"War and peace": Relations and interactions in the Northwestern Black Sea Region in the 3rd millennium BC

Svitlana Ivanova[1]

Abstract. Aggressive behaviour was characteristic of ancient people living in different regions of Europe during the Early Bronze Age. Injuries indicate this, and arrowheads are found among the bones of skeletons. In the 3rd millennium BC, the Northwestern Black Sea Region was inhabited by several cultures: the Budzhak/Yamna, the Catacomb, and the Babyno. Despite evidence of conflicts in the form of injuries, these conflicts were not intercultural: these were collisions within one society, not between people of different cultures. Archaeological evidence suggests that people from different cultures learned to live by avoiding conflicts and respecting each other's rituals and traditions. It can be concluded that people of the three cultures chose a *tactic of social distancing.* This approach helped them avoid conflicts and wars, and it was the best solution. People from different cultures chose a tactic of social distancing with their close neighbours. However, the *tactic of contacts* spreads with far neighbours during migrations of populations of these cultures to the west, into the Balkan-Carpathian area. They established peaceful relations with people of local cultures. Their aim was exchange and trade, not war.
Keywords: Budzhak Culture, Catacomb Culture, Babyno Culture, Early Bronze Age.

„Război și pace": relații și interacțiuni în nord-vestul Mării Negre în mileniul al III-lea a.Chr. Comportamentul agresiv era caracteristic oamenilor din diferite regiuni ale Europei în perioada timpurie a epocii bronzului. Acest lucru este indicat de rănile identificate și de vârfurile de săgeți descoperite printre oasele scheletelor. În mileniul al III-lea a.Chr., regiunea nord-vestică a Mării Negre era locuită de mai multe culturi: Bugeac/Iamna, Katakombnaia și Babino. Deși există dovezi ale conflictelor sub forma rănilor, aceste confruntări nu au fost de natură interculturală, ci au reprezentat ciocniri în interiorul aceleiași societăți, nu între oameni aparținând unor culturi diferite. Dovezile arheologice sugerează că oamenii din diverse culturi au învățat să trăiască evitând conflictele și respectând ritualurile și tradițiile celorlalți. Se poate concluziona că populațiile acestor trei culturi au ales o *tactică de distanțare socială*. Această abordare i-a ajutat să evite conflictele și războaiele, fiind cea mai bună soluție. Oamenii din culturi diferite au aplicat tactica distanțării față de vecinii apropiați. Însă, *tactica contactelor* s-a

[1] Institute of Archaeology, National Academy of Sciences of Ukraine, Kyiv–Odesa, Ukraine; svi1956@gmail.com.

CC BY NC SA

răspândit cu vecinii mai îndepărtați în timpul migrațiilor populațiilor acestor culture către vest, în zona balcano-carpatică. Acolo, au creat relații pașnice cu populațiile locale, scopul lor fiind schimbul și comerțul, nu războiul.
Cuvinte cheie: cultura Bugeac, cultura Katakombnaia, cultura Babino, epoca timpurie a bronzului.

.....

Issues of war, conflict, and violence in ancient societies have long captured the attention of researchers from the viewpoint of biological anthropology, social anthropology, military history, history, and archaeology (Thorpe 2003, p. 145).

A significant number of papers address the relationships between mobility, trade, and warfare. Even though war was prevalent in the Neolithic, there are regions or periods where the evidence of war is scarce or absent, indicating that some Neolithic societies could solve conflicts without resorting to warfare (Christensen 2004, p. 154).

Archaeological evidence

Warfare and conflicts are social phenomena that leave only indirect traces in the archaeological record. Three main sources demonstrate the existence of war: weapons, fortifications, and injuries on skeletons (Christensen 2004, p. 129).

The early prehistoric evidence for conflict and warfare manifests itself in trauma, from individual injuries, mostly from club wounds to the skull and death by arrow shot, to mass killings which could have destroyed a group.

In the Late Neolithic and Bronze Age of Europe, there is evidence of increased militarisation among specific population segments. It is suggested that the increase in evidence of violence was also linked to the increased mobility of communities in this chronological period. Individual and mass burials with injuries inflicted by weapons appear (**Pl. I/1–2**). Not only are human remains evidence of the increasing violence, but objects processed by humans also tell this story. Carefully worked stones depicting armed people are abundant in the Neolithic Age of Europe. Some of them show heavily armed warriors (**Pl. I/3–4**).

The Bronze Age represents the global emergence of a militarised society with a martial culture materialised in a package of new, efficient weapons that remained used for millennia. This is evidenced by the ostentatious display of weapons in burials, hoards, and iconography (Horn, Kristiansen 2018, p. 1).

Finds of weapons in burials, especially when they are the cause of injury or death, also need to be included in conflict analyses. This is most often the case with arrowheads found among the bones of buried persons. The introduction of stone battle axes and maces as common weapons led to a significant increase in the occurrence of blunt force injuries, both depressed and penetrating. Trepanation

may have been employed as an effective medical treatment for such traumas (Ushkova, Kozak 2024, p. 449).

In the last decade, considerable attention has been paid to the Yamna culture and its migrations to the West, which formed the European population. Palaeogenetic studies have allowed us to conclude that the main role in this process was played by the migrations of the Yamna people (Haak *et alii* 2015; Allentoft *et alii* 2015). Some researchers consider these migrations to be warlike or even aggressive.

For example, for Vojvodina, it is accepted that in the first half of the 3rd millennium BC, Yamna culture groups became the dominant element in this zone, eliminating or marginalising the development of local sedentary or semi-sedentary communities (Włodarczak 2021, p. 245).

These hypotheses are similar to the old idea that the waves of nomadic conquerors put an end to 'Old Europe', as described by M. Gimbutas and other researchers (Gimbutas 1956; Dergacev 1998; Anthony 2007). However, long-distance migrations are complex, multigenerational human processes that take different forms based on different causes and different pre-migration social relations between the local people in the destination and the pre-migration population in the home region (Anthony 2022, p. 56).

Researchers suggest various reasons for the westward advance of the Yamna culture, such as:

- A socio-economic model based on introducing the key innovation 'wheel and wagon' against the background of climate and ecological change, *i.e.*, decreasing precipitation and steppe aridisation. Their constant search for green pastures for the well-being of their animals, as their primary source of subsistence, subsequently forced them westwards (Heyd 2021).
- Chiefs decide on, and charismatic leaders' direct migrations of whole segments of society during crises, with rising levels of conflict and pressure from neighbours (Anthony 2020).
- Exploitation of secondary animal products was a key driver of the expansions of Eurasian steppe pastoralists by the Early Bronze Age (Wilkin *et alii* 2021).
- The idea of an 'ideology of travellers' in 3rd millennium BC Europe (Wentink 2020).

Nevertheless, the very advancement of Yamna culture to the West is usually called 'expansion'. Expansion in demography corresponds to the term demic diffusion, which means the migration of human settlement to a territory uninhabited by them but inhabited by other peoples using entering into this territory of separate groups of people (diffuse groups) and through them – displacement of the existing population up to its replacement or mixing with it. Thus, it is assumed to some extent that the migration of the Yamna culture population was 'aggressive'.

Northwestern Pontic region in the Early Bronze Age

Budzhak culture (**Pl. II**) was a constituent part of the Yamna cultural and historical community. Its population lived in a particular geographical region – the Northwest Black Sea region.

In the same region, populations of the Catacomb culture and Babyne culture, migrants from the east, lived. These three cultures coexisted partially (**Table 1**).

Culture	Chronological range	Burial quantity
Budzhak/Yamna	33/32–22/21 cent. BC	About 4000
Catacomb	26–20 cent. BC	About 550
Babyne	22–18 cent. BC	About 600

Table 1. Chronological range of Early Bronze Cultures of Northwestern Pontic.
Tab. 1. Intervalul cronologic al culturilor din epoca bronzului timpuriu din zona nord-vest Pontică.

Budzhak weapons include stone and flint axes, flint and bone arrows, spearheads, and copper knives-daggers (**Pl. III/1–8**). Stone axes also symbolise power (Ivanova 2000; 2001; 2003). In Catacomb culture graves, stone axes predominate among the weapons; flint axes and arrowheads are also known (**Pl. III/9–12**).

First of all, there are certain reasons to speak about armed conflicts among the people of Babyne cultures. Thus, judging by the sample of burials with evidence of arrowheads, the Babyne people were wounded or killed by Babyne arrowheads (Lytvynenko 2019, p. 325).

For a long time, among many archaeologists, there was a dominant viewpoint that the population of the Catacomb culture had conflicts over pastures for cattle with the population of the Yamna culture. It was assumed that they aggressively displaced the Yamna population and occupied their territories. For example, the following views were expressed:

- The spreading of steppe pastoralists was carried out not so much by gradual increase of habitats as by expansion, and this process was accompanied by the emergence of a military situation (Dergachev 1999, p. 218).
- Under the influence of the Catacomb culture, the Yamna (Budzhak) population was partially displaced to the Danube River Valley (Chernyakov, Toschev 1985, p. 23).
- The characteristic Catacomb arrowheads in the Yamna culture's bones indicate periods of military confrontation between them and instability of intertribal relations (Yarovoy 2000, p. 267).
- Weapons and military kleinods (axes) found in the Catacomb culture testify to military conflicts (Otroschenko, Rassamakin, Chernykh 2008, p. 246).

Similarly, it has been suggested that the spread of the Babyne culture in this region led to the displacement and destruction of the Catacomb culture (Lytvynenko 2019, p. 313).

In the burials of the Yamna culture in Ukraine, including the Budzhak culture, skeletons with signs of trauma are known (**Pl. IV/1**). Most arrowheads were found among the bones of skeletons and were not inventory, but are the cause of injury or death. In the burials of the Catacomb culture, skeletons with injuries and arrowheads in the bones of the buried are also known (**Pl. IV/2**). A few arrowheads in the Babyne culture graves were also found in the bones of the buried persons.

According to researchers, the presence of typical Catacomb tips in the skeletons of the Yamna culture reflects, to a certain extent, the nature of different cultural groups coexistence (Toschev 1979, p. 36–37; Yarovoy 1985, p. 115).

Sergey Razumov studied arrowheads of the Yamna and Catacomb cultures found in burials among the bones of skeletons and concluded that these injuries were related to conflicts within their environment. Arrowheads as the cause of wounds indicate clashes between culturally related populations. The Yamna population had conflicts with the Yamna population and the Catacomb population with the Catacomb population. Only a limited number of arrowheads found in Yamna and Catacomb graves are typologically foreign, suggesting that they did not originate from within these groups but came from others. This may indicate hostility between the Yamna population and their culturally distinct neighbours. However, foreign arrowheads were found exclusively in the territory of the left-bank Dnieper steppe (Razumov 2011, p. 77)

Roman Lytvynenko also studied arrowheads from burials of the Babyne culture. He concluded that conflicts with neighbouring cultures were observed on the eastern periphery of the Babyne culture (Don-Donetsk region). In his opinion, there is definite archaeological evidence that the east-northeastward advance of the Babyne culture was accompanied by military confrontation with the populations of neighbouring post-Catacomb cultures (Lytvynenko 2020, p. 339). In the central part, between the Dnieper and the Southern Bug, the aggressive Babyne culture's emergence led to the Catacomb culture's destruction. Nevertheless, on the western periphery of the Babyne culture, in the Northwestern Black Sea region, there is no militarisation: weapons in burials are scarce, and arrowheads in the bones of skeletons are singular and belong to people of the Babyne culture (Lytvynenko 2019, p. 313). Only one buried person was wounded by an arrow typical of the Catacomb culture, which is known in a kurgan excavated in Odesa. This burial is associated with the early stage of the advancement of the Babine culture into the Northwestern Black Sea region (Lytvynenko 2020, p. 349). Later, intercultural conflicts are not recorded in the archaeological material.

The two halves of the axe found in Babyne graves may have a different semantic meaning, not a weapon (Ivanova, Tsimidanov 2004; Lytvynenko 2019). The mace (analogous to the famous 'Borodino hoard') and the unique dagger can be prestigious symbols of power, not weapons (**Pl. III/13–15**).

Therefore, previous assumptions about conflicts in the Northwestern Black Sea region in the Early Bronze Age and their resolution issues must be reconsidered.

Thus, in the 3rd millennium BC, several cultures inhabited the Northwestern Black Sea region. Despite traces of conflicts in the form of injuries, these conflicts were not intercultural. According to many researchers, ancient societies' social structure and social relations are reflected in funeral rites (for example, Saxe 1970; Binford 1971; Tainter 1975, and others). That's why considering the planigraphy of kurgans with burials of different cultures will allow us to determine the nature of relations between them.

In the Early Bronze Age, most Northwestern Pontic kurgans were built by people of the Budzhak/Yamna culture (Subbotin 2000, p. 353). They also used kurgans built earlier in the Eneolithic, often destroying the main burials. People of the Catacomb and the Babyne cultures most often used Budzhak kurgans and very rarely built their own (**Pl. VI/2**).

Usually, there could be from one to five burials of the Catacomb culture in one kurgan. There are two unusual kurgans with 11 and 24 burials of the Catacomb culture (**Pl. V**). People of the Budzhak and Catacomb cultures arranged the graves of their relatives in a circle. However, these graves never destroyed each other. Even graves that appear as destroyed on the plan were located in the upper layer and did not disturb the lower grave. Probably, these people did not perceive each other as enemies despite the common sacred space (kurgan) and different burial customs.

The people of the Babyne culture used stelae from Eneolithic stone cromlechs in their burial rituals. However, they did not destroy the burials of the Budzhak and Catacomb cultures.

On the other hand, there is very little evidence of contact between these three cultures. For example, a few vessels from the Budzhak culture were found in the burials of the Catacomb culture (**Pl. VI/2–3**). There are also a few imitations of Budzhak pottery in the burials of the Babyne culture.

Conclusions

The theory of the Early Bronze Age steppe warrior population's invasion of the West and its destruction of agricultural civilisations in Europe was particularly popular. Much less attention was given to questions of peaceful coexistence or intercultural contacts.

Aggressive behaviour was characteristic of ancient people living in the Northwestern Black Sea region in the Early Bronze Age. This is indicated by injuries and finds of arrowheads found among the bones of skeletons. However, these conflicts occurred within a group of people of the same culture, not between people of different cultures.

In this context, it was helpful to examine the relationships between the populations of different cultures in the Early and Middle Bronze Age in the Northwestern Black Sea region (3400/3200–1800 BC). This region is considered a "contact zone" and a "bridge" connecting the East and West, the worlds of steppe herders and European farmers. The main cultures of this time were the Budzhak/Yamna, Catacomb, and Babyne cultures. The populations of all three cultures inhabited the same region, were partially synchronous, and buried their dead in the same kurgans.

Skeletons with skull injuries and arrowheads embedded in the bones were found in the graves of the Budzhak culture. It was long believed that this resulted from intercultural conflicts with the population of the Catacomb culture, which arrived in the Northwestern Black Sea region from the east in the middle of the 3rd millennium BC. However, further research has clarified that the arrowheads point to internal conflicts within the Yamna population.

It is possible that the populations of the two cultures managed to establish peaceful relations, which manifested themselves in the archaeological situation. In the Northwestern Black Sea region, there is no evidence of military conflicts between the populations of the Budzhak and Catacomb cultures and the Babyne one, although militarisation of this society is observed in other areas where the Babyne culture is present.

Archaeological data suggests that people of different cultures learned to live, avoid conflicts, and respect each other's rituals and traditions. It can be concluded that people of these three cultures chose a tactic of social distancing. This approach helped them avoid conflicts and wars, and it was the best solution.

At certain stages in the Early Bronze Age, the Northwestern Black Sea region was not only a "contact zone" but also a "zone of peaceful coexistence". People of different cultures chose a tactic of social distancing with their close neighbours. However, the communication tactic (a tactic of contacts) spread with far neighbours during migrations of populations of these cultures to the West, into the Balkan-Carpathian area.

Bibliography

Allentoft *et alii* 2015: M. E. Allentoft, M. Sikora, K.-G. Sjögren, S. Rasmussen, M. Rasmussen, J. Stenderup, P. B. Damgaard, H. Schroeder, T. Ahlström, L. Vinner, A.-S. Malaspinas, A. Margaryan, T. Higham, D. Chivall, N. Lynnerup, L. Harvig, J. Baron, P. Della Casa, P. Dąbrowski, P. R. Duffy, A. V. Ebel, A. Epimakhov, K. Frei, M. Furmanek, T. Gralak, A. Gromov, S. Gronkiewicz, G. Grupe, T. Hajdu, R. Jarysz, V. Khartanovich, A. Khokhlov, V. Kiss, J. Kolář, A. Kriiska, I. Lasak, C. Longhi, G. McGlynn, A. Merkevicius, I. Merkyte, M. Metspalu, R. Mkrtchyan, V. Moiseyev, L. Paja, G. Pálfi, D. Pokutta, Ł. Pospieszny, T. D. Price, L. Saag, M. Sablin, N. Shishlina, V. Smrčka, V. I. Soenov, V. Szeverényi, G. Tóth, S. V. Trifanova, L. Varul, M. Vicze, L. Yepiskoposyan, V. Zhitenev, L. Orlando, T. Sicheritz-Pontén, S. Brunak, R. Nielsen, K. Kristiansen, E. Willerslev, *Population genomics of Bronze Age Eurasia*, Nature 522, 2015, p. 167–173. https://doi.org/10.1038/nature14507.

Anthony 2007: D. W. Anthony, *The Horse, the Wheel, and Language: How Bronze Age Riders from the Eurasian Steppes Shaped the Modern World*, Princeton, 2007.

Anthony 2020: D. W. Anthony, *Nomads in the closet: the hidden history of nomad-farmer relations in Europe and Anatolia.* Book review of I. B. Neumann and E. Wigen, "The Steppe tradition in international relations: Russians, Turks and European State Building 4000 BCE–2017 CE", Cambridge Review of International Affairs 33, 6, 2020, p. 937–943. https://doi.org/10.1080/09557571.2020.1838207.

Anthony 2022: D. W. Anthony, *Migration, Ancient DNA, and Bronze Age Pastoralists from the Eurasian Steppes.* In: M. J. Daniels (Ed.), *Homo Migrans: Modeling Mobility and Migration in Human History*, New York, 2022, p. 55–78. https://doi.org/10.1515/9781438488028-004.

Binford 1971: L. R. Binford, *Mortuary practices: Their study and their potential.* In: J.-A. Brown (Ed.), *Approaches to the Social Dimensions of Mortuary Practices*, Memoirs of the Society for American Archaeology 25, 1971, p. 6–29. https://doi.org/10.1017/S0081130000002525.

Bubulici, Haheu 2002: V. G. Bubulici, V. P. Haheu, *Issledovaniya kurganov v Kamenskom rayone na levoberezhye Srednego Dnestra*. In: E. Yarovoy (Ed.), *Severnoe Prichernomorye: ot eneolita k antichnosti*, Tiraspol, 2002, p. 112–148.

Chebotarenko, Cherniakov, Toschev 1993: G. F. Chebotarenko, I. T. Cherniakov, G. N. Toschev, *Kurgany u s. Primorskoe*, Drevnosti Stepnogo Prichernomorya i Kryma 4, 1993, p. 46–61.

Chernyakov, Toschev 1985: I. T. Chernyakov, G. N. Toschev. *Kulturno-hronologicheskie osobennosti kurgannyh pogrebeniy epohi bronzy Nizhnego Dunaya*. In: V. N. Stanko (Ed.). *Novye materialy po arheologii Severo-Zapadnogo Prichernomorya*, Kyiv, 1985, p. 5–31.

Christensen 2004: J. Christensen, *Warfare in the European Neolithic*, Acta Archaeologica 75, 2004, p. 129–156.

Dergacev 1998: V. A. Dergacev, *Kulturelle und historische Entwicklungen zwischen Karpaten und Dnepr.* In: B. Hänsel, J. Machnik (Hrsg.), *Zu den Beziehungen zwischen frühen Gessellschaften im nördlichen Südost- und Osteuropa Das Karpatenbecken und die osteuropäische Steppe*, Rahden/Westf., 1998, p. 27–64.

Dergachev 1999: V. A. Dergachev, *The particularities of the cultural-historical development of the region between the Carpathians and Dniestr. To the problem of interaction of ancient communities of Middle, South-Eastern and Eastern Europe*, Stratum plus 2, 1999, p. 169–221.

Dvorianinov, Dzigovskiy, Subbotin 1985: S. A. Dvoryaninov, A. N. Dzigovskiy, L. V. Subbotin, *Raskopki kurgannoy gruppy u s. Vishnevoe*. In: V. N. Stanko (Ed.), *Novye materialy po arheologii Severo-Zapadnogo Prichernomorya*, Kyiv, 1985, p. 132–174.

Gimbutas 1956: M. Gimbutas, *The prehistory of Eastern Europe. Mesolithic, neolithic and copper age cultures in Russia and the Baltic area*, American school of prehistoric researches, Harvard University Bulletin 20, Cambridge, Massachusetts, 1956.

Haak *et alii* 2015: W. Haak, I. Lazaridis, N. Patterson, N. Rohland, S. Mallick, B. Llamas, G. Brandt, S. Nordenfelt, E. Harney, K. Stewardson, Fu Q., A. Mittnik, E. Bánffy, C. Economou, M. Francken, S. Friederich, R. Garrido Pena, F. Hallgren, V. Khartanovich, A. Khokhlov, M. Kunst, P. Kuznetsov, H. Meller, O. Mochalov, V. Moiseyev, N. Nicklisch, S. L. Pichler, R. Risch, M. A. Rojo Guerra, C. Roth, A. Szécsényi-Nagy, J. Wahl, M. Meyer, J. Krause, D. Brown, D. Anthony, A. Cooper, K. W. Alt, D. Reich, *Massive migration from the steppe was a source for Indo-European languages in Europe*, Nature 522, 2015, p. 207–211. https://doi.org/10.1038/nature14317.

Heyd 2021: V. Heyd, *Yamnaya, Corded Wares, and Bell Beakers on the move*. In: V. Heyd, G. Kulcsár, B. Preda-Bălănică (Eds.), *Yamnaya Interactions: Proceedings of the International Workshop held in Helsinki, 25–26 April 2019,* Yamnaya Impact on Prehistoric Europe, vol. 2, Budapest, 2021, p. 383–414.

Horn, Kristiansen 2018: C. Horn, K. Kristiansen (Eds.), *Warfare in Bronze Age Society*, Cambridge, 2018. https://doi.org/10.1017/9781316884522.

Ivanova 2000: S. V. Ivanova, O *sotsialnom ustroystve yamnogo obschestva Severo-Zapadnogo Prichernomorya*, Stratum plus 2, 2000, p. 388–403.

Ivanova 2001: S. V. Ivanova, *Sotsialnaya struktura naseleniya yamnoy kultury Severo-Zapadnogo Prichernomorya*, Odessa, 2001.

Ivanova 2003: S. V. Ivanova, *Social differentiation in the pit-grave society: reconstruction based on burial data.* In: L. Nikolova (Ed.), *Early Symbolic System for Communication in Southeast Europe,* vol. I, British Archaeological Report, 1139, 1, 2003, p. 157–167.

Ivanova 2021: S. Ivanova, *Istoriya naseleniya Severo-Zapadnogo Prichernomoria v kontse IV–III tys. do n.e.*, Zhytomyr, 2021.

Ivanova, Tsimidanov 2004: S. V. Ivanova, V. V. Tsimidanov, *Voinstvo v yamnom obschestve Severo-Zapadnogo Prichernomorya*, Drevnosti, 2004, p. 133–140.

Lytvynenko 2019: R. A. Lytvynenko, *War and the Post-Catacomb World,* Stratum plus 2, 2019, p. 333–442.

Lytvynenko 2020: R. A. Lytvynenko, *Post-Catacomb Period in Eastern Europe: Migration or Military Campaigns*, Stratum plus 2, 2020, p. 313–334.

Otroschenko, Rassamakin, Chernykh 2008: V. V. Otroschenko, Yu. Ya. Rassamakin, L. A. Chernykh, *Doba bronzy na terenah Ukraiiny*, Ukraina. Khronologiya rozviyk, tom 1, Kyiv, 2008, p. 219–331.

Razumov 2011: S. Razumov, *Flint artefacts of Northern Pontic populations of the Early and Middle Bronze Age: 3200 – 1600 BC (based on burial materials)*, Baltic-Pontic Studies 16, 2011.

Rechsteiner 2021: A. Rechsteiner, *Birth of the Warriors.* https://blog.nationalmuseum.ch/en/2021/09/birth-of-the-warriors/.

Savva 1992: E. N. Savva, *Kultura mnogovalikovoy keramiki Dnestrovsko-Prutskogo mezhdurechya*, Chișinău, 1992.

Sava, Agulnikov, Manzura 2019: E. Sava, S. Agulnikov, I. Manzura, *Issledovaniya kurganov v Budzhakskoy stepi (1980–1985 gg)*, Biblioteca Tyragetia 30, Chișinău, 2019.

Saxe 1970: A. A. Saxe, *Social dimensions of mortuary practices*, PhD Thesis, University of Michigan, 1970. https://dx.doi.org/10.7302/10451

Schroeder *et alii* 2019: H. Schroeder, A. Margaryan, M. Szmyt, B. Theulot, P. Włodarczak, S. Rasmussen, S. Gopalakrishnan, A. Szczepanek, T. Konopka, T. Z. T. Jensen, B. Witkowska, S. Wilk, M. M. Przybyła, Ł. Pospieszny, K.-G. Sjögren, Z. Belka, J. Olsen, K. Kristiansen, E. Willerslev, K. M. Frei, M. Sikora, N. N. Johannsen, M. E. Allentoft, *Unraveling ancestry, kinship, and violence in a Late Neolithic mass grave*, Proceedings of the National Academy of Sciences of the United States of America 116, 22, 2019, p. 10705–10710. https://doi.org/10.1073/pnas.1820210116.

Sinika, Razumov, Telnov 2016: V. S. Sinika, S. N. Razumov, N. P. Telnov, *Arkheologicheskoe nasledie* Pridnestrovia, Tiraspol, 2016.

Subbotin 2000: L. V. Subbotin, *Severo-Zapadnoe Prichernomorye v epohu ranney i sredney bronzy*, Stratum plus 2, 2000, p. 350–387.

Subbotin, Toschev 2002: L. V. Subbotin, G. N. Toschev, *Arheologicheskie drevnosti Budzhaka. Kurgannaya gruppa u s. Liman*, Zaporozhye, 2002.

Subbotin, Razumov, Sinika 2017: Subbotin L. V., Razumov S. N., Sinika V. S., *Semenovske kurgany.* Tiraspol, 2017.

Subbotin, Sapozhnikov, Subbotin 2001–2002: L. V. Subbotin, I. V. Sapozhnikov, A. V. Subbotin, *Kurgannyi mogilnik Diviziya II v mezhdurechye Hadzhidera i Alkalii*, Stratum plus 2, 2001–2002, p. 563–581.

Tainter 1975: J. Tainter, *Social inference and mortuary practices: an experiment in numerical classification*, World archaeology 7, 1975, p. 1–15. https://doi.org/10.1080/00438243.1975.9979617.

Thorpe 2003: I. J. N. Thorpe, *Anthropology, archaeology, and the origin of warfare*, World Archaeology 35, 1, 2003, p. 145–165. https://doi.org/10.1080/0043824032000079198.

Topal 2022: D. Topal, *Hauptmerkmale der Jamnaja-Grabhügel im nordwestpontischen Gebiet / Main characteristics of the Yamnaya barrows in the North-West Pontic area,* Communication for the Trilateral Research Conference: MOBAB, Mobility in the Balkans during the Bronze Age, Villa Vigoni, Loveno di Menaggio, Italy, April 2022.

Toschev 1979: G. N. Toschev, *O kulturno-khronologicheskom sootnoshenii yamnyh i katakombnyh pogrebeniy Severo-Zapadnogo Prichernomorya*, Problemy epohi bronzy yuga Vostochnoy Evropyi: tezisy dokladov konferentsii, Donetsk, 1979, p. 36–37.

Ushkova, Kozak 2011: Yu. V. Ushkova, O. D. Kozak, *Travmy i trepanatsii na cherepah z pohovan yamnoi kulturno-istorichnoi spilnosti. Magisterium*, Archeologichni Studii 45, 2011, p. 29–34.

Ushkova, Kozak 2024: Yu. Ushkova, O. Kozak, *Cranial surgery in the North Pontic region during the 3rd millennium BC*, Anthropologischer Anzeiger 81, 4, 2024, p. 449–466. https://doi.org/10.1127/anthranz/2024/1717.

Wentink 2020: K. Wentink, *Stereotype. The Role of Grave Sets in Corded Ware and Bell Beaker Funerary Practices*, Leiden, 2020.

Wilkin *et alii* 2021: S. Wilkin, A. Ventresca Miller, R. Fernandes, R. Spengler, W. T.-T. Taylor, D. R. Brown, D. Reich, D. J. Kennett, B. J. Culleton, L. Kunz, C. Fortes, A. Kitova, P. Kuznetsov, A. Epimakhov, V. F. Zaibert, A. K. Outram, E. Kitov, A. Khokhlov, D. Anthony, N. Boivin, *Dairying enabled Early Bronze Age Yamnaya steppe expansions*, Nature 598, 2021, p. 629–633. https://doi.org/10.1038/s41586-021-03798-4.

Włodarczak 2021: P. Włodarczak, *Eneolithic and Early Bronze Age barrows in Vojvodina*. In: P. Jarosz, J. Koledin, P. Włodarczak (Eds.), *Danubian route of the Yamna culture. The barrows of Vojvodina*, Yamnaya Impact on Prehistoric Europe, vol. 3, Budapest, 2021, p. 215–256.

Yarovoy 1985: E. V. Yarovoy, *Drevneyshie skotovodcheskie plemena yugo-zapada SSSR (klassifikatsiya pogrebalnogo obriada)*, Chișinău, 1985.

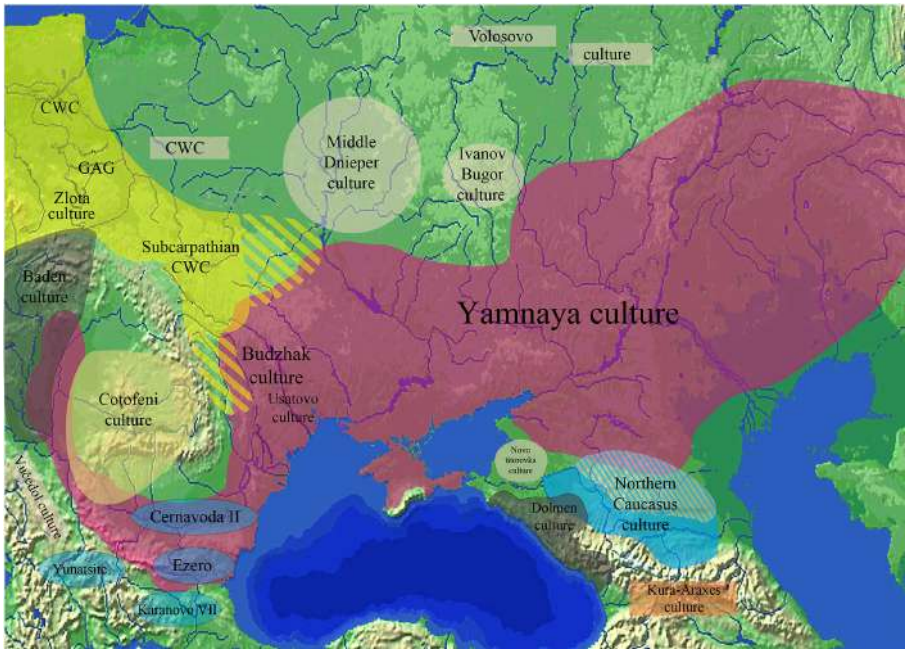
Yarovoy 1990: E. V. Yarovoy, *Kurgany epohi eneolita-bronzy Nizhnego Podnestrovya*, Chișinău, 1990.

Yarovoy 2000: E. V. Yarovoy, *Skotovodcheskoe naselenie Severo-Zapadnogo Prichernomorya epokhi rannego metalla*, Dissertatsiya na soiskanie uchenoy stepeni doktora istoricheskikh nauk, Institut arkheologii, Moscow, 2000.

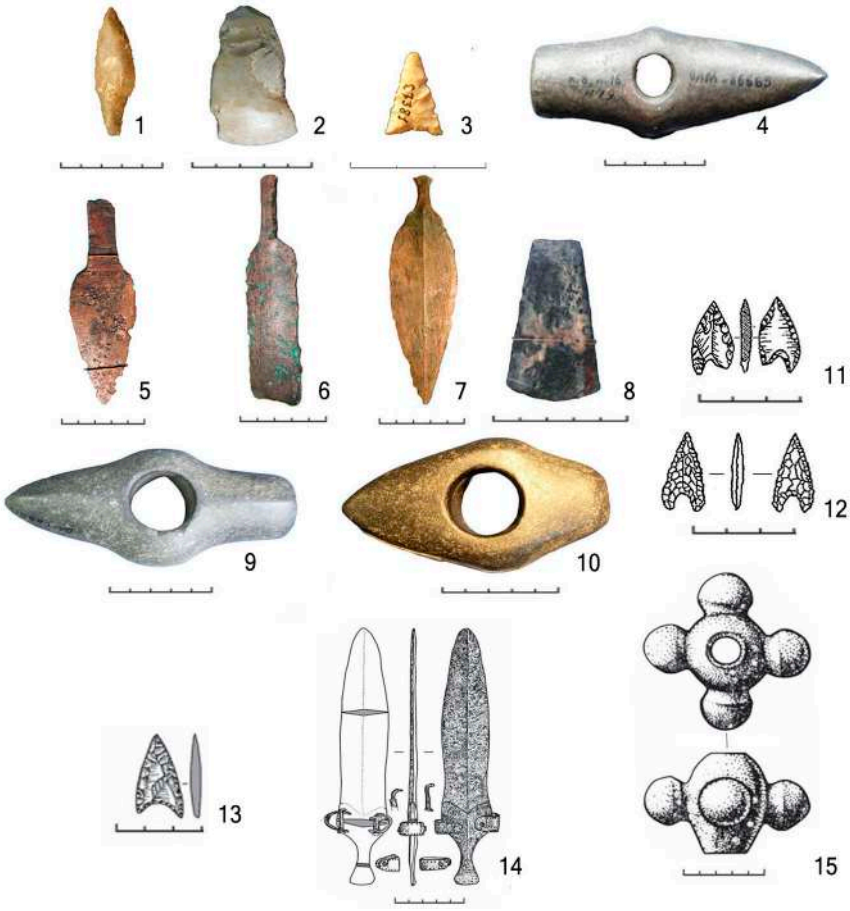


Pl. I. Evidence of violence and militarisation. 1–2. Mass grave at Koszyce, site 2, feature 523, southern Poland (after Schroeder *et alii* 2019); 3–4. Male stelae with necklace, hatchets, daggers, battle axes and multi-row belt. Limestone, 3000–2500 BC, Italy, Trentino-Alto Adige, Arco (after Rechsteiner 2021).

Pl. I. Dovezi ale violenței și militarizării. 1–2. Groapă comună de la Koszyce, situl 2, complexul 523, sudul Poloniei (după Schroeder *et alii* 2019); 3–4. Stelă antropomorfă masculină cu colier, securi, pumnale, topoare de luptă și centură cu mai multe rânduri. Calcar, 3000–2500 BC, Italia, Trentino-Alto Adige, Arco (după Rechsteiner 2021).

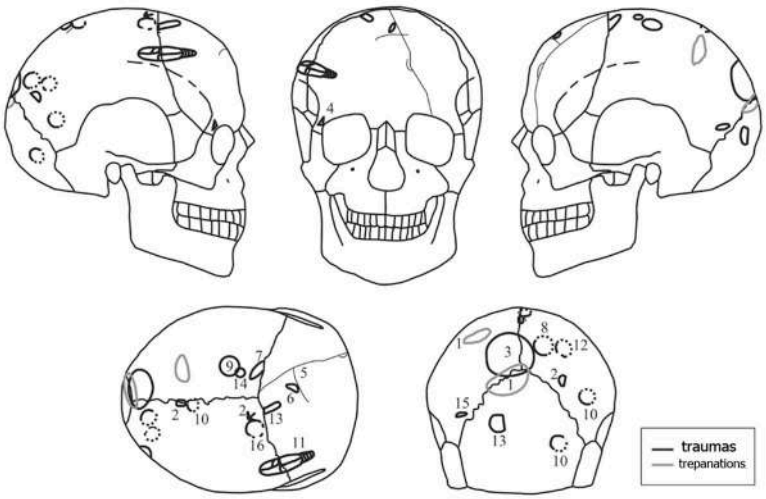


Pl. II. Map with the distribution area of the Yamna Culture (Ivanova 2021).
Pl. II. Harta cu zona de distribuție a culturii Iamna (după Ivanova 2021).



Pl. III. Weapons of Yamna (1–8), Catacomb (9–12) and Babyne Cultures (13–15) of Northern-West Pontic area. 1. Dyvizia 6/3; 2. Semenivka 8/13; 3. Artsyz 1/18; 4. Semenivka 8/16; 5. Frikatsey 4/12 (1–5. photo by S. Ivanova); 6. Taraclia II, 10/19 (after Sava, Agulnikov, Manzura 2019); 7. Cazaclia 16/4 (after Sava, Agulnikov, Manzura 2019); 8. Alkalia 35/6 (Odessa Archaeological Museum); 9. Kholmske 2/24; 10. Yasski 2/14 (9–10. photo by S. Ivanova); 11. Dyvizia II, 5/4 (after Subbotin, Sapozhnikov, Subbotin 2001–2002); 12. Kuzmin 2/5 (after Bubulici, Haheu 2002); 13. Răscăieții Noi 1/15 (after Yarovoy 1990); 14. Cuconeștii Vechi 9/28 (after Savva 1992); 15. Semenivka 8/1 (after Subbotin, Razumov, Sinika 2017).

Pl. III. Arme ale culturilor Iamna (1–8), Katakombnaia (9–12) și Babino (13–15) din zona nord-vest Pontică. 1. Dyvizia 6/3; 2. Semenivka 8/13; 3. Artsyz 1/18; 4. Semenivka 8/16; 5. Frikatsey 4/12 (1–5. fotografii S. Ivanova); 6. Taraclia II, 10/19 (după Sava, Agulnikov, Manzura 2019); 7. Cazaclia 16/4 (după Sava, Agulnikov, Manzura 2019); 8. Alkalia 35/6 (Muzeul de Arheologie din Odesa); 9. Kholmske 2/24; 10. Yasski 2/14 (9–10. fotografii S. Ivanova); 11. Dyvizia II, 5/4 (după Subbotin, Sapozhnikov, Subbotin 2001–2002); 12. Kuzmin 2/5 (după Bubulici, Haheu 2002); 13. Răscăieții Noi 1/15 (după Yarovoy 1990); 14. Cuconeștii Vechi 9/28 (după Savva 1992); 15. Semenivka 8/1 (după Subbotin, Razumov, Sinika 2017).

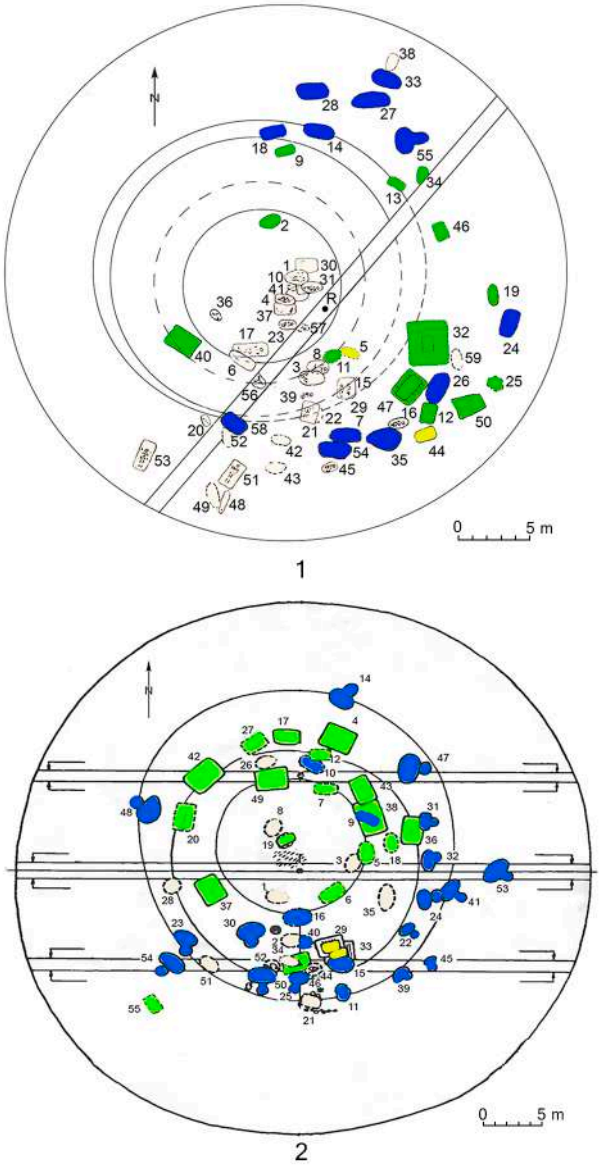


1

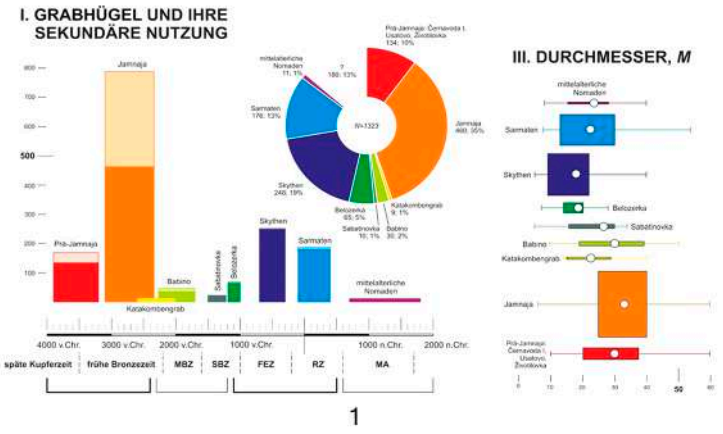


2

Pl. IV. Traumas and weapons. 1. Traumas and trepanations of skulls from Yamna graves of Ukraine (including North-West Black Sea region) (after Ushkova, Kozak 2011); 2. Flint arrowhead in man's hyoid bone, Hlinaia "Sad" 1/6 (after Sinika, Razumov, Telnov 2016).
Pl. IV. Traumatisme și arme. 1. Traumatisme și trepanații ale craniilor din mormintele Iamna din Ucraina (inclusiv regiunea de nord-vest a Mării Negre) (după Ushkova, Kozak 2011); 2. Vârf de săgeată din silex în osul hyoid al individului, Hlinaia „Sad" 1/6 (după Sinika, Razumov, Telnov 2016).



Pl. V. Planigraphy of barrows with graves (green – Budzhak Culture, blue – Catacomb Culture; yellow – Babyne Culture). 1. Prymorske, kurgan 1 (after Chebotarenko, Cherniakov, Toschev 1993); 2. Vyshneve, kurgan 17 (after Dvorianinov, Dzigovskiy, Subbotin 1985).
Pl. V. Planigrafia tumulilor și a mormintelor (verde – cultura Bugeac, albastru – cultura Katakombnaia; galben – cultura Babino). 1. Prymorske, kurgan 1 (după Chebotarenko, Cherniakov, Toschev 1993); 2. Vyshneve, kurgan 17 (după Dvorianinov, Dzigovskiy, Subbotin 1985).



Pl. VI. Northwestern Pontic kurgans and graves. 1. The ratio of kurgans of the North-West Black Sea region built by people of different cultures (after Topal 2022); 2. "Budzhak jar" in Catacomb grave, Vyshneve 17/31 (after Dvorianinov, Dzigovskiy, Subbotin 1985); 3. "Budzhak amphora" in Catacomb grave, Lyman 2/4 (after Subbotin, Toschev 2002).
Pl. VI. Tumuli și morminte în spațiul nord-vest Pontic. 1. Raportul tumulilor din regiunea nord-vestică a Mării Negre construiți de comunitățile diverselor culturi (după Topal 2022); 2. „Vas Bugeac" în mormânt Katakombnaia, Vyshneve 17/31 (după Dvorianinov, Dzigovskiy, Subbotin 1985); 3. „Amforă Bugeac" în mormânt Katakombnaia, Lyman 2/4 (după Subbotin, Toschev 2002).