# 'Neolithisation' in the NE Sea of Azov region: one step forward, two steps back?

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ABSTRACT – *In this paper we present the migratory nature of an initial Neolithisation in the Sea of Azov area on the basis of an analysis of comparatively new and a revision of old materials from the Early Neolithic period. As the 'ancestral land' of elements of the Neolithic package, the region of Zagros Mountains is considered, from where communication with Lower Don across the Caucasian coast of the Black Sea and Sea of Azov or by sea took place in the PPNB period. It seems that infiltration did not lead to a strong Neolithic transformation as seen in other regions 'secondary Neolithisation',* e.g.*, in Europe. The choice of a place for repeated occupation, the organisation of the living area, way of life, subsistence, and perception of the world, for a long time remained typical of the foragers of river valleys, lake, and coastal areas of Europe. This pattern probably continued until the large-scale human movements of the Copper Age.*

IZVLEČEK – *V članku predstavljamo migracijsko naravo začetne neolitizacije v Azovskem morju na podlagi analize relativno novega in revizijo starega materiala iz obdobja zgodnjega neolitika. Elemente neolitskega paketa, ki prihajajo iz območja gorovja Zagros, razumemo kot 'deželo prednikov'; iz tega območja so v obdobju PPNB potekale komunikacije po kopnem ali po morju čez spodnji tok reke Don ter preko kavkaške obale Črnega in Azovskega morja. Opažamo, da infliltracija ni prinesla močne neolitske spremembe kot jo lahko opazujemo v drugih regijah kot pojav 'sekundarne neolitizacije' npr. v Evropi. Izbor prostora za ponavljajočo poselitev, organizacija življenjskega prostora, način življenja, gospodarstvo in percepcija sveta sta dolgo časa ostala tipična za nabiralniške skupnosti rečnih dolin, jezer in obalnih območij v Evropi. Ta vzorec se je verjetno nadaljeval do časa obsežnih premikov ljudstev v času bakrene dobe.*

KEY WORDS – *Sea of Azov region; Middle East; Neolithic; Neolithisation*

## The puzzle of Neolithisation in the Sea of Azov area

There are different ways of elaborating the cognitive scientific process. In the most ordinary way, information grows in the framework of a single stable scientific paradigm. Sometimes, new data conflict with old paradigms and a search of the way out of the epistemological impasse ultimately leads to change.

It seems to us that this latter process occurred in the study of the Neolithisation process in the north-east of the Sea of Azov region. The evidence from multilayer Early Neolithic settlements such as Rakushechnyi Yar, Matveev Kurgan I and II, and Razdorskaya 2 (Fig. 1), which was published separately many times in scientific literature (*Krizhevskaya 1991; Belanovskaya 1995; Wechler 2001; Tsybrij 2008; Aleksandrovsky* et al. *2009*) already does not correspond with many parameters with the old prevailing schema of the development of the Early-Middle Holocene cultures of the southern part of East Europe (*Danilenko 1969; Belanovskaya, Telegin 1996; Kotova 2003*). This had many causes.

First of all, according to recent evidence (*Aleksandrovsky* et al. *2009.89–98; Tsybrij* et al. *2013.272–*

DOI: 10.4312/dp.43.6

*274; Mazurkevitch, Dolbunova 2013.96*) we can assume that the first indication of the Neolithic period in the northern area of the Sea of Asov region appeared at *c.* 7200–7000 cal BC, which is much earlier than previously thought. At this time, most of the Mesolithic stage of the elaboration took place in Europe. This raises the question of how such early manifestations of the Neolithic were possible in this area of Eastern Europe.


***Fig. 1. Neolithic sites of the North-East of the Sea of the Asov region and of the adjacent areas.***

Secondly, a problem of the logical and chronological discordance of different kinds of data appeared. For instance, it is clear that some of the settlements (*e.g.*, Matveev Kurgan I and II, Razdorskaya 2) were aceramic, *i.e.* they did not yield any pottery, although it was found in wide technological and typological diversity at the more or less contemporary settlement of Rakushechnyi Yar nearby (*Belanovskaya 1995; Mazurkevich, Dolbunova 2015*). At the same time, aceramic settlements have miscellanies traces of the use of clay, such as fragments of plaster of 'wattle and daub' constructions, remains of clay oven and other structures, impressions of stakes in burned clay fragments (remains of clay wall plaster?), anthropomorphic, zoomorphic figurines, and geometric tokens. The only probable evidence of wattle and daub constructions was in the Neolithic layers of Rakushechnyi Yar. It is important to notice that the aceramic stage as such has not been observed anywhere in the Mesolithic and Neolithic of East Europe, but was a representative feature of Neolithisation in South-West Asia, especially in the Fertile Crescent.

The data on agricultural subsistence practices at the above-mentioned settlements were also strikingly contradictory.

In contrast to Rakushechnyi Yar and Matveev Kurgan I and II, which after determinations of some archaeozooligists, contained bones of all the staple livestock in the Neolithic (*Krizhevskaya 1991; Belanovskaya 1995*), they were completely absent in the adjacent Rakushechnyi Yar settlement Razdorskaya 2 (*Gorelik* et al. *2013.296*). Here, with the background of the predominant riverine economy, with subsistence based on fish and shellfish, various wild animal bones were also encountered. No assumptions about Neolithic cultivation in the region were confirmed (*Matuzaite-Matuzeviciute 2012.1–21*).

Our paper is intended to characterise our conception of Neolithisation in the Asov Sea region based on the current state of knowledge. Firstly, we address the problem of the emergence of a certain cultural tradition, which are defined by material from Razdorskaya 2, Matveev Kurgan I and II, as well as Rakushechnyi Yar. Furthermore, we analyse different types of subsistence in the region, the general evolving process of material production, including pottery, the role of different aspects of social organisation, and ideology in the specific setting of Neolithisation in this region.

## Living space

There are many instances when a certain choice (concept) of living space played an important cultural role in prehistory (*Müller 2013.133–153*). It reflected not only predominant economic strategies, but also, probably, the distinctiveness of the people. The inhabitants of Early Neolithic settlements in the north-east of the Sea of Azov region were uncommonly conservative in their choice of settlement sites. For example, according to the radiocarbon dat-

ing (Fig. 2) precisely the same place in the Lower Don valley was used for some thousands of years. Usually, the preference was for lower topographic levels, wet areas near a river, which flooded in spring and sometimes in autumn (Fig. 3). The predominant riverine economy caused the sedimentation of shell matrix sites in these places. In the northeast area of the Sea of Azov two concentrated or densely populated regions with such settlements are known (Fig. 1). One of these, in the Lower Don valley, features multi-layered sites such as Razdorskaya 1 and 2, and Rakushechnyi Yar at N 47°33'41.03"; E40°31.89'; the second, in the Mius river valley, includes approximately seven campsites near Matveev Kurgan modern settlement at N 47°34'20"; E38°52'20". The main ones are Matveev Kurgan I and II.

Both rivers, Mius and Don flow into the Sea of Azov, which was extraordinarily rich in fish, especially different species of sturgeon (*Janovskiy 2001*). The sites are situated about 100km away from the modern coastline. In the Holocene between (11th–6th millennium BP), the Sea of Azov, as part of the Black Sea basin, underwent a sustained transgression of its surface, which was 3.5 to 4m lower than at present, with an ensuing flood of the coastal shelf (*Balabanov 2007.715*). There are different scenarios of transgression of the Black Sea level, with both a rapid and gradual flooding of the coastal shelf (*Ryan 2007.63–117; Balabanov 2007.711–730; Glebov, Shel'ting 2007.731–773*). 'The Black Sea flood' probably significantly changed the line of the shore; it certainly flooded settlements nearby and the borders of arable land. Apparently, the coastline and the river together with gallery forests became involved in a specific natural framework that became the catchment zone of the populations related to the settlements discussed above. Arboreal vegetation in the Sea of Azov is now almost absent.

***Fig. 2. Settlement Rakushechnyj Yar. Profile of the 2008 excavation.***

However, at the time of the sedimentation of the cultural layer of Neolithic settlements, based on the anthracological and palynological analysis, pine, black alder, birch, maple, hazel, oak, elm, and ash trees grew in the river valleys and the ravines in insignificant amounts (*Levkovskaya 1992.174–177; Borisova 2011.5–13*). At the same time, it is obvious that steppe vegetation predominated. On the evidence from Olga K. Borisova, throughout the history of the sedimentation of the multi-layered Lower Don settlement at Rakushechnyi Yar, steppe vegetation was preponderant (*Borisova 2011.5–13*).

***Fig. 3. Settlement Rakushechnyj Yar. A view on the settlement.***

The climate of this region is moderate and continental, with cold and windy winters, and hot and dry sum-

mers. In the Neolithic, it was milder and damper. The coolest conditions are found at the end of the Boreal period and at the beginning of an Atlantic period, *i.e.* contemporaneous with the oldest traces of occupation in this region (Razdorskaya 2 and the oldest levels of Rakushechnyi Yar). This short-term cooling with a reduction in humidity occurred throughout the Azov-Black Sea basin (*Shuisky 2007.262*). In comparison with the later Holocene, this period is marked by the widest distribution of pine and birch forest, with probably a small mixture of oak and elm. The climatic optimum of the Holocene in the Atlantic period was characterised by warming, increasing humidity, and a decrease of continental climate effect. This period saw the spread of mesophyten meadow associations and an extension of broad-leaved woodland. It is possible that the humidity peculiar to this time throughout Europe was considerably increased by the transgression of the Black Sea and the Sea of Azov (*Levkovskaja 1992.175*).

From the perspective of cultural and prehistoric contacts, the North Azov plain was part of the so-called 'circum-Pontic interaction sphere' (cit. after *Whittle 1996.131*). Settlements were located at the confluences of rivers, and pathways that led in almost all periods of history (with a small exception) to the Caucasus, the basin of the Caspian Sea, Central Asia, the Balkans and central regions of the east European plain. The settlements of the Lower Don basin were situated at a special point of the Don which stands out by a confluence of inflows connecting the valley of the river with adjacent geographical areas such as the steppe, which had their own historical and cultural development (Fig. 1). The Severski Donets River flowing from the north connects the Don to the forest-steppe zone between the Dnepr and the Don. The Sal and the Mius rivers, which rise in the Kalmykia steppe, are southern tributaries of the Don. Routes to the dry steppes and semi-deserts of the Lower Volga area and into the North Caucasus could lie along these rivers. There are some outcrops of argillite, carbonic slate, and sandstone, as well as cretaceous Turonian and Coniacian flint in relative proximity to Neolithic settlements. Some of these were already exploited by earlier cultures (*Boriskovskij 1957.135–145*).

## The question of emergence

The earliest materials from the group of Neolithic settlements considered have a lot of similar features, not only in the choice of living space, and the character of the cultural layer, but also in the composition of the assemblage. In this respect, they are very different from contemporary sites in the Pontic-Caspian basin. They are culturally identified through numerous artefacts made of argillite, including fishing weights, polished axes/celts, chisels and pendants, predominantly flint artefacts such as scrapers, bores, axes/celts, chisels, and also geometric microliths (Fig. 4). Most of the latter are trapezes, but segments and isosceles triangles were encountered at Razdorskaya 2. The pressure technique of the core-blade technology is worth noting, with knapping on one-side of the wide and flat prismatic detachment surface of the core.

It should be noted that, despite the comparatively large number of radiocarbon dates (Fig. 5), the chronology is still not clear, especially of the earliest manifestations of this cultural phenomenon. There are discrepancies in separate dates compared with the stratigraphic sequence of multi-layered sites, a disparity in the dates taken from one layer, since the samples were obtained from various organic materials, or the same samples yielded different dates depending in which laboratory they were dated, *etc.* (*Tsybrij 2008.52–53; Tsybrij* et al. *2013.272–274*). In many respects, these problems are probably caused by inadequate sampling methods, deficiencies in field research, the influence of the reservoir effect, as well as old wood effect, *etc*. Sometimes the sequence of development of the material culture based on some dates from our field of research do not match the logic and sequence established in some large cultural and historical regions by modern and highly professional research. For instance, in the Middle East, the developmental stage of pottery manufacture was preceded by the use of clay for wattle and daub constructions, and producing tokens and figurines (*Mellaart 1975.53, 62; Kozłowski 1999.33; Thissen 2007.218–219; Özdoğan 2009. 22–43*). The dates of the aceramic complexes at Matveev Kurgan I, excavated in the 1970s-80s, contradict this sequence. They are younger than the pottery layers at Rakushechnyi Yar, having more ancient radio carbon dates. On the other hand, pottery was absent from the assemblage at Razdorskaya 2, which is chronologically close to the pottery layers at Rakushechnyi Yar (*Tsybrij 2008.26–35*).

Nevertheless, despite all the incongruities in the radiocarbon data, it is possible in a very rough form to present the following occupation sequence of the north-east Sea of Azov region (Fig. 5). The emergence of the regional group here (we will call it the Rakushechnyi Yar group or culture, following Tatyana D.

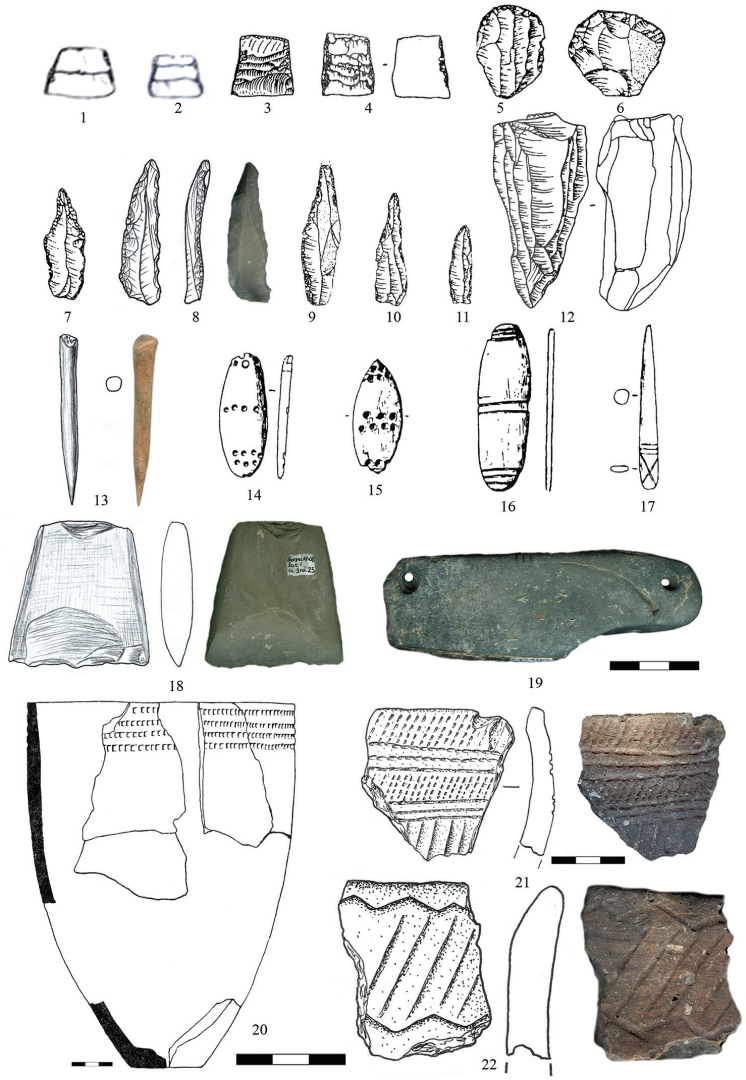

***Fig. 4. Rakushechnyj Yar culture. Set of the most characteristic types of artefacts.***

Belanovskaya (*1995.173*)) occurred approximately in the range from 7200 to 6500 BC. At the aceramic stage of development, clay was used as a building material and for the production of figurines and tokens. Perhaps since 6500 BC, a ceramic stage of the local Neolithic period had begun, which continued within the framework of a single ceramic tradition occurring, according to the estimates of one group of researchers, at some point prior to 6000 BC (*Mazurkevitch, Dolbunova 2013.98*), or according to the assumptions of others, very roughly prior to around 5500 BC (*Belanovskaya, Timofeev 2003.15; Kotova 2003. App. 1*).

Various considerations have been expressed in the literature concerning the emergence of the Rakushechnyi Yar cultural tradition. According to Liya Ya. Krizhevskaya, who excavated the settlements at Matveev Kurgan I and II and identified the Early Neolithic Matveev Kurgan culture, the main role in its origin was played by former bearers of the Grebenniki culture (*Krizhevskaya 1991.115*). This view was supported in the work of Leonid L. Zaliznyak, who considered that both the Grebeniki and Murzak-koba culture of the Mountain Crimea, as well as Matveev Kurgan I and II were links in proto-Neolithic migration across the sea from the Balkans and Asia Minor in the second half of the 7th millennium (*Zaliznyak 2009. 181*). Belanovskaya, who identified Rakushechnyi Yar culture after the excavation of the multi-layered settlement at the eponymous site Rakushechnyi Yar on the Lower Don, thought its formation was a result of interaction between various cultural influences, such as the Dnepr-Donec cultures in the West from the Sursk side and the Samara und Agidel' cultures in the East from the steppe regions as well as the Ural mountains (*Belanovskaya 1995.176*). Under the influences of the Caucasian traditions, following Belanovskaya, the following features appeared, *e.g.*, rare decorated flat-base vessels, cores flattened in cross-section, polished axes/celts, and chisels, trapezes with a flat dorsal retouch (*Belanovskaya 1995.174, 180–183*).

Viktor V. Tsybrij assumed that materials from Razdorskaya 2, which are situated close to Rakushechnyi Yar, evolved on the same basis as the Matveev Kurgan assemblage, and he suggested continuity between Razdorskaya 2 and Rakushechnyi Yar (*Tsybrij 2008.59*).

Starting with Alexander A. Formozov and Valentin N. Danilenko, many researchers assumed that southern impulses extending from West Asia through the Caucasian coast of the Black Sea in steppe of Pontic-Caspian were significant factors in the Neolithisation of this region (*Formozov 1962; 1965; 1977.47–48; Danilenko 1969.18; Domanska 1990; Wechler 2001. 244–245; Kotova 2003. 7.2.2; Mazurkevich, Dolbunova 2012.149; 2015. 23*).

The value of this hypothesis was supported by a new impulse from the progress of research in archa-

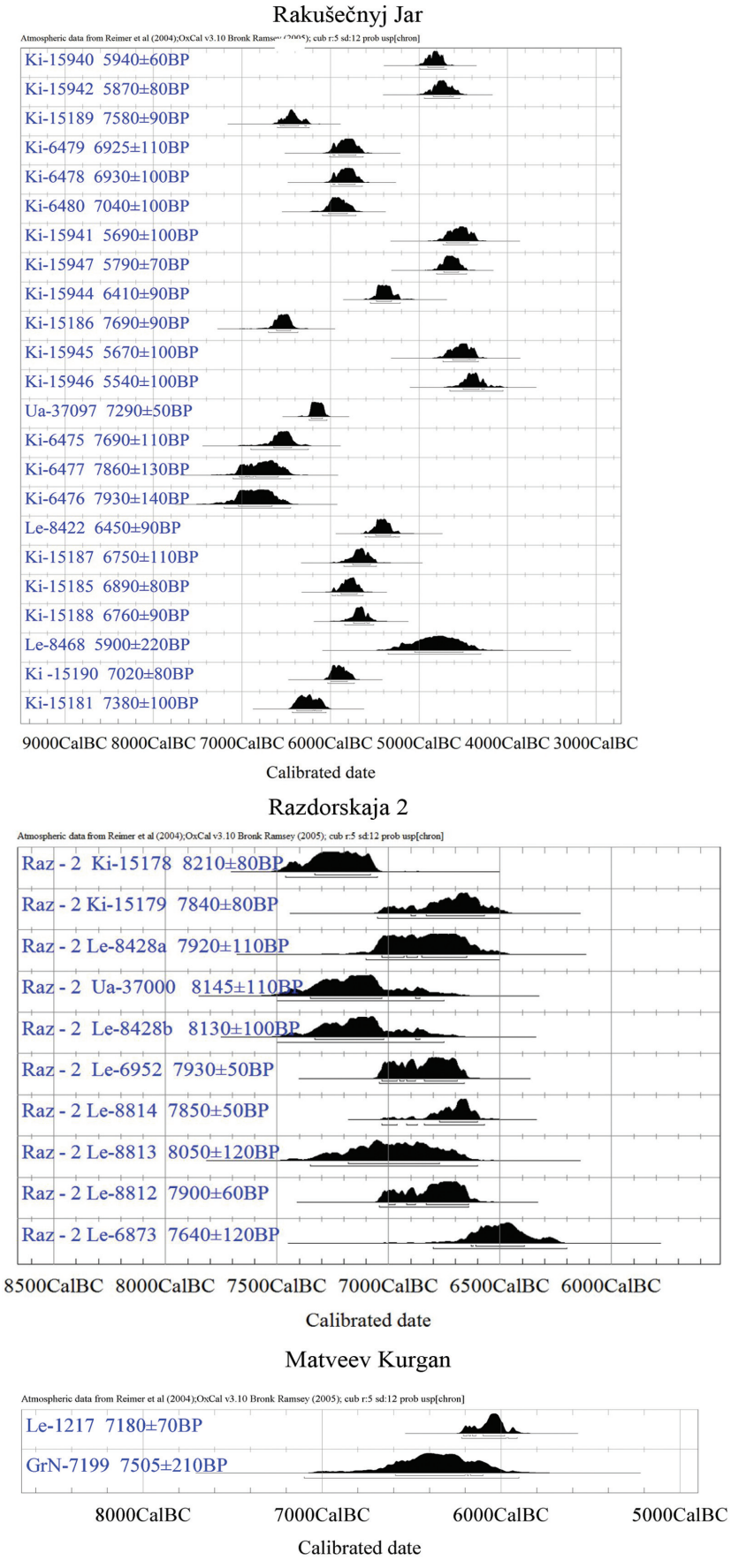


***Fig. 5. Graphic image of frequencies of the radiocarbon dates of the main sites.***

eozoology and genetics. According to modern paleopopulation genetics, all four species basic to the Neolithic – sheep, goats, pigs and cattle – were domesticated in the Middle East and then spread in different ways, including via the Caucasian route, into Europe (*Scheu 2012.123; Geörg 201.119, 134*).

Some believe that the richest potential of the Caucasian environment lay in possible allochthones, which was a basis for primary Neolithisation in this region, which in turn played the role of a springboard for the secondary Neolithisation in adjacent regions of East Europe (*Vavilov 1965; Munčaev 1975; Amirchanov 1987; Kušnareva 1993; Shnirelman 1989. 83–96; Dolukhanov 1984.323–358; Jacobs 1993. 322*). The current stage of investigations of Early Neolithic settlements in the Sea of Azov area provides an opportunity to clarify our ideas about the emergence of the cultural tradition of the Rakushechnyi Yar group. If we expected the oldest phenomena of this tradition to date to the end of 8th / first half of the 7th millennia BC, according to the chronology of typical shell mounds in the Azov region such as at Razdorskaya 2 and Rakushechnyi Yar, then claims about the decisive importance of the Balkan region for the Neolithisation of the region are very doubtful. The chronology of the oldest Early Neolithic sites in the Balkan region, such as Sesklo, Argissa, Nea-Nekomedea, Francie, *etc*. (*Perles 2001. Tab. 5.3; Thissen 2005.29–40*), indicates that these settlements appeared either roughly at the same time as the Early Neolithic in the foreland of the Azov Sea, or even somewhat later. There are a few features in common between them which could be evidence of their relationship. The assemblages of the Grebenniki culture, according to the newest radiocarbon dates from the Mirnoye site, date to the second half of the 8th millennium cal BC (*Biagi, Kiosak 2010.29–31*). Consequently, they appeared much earlier than the proto-Neolithic in the Balkans, according to the Ukrainian archeologist Leonid L. Zaliznjak, from which they supposedly derived. The first site-camps of the Murzak-Coba culture appeared at just about the same time, judging from the chronology of the Crimean Mesolithic site Laspi 7 (*Biagi, Kiosak 2010.29–31*). The similarities between the assemblages of the Grebenniki and Razdorskaya 2 sites are limited to features which were of transcultural importance around the 7th millennium cal BC (*Tsybrij* et al. *2013.282; Gorelik* et al. *2014.255*).

The other directions of comparison – the Caucasus and Western Asia – seem to us much more promising. It has been established that already from the beginning of the 6th millennium cal BC in Transcaucasia, the Shomutepe/Shulaveri culture expanded, that included classic Near Eastern characteristics such as clay architecture and ceramics, geometrical clay tokens and anthropomorphic figurines, developed agriculture,polished and soft stone industry, and technology of pressure core-blade production (*Lyonnet* et al. *2012.1–190; Nishiaki* et al. *2015.1–28*). As this new cultural complex of the Neolithic period, despite some parallels with northern Mesopotamia, has no full counterparts in Southwest Asia, many researchers believe that the local Caucasian manifestations of an early autochthonous 'Neolithisation' which had occurred still in the 7th millennium cal BC, had an impact on its formation. Materials from the central Caucasian settlement at Chokh, as well as West Caucasian sites at Darkveti and Anaseuli 1, *etc.*, allegedly date to this time. The Neolithic layer of the Choch settlement comprised definite traces of a productive economy: the bones of domestic animals such as sheep and goat and probably cattle as well as grains of several varieties of cultivated wheat and barley (*Amirchanov 1987.145–153*).

Information about the Early Neolithic in Western Georgia is less certain. Allegedly, domesticated animals were represented in layer 4 of the shelter site at Darkveti (*Kushnareva 1993.172–189*), although this was doubted by Victor Shnirelman (*Shnirelman 1989.94*). Moreover, in the Mesolithic and the aceramic layers of the neighbouring cave site at Kotias Klde, modern research has identified only wild fauna (*Meshveliani* et al. *2007*). Recent archaeological investigations in the Black Sea region of Georgia have not revealed any traces of a productive economy at late Stone Age sites (*Matskevitch, Meshveliani 2009; Meshveliani 2013*). Doubts on the emergence of a productive economy in the Caucasus during the period preceding the appearance of the Shomutepe-Shulaveri culture have increased. The voices of optimists, who are still defending the notion of agricultural development (local cultivation of different kinds of millet and rye) already in the aceramic Neolithic of the Western Caucasus (*Nebieridze, Tskwinitidze 2012.62–63*), are confronted by those who consider that there was no Neolithic in the Western Caucasus at all (*Trifonov 2009.84–93*). Nevertheless, regarding Transcaucasia, the probability of discovering traces of a productive economy in the region adjacent to the south-western part of the Caspian Sea region by the end of the 8th or the beginning of the 7th millennia cal BC is considered high (it is highly probable that traces will be found in the near future) (*Arimura* et al. *2010.85; Lyonnet* et al. *2012.*

*155, 178*). Unfortunately, sites dating to the transitional period between the Mesolithic to the Neolithic in the Caucasus have not been fully investigated, and the time for definitive judgments about cultural development has not yet arrived. One thing we can say for sure: the manufacture of some forms of stone artefacts in the Caucasus had a considerably long tradition, which is why the distribution of these forms outside the Caucasus to adjacent regions might be important for studying ancient communication routes. In particular, geometrical microliths with a distinct bilateral retouching, including segments, trapezes, symmetric triangles, were made in the Caucasus from the Final Palaeolithic period (*Formozov 1965.Fig. 20; Amirchanov 1987.197; Leonova 2009. 105*). Their further development was followed by the Mesolithic of the North Caucasus (*Leonova 2009. 106; Rostunov* et al. *2009.42–74*), Western Caucasus (*Meshveliani* et al. *2007.52*) and Transcaucasia (*Arimura* et al. *2009.Figs. 3, 7, 8*), as well as a little later period, such as probably throughout the 6th millennium cal BC at aceramic Neolithic sites in Western Georgia, such as Odishi-Nizhnyaya Shilovka, and ceramic Neolithic sites, such as Anaseuli 2 (*Nebieridze 1972*). Geometrical microliths with bilateral retouching are widespread in the Mesolithic-Neolithic period throughout the area from Fore-Caucasus to the North Caspian, between the Lower Don and Lower Volga valleys (*Tsybrii 2003.41–55; Gorelik, Cybrij 2007.21–42; Vybornov 2008*). They were encountered in particular in the Lower Don at Razdorskaya 2 (segments, trapezes and triangles) (*Tsybrij 2008.Fig. 43*). This distribution pattern probably reflects different cultural impulses to the south of the east European plain, which were directed from various regions of the Caucasus. Apparently, geometrical microliths spread from Northern Mesopotamia through Transcaucasia and farther on to the Black Sea coast of the Caucasus, mainly in the form of trapezes with a dorsal flat retouch, starting no later than the beginning of the 6th millennium cal BC (*Wechler 2001.252*). Many Neolithic sites on the south of the east European plain contained this type of microliths, especially between the Lower Dnepr and the Lower Volga, and may enlighten us on a different route for this communication (*Formozov 1977; Gorelik 1997*).

There is a whole array of other features in assemblages from the earliest settlements in the Rakushechnyi Yar tradition that were not known around 7000 BC in the Caucasus or elsewhere on the steppe and in the semi-deserts of the Pontic-Caspian, but were observed in the 9th to 7th millennium cal BC in the Neolithic of the PPNB stage in areas located to the south of the Caucasus in the Middle East, in particular in the Zagros mountains on the borders between Iran, Iraq and Turkey (*Gorelik* et al. *2014. 255–278*). For instance, we should mention different kinds of clay artefacts such as geometric tokens, pellets and cylinders, sometimes with graffiti, non-geometric decoration, and anthropomorphic and zoomorphic figurines, which were also discovered together with many fragments of clay plaster from wattle and daub constructions in the inventories of aceramic settlements such as Matveev Kurgan and Razdorskaya 2 (Fig. 6) (*Krizhevskaya 1981.127; 1991; Tsybrij 2008; Tsybrij* et al. *2013*). Also of interest are the stone medallions with a centrally drilled hole, sub-rectangular and bi-perforated pendants made from bone and horn, often with serpentine-like carvings, decorated with grooved stone implements (shaft straighteners), which were also found at Razdorskaya 2 (Fig. 7). It is worth remembering the miscellaneous polished stone axes/celts and pendants (Fig. 8), fragments of stone pots, the pressure technique of core-blade production and so on, which are characteristic features of the Rakushechnyi Yar culture (*Gorelik* et al. *2014.255–278*).

It is important to highlight that the rich pottery assemblage represented in the adjacent Rakushechnyi Yar settlement (*Belanovskaya 1995; Mazurkevich* et al. *2013.27–109; Mazurkevich, Dolbunova 2015*), was completely absent from Razdorskaya 2 and Matveev Kurgan, just like the PPNB settlements of the Middle East. These similarities allow us to suppose that there was some influence from the Middle East, especially the Zagros, in the origin of Rakushechnyi Yar. Of paramount significance is the existence of a package with distinct cultural similarities, which is emphasised to argue for direct links between these two regions.

The assemblage of the Rakushechnyi Yar group is especially familiar to us, due to the materials of the extended M'lefatien cultural group (following S. Kozłowski) (*Kozłowski 1999.51–75*) in the eastern wing of the Fertile Crescent, except for the above-listed features, and also exhibits a distinctive ensemble of geometric microliths. The latter is rarely encountered in the Middle East. For instance, the late aceramic/early pottery layers of the Jarmo settlement dated to the end of the 8th millennium cal BC are characterised by numerous symmetrical trapezes, as well as by a few isosceles triangles and segments (*Hole 1983.237–238*). Developed sets of geometric microliths were also preserved here in the following

7th millennium cal BC in the pottery stage of this group (*Abe 2011*).

This area of the eastern wing of the Fertile Crescent, including the South-East Anatolia and the Zagros mountains played an important role in the domestication of some animals (sheep/goat) and some kinds of staple crops (einkorn, barley and emmer) (*Zeder 2008.266; 2009.30–31, 37*). In approximately the second half of the 8th millennium cal BC, the

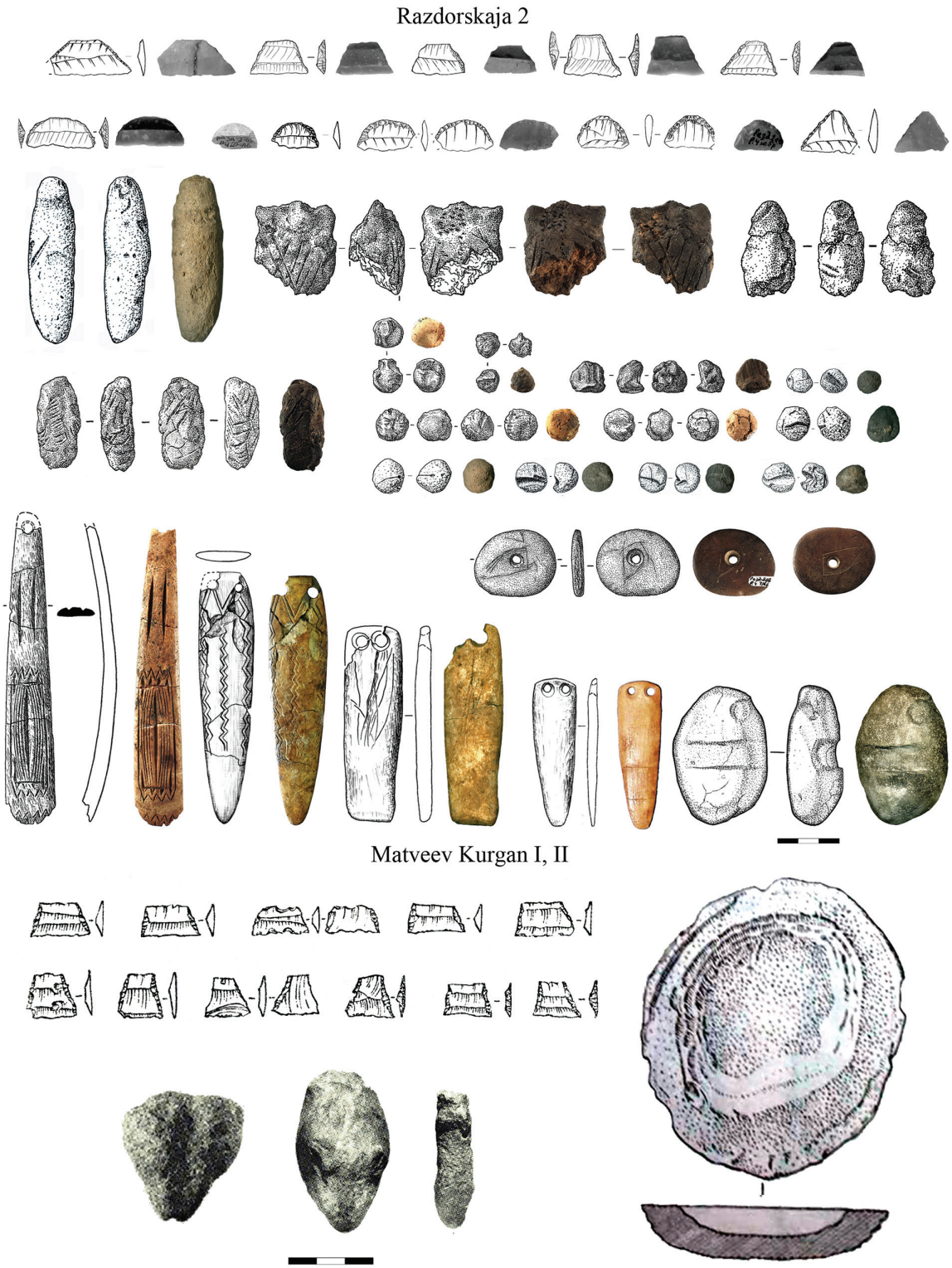


***Fig. 6. Settlement Razdorskaya 2: clay plastic tokens, pendants with two symmetric openings and stone medallion. Matveev Kurgan I, II settlements: statuettes, fragment of a figure with image of legs, female image, head of the animal (after* Križevskaja 1981.Fig. 3*).***

domestication process of the four principal animals in the Neolithic – sheep, goat, pigs and cattle – reached the stage of early domestication, which is completely different from the preceding stage of animal management (*Scheu 2013.6*). It is known that domesticated sheep appeared in Europe no earlier than in the 7th millennium cal BC, and even in the Central Zagros and Levant their remains could be traced since 7000 BC (*Zeder 2009.36; Geörg 2013.23*). Unfortunately, the Black Sea region of Anatolia is not well researched archaeologically and the Black Sea shores of the Caucasus were flooded during the transgression in the Early Holocene, which is why there is almost no hope of finding any traces of communication between such distant regions. Considerable scales of navigation in the post-glacial period that have been established both for the Aegean (*Perles 2001.59–63*) and the Baltic (*Hartz, Lübke 2000*) allow us to assume the possibility of a maritime route for such contacts. In the drought period in the Zagros Mountains at the end of the PPNB (*Zeder 2008.265*), a search for 'blessed Earth' to the North, may have le populations to travel to the generally more moist regions near the coast.

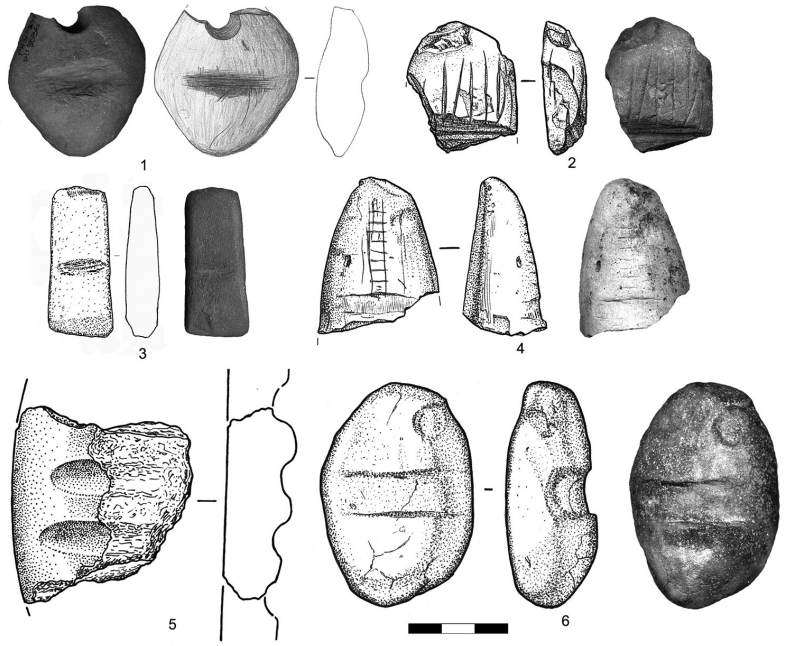


***Fig. 7. Settlement Razdorskaya 2. Grooved stone implements.***

So, the reconstruction of cultural impulses from the regions of the northern Zagros Mountains, and to some extent from the Caucasus to the Sea of Azov region at the end of the 8th to the mid-7th millennium cal BC has certain scientific arguments behind itself. We can infer a possible migration of small groups by the inland route or also by sea. Obviously, this hypothesis needs to be supported by data obtained by non-archaeological methods. In particular, we rest our hopes on the paleogenetic analysis of animals or human bones, which recently gained great importance in the studying of migration of people and animals.

The contribution of the presumably indigenous population in the formation of Rakushechnyi Yar culture is less clear. At the moment, we can discern some different cultural traditions at the end of the Final Pleistocene in the Lower Don region and in adjacent areas. In the Severskij Donets valley between the modern localities of Rogalik (Petrovka settlement) and Peredelskoye, two different cultural groups were specified, named Rogalik 2-Tsarinka or Osokorovka and Rogalik 7-type (*Gorelik 2001*). It is possible that the other cultural group from this region – Zimovniki – had also taken root in the Final Pleistocene (*Gorelik 2001*). The last one is the Kamennaya Balka industry in the Lower Don (*Leonova* et al. *2006*). Only one of them, Rogalik 2-Tsarinka, suggests that to some extent the microlithic components and core-blade technique at Rakushechnyj Yar culture derived from a local Final Palaeolithic tradition.

It is obvious that we can only infer a very remote similarity, which perhaps is not relevant for historical and cultural analysis. This problem is highly characteristic of the study of the transition from the Final Palaeolithic to the Mesolithic of Eurasia. It could be due either to the insufficient study of the Mesolithic of this region, or by the sparse population in the Mesolithic, as well as by a flooding of possible concentrations of Mesolithic sites in a coastal zone of the Sea of Azov during its transgression or with intermittent characteristics of transition to the Mesolithic. This must be clarified by future investigations.

## Foragers or farmers?

The acknowledgement of the definite contribution of the Middle Eastern Neolithic to the emergence of the Early Neolithic in the north-east region of the Sea of Azov raises the question of how presumable

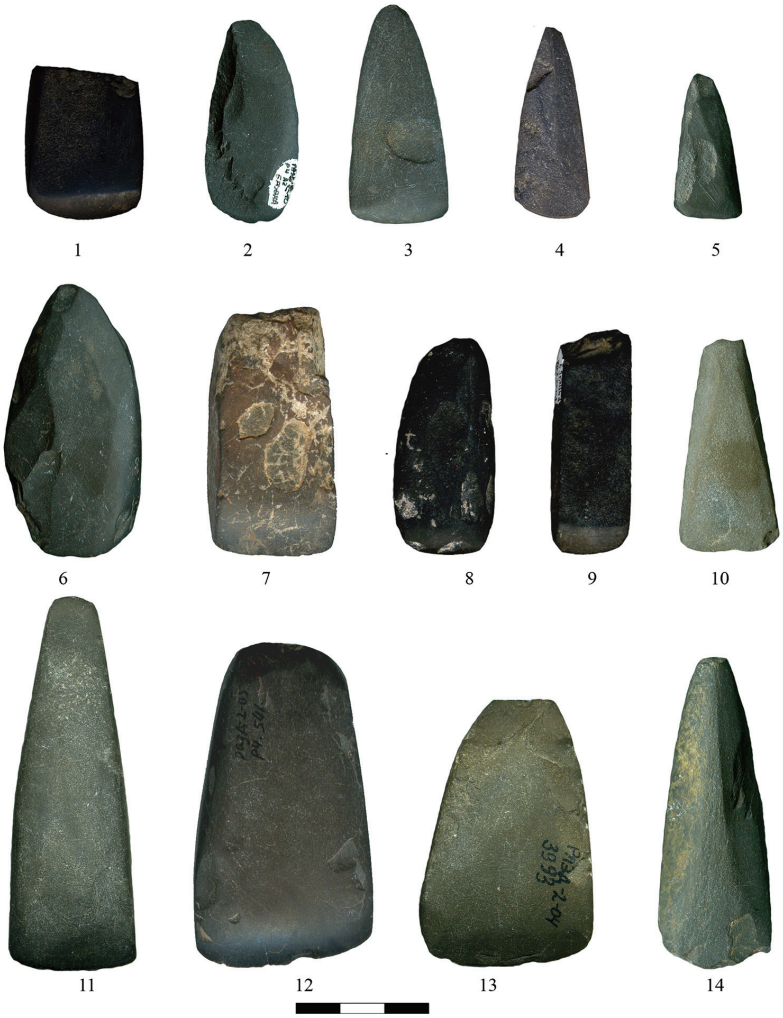


***Fig. 8. Settlement Razdorskaya 2. Ground stone celts and adzes.***

connections would influence human subsistence in this region?

During the excavations of the settlements Matveev Kurgan I and II, and from the oldest layers of Rakushechnyi Yar, numerous animal bones were discovered, among which there were many bones of domesticated species (sheep/goat, pigs, cattle and dogs), identified by the famous Soviet paleozoologist Valentina I. Bibikova, and by Tatjana G. Belan (determinations of Matveev Kurgan) and Vadim E. Garutt (determinations of Rakushechnyi Yar). The domesticated species present 20% of the bone assemblage in Matveev Kurgan. These data were repeatedly provided in the scientific literature (*Benecke 1997.638; Wechler 2001.132, 145; Shnirelman 1989.176–177*). Unfortunately, they were never sufficiently documented; even the final publications did not include the necessary data on the structure of the different kinds of bones, the minimum quantity of individuals of different animals, their total quantity, or, needless to say, measurements, distinct or features of bone morphology, the distribution of different types of bones in layers, on objects. In comparison with 1970–90, when these identifications were made by modern paleozoology, considerable changes occurred, and some new opportunities appeared which were not available earlier (*Zeder 2009.28*). The question of the correctness of these determinations arose when the data on the fauna of the Razdorskaya 2, a site adjacent to Rakushechnyi Yar, made by an expert on Neolithic fauna of south-eastern Europe, the Balkans and Transcaucasia, Norbert Beneke, were published (*Gorelik* et al. *2013.296*). Unlike his predecessors, he did not confirm the existence of bones of domestic animals, except for one dog, in the fauna at this settlement. The bones of domesticated livestock were not found by Mikhail V. Sablin, who studied the bones found in the oldest layers of the Rakushechnyi Yar settlement in the 2013 excavations. However, the scale of the excavation was too small and limited to provide any detailed information (*Tsybrij* et al. *2014. 207*). It is impossible not to consider the assumptions of David Antony that at both, Rakushechnyi Yar and Matveev Kurgan, the bones of domesticated livestock probably originated from the younger layer, with a radiocarbon date around the second half of 5th millennium BC (*Anthony 2007. 365*). However, this statement contradicts the lack of ceramics, which, in principle, should accompany such a layer.

Here are a few more examples where the domesticated status of animal bones from sites on the Pontic-Caspian steppe dated to the 7th millennium BC was not confirmed. It concerns the corresponding layers of the cave multilayer site at Shan-Koba in the Crimea (*Benecke 2006.12–15*) and especially of the multilayer site at Kammenaya Mogila, north of the Sea of Azov, where numerous bones of domesticated cattle, sheep/goats and horses in the aceramic layers determined by Ivan G. Pidoplichko (*Danilenko 1969.12*) were called into question (*Krizhevskaya 1992.107; Dolukhanov* et al. *2009.105; Gaskevich 2012.49*).

Unfortunately, these obviously wrong determinations were the basis for the generalising research of the Neolithic of Ukraine (*Danilenko 1969; Kotova 2003; 2009*). Typical assumptions of Soviet archeology of the second half of the 20th century about the development of agriculture, of horticulture or at least of the gathering of wild plant foods such as fruits, seeds, and nuts collected from the Azov settlements were also not confirmed (*Matuzaite-Matuzeviciute 2012.1–21*).

Based on the above, it is rather difficult to establish a final conclusion concerning the developed domestication of the Early Neolithic north east of the Azov Sea region, although even today many of our colleagues share this opinion. During a possible new phase of investigations in northeast of the Sea of Azov region, research on the economic aspect should take the central place.

Doubts on the correctness of reconstructions of an early domestication in the north Sea of Azov region amplify also due to the significant forager complex established here. It may be related to the choice of site for settlements with optimal open access to the available wild resources. Most likely, among the Early Neolithic sites of the region concerned, it is possible to distinguish between summer/autumn site-camps and winter settlements (*Gorelik* et al. *2013. 300–308*). Estimated summer or summer/autumn sites are represented by layers of shells of freshwater molluscs, gastropods (*Viviparus diluvianus* or *Paludina*) and bivalvia (*Unio pictorum*) which were accumulated during repeated visits to stratified shell matrix sites (Fig. 9). Sometimes it comprises up to 19 Neolithic layers (*Belanovskaya 1995; Tsybrij 2008*). These layers also contain bones of fish and animals, burnt products, artefacts made of bone, stone/flint and other remains. Sometimes oval depressions with a hearth within them are encountered here (Razdorskaya 2). A typical winter house can be traced in the example of the pit dwellings discovered at the settlement of Matveev Kurgan I (*Krizhevskaya 1991.15*). This dwelling, with an area of 60m², had a wattle and daub floor in the central part and eight hearths within. In its internal space, besides debitage concentrations of dismembered parts of prey – part of wild horse carcass, the bones of terrestrial game such as wild pig, red deer, sajga, auroch, roe deer, hare, fox and bear – were found. At the summer sites, fish bones predominate, sometimes found as complete carcasses in the debris heaps. Fishing was aimed at large, gregarious anadromous fish such as sturgeon, catfish, carp, and pike perches. Perhaps since that time, traditional equipment on the Lower Don such as stable weirs, traps, enclosures is used for fishing. They were set up especially in the narrow places on the river, *e.g.*, between the shore and an island. Judging from the finds of hundreds of fishing weights in the cultural layer of the settlements concerned (Fig. 10), fishing with the use of a seine was also common for the indigenous population. For their maintenance and also for catching big fish, as well for general transport, fishing boats were necessary in the river basin. The miscellaneous and numerous polished stone axes/celts, flint adzes, bores and other much specialised flint/stone inventories (*Tsybrij 2008.Figs. 43–45*) could be regarded in the framework of making boats and other equipment made of wood. More than 50 probably temporary storage pits for fish and shellfish, sometimes with finds of anchor stones and fishing weights, were found at the Razdorskaya 2 site alongside the modern edge of the Don River (Fig. 11). The pits are of different sizes: their diameters are from 0.25m to 1.5m, and depths are from 0.25m to 1.2m.

The materials from the multilayered settlement Rakushechnyi Yar allow us to trace the economic develop-

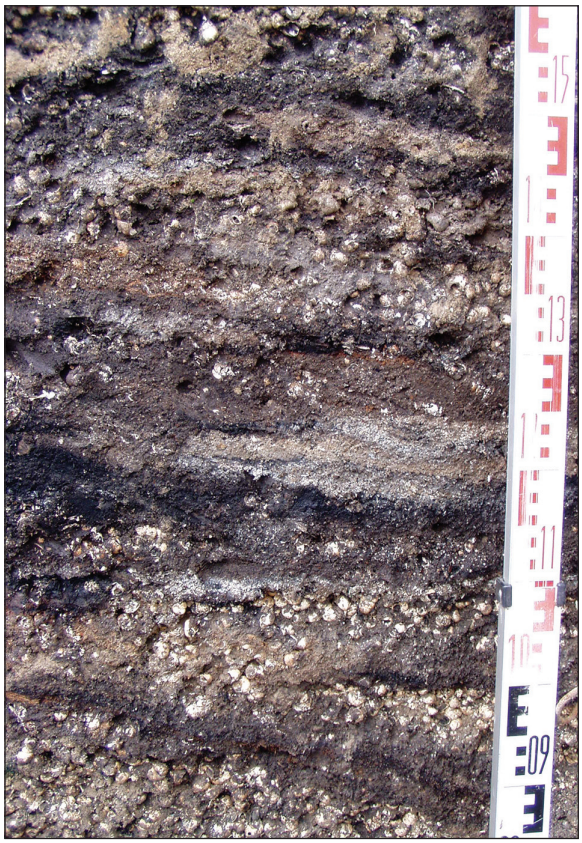

***Fig. 9. Settlement Razdorskaya 2. Typical stratigraphy of the shell matrix site.***

ment not only during the Neolithic, but also during the Copper-Bronze ages. It is interesting that even in the early Copper age layer (in layer 4) traces of human settlement are noticeable in the form of a shell mound, for example. The younger layers (2, 4, and 5) are thicker than the occupation layers in the Neolithic and contain traces of dwelling structures (*Belanovskaya 1995.12, 16*). Belanovskaya noted that below layer 15, neither hearth pits nor clay floor plastering were observed. These could evidence the short duration of the occupation in the Neolithic period, which became more stable by the time of the transition from the Neolithic to the Copper Age (*Belanovskaya 1995. 17*).

During the excavations in 2010–2012 next to Belanovskaya's excavation pit 1, it was possible with the help of modern archaeological methods to investigate the deposits of the Copper Age layers 2A and B (after Belanovskaya's taxonomy). It appeared that on the square of the site studied, the entire area was not completely occupied. Separate structures were uncovered there: concentrations of animal bones, pieces of coal, artefacts and campfires left by small groups of people visiting the river bank for a short time. According to Vera S. Bajgusheva, in layer 2A, the bones of domestic animals, sheep, horse, and cattle were noticed as determining features. At the same time, the uncovered top of the underlying layer 2B was comprised only of bones of wild animals. Finds of fishbone and mollusc shells were relatively few here (*Tsybrij* et al. *2012.204–206*). In the temper of the ceramics discovered in layers 2 and 4, impressions of domestic cereals (wheat, millet, and barley) and flax were observed (*Matuzajte-Matuzevichute 2012.7–9*). As the layer 4 in Rakushechnyi Yar is already related to the Copper Age (*Belanovskaya 1995*), it is most likely that the transition to farming in the north-east of the Sea of Azov region happened at this time, and not earlier, as it had been previously hypothesised. A find of one clay figurine in layer 4, which is analogous to the settlements of the Early Tripol'e as Bernovo Luka, Luka Vrublevetska, Lenkovtsy, Solonicheny 1, Golerkany (*Belanovskaya 1995.26–27*), could indicate one possible direction of influences for the introduction of agriculture in the Lower Don region. Judging from the chronology of Luka Vrublevetska 1, it could be dated to the first half of the 5th millennium BC (*Rassamakin 2012.46*). There are a couple of different radiocarbon dates from layer 4: one is older than the suggested dating of the statuette; the other two are younger (*Tsybrij* et al. *2013*). It is possible that this layer was accumulated from different occupation episodes, which are quite difficult to differentiate, so there is a need for further research.

What are the reasons for the asynchronicity in perception of the different elements of the 'Neolithic package' in the north of the Azov region and a lag in the development of a productive economy in comparison with many other areas? Why was there

***Fig. 10. Settlement Razdorskaya 2. Fishnets and fishnets-shapes pendants in the bulk.***

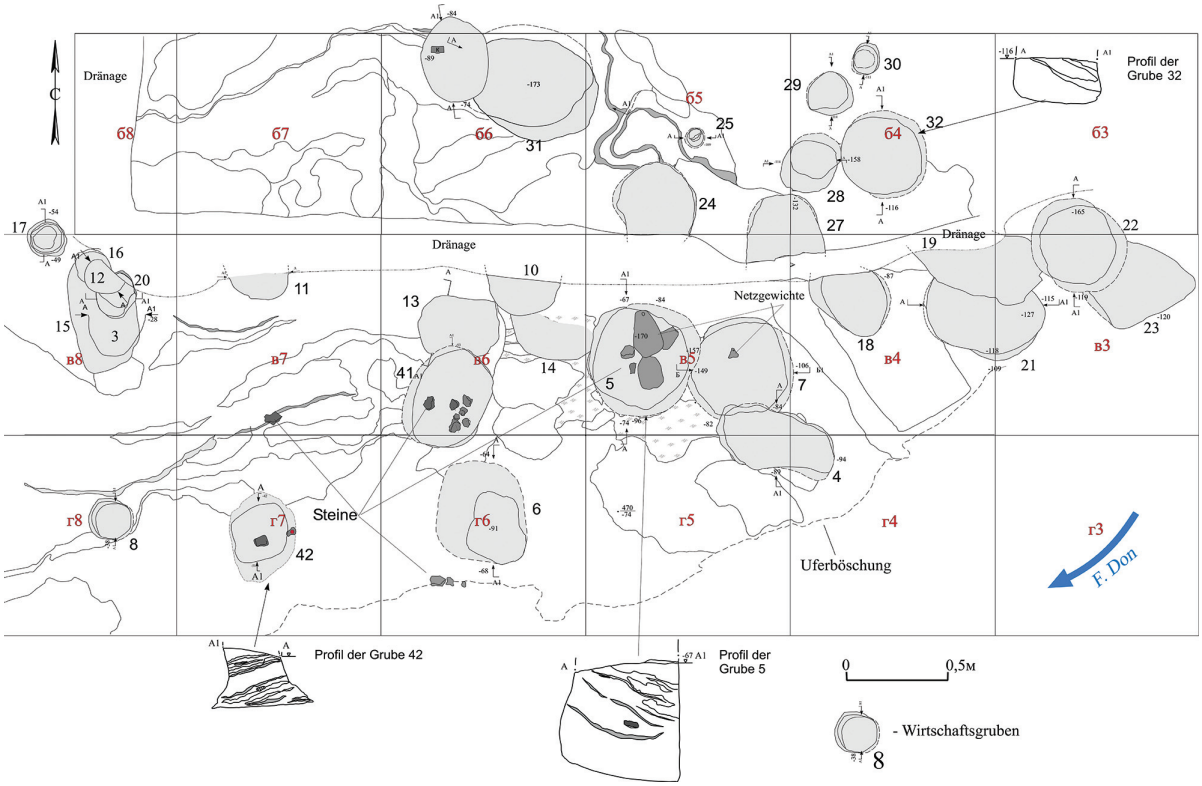


***Fig. 11. Settlement Razdorskaya 2. Plan of the temporary storage pits by the river edge.***

no significant change in the economic system, the way of life, and ideology as a result of supposed connections with the some areas of West Asia in this region? Why didn't "*the world of the Neolithic villages*" which specifies the Pre-ceramic Neolithic of the Fertile Crescent as well as the Early Neolithic of the Balkans, Central and Western Europe appear here? What are the reasons for the surprising territoriality of the Neolithic population in the Lower Don valley, maintaining exactly the same economic pattern for at least two thousand years, which was expressed in the phenomena of multi-layered settlements or 'tells'?

## Social relationships and ideology (beyond typology)

Perhaps the simple answer to questions about traditions of processual archaeology with an appeal to the efficiency of forager subsistence compared to a productive economy in this region and in these climatic conditions is insufficient. Especially in prehistory, the efficiency of one or the other type of economic activity might have a subordinate role in the stability of the whole society (*Sahlins 2004.17–19; Watkins 2010.624*). Furthermore, we might discern different kinds of foraging in synchronous Neolithic cultures of the Northern Pontic-Caspian, with a different pattern of Neolithisation. From our point of view, the distinctive development of the Neolithic in the north Azov region was caused by those aspects of the life of Neolithic communities which are very hard to recognise in an archaeological analysis. It concerns social relationships and ideology.

If we compare the features of the considered settlements of the north Sea of Azov region with those that could be observed among their neighbours, the sites of Sursk-, Donetsk-, Samara-, Platovskij Stav cultures, it would be possible to note that the latter ones were organised differently in many aspects. The level of social and ideological development of the bearers of Rakushechnyi Yar culture seemed to be significantly more complex than that of their neighbours. Such features as multi-level, stratified matrix sites, the continuity of cultural traits, and the same territoriality for millennia, as well as maintaining the same economic pattern all indicate stability and balance in the social system, an evolved complexity of social organisation, and probably at least a semi- sedentary way of life.

The burial of an auroch skull at one of the earliest settlements, Matveen Kurgan II, together with the structure made of clay and a large carefully polished axe could be considered as a semantically important complex (*Krizhevskaya 1991.28–29*). The female figurines made of clay at the settlements of Matveev

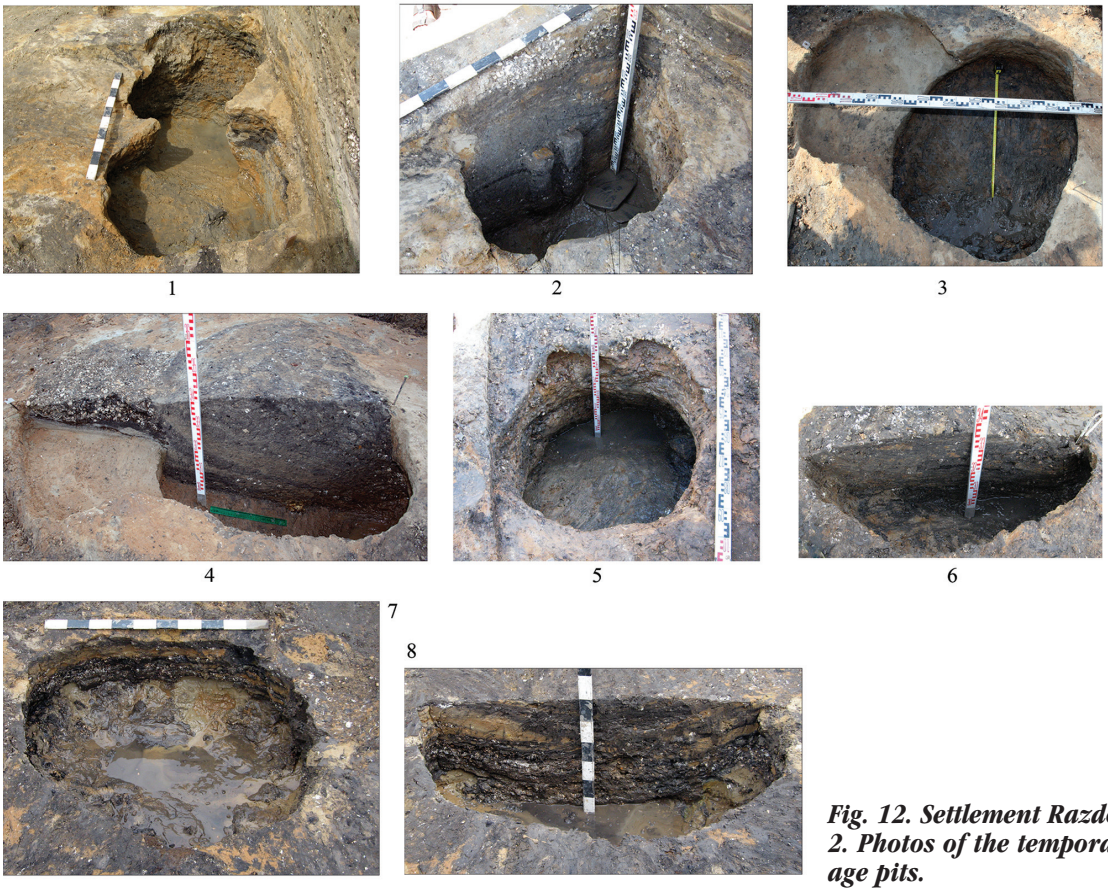


***Fig. 12. Settlement Razdorskaya 2. Photos of the temporary storage pits.***

Kurgan are of paramount significance. Celt-like pendants along the stone pendants with engravings in the form of fishing weights (Fig. 13) attest to a division between tools, such as celt or fishing weights, and symbolic imitations – that reflect an intention of ideological connotation of the most important dominants of the economic activity. It is symptomatic that one of the celt-like pendants was made from druse of shale with the large transparent rock crystal which grew from it, which had a special symbolical connotation throughout the Neolithic and Copper ages (*Danilenko 1986. 44*).

Different paraphernalia and jewelry from bone and stone, often with engravings, can be interpreted as signs of individuality and self-identification. The array of symbolic status objects with probable male (oxen, axe) and female (figurines) together with zoomorphic and geometric plastic, which are characteristic of the Neolithic world of the Middle East (*Cauvin 2000.32*) were amplified through typical 'forager' engravings, such as wave lines, possible water symbols, nets and serpentine-like engravings. Some of these paraphernalia and jewelry were encountered in the material from Mariupil cemetery, which should be dated to the 5th millennia cal BC (*Makarenko 1933; Telegin, Potekhina 1987*). The grave goods included maces, celts made from flint and porphyries, large pieces of rock crystal, buckles from porphyries, jewelry made of marble and jet. They were found in only a small number of burials. Some typical Mariupol artefacts were found in the second layer of Razdorskaya 1 settlement (*Kijashko 1987. 79*), which reflected the transition from the Neolithic to the Copper Age in the Lower Don basin.

It is indicative that in the Mariupil phase of Neolithic development in the foreland of the Sea of Azov region, which is rather late in relation to the Early Neolithic of Rakushechnyj Yar, we could observe the dominance of strong communal relationships. This is evidenced, perhaps, by the sanctioned placement of burials in a place isolated from the settlement; one trench had a collective burial ground and other burials were placed in rigidly defined rows, and therefore exhibit generally homogeneous burial rites. Strong territoriality, similar to the case of the multi-level/stratified matrix settlements, and continuity with no special attention to preserving the lower layers of graves are characteristic. However, it is possible to divide these graves into two groups, into 'rich' and 'poor' graves based on variations in the quantity and quality of grave goods. In particular, 'rich' children's burials cannot be compared to

the roughly contemporaneous burial grounds at Varna and Durunkulak on the Balkan Black Sea coast in terms of the degree of difference.

In this kind of society, continuity and integration seem to have been more important in the realm of the dead than differences between the living (*Whittle 1996. 169*), although certain differences in social position which were possibly heritable ('rich' children's burials) can be assumed. The lack of ceramics and metal could be interpreted by the fact that these burial rites date as far back as aceramic society. We guess that, in comparison with other Neolithic cultural phenomena of the Northern Pontic-Caspian area, the specific reconstructed traits of social and ideological development in the foreland of the Sea of Azov region also had certain economic causes. The materials from the settlements of the Rakushechnyj Yar culture reflect the specialisation of the economy on fishing and collecting shellfish, most likely on a seasonal basis, which is impossible to imagine without methods for butchering, conservation, and storage.

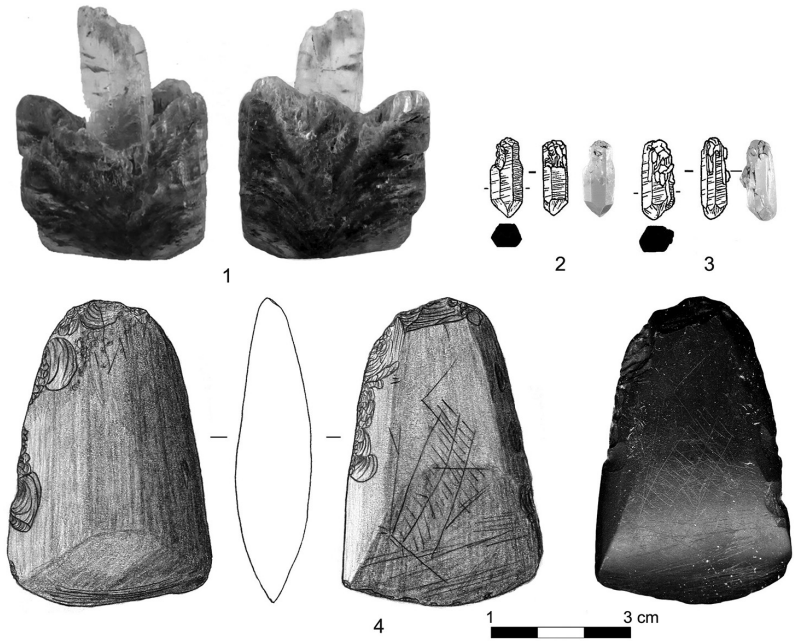


***Fig. 13. Settlement Razdorskaya 2.* 1 *celt from the schist with a rock crystal;* 2, 3 *pendants from rock crystal;* 4 *graffiti on the celt.***

It is considered by many researchers that a similarly intensive form of resource management without the modification of species' biological or genetic basis was a local stage of pre-domestication already established in the Mesolithic in many parts of Europe (*Zvelebil, Lillie 2000.59*). Specialisation was supposed to have led to a reduction in mobility, a transition to a sedentary/semi-sedentary way of life, and finally, to more complex social organisation and ideology (*Bender 1978.211; Hayden 1981.528*). Finds of Neolithic burials in deposits at Rakushechnyi Yar, and also separate human bones in the shell layers of Razdorskaya 2, give reason to expect positive results from a search for larger burial grounds in this region similar to those in the Dnepr or Danube basins, where fish and shellfish played a leading role in the Mesolithic and the Neolithic (*Zvelebil, Lillie 2000.79*).

Ethnographic material show that such highly specialized production can lead to the accumulation of wealth, and the emergence of power and social control regulating the process of social life and controlling resources (*Bender 1978.213*). Unlike in the preceding Paleolithic and Mesolithic periods, Neolithic communities in which hunting was primary, the value of insured and safe networks of exchange and various intergroup alliances covering considerable territories decreases (*Hayden 1981.527*). Based on research on the Neolithic, the latter hypothesis seems to be true in many respects. The aceramic assemblages such as at Razdorskaya 2 and Matveev Kurgan I and II present many finds and features illustrating cross-cultural communication over long distances. They indicate, as mentioned above, the prime value of the southerly direction of cultural contacts. In assemblages of the pottery Neolithic (Rakushechnyi Yar), these indicators were significantly lost. However, according to some scholars, the earliest pottery traditions in the Lower Don basin were formed under the influence of southern impulses from the Caucasus (*Belanovskaya 1995.174*), Anatolia (*Kotova 2003.7.2.2*), or from Anatolia and the Near East (*Mazurkevich* et al. *2013.91*). We believe, these hypotheses demand more concrete arguments which would exclude the possibility of a convergent emergence of more or less similar types of ceramics (*Budja 2014.27*). Until then, the origin of this distinct pottery tradition in Rakushechnyi Yar remains unclear.

Much more persuasive are cultural links with a smaller range. There is convincing evidence of the distribution of similar patterns of ceramics decoration between the Lower and Middle Don, the Lower Don

and Lower Volga/Northern Caspian area (*Mazurkevich* et al. *2013.91; Vybornov 2008*). The similarities in ceramics from the Lower Don and the Lower Dnepr, in the typology of geometric flint microliths, in stone vessels, as well as in shaft straighteners enable us to consider these also as proof of cultural contacts (*Telegin 1984.42; 1996.44–45; Belanovskaya 1991*). During the subsequent development of Rakushechnyj Yar culture, the value of cultural and historical contacts with the Caucasian and West Asian region was reduced to the recognition of a single form, such as trapezes with a flat dorsal retouch (*Wechler 2001*). It is important to acknowledge the contacts to the east with cultures from the steppe areas, especially from the 5th layer (*Belanovskaya, Timofeev 2003.15*). It seems that connections between the North Caucasus, the Fore-Caucasus, and the Middle East were re-established only with the Majkop phenomenon in the 4th millennia BC.

The narrative of cultural contacts mentioned above could imply that indigenous ruling groups, which apparently dominated the area north of the Sea of Azov for a long time, subsequently managed to eliminate the value of the south-west Asian influences by establishing carefully regulated economic, social, and also, apparently, ideological control.

## Conclusions

Despite the much better state of research of the Neolithic in the foreland of the Sea of Azov, compared to other regions of the Northern Ponto-Caspian Sea, the process of Neolithisation here can only be characterised as a sketch, a very probabilistic and speculative model. The need for new, modern, large-scale explorations in this area with broad interdisciplinary integration is obvious. In the light of the latest data which we have, it is possible to claim that the Rakushechnyj Yar cultural unit belongs to the range of the oldest in the Northern Ponto-Caspian region. Apparently, it is one of the oldest cultures in which so many features of the Neolithic package are found: the transition to the wide use of clay, the technology of polishing stone, pressure core/blades technology, the emergence of anthropomorphic and geometrical figurines, and cult practices associated with axes, fishing weights, and bucrania.

Unlike some of our colleagues, who share the concept formulated by researchers from 1970 to 1990 about the origin of an Early Neolithic local centre with a productive economy with developed animal husbandry in the Sea of Azov region, we believe that this is improbable. The cornerstones of this concept were never adequately documented; they were not validated during recent explorations in this region; they are doubtful in the context of modern research of the same field worldwide. It seems that, besides dog, only the presence of bones of domesticated sheep/goat in the Early Neolithic layers of the Azov settlements could be true, because the latter have no wild predecessors in Europe. But this assumption also demands verification.

It is obvious that in the foreland of the Sea of Azov, particularly in the Lower Don, as well as in almost the whole East European plain, sub-Neolithic subsistence was based on different foraging modes. During spring, summer, and autumn fishing was primary, specialising in the art of catching large, gregarious anadromous and settle fish with nets, traps and boats, and the gathering of the shellfish has also been proved. Hunting probably predominated in winter.

The simultaneous emergence in north-east region of the Sea of Azov at an aceramic stage of the whole set of functionally interrelated features of the Neolithic package can be most logically explained by migration. The territory of the Zagros Mountains, the border zone between Iran, Iraq and Turkey (Anatolia), where during Pre-Pottery period B, many parallels with the idiosyncratic features appeared, and assemblages from the Early Neolithic of the south-east European plain could be regarded as a possible 'donor' area. It is possible to assume the two most probable ways of penetration from this region to the Azov's shores: the Black Sea coast of the Caucasus or by sea.

It is impossible to exclude the possibility of numerous contacts and probable participation in this cultural transfer also of the Mesolithic- Neolithic population of the North and West Caucasus. It seems that penetration from West Asia into the foreland of the Sea of Azov of a quite wide set of features of the Neolithic package, apparently in the framework of demic diffusion, did not lead to a deep Neolithic transformation, which took place in other regions' 'secondary Neolithisation', for example, in Europe. The choice of a place for repeated occupation, the organisation of the living area, the way of life, subsistence, and obviously also the perception of the world remained for a long time typical of foragers of river valleys, lakes, and the coastal areas of Europe. Probably this pattern continued until the large-scale movements of people in the Copper Age. We can

speculate further on the reasons for elaborating such a scenario. It is more plausible to suppose that influences from societies more advanced with Neolithisation in the foreland of the Sea of Azov were not significant, in terms of, or at the level of, products or skills associated with a productive economy. The indigenous world absorbed the culture of the newcomers. The sub-Neolithic society with ceramics was indeed socially and ideologically more complex and organised than that of their neighbours, but was based on a foraging economy.

ACKNOWLEDGEMENTS

*The authors would like to thank Prof. Dr. Kim Jongil (Seoul University) and Dr. Nicole Boenke (Ruhr-University, Bochum) for participation in discussion of this article and for help with the translation.*

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