10).³⁹ This indicates two different impulses from the Balkan-Carpathian region.

In the Final Bronze Age, in addition to the Belozerk culture, rod-shaped cheek-pieces were distributed in the Asian zone of Eurasia, primarily in the Sargary, Irmen and Karasuk cultures, and one example has been found in the late Mezhovka settlement of Novo-Kizganovo in the Urals (Fig. 1, 11). In the east, such cheek-pieces are known in Mongolia in the Slab Grave culture, as well as in Northeastern China in the Baifu cemetery (11th–10th centuries BC), where Karasuk influences are undoubted. In the south of Central Asia, rod-shaped cheek-pieces are present at the end of the 2nd – beginning of the 1st millennium BC in the Chust culture of Fergana. One was found in the Urmia region of Iranian Azerbaijan at the Kordlar-Tepe settlement, dated to 1250–1050 BC. Typologically, Asian cheek-pieces are very close to European ones, but have differences in the form of rarer ornamentation and the absence of use of tubular bones, differences in the shape of the holes and the greater prevalence of additional holes. Most of these finds are dated to the 12th century BC, but a tendency towards the earlier dates of the Irmen and Karasuk cultures is noted. It is also assumed that some decorated Sargary cheek-pieces may belong to a somewhat earlier time span.⁴⁰ However, there are no reliable grounds for an exact dating of most of these cheek-pieces within the Final Bronze Age. Moreover, the cheek-pieces may not have appeared in these cultures from the very beginning.

There is another group of supposed cheek-pieces combining the features of disc-shaped and rod-shaped ones, called “Truşeşti-Kent”, based on finds from Romania and Central Kazakhstan (Fig. 11/1–5). In the latter region, they were also found on the settlement of Myrzhik, and in the Northern Black Sea region at Voloshskoe and Diky Sad. They are based on a hook or disk with a large central hole and a slot, and a projection with trunnions, thus resembling the cheek-pieces from Toszeg. This similarity is enhanced by the presence of ornamentation in the Carpatho-Mycenaean style.⁴¹ On the settlements of Kent in Central Kazakhstan and Sovetsky Put'–1 in the Altai, rod-shaped cheek-pieces were found

³² BOROFFKA 1998, 87–94.

³³ GRIGORIEV 2021, 168, Fig. 12.

³⁴ HÜTTEL 1981; BOROFFKA 1998.

³⁵ GOGĂLTAN, 2015, 54, 55, 73–76, 78; BĂLAN/QUINN/HODGINS 2016, 79, 80, 87; MOTZOI-CHICIDEANU/ŞANDOR-CHICIDEANU, 2015; PUSKÁS, 2015, 97; GRIGORIEV, 2023.

³⁶ LESHCHAKOV, 2002, 152, 182; LESHTAKOV, 2009 61; LEŠTAKOV, 2015, 6; GRIGORIEV, 2021, 172, 173; GRIGORIEV, 2023, 14.

³⁷ MINKOV 2023.

³⁸ BROVENDER 2008, Fig. 1.

³⁹ VANCHUGOV 1990, Fig. 35; PODOBED/USACHUK/TSIMIDANOV 2014, Fig. 7, 8.

⁴⁰ VANCHUGOV 1990, Fig. 35; PODOBED/USACHUK/TSIMIDANOV 2014.

⁴¹ PANKOVSKY 2004.

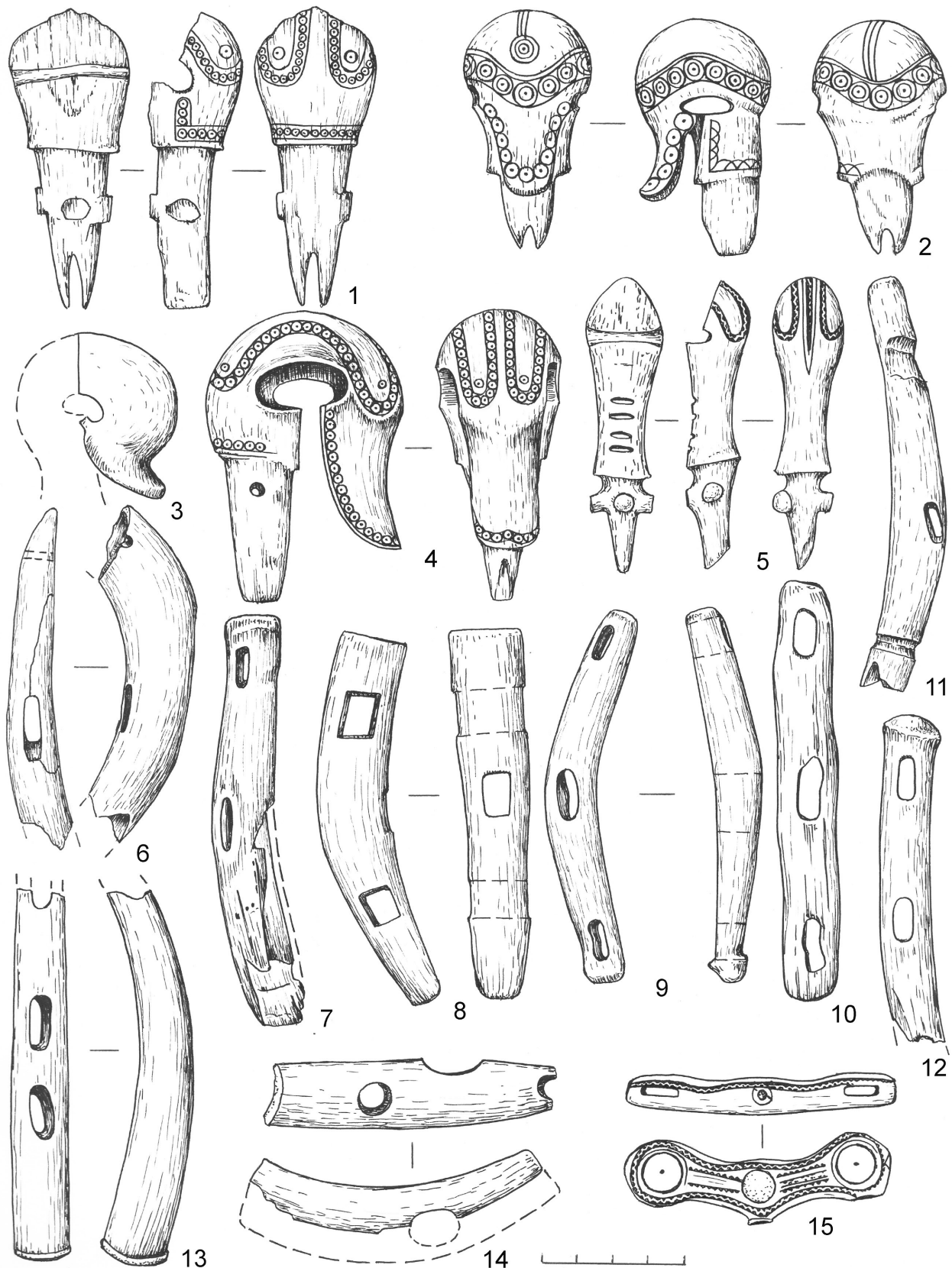


Fig. 11. Cheek-pieces of the Truşeşti-Kent type and rod-shaped cheek-pieces of the steppe Eurasia and Central Asia: 1–6 – Kent (after VARFOLOMEEV/LOMAN/EVDOKIMOV 2017, Fig. 7, 110), 7 – Myrzhik, 8 – Ustinkino, 9 – Firsovo–XVIII, 10 – Novonikolskoye I, 11 – Rublevo VI, 12, 15 – Chekanovsky Log–1, 13, 14 – Chust (PODOBED/USACHUK/TSIMIDANOV 2014, Fig. 2–4; SITNIKOV 2015, Fig. 85).

in the context of bone objects decorated with Carpatho-Mycenaean ornaments and together with Sargary ceramics.⁴²

⁴² BEISENOV/VARFOLOMEEV/KASENALIN 2014, 96–102, 128, 132, 141,

The problem is complicated by the fact that the Carpatho-Mycenaean circular ornament in the form of circles with a

Fig. 43–45; SITNIKOV 2015, Fig. 13, 59, 66, 85, 86.

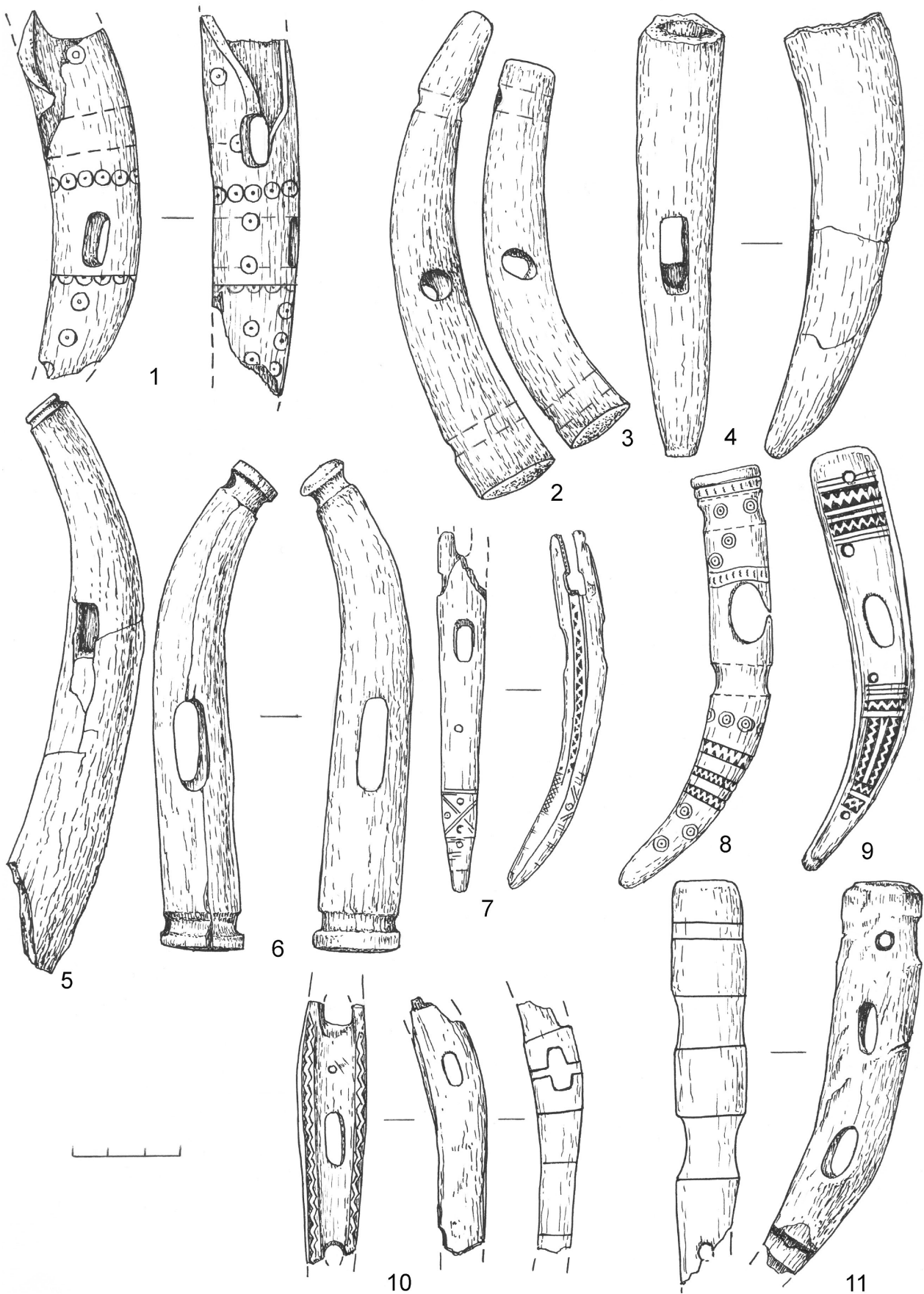


Fig. 12. Rod-shaped cheek-pieces in southern Kazakhstan, the Near East and Bulgaria: 1 – Tauturgen; 2, 3 – Kordlar-tepe; 4 – Karahöyük; 5 – Galabovo; 6 – Asenovets; 7 – Beycesultan; 8 – Troy VI, 9 – Aladzha Höyük; 10, 11 – Belokopytovo (1 – after BEISENOV/VARFOLOMEEV/ KASENALIN 2024, Fig. 2; 2, 3 – PODOBED/USACHUK/TSIMIDANOV 2014, Fig. 1; 4, 7–9 – Güneri 2016, Fig. 68, 69; 5 – Minkov 2023, Fig. 2, 3).

central dot is also present on a cheek-piece from Tauturgen in southeastern Kazakhstan (Fig. 12/1), which was found in a complex with a vessel of the Chust culture of Fergana, where an undecorated cheek-piece of this type is also known in Dalverzin (Fig. 11/13, 14). The radiocarbon date of the find at Tauturgen is 1612–1449 BC (95.4%), and its proximity to the Begazi dates, the date of the Chust culture within the 15th–14th centuries BC, and the transition to the Yaz I stage in Central Asia is noted. Analogies are also given in Iranian Azerbaijan (Kordlar-Tepe, mid-13th – mid-11th centuries BC) (Fig. 12/2, 3). It is assumed that this cheek-piece is a very early one in the series of rod-shaped cheek-pieces of Asia.⁴³ The problem, however, is that this cheek-piece is decorated with the Carpatho-Mycenaean circular ornament, reflecting the spread of the European tradition, and allegedly should not be dated earlier than the 12th century BC. On the other hand, the primary area of origin of Carpatho-Mycenaean ornaments was Anatolia. There, the earliest ornaments on bone objects are known from the 19th–18th centuries BC, but mainly from the middle of the 2nd millennium BC. However, earlier ones are not excluded, since such an ornament is present on a seal from the Pulus-Sakyol settlement of the Karaz culture, which is an Anatolian version of the Kura-Araxes culture of the Early Bronze Age.⁴⁴

However, rod-shaped cheek-pieces are also known in the Near East. In addition to the already mentioned cheek-piece from Kordlar Tepe in Iranian Azerbaijan, which cannot be dated earlier than the 13th century BC (and others from Jafar Abad and Tu Ali Sofla in this region⁴⁵), there are finds in Anatolia on the settlements of Karahöyük (workpiece), Alaca Höyük, Troy VI and Beycesultan (Fig. 12/4, 7, 8), which are dated around the middle of the 2nd millennium BC, later than the early group of such objects in the Carpathians. With the exception of the workpiece from Karahöyük, all the others are decorated. Typologically, they differ from the Carpathian and Asian ones, but the workpiece from Karahöyük is identical to the cheek-piece from Galabovo (Fig. 12/5).⁴⁶

It is possible to assume that this tradition was brought to Anatolia from the Carpathians as a result of the Thracian migration, which is sometimes associated with the time of the Trojan War. However, several circumstances prevent this. The layer Troy VI is dated to 1750–1300 BC, while the Trojan War probably corresponds to the end of the layer Troy VIIa (1300–1190/80 BC). Only later, in layers VIIb1 and VIIb2, did channeled pottery with horn-like protrusions appear, which have parallels in Thrace. Nevertheless, its quantity is limited to a small number of finds in Troy. It is absent even from other settlements in the Troad, not to mention Anatolia.⁴⁷

It is striking that the majority of rod-shaped cheek-pieces are made of antler, and both their ends are processed. Against this background, cheek-pieces stand out, which are more often made of horn, and their sharp end may not be processed at all. This group of cheek-pieces includes finds

from Anatolia and northwestern Iran, Tauturgen in southern Kazakhstan and Chust in the south of Central Asia, as well as those from the Karasuk burial in Ustinkino and the burial of the Slab Grave Culture in Tapkhar.⁴⁸ Typologically, they are more archaic, although this cannot serve as a reliable chronological indicator. More importantly, these two groups of cheek-pieces mark two routes of their spread in the steppe Eurasia: the first from the Middle East through Central Asia, and the second from the Carpathian Basin in the 12th century BC (Fig. 1). The early date of the Tauturgen cheek-piece also points to a similar scenario. The presence of the Carpatho-Mycenaean ornament on it does not indicate a connection with the Carpathian Basin, since similar ornaments were known in Anatolia earlier.

What is essential for our discussion is that around the 12th century BC, rod-shaped cheek-pieces, which have parallels in the Carpathian Basin, were widely distributed in the Eurasian steppes, and some of these objects are decorated with Carpatho-Mycenaean ornaments. Secondly, some cheek-pieces confirm an impulse from the south, and it may have preceded the western impulse.

CARPATHO-MYCENAEAN ORNAMENTS IN THE EAST

The most striking feature that reliably marks migrations from the Carpathian Basin is a large series of bone artifacts with Carpatho-Mycenaean ornamentation on the Kent settlement in Central Kazakhstan (see some examples: Fig. 13–15). The basis of the ceramic complex there is Sargary pottery (95.7%). Since Dongal pottery dated to the 10th–8th centuries BC was absent here, a date within the second half of the 14th–11th centuries BC has been proposed for the layer.⁴⁹ This seems to indicate that at the beginning of the Final Bronze Age there was an impulse from the Carpathian Basin, although there is, of course, no guarantee that these artifacts with Carpathian analogues belong to the beginning of the Sargary period. We have already touched upon the presence of channeled pottery on this settlement and some other features in the ceramics. However, today it is impossible to divide the Sargary sites into stages. I very much doubt two large-scale migrations over a long distance from one region to a specific point, to the settlement of Kent, at different times. Therefore, it is most likely that these ornamented objects are dated to the 12th century BC. An additional fact in favor of impulses from the west may be the presence of Carpatho-Mycenaean ornaments on a number of bone objects of the Sargary settlements of Sovetsky Put'–1 and Chekanovsky Log–1 in Altai, where they are also combined with the cheek-pieces (Fig. 13/7, 14/6, 7, 15/8, 11, 15).⁵⁰

⁴³ BESETAEV/MERTS/TULEGENOV 2024.

⁴⁴ YALÇIN 2011, 36, Abb. 9.

⁴⁵ IRAVANI GHADIM/BEIKZADEH 2018.

⁴⁶ GÜNERI 2016.

⁴⁷ BENZI 2002, 343–347, 410; PAVÚK 2002, 61; PAVEL 2014, 11, 30, 34–46.

⁴⁸ PODOBED/USACHUK/TSIMIDANOV 2014, Fig. 1. 1, 3, 4; 2. 3, 4; 3. 7.

⁴⁹ BEISENOV/VARFOLOMEEV/KASENALIN 2014, 96–102, 128, 132, 141, Fig. 43–45.

⁵⁰ SITNIKOV 2015, Fig. 13, 59, 66, 85, 86.

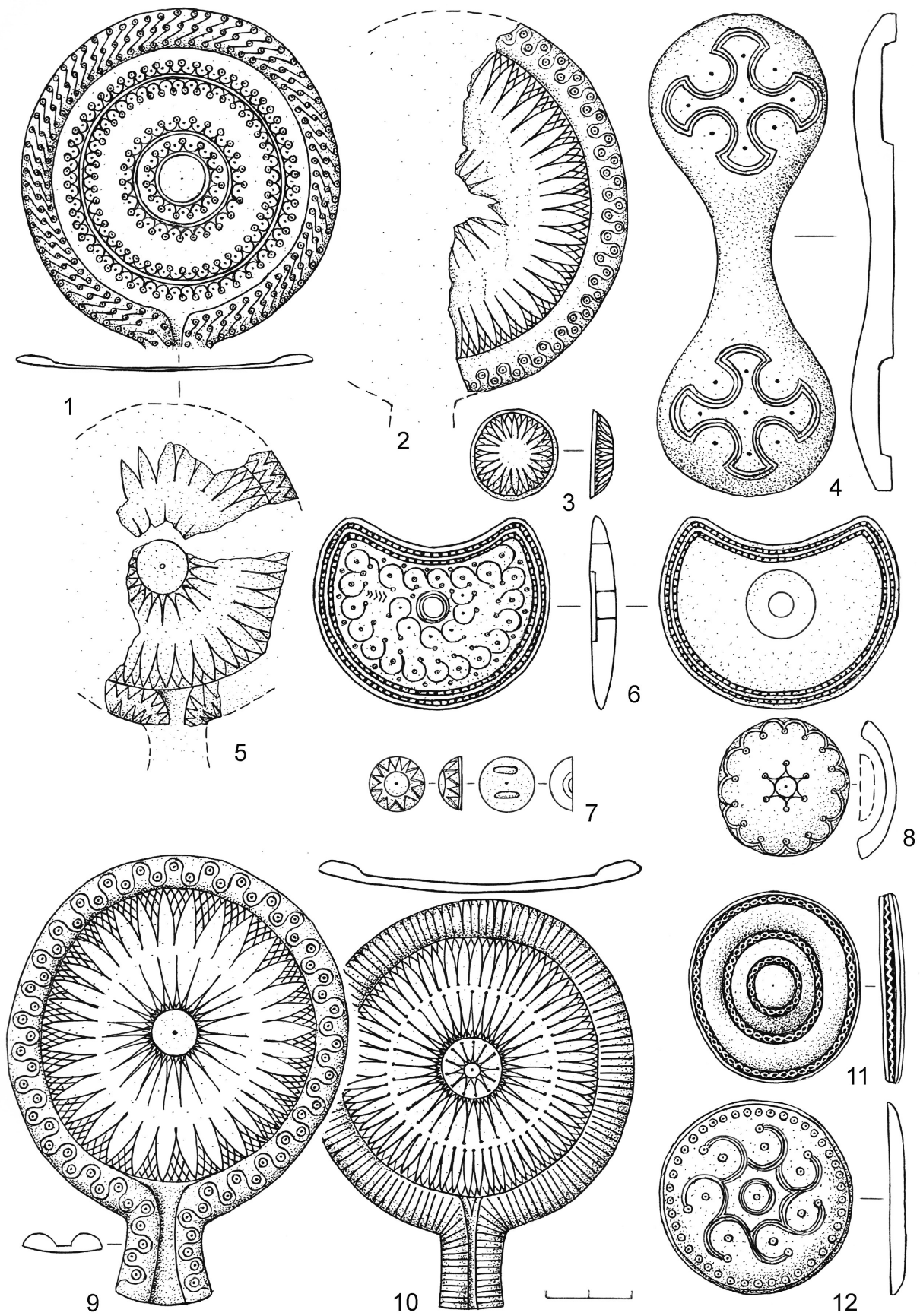


Fig. 13. Carpatho-Mycenaean ornaments on horn and bone objects of the Sargary settlements of Kent (1–6, 8–12, after VARFOLOMEEV/LOMAN/EVDOKIMOV 2017, Fig. 11, 12, 69, 94, 95, 144) and Sovetsky Put'-1 (7, after SITNIKOV 2015, Fig. 66).

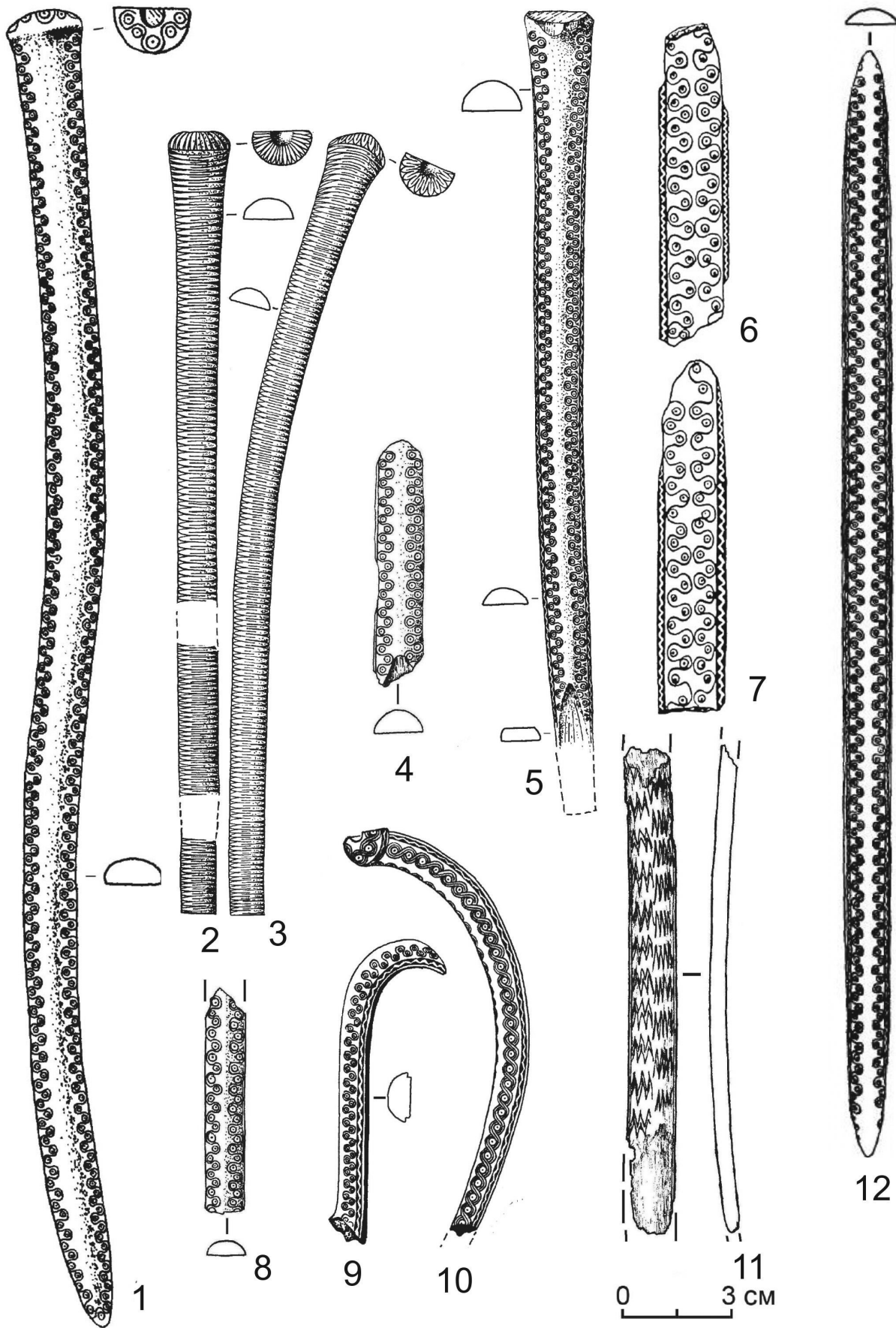


Fig. 14. Carpatho-Mycenaean ornaments on horn and bone objects of the Sargary settlements of Kent (1-5, 8-12, after VARFOLOMEEV/LOMAN/EVDOKIMOV 2017, Fig. 11, 12, 87, 93) and Chekanovsky Log-1 (6, 7, after SITNIKOV 2015, Fig. 86).

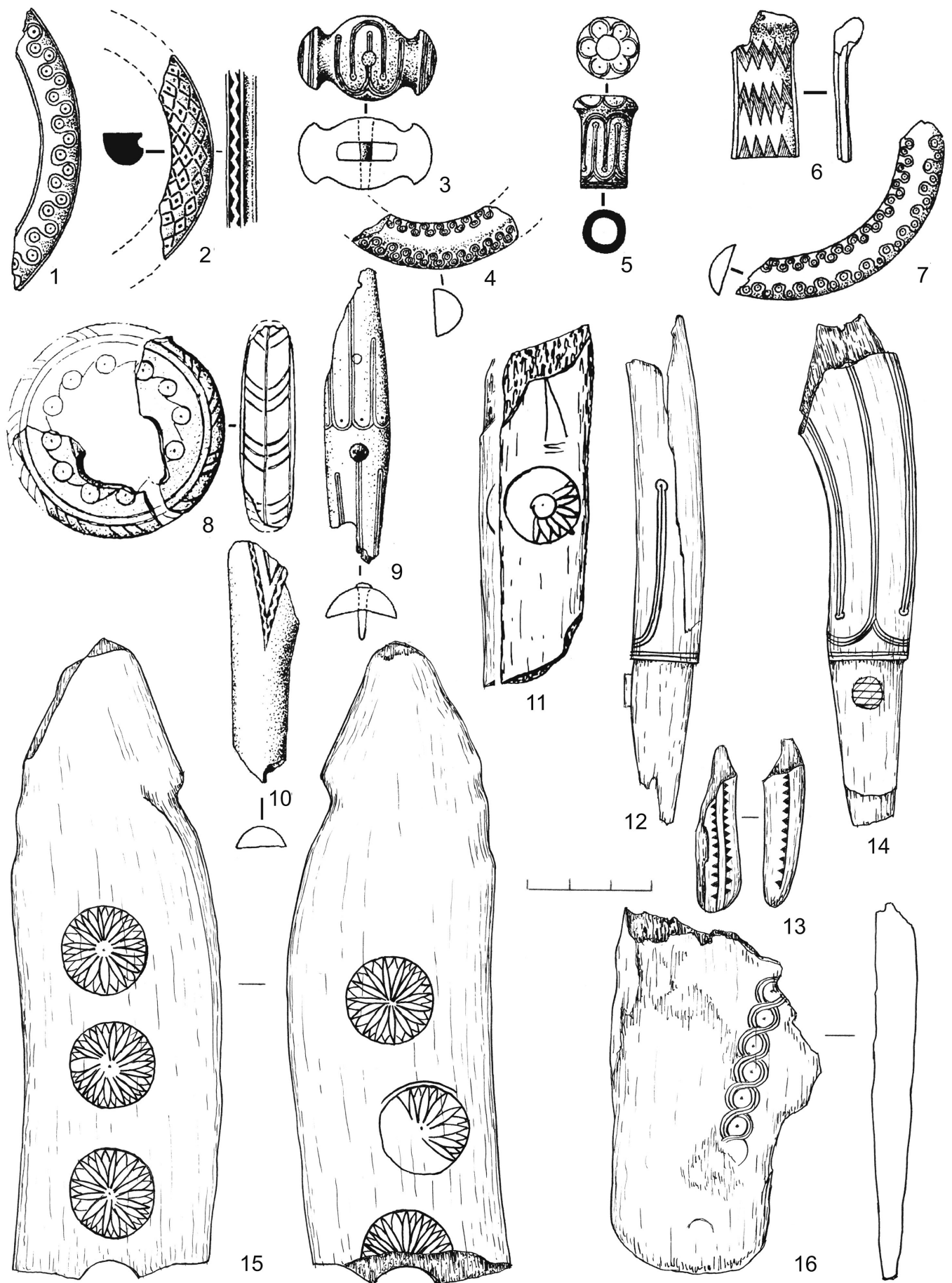


Fig. 15. Carpatho-Mycenaean ornaments on horn and bone objects of the Sargary settlements of Kent (1-7, 9, 10, 12-14, 16, after VARFOLOMEEV/LOMAN/EVDOKIMOV 2017, Fig. 8, 11, 12, 69, 93, 96) and Sovetsky Put'-1 (8, 11, 15, after SITNIKOV 2015, Fig. 59, 66).

FUNERAL RITE AND POSSIBLE ETHNIC PROCESSES IN THE ASIAN ZONE OF EURASIA

Thus, the facts of western influences in the Sargary culture are quite numerous, but they affected only a certain transformation of the ceramic complex in the form of the appearance of thin cordons, applied knobs and cordons with round impressions. “Pure” western inclusions in the form of channeled ware are comparatively rare. Bone objects with Carpatho-Mycenaean ornaments are quite numerous, but concentrated in several points. The distribution of rod-shaped cheek-pieces, in contrast, is quite wide, although their finds are not so numerous. This creates an impression of the penetration to the east of some predominantly military group, which could not have influenced the ethnic situation in the region.

However, if we turn to the burial rite, we see a completely different picture. The difficulty here, however, is that burials of the Final Bronze Age are extremely rare, and for the entire area between the Volga and Altai they are limited to several dozen. In addition, they contain almost no inventory. At best, they contain one vessel, which is difficult to attribute to any period within the Final Bronze Age. Even cultural identification is often difficult. Nevertheless, some trends are striking. In the Transurals, there is a predominance of burials contracted on the right side (more than half), a predominance of orientation in the southern sector and strongly contracted burials (up to 70%). Unfortunately, we do not currently have the tools to definitely say that these burials belong to the 12th century BC. However, in the Shatrovo–1 cemetery, the person buried in this pose was accompanied by a vessel with a thin cordon.⁵¹ In Kazakhstan, too, a significant proportion of the graves contain strongly contracted burials on the right side with the southern orientation.⁵² In the Ivanovka culture of the Volga region, burials are rare, but they demonstrate the same ritual on the right side and the southern orientation.⁵³ We said above that the same thing happened in the Belozerka culture, and it is explained there by impulses from the Carpathian Basin. Therefore, migration from the west was probably relatively massive. A study of skulls of the Sargary culture (unfortunately, these data have not been divided into stages) shows mixed types, represented by a local type, admixture from the south, from the north-east, but also from some Balkan area.⁵⁴

As a result, the Thracian language was certainly brought to the Asian steppe, and in some areas it was probably used for some time. However, we do not know whether this language became established. On the one hand, we can give a negative answer to this, since there is no evidence on Thracian language contacts with the Ob Ugrians or Samoyeds. On the other hand, no one has thought to check this, but in the case of a negative result of such a check, we will also not get an unambiguous answer for the steppe zone, since the Sargary culture had relatively limited contacts with the forest zone where the Finno-Ugrians lived. In addition, we see obvious migrations from the south during this period. The problem is

complicated by the fact that in the last third of the 11th century BC a new transformation of the Sargary culture began, caused by new migrations from the east from the areas of the Irmen culture on the Ob and the Karasuk culture on the Yenisei, which entailed the following transformation of the ethnic picture. The situation is aggravated by the fact that at the beginning of the 1st millennium BC throughout the steppe the number of sites catastrophically decreased, and at the beginning of the Early Iron Age Iranian-speaking nomads developed practically devastated territories. Therefore, even though in some areas of the Asian steppe people had spoken Thracian in the 12th–11th centuries BC, by the beginning of the Early Iron Age this language disappeared there.

CAUSES OF THE FINAL BRONZE AGE MIGRATIONS

The above facts point to a large-scale migration from the Carpathian Basin to Kazakhstan and the Altai. Such an event must have had compelling reasons in the form of a catastrophic deterioration in climate. We have already discussed fluctuations in solar activity. When it decreases, the temperature drops and humidity in the forest zone increases, which stimulates migrations to the south. However, this also leads to a decrease in temperature in the North Atlantic and the transfer of air masses to the east, which blocks the action of the Asian monsoon, and aridization begins in the southern regions. It is a very slow process to which ancient people could adapt. However, some local climatic changes superimposed on this general process could stimulate individual migrations. If we see simultaneous migrations from different areas, this can only be explained by a global-scale catastrophe caused by a Plinian-type eruption, when volcanic aerosols reached the stratosphere, remaining there for 2–3 years. This caused a “volcanic winter” effect, and in pastoral steppe economies it could lead to massive deaths of livestock and a reduction in the population.⁵⁵

In this case, we see large-scale migrations both from the Balkan-Carpathian region and from the south of Central Asia. In addition, it is difficult to imagine that a group of migrants could significantly transform the culture of a huge region. This was possible in cases when the local population was declining. The reasons for the cultural transformations of this era are well explained if we turn to paleoclimatic data (Fig. 16).

After the Santorini eruption in 1560 BC, a long period of solar activity decline began, reaching the Great Solar Minimum in 1385 BC, marked by an abnormally cold year in 1386 BC. At the same time, we see two strong peaks of stratospheric volcanic aerosols around 1400 BC, but the date is based on glaciochronology and is not verified by dendrochronology. Nevertheless, it coincides with the radiocarbon date of the Sargary culture beginning. The southward displacement of the Cherkaskul-Mezhovka and Suskan populations may have begun earlier as a result of the continuing humidification of the forest zone. However, at this time, and especially around 1400 BC, the population from the arid regions of Central Asia could also have moved into the steppe, and the peak of aridization in the Near East or

⁵¹ EPIMAKHOV 2010, 43, Fig. 3.

⁵² LOMAN 2019.

⁵³ KOLEV 2000, 256.

⁵⁴ SOLODOVNIKOV/KOLBINA 2025, 216–218.

⁵⁵ see in detail GRIGORIEV 2024b.

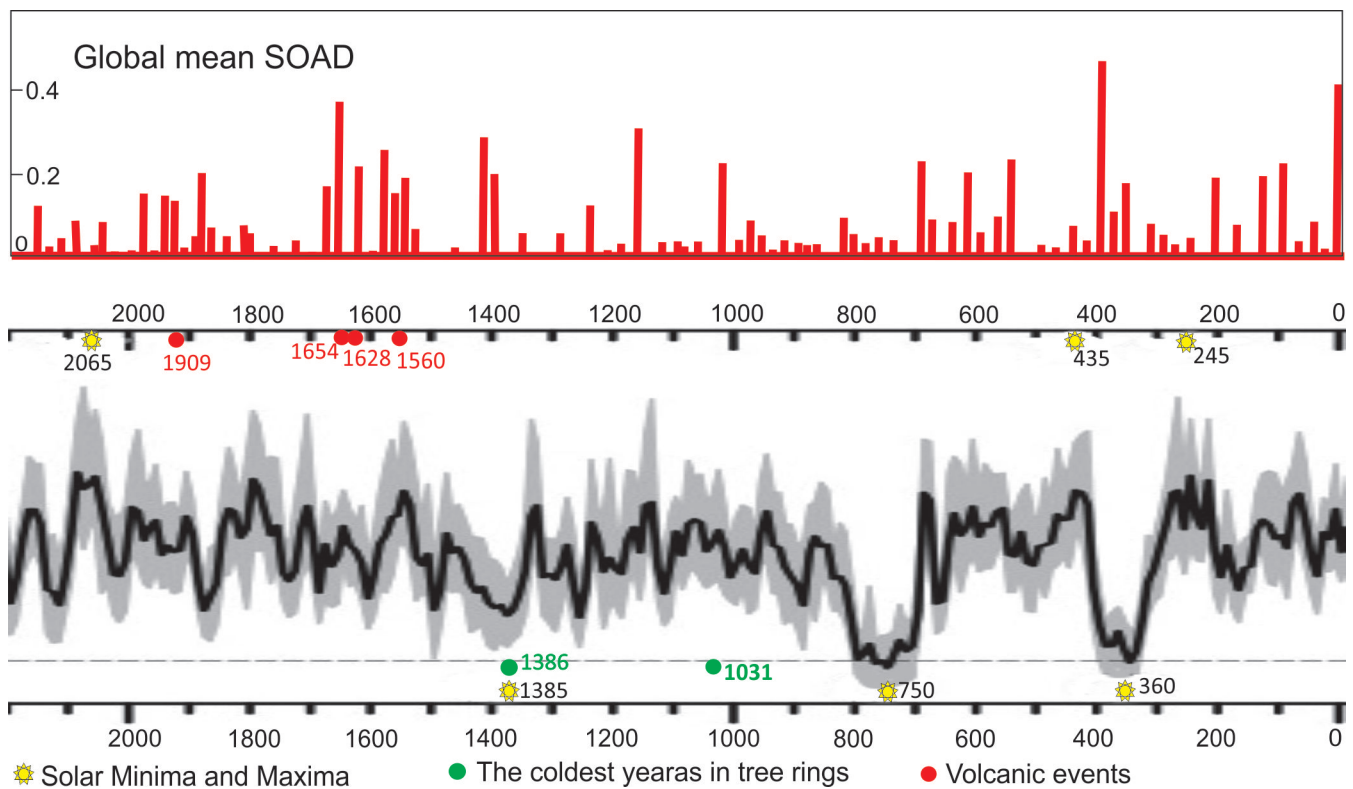


Fig. 16. Solar activity graph with Solar Maxima and Minima in the 2nd – 1st millennia BC. Global annual mean stratospheric aerosol optical depth (SAOD) (GRIGORIEV 2024b, Fig. 2).

Iran could have caused the migration of the Karasuk people to Southern Siberia. These processes, but mainly migrations from the forest-steppe, led to the formation of the Ivanovka culture of the Volga region and the Left Bank of the Dnieper and the Sargary culture between the Urals and Altai.

At the transition to the second stage of the Sargary culture, we see much larger movements from both the south and the west. This corresponds to the peak of volcanic aerosols around the end of the first half of the 12th century BC, but the exact date of this event is not yet known. The third stage is close to the beginning of the HaB period in Europe, the crisis of the Belozerka culture of the Northern Black Sea region and the fall of Shang Dynasty in China. This event in China is explained by a major volcanic event in 1031 BC, as a result of which the reign of Zhou Dynasty began in 1027 BC.⁵⁶ The steppe was experiencing another period of transformation at this time.⁵⁷

The end of the Sargary period falls in the 9th–8th centuries BC, when a very sharp and deep decline in solar activity began with a prolonged minimum that lasted the 8th century BC, when the population in a significant part of the steppe disappeared or catastrophically decreased. Only after an

equally sharp rise in solar activity, the nomadic cultures of the Early Iron Age were formed.

CONCLUSIONS

The steppe cultures of the Cordoned Ware chronological horizon between the Carpathians and Altai are dated to the 14th–10/9th centuries BC, and their formation and transformations coincide with the phases of solar activity fluctuations and global volcanic eruptions. The formation of the cultures of this horizon occurred against the background of a sharp decrease in solar activity to the Great Solar Minimum in 1385 BC and two powerful volcanic eruptions. As a result, the forest-steppe population from the Volga-Kama region to the Transurals partially migrated to the steppe, which led to the spread of post-Seima metalworking traditions there, as well as the cordoned ornamentation in the Ivanovka and Sargary cultures between the Dnieper and Altai. On the other hand, these processes have an impact on the Northwestern Black Sea region, where the Sabatinovka culture was formed, and then Noua and Coslogeni, but the sources of the cordons there were different – the Babino culture of Ukraine. In Europe, this time span corresponds to the transition between the BrC/BrD phases, which was probably stimulated by the same climatic processes.

The beginning of the second phase of the Cordoned Ware Cultures was stimulated by migrations caused by the global eruption around the middle of the 12th century BC, when large-scale migrations took place from the Carpathian Basin to the North Pontic region and further up to the Altai. They led to the spread of some new ceramic types, which contributed to the further convergence of the cultures of this

⁵⁶ GRIGORIEV 2024c.

⁵⁷ It is striking that these events coincide with the so-called “Bronze Age Catastrophe”, which is dated to the 12th–11th centuries BC. Nevertheless, I would not draw direct parallels, since only some episodes of this “catastrophe” were certainly stimulated by these eruptions. Many others were caused by local events, including political ones. However, the main thing is that at this time the number of written sources increased sharply, and therefore, if we put all the events described in one row (and sometimes these are small raids of several dozen warriors), then the impression of a long absolute nightmare is formed, although we see flourishing cultures in Europe.

horizon. In Europe, this is chronologically close to the formation of the HaA traditions.

Finally, the third phase of this family of cultures began due to migrations provoked by the eruption of 1031 BC, but they were most clearly manifested in the east of Kazakhstan, as well as in the forest-steppe zone, in another cultural environment, which we have not analyzed here. At this time, the disintegration of the discussed family of cultures occurred, and the previous unity was lost. The beginning of the phase was close to the beginning of the HaB period in Europe, although there is no exact correspondence in this case.

It is necessary to understand that in the conditions of catastrophic climate changes, in addition to large-scale migrations from remote regions, clearly visible due to the difference in the imported cultural types, there was a large series of micro-migrations over short distances, which leveled the cultural situation. However, their study is associated with great methodological difficulties.

The most striking and large-scale migration was that from the Balkan-Carpathian region to the east in the 12th century BC, in which tribes speaking Thracian participated. As a result, the Thracian language was established in the North Pontic area, where it survived until the appearance of Greek colonies there. To the east, the Thracian presence is felt everywhere from the Urals to the Altai, but it is especially visible in Central Kazakhstan. This led to the transformation of the Sargary culture, and most likely at this time enclaves speaking Thracian appeared. This is most evident in the materials of the Kent settlement. However, there is no evidence that the Thracian language was spoken throughout the steppe, such a scenario seems doubtful.

ACKNOWLEDGMENTS

I am grateful to O. I. Orlova from the Historical and Cultural Center “Arkaim” for the prepared illustrations.

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