

Chronological timeframes of cultural changes in the Dnepr-Dvina region (7th to 3rd millennium BC)

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ABSTRACT – Since the 1960s, more than 250 radiocarbon dates have been obtained for materials in the Upper Western Dvina area, which cover a timeframe from the 7th to the 1st millennium BC. Radiocarbon dates for materials of the Dnepr-Dvina area date the appearance and decline of various cultural traditions – from the formation of the most ancient pottery among hunter-gatherer communities until the appearance of the first stock-breeders in the forest zone, the bearers of cultural traditions of the Corded Ware culture. Dates for materials from the Upper Dvina area show both the existence of hiatuses between some cultural-chronological groups coinciding with some significant climatic and environmental changes, and the quasi (?) co-existence of some of the groups. Could these hiatuses also be traced in material culture, or do they appear because of a lack of data?

KEY WORDS – Eastern Europe; chronology; Neolithic; earliest pottery; pile-dwellings; Linear Band Keramik (LBK); Bronze Age

Kronološki okvirji kulturnih sprememb v regiji rek Dneper in Dvina

IZVLEČEK – Od 60. let 20. stoletja smo pridobili že več kot 250 radiokarbonskih datumov za najdbe iz zahodnega območja reke Dvina, ki sodijo v čas med 7. in 1. tisočletjem pr. n. št. Datumi iz območja rek Dneper in Dvina datirajo pojav in zaton različnih kulturnih tradicij – od oblikovanja najstarejše lončenine pri skupnostih lovcev in nabiralcev do pojava prvih živinorejcev na območju gozdne cone, ki so bili nosilci kulturnih tradicij vrvičaste keramike. Datumi iz območja zgornjega toka reke Dvina kažejo na prekinitve med nekaterimi kulturno-kronološkimi skupinami, ki sovpadajo z nekaterimi pomembnimi klimatskimi in okoljskimi spremembami ter z domnevnim sobivanjem nekaterih skupin. Ali lahko tem prekinitvam sledimo tudi v materialni kulturi ali pa se pojavijo le zaradi pomanjkanja podatkov?

KLJUČNE BESEDE – vzhodna Evropa; kronologija; neolitik; najstarejša lončenina; kolišča; kultura linearno trakaste keramike; bronasta doba

Introduction

The period discussed in this article is attributed to the Neolithic, more precisely to the epoch also known as the 'Boreal Neolithic', 'Sub-Neolithic', 'Initial Neolithic' (Davison et al. 2007.140; Gronenborn 2010;

Dolukhanov, Shukurov 2009.36; etc.). This era is traditionally divided into three stages: early, middle and late. Its beginning is indicated in Eastern Europe by the appearance of pottery, and changes in com-

plexity of social networks. The Dnepr-Dvina region (Fig. 1) has already been investigated for more than 50 years. At the very beginning of the 1960s, researchers aimed to reconstruct the cultural processes, chronology and natural-climatic conditions in this region (Miklyaev 1969; Dolukhanov et al. 1978). Investigations of the Serteysky micro-region, where different archaeological cultures have been identified, started in the 1990s. The ancient inhabitants here occupied lake shore sites located within a distance of 10km from each other (Miklyaev 1995; Zaitseva et al. 2003; 2014; Mazurkevich et al. 2013; Mazurkevich 2014) (Fig. 1.b). In such a small micro-region, cultural processes that can be traced archaeologically appeared to be very complicated. This is the reason for reconstructing this region's population, the termination of different cultural traditions, the appearance of new traditions, how they intermixed, and the time these processes took. However, a study of a particular time stratification of one region could create an illusion of evolutionary, successive development and changes of cultures.

Radiocarbon dating of definite ceramic types and cultural stages could correct our schemes, compelling a move away from habitual evolutionary and linear schemes. This creates a more complicated story, as will be demonstrated here. The stages and types distinguished in material culture based on typological method were verified by stratigraphic and spatial analysis. Radiocarbon dates were used to determine the absolute ages of these stages.

Pottery of the 7–6th millennium BC: newcomers (Early Neolithic)

The cultural networks which existed in the 7–6th millennium BC connected this region with other regions of Eastern Europe: the Middle and Upper Volga, Upper, Middle and Lower Don, the Desna and Bug-Dneestr rivers and, later on, the Baltic region (Mazurkevich, Dolbunova 2015). These networks were reflected in the different pottery that penetrated into this region with new-comers (?). The pottery types were named phases 'a', 'a-1', 'a-2', 'b' – 'b-5', 'c-1' and 'c-2' (Fig. 2). The appearance of Rudnyanskaya culture phases 'd', 'd-1', and 'e' might reflect changes in cultural connections and the establishment of other directions of interaction, *i.e.* with the Baltics. Various materials were radiocarbon dated: organic crust, burnt bones, and wood. These materials were found in cultural layers with ancient pottery, in sediments with cultural remains, as well as in overlying sediments.

Earliest pottery

Vessels attributed to phases 'a', 'a-1', and 'a-2' are dated to the 7th millennium BC (Fig. 3). Vessels of phase 'a' (Fig. 3.2–3), 'a-1' (Fig. 3.1), which lay at the bottom of cultural layers and was covered by lacustrine-marshy sediments, can be attributed to the earliest pottery in this region. The phase 'a' pottery from Rudnya Serteyskaya was found in a sandy layer, while some fragments were found in a layer of blueish sandy gyttja with shells. Fragments of vessel

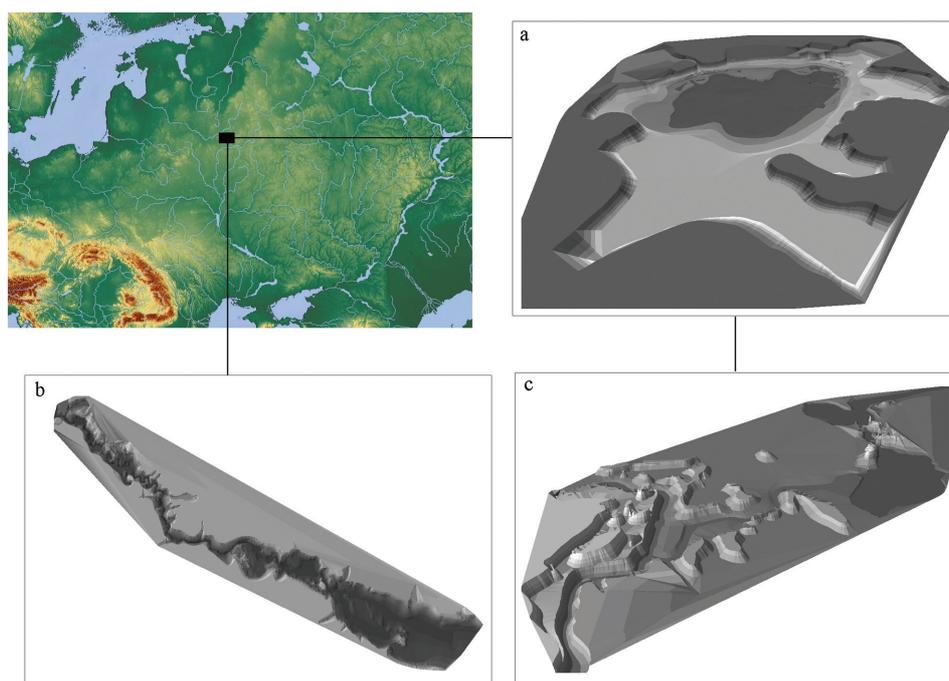


Fig. 1. Dnepr-Dvina region: a Sennitsky; b Serteysky and c Usviatsky microregion.

'a-1' were found in a sandy layer above the base layer at Serteya XIV. The sandy layer could have formed during the Boreal period. At this time, there was a regression and a time gap in sedimentation, which has been shown by a pollen diagram (Dolukhanov et al. 1989). These finds were covered by a layer of gyttja dated to when the Holocene (At-1 period) lakes began to flood, according to the pollen analysis (Dolukhanov et al. 1989). At the turn of the 7-6th millennium BC, environmental changes occurred which led to water transgression in a small lake depression (where the Serteya XIV site is located) up to the level of the second terrace. This flooded the preceding sites with pottery of phases 'a' and 'a-1' (Mazurkevich et al. 2003.266).

Pottery from phase 'a' was found at Serteya X in a layer of bluish sandy gyttja rich in shell. The cultural remains lay in three horizons divided by sterile interlayers of bluish-grey sandy gyttja (Mazurkevich et al. 2003.261-262). The gyttja layer deposited on the lake bottom that formed when the ancient sites containing phase 'a' pottery existed on its shores can be dated to 7800±120 BP (Ly-4255, 7032-6456 cal BC) - 7510±140 BP (Ly-4256, 6631-6077 cal BC). The formation of gyttja that covered the sediments at the Rudnya Serteyskaya site, at which finds from layer 'b' of the Serteya X site were found, could be dated to 7380±130 BP (Ly-4258, 6462-6013 cal BC) - 6680±150 BP (Ly-4277, 5890-5342 cal BC) (dates made on the sediments of core no. 63) (Arslanov et al. 2009). Some of the vessels from phase 'a' were found in layer A-2 at Serteya X. They could be synchronous with wood from this layer dated to 7300±180 BP (Le-5260, 6495-5809 cal BC).

The organic crust on pottery decorated in a pin-pointed manner from phase 'a' are dated to 7870±100 BP (Ua-37100, 7047-6510 cal BC, $\delta^{13}C$ -31.7‰) from Rudnya Serteyskaya, and 7150±50 BP (Ua-37098, 6200-5905 cal BC, $\delta^{13}C$ -31.2‰) from Serteya X. Thus, we might suppose that materials from phase 'a', typologically one of the most ancient, could date to 7050-5900 cal BC.

Organic crust from pottery from phase 'a-1' (site Serteya XIV) was dated to 8380±55 BP (Ua-37099, 7570-7324 cal BC). This pottery fragment was lying above a sandy layer, which could have been formed during the same Boreal Period, as at the site Rudnya Serteyskaya (Mazurkevich, Miklyaev 1998). The value of $\delta^{13}C$ -33.8‰ could indicate a probable influence of reservoir effect on this date (Fischer 2003). Studies of the effect of hard water in this re-

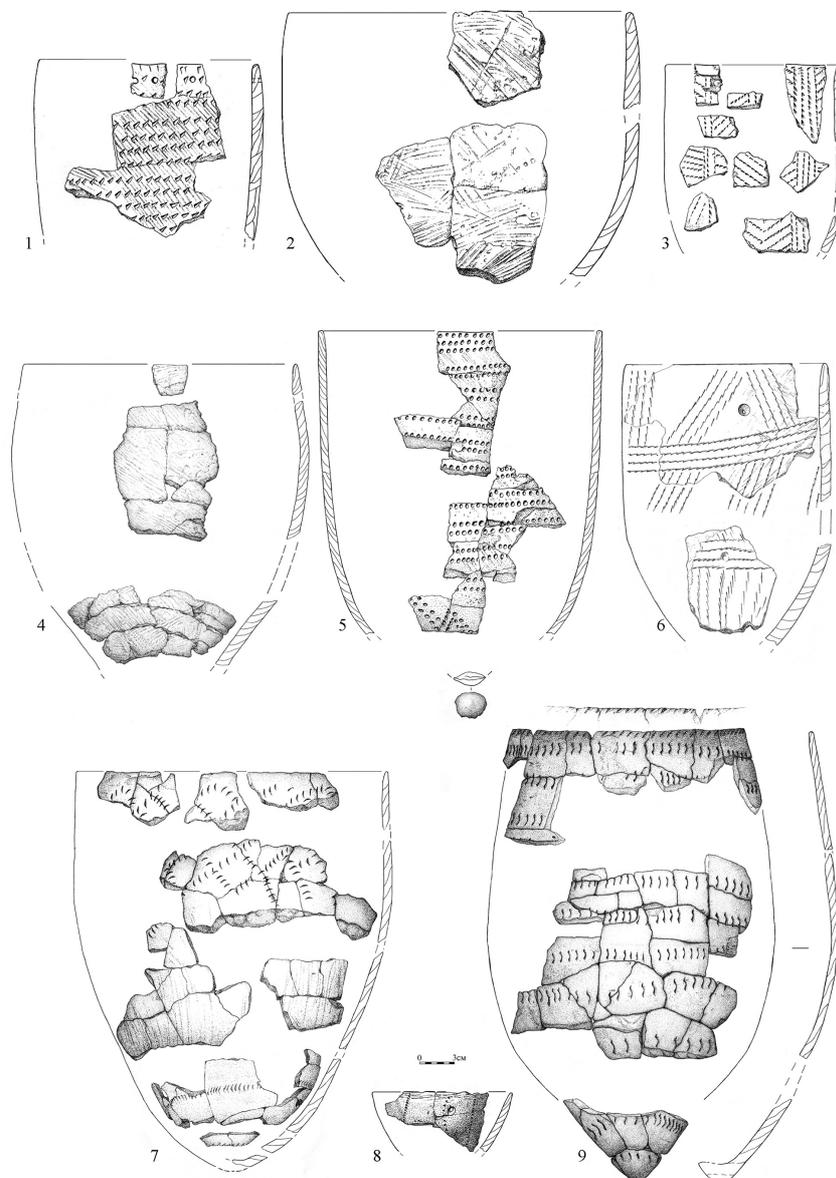


Fig. 2. Early Neolithic pottery of the forest zone of Eastern Europe: 1, 3, 5, 7 phase 'b-1'; 2 phase 'c-1'; 4 phase 'a-1'; 6 phase 'a'; 8 phase 'b'; 9 phase 'b-4'.

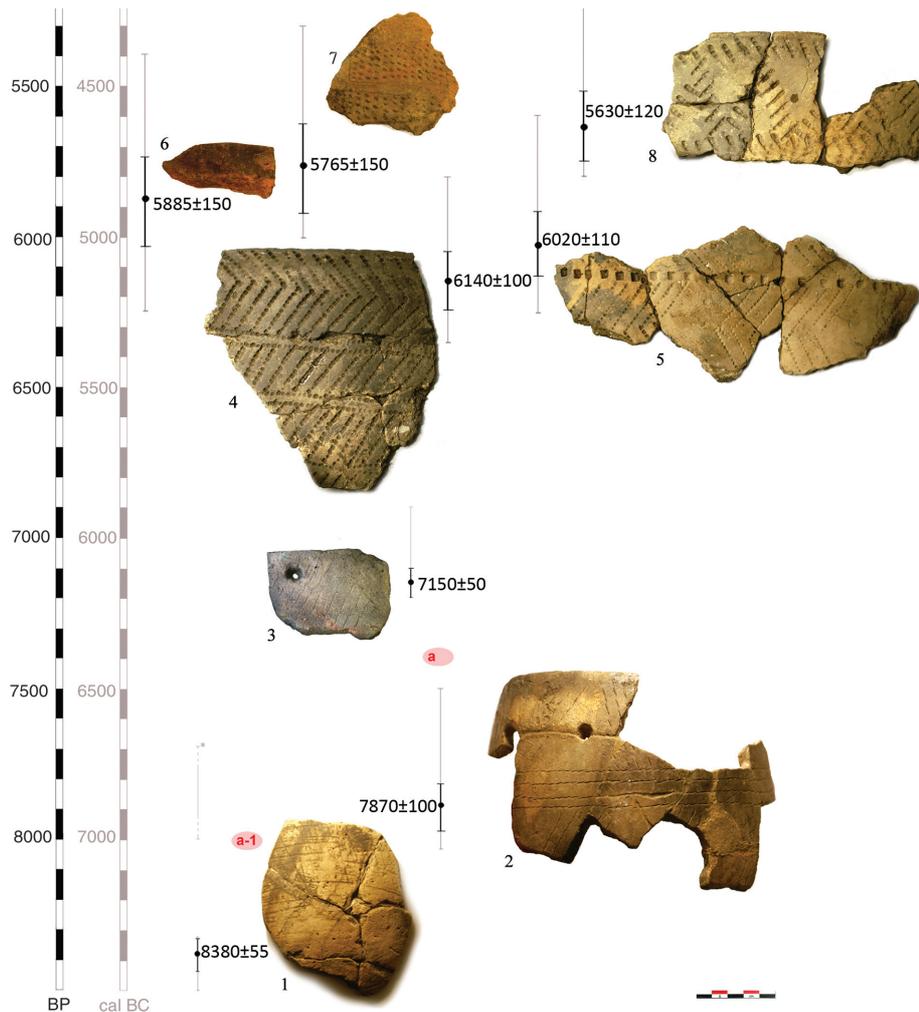


Fig. 3. ^{14}C dated pottery fragments (e.g., organic crust) from the 7th to 5th millennium BC.

gion allow us to suppose that the age offset could have been 0–585 years (Kulkova et al. 2014). A probable value for this date after correction could be between 7000–6600 cal BC. It is important to notice the rather low negative values of $\delta^{13}\text{C}$ for phase 'a'. However, identification of $\delta^{13}\text{C}$ alone cannot be a precise marker of the age of a sample, as some vegetation (including from terrestrial milieu) could also have rather low negative values (Boudin et al. 2010). Moreover, studies in this region have shown that the age offset can be very small, even if the $\delta^{13}\text{C}$ values for organic crust are rather low (Kulkova et al. 2014).

The vessels from phases 'b' and 'b-1' form a single cultural tradition with vessels from phase 'a'. They differ somewhat in technology (new raw materials and paste recipes used, tradition of sandy paste preserved, and new types of construction) and decoration. We might suppose the co-existence of phase 'b' and 'a' vessels, as some of examples from both phases can often be found together. However, most are

found at the sites located on high lake borders, and in upper stratigraphic layers, which could indicate the continuation of this tradition.

The pottery attributed to phases 'b-3' and 'b-5' was dated due to the accumulation of burnt bones, which can be correlated with these vessels according to their stratigraphic position. The burnt bones located the near pottery fragments of phases 'b-1' and 'b-5' (at Serteya XXII) are dated to 6640 ± 110 BP (SPb-750, 5737–5374 cal BC). The bones and pottery could be synchronous, because of their very precise and undisturbed spatial division. The burnt bones found among vessel fragments of phase 'b-3' at Serteya XXVII were dated to 6792 ± 120 BP (SPb-748, 5971–5493 cal BC).

The accumulation of burnt bones found near the vessel 'b-4' at Serteya XX was dated to 7300 ± 120 BP (SPb-749, 6425–5984 cal BC). However, other pottery fragments were found nearby as well, which means this date cannot be attributed to this phase

with great confidence, which is why this date was not included in the scheme.

Taking into account the most ancient and recent dates, the existence of different early Neolithic ceramic types can be dated to the period 7000–5300 cal BC. The few dates made for early Neolithic pottery lie within the intervals 7000–6100 cal BC and 5700–5600 cal BC. However, when the different phases began and ended, as well as their sequence are still not known. If the age of definite ceramic phases could be defined, continuity and interruptions in the occupation of this region could be determined.

Narva, LBK and Upper Volga cultural influences: destroying the world of the earliest ceramic networks?

The next cluster of radiocarbon dates lies within the end of the 6th millennium BC. It indicates the existence of early Neolithic Rudnyanskaya culture in this territory, which might have been related to the Early Neolithic Narva culture. Local variants have been identified in the area where Narva culture was pre-

sent (see *Vankina et al. 1973; Rimantene 1973; Timofeev 1975*). Rudnyanskaya culture can be assumed to be one of those cultural groups that existed within a large common cultural area. However, Rudnyanskaya culture differs considerably from Narva culture, as described by Nina N. Gurina (1967), in technological, morphological and decorative characteristics.

Rudnyanskaya pottery has been divided into three ceramic phases, ‘d’, ‘d-1’ and ‘e’. They cannot be regarded as pertaining to a single culture, due to differences in the technology, morphology and decoration of the vessels (Fig. 4). Analogies in the pottery, flint and bone assemblage can be traced at sites in the Lubana region (Zvidze, Osa) (*Loze 1988; Zagorskis 1973*). We might suppose that the directions of cultural interaction changed at the end of the 6th millennium BC, and a former cultural network was destroyed.

The cultural layers containing Rudnyanskaya materials cover sediments containing the preceding ear-

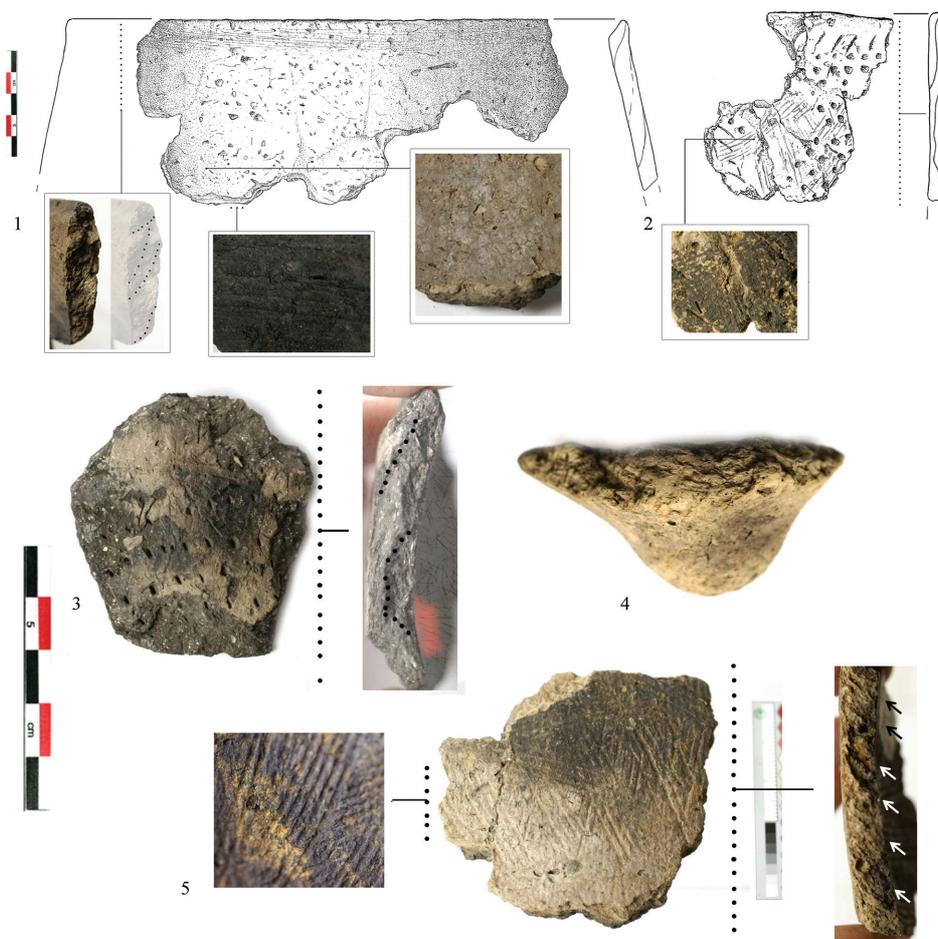


Fig. 4. Pottery fragments with indications of technological traces: 1, 4, 5 ceramic phase d-1; 2, 3 ceramic phase d. (1–4 Rudnya Serteyskaya site; 5 Serteya XIV site).

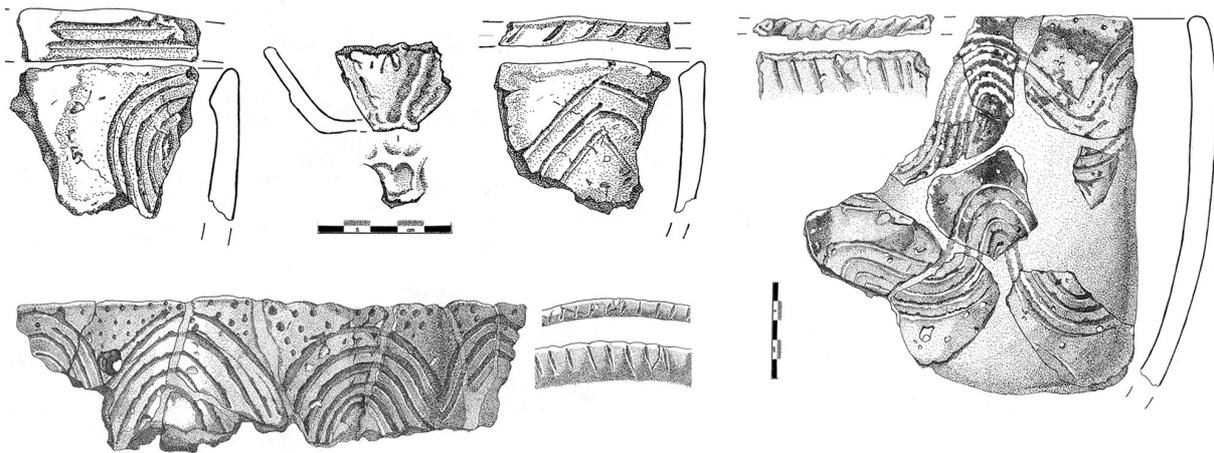


Fig. 5. LBK pottery found at Dubokray V.

liest pottery (phases 'a' and 'b'). The dates of the wood from cultural layer 'B' at Rudnya Serteyskaya are 6240 ± 40 BP (Le-3054, 5311–5066 cal BC), 6230 ± 40 BP (Le-2568, 5306–5061 cal BC), 6180 ± 40 BP (Le-2569, 5286–5002 cal BC), and 6130 ± 40 BP (Le-2579, 5211–4962 cal BC). The most ancient dates correlate with the finds of Rudnyanskaya pottery; two other dates (Le-2569 and Le-2579) are of wood found in the northern part of the site, where typologically more recent vessels of this culture were found (Mazurkevich, Miklyaev 1998). Such 'sensitive' typological features could explain the differences in dates obtained for various parts of the site. Dates obtained from remains of a fish trap found above the cultural layer containing Rudnyanskaya material can be correlated with more recent material of this culture (Mazurkevich, Miklyaev 1998). This cultural tradition probably ended in the second quarter of the 5th millennium BC.

When bearers of the LBK cultural tradition appeared in the forest zone of Eastern Europe remains disputable (Mazurkevich, Miklyaev 1998). Some of the types of pottery attributed to this culture were found at Serteya XXXIV (Tab. 1.210, 212, available online at <http://dx.doi.org/10.4312/dp.44.10>), and were dated to the first half of the 5th millennium BC. A shoe-last stone axe typical of this culture was found nearby. The date of other pottery of this culture found at Dubokray V remains unknown (Fig. 5).

Yet another change in cultural tradition visible mainly in pottery occurred in the final stage of Early Neolithic, at the end of the 6th/first part of the 5th millennium BC. This pottery is named 'layer B type at the Serteya VIII and X sites', and can be correlated with materials from the last stage of Upper Volga culture and pottery of the Valdayskaya culture,

which was decorated by long comb impressions (Fig. 3.4–5, 8). Analysis of radiocarbon dates allows us to suppose that, in the final stage, bearers of such pottery styles could have co-existed with the Middle Neolithic pile-dwelling Usviatskaya culture (Tab. 1.175–176, 233–234, available online at <http://dx.doi.org/10.4312/dp.44.10>; Fig. 7. 3–5; Fig. 8.1, 6).

The vessel found near an accumulation of burnt bones at Serteya XXXVI, could be dated to the end of the 5th/first half of the 4th millennium BC (Tab. 1.213, available online at <http://dx.doi.org/10.4312/dp.44.10>). This vessel was made from a paste tempered by organics. Slab technique was used, it has a polished surface and is decorated by roundish impressions. It does not belong to the Early Neolithic types described above and later Middle Neolithic ones. Its independent position is also attested by its radiocarbon date. It may indicate the existence of a short cultural episode which is still to be determined and characterised.

We can suppose a linear cultural scheme for the Early Neolithic, with periods of continuity in the development of cultural traditions (e.g., phases 'a' to 'b-1'), and periods that mark the disappearance of cultural traditions and emergence of new ones. However, the radiocarbon dates allow one to suggest another scheme whereby different cultural events could have co-occurred such as, for example, the final stage of Rudnyanskaya culture, the LBK, and sites with materials of 'layer B type at the sites Serteya VIII and X sites' and, probably, sites with Rhomb-pit culture pottery. What interpretation could be proposed for such a picture? Is this the result of the co-existence of different societies, or is it the co-existence of societies from different micro-regions within one region, or it is successive occupation? Might the radio-

carbon dates create an illusion of synchronicity? These questions can be solved not only by archaeological methods and more detailed radiocarbon dating, but also with the help of the further development of the radiocarbon method, treatment of dates, and interpretation. Our perception of millennia as brief moments promotes an illusion of continuity of historical events, as well as successive change of cultures. However, if we suppose that dated events concentrate around a 'core' of dates, the discontinuity of events becomes apparent. Some micro-regions

appear to be unsettled, and cultures are divided by several hundred years.

Middle and Late Neolithic: the pile-dwelling phenomenon

The Middle Neolithic is marked by the appearance of the Usviatskaya culture (Miklyaeв 1969; Miklyaeв 1995; Mazurkevich 1998). New dates of organic crust from pottery fragments of the Usviatskaya culture from Usviaty IV allow us to date its appearance to

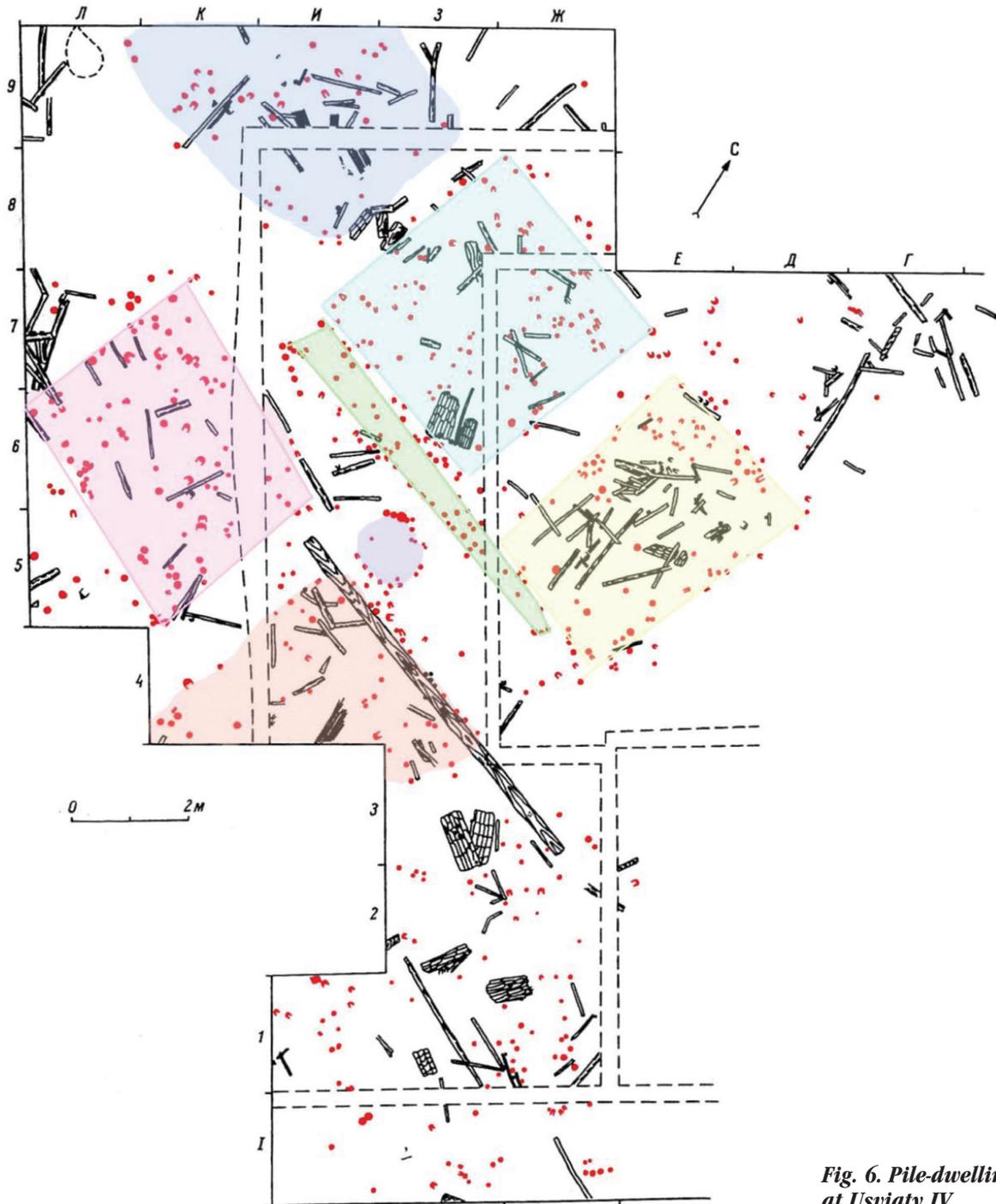


Fig. 6. Pile-dwellings at Usviaty IV.

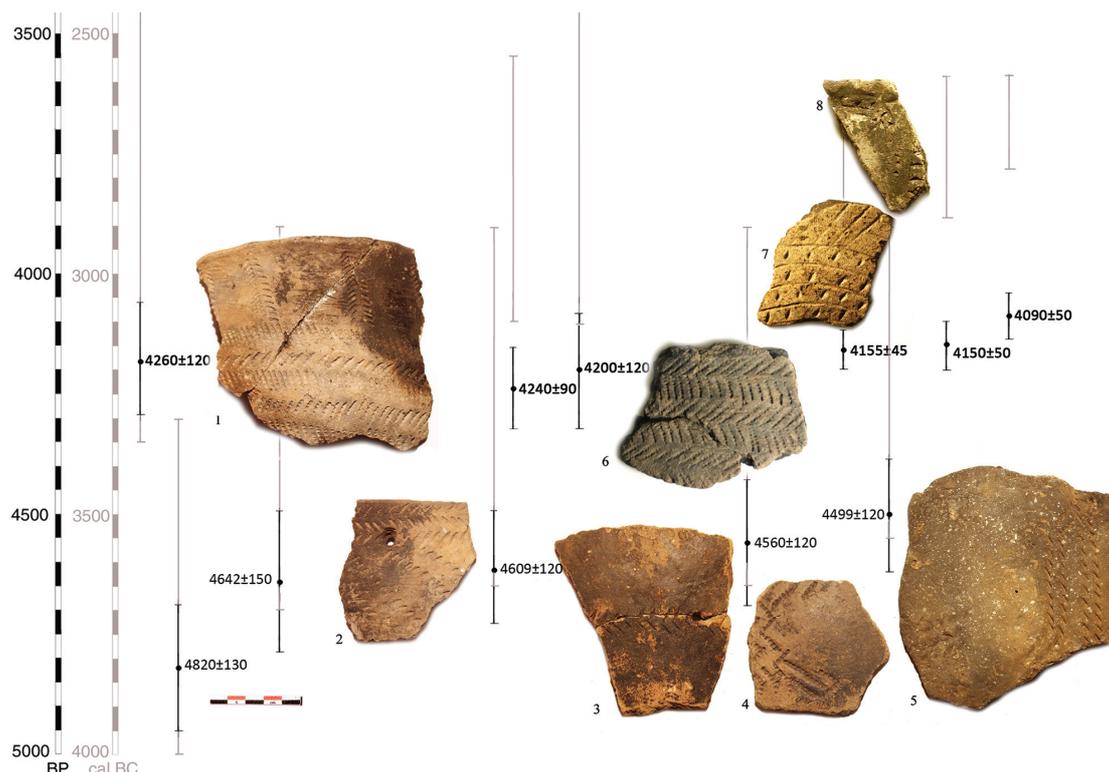


Fig. 7. ^{14}C dated pottery fragments (e.g., organic crust) from the 4th to 3rd millennium BC.

the second quarter of the 4th millennium BC. The Usviatskaya period encompasses almost the whole of the 4th millennium until the turn of the 4th–3rd millennium BC (Figs. 6, 7.2–5, 8.1, 6).

A new cultural tradition known as Zhizhitskaya culture was formed at the turn of the 4th–3rd millennium BC (*Mazurkevich, Dolbunova 2011b*) (Figs. 7.1, 6; 8.4–5; 9). It was a complex cultural event, formed on the basis of different cultural components. It demonstrates another model of cultural genesis in the Neolithic of the forest zone. The material culture (primarily pottery) includes various traits typical of the Usviatskaya, Funnel Beaker, Globular Amphora, Corded Ware cultures (Fig. 9), and the late stage of the Dnepr-Donets culture (*Mazurkevich et al. 2014*). Amber artefacts attest to connections with the Baltic area (Fig. 10.1–5). Bearers of Balkan agricultural traditions appeared in the Sennitsky and Zhizhitsky archaeological micro-regions at the turn of the 4th–3rd millennium BC, and under their influence, a particular cultural complex was formed, which included vessels with trays, pintadera (Fig. 10.6) and a new system of decoration (Fig. 7.7–8). The dates (Tab. 1.22–36, available online at <http://dx.doi.org/10.4312/dp.44.10>) are of organic crust from vessels, as well as wood from a cultural layer from the Naumovo site and from overlying and underlying layers (*Mazurkevich 2007*).

The dating of different parts, dwelling remains and other objects at Serteya II, which has been investigated in the last few years, allowed particular patterns and interesting observations about the chronology of this site to be revealed. The cultural layers of the site are located under water and in peat-bog, a unique mode of preservation of material culture dated to the end of the 4th–3rd millennium BC and attributed to the Zhizhitskaya culture. The remains of six dwellings were found in the central part of the site, located under water (Fig. 11). Eighty-nine radiocarbon dates were made for this site on different materials: wood piles and objects, organic crust, animal and fish bones, and chestnuts. The dates of the different materials do not contradict each other, despite the possible influence of the reservoir effect, which appears to be negligible (*Kulkova et al. 2014*). Sometimes, the results of radiocarbon dating forecast the discovery of older cultural remains. Thus, for example, materials attributed to the late stage of Usviatskaya culture can be found only now, whereas radiocarbon dates of this time have appeared before.

The most ancient dwelling is dated to about 2900–2570 cal BC. Thereafter, the site may have been uninhabited for some time (*Mazurkevich et al. 2011*). The next construction period is dated to 2570–2330 cal BC. The settlement was most actively populated from 2470 to 2270 cal BC. We might suppose that

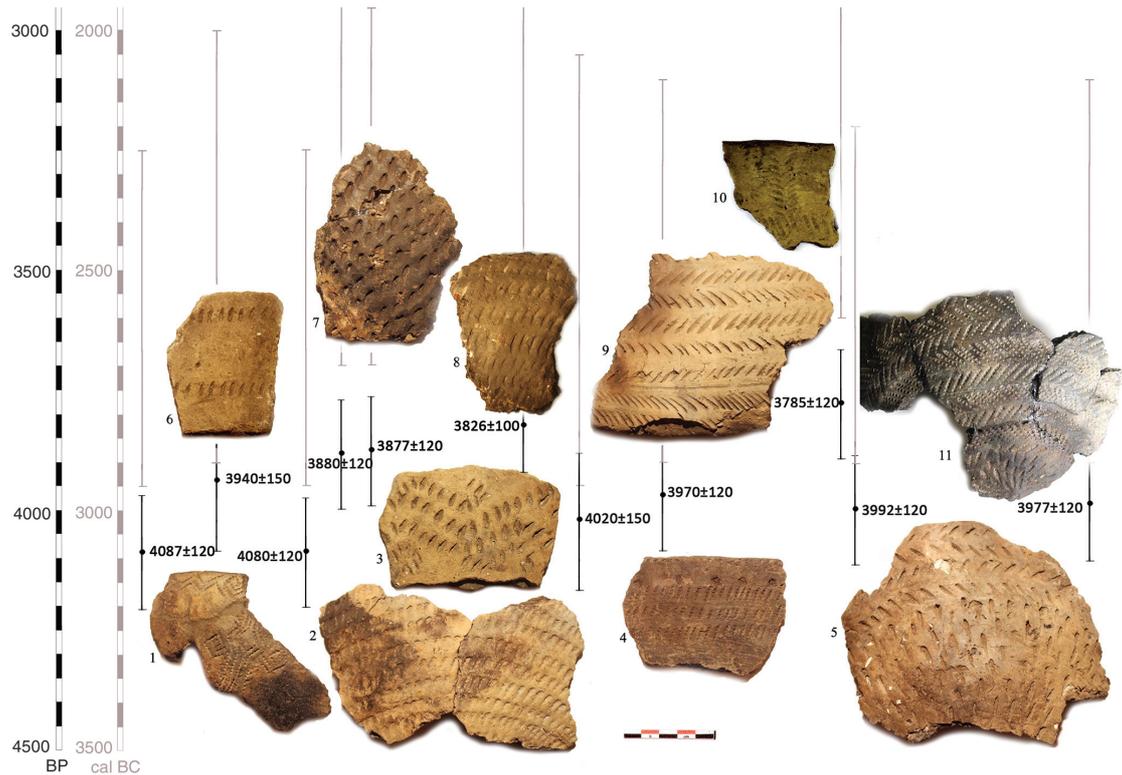


Fig. 8. ^{14}C dated pottery fragments (e.g., organic crust) of the 4th to 3rd millennium BC.

during this period a small-scale society lived here and successively constructed pile dwellings and/or reconstructed them in the same place. By correlating archaeological observations and radiocarbon dating, we suppose even several periods of occupation in the same places. For example, three groups of piles were distinguished at different depths in peat bog in the eastern part of the site (squares O-P/VIII-IX). Radiocarbon dating of piles from these groups confirmed the chronological difference between them (see the dates of piles no. 276, 245, 285, 342, 265, 291, 313, 294 in Table 1, available online at <http://dx.doi.org/10.4312/dp.44.10>). We might expect that the biggest group of dates to be divided into several groups by further dating. The dates for different horizons and remains of structures could allow the differentiation of piles of different structures. Further analysis, including dendrochronological research, will allow a more precise time scale for this site to be created.

There are also several dates within the interval 2210–2020 cal BC and 1920–1730 cal BC, which is evidence that this place could have been used later on, which is attested by finds from the shore located 70m from the central part (Serteya II, layer α) of the excavated settlement area. In 2015, two human skeletons were found 40m from the main area, near a mineral cape in lacustrine sediments (Fig. 12). The

dates of wood (Tab. 1.160–161, available online at <http://dx.doi.org/10.4312/dp.44.10>) overlying these skeletons show the period when wood remains accumulated in the shoreline. Thus we suppose that these skeletons were left here before 2279–2059 cal BC. This corresponds to the last stage of the site's existence in the peat-bog.

Serteya II (period of existence of dwellings 1/6–3 existence) might have been the only inhabited site in the middle of the 3rd millennium BC in the Sertey-sky archaeological micro-region. The materials found at this site on the one hand reflect the particularities of the culture of local inhabitants in this micro-region and, on the other, allow the identification of technological, morphological and decorative features of pottery from different dwellings during the lifetime of several generations (Mazurkevich et al. 2014).

A range of fishing structures and objects existing at different periods of time during the 4th–3rd millennium BC were found at Serteya I, which is 1.5km from Serteya II. Numerous items have been dated: wooden stakes (Tab. 1.66–70, 73, 75–77, 79–81, available online at <http://dx.doi.org/10.4312/dp.44.10>), elaborate wooden sticks (Tab. 1.72, available online at <http://dx.doi.org/10.4312/dp.44.10>), a structure made from vertical pine sticks connected by

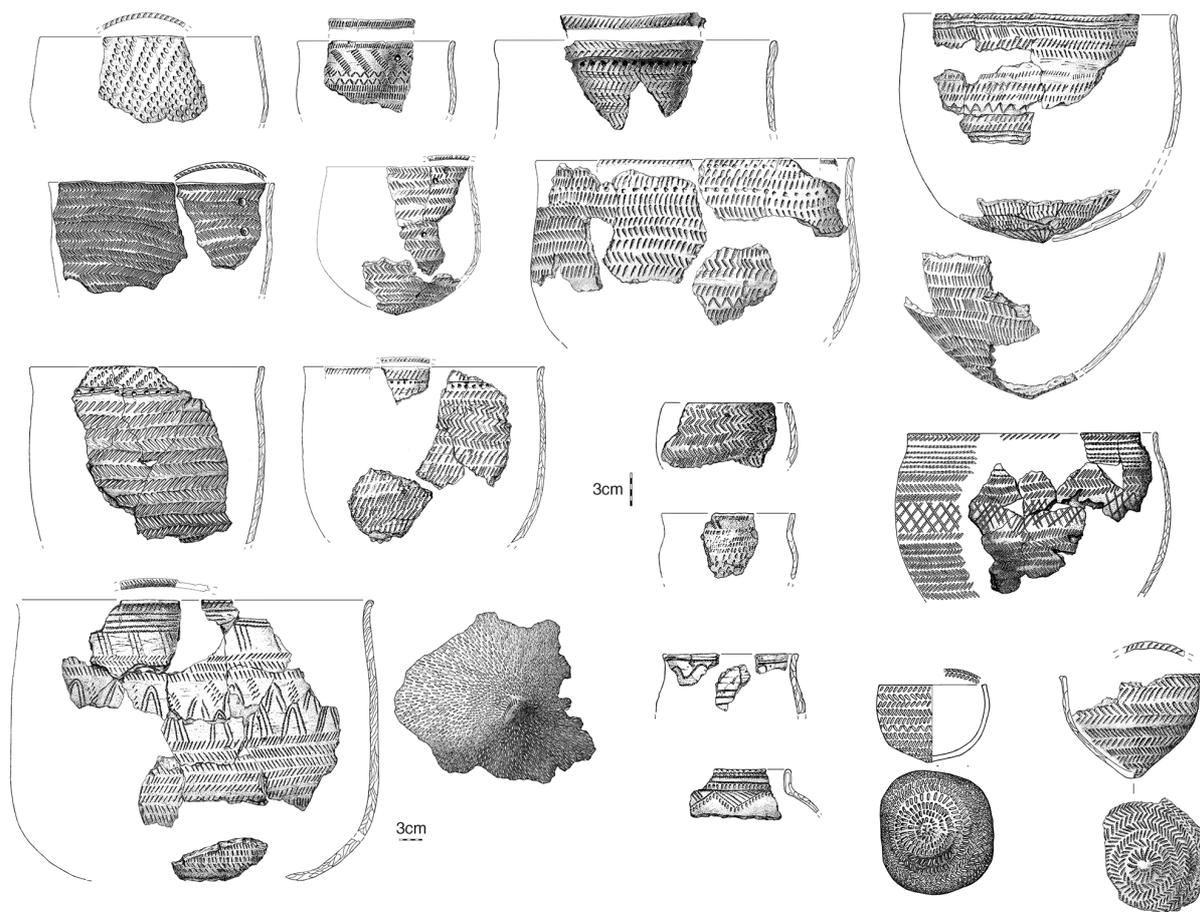


Fig. 9. Serteya II, ceramic assemblage.

cords (Tab. 1.71, 74, available online at <http://dx.doi.org/10.4312/dp.44.10>), a structure made from horizontal fir sticks, sharpened at the edge, 3m in length (Tab. 1.65, available online at <http://dx.doi.org/10.4312/dp.44.10>) and the remains of a fishing net (Tab. 1.82, available online at <http://dx.doi.org/10.4312/dp.44.10>) (Fig. 13). According to these dates, this place was repeatedly used for fishing, and this complex of finds cannot be regarded as one assemblage. Given the pottery fragments found here, some of these objects could have been left by occupants of Serteya II.

Particular types of structures dated to the second half of the 3rd millennium BC/beginning of the 2nd millennium BC were also found. These include struc-

tures constituting of large stones placed in lines found on Dubokray I (Lake Sennitsa, Pskov region), where several accumulations of stones were found at the bottom of the lake (Mazurkevich, Dolbunova 2011). These stones were part of a structure which included stones placed in a circle with rays radiating from it. Small stones, an accumulation of charcoals, flint tools, axes, and pottery fragments were found nearby. An accumulation of charcoal was dated to 3690±50 BP (Le-9537, 2268–1938 cal BC).

In the Serteysky micro-region, a particular structure resembling a mound can be dated to the same time. A mound with a flat surface was made on a natural elevation with a ditch around it, with a passageway from the south-western side (Fig. 14.a). An ash oval

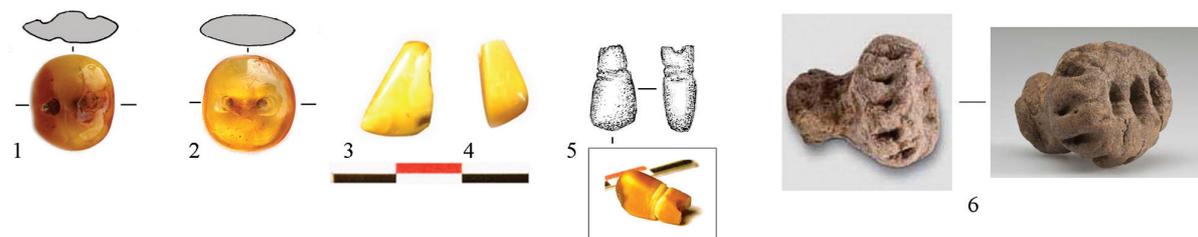


Fig. 10. Amber pendants (1–5 Serteya II), pintadera (6 Naumovo).

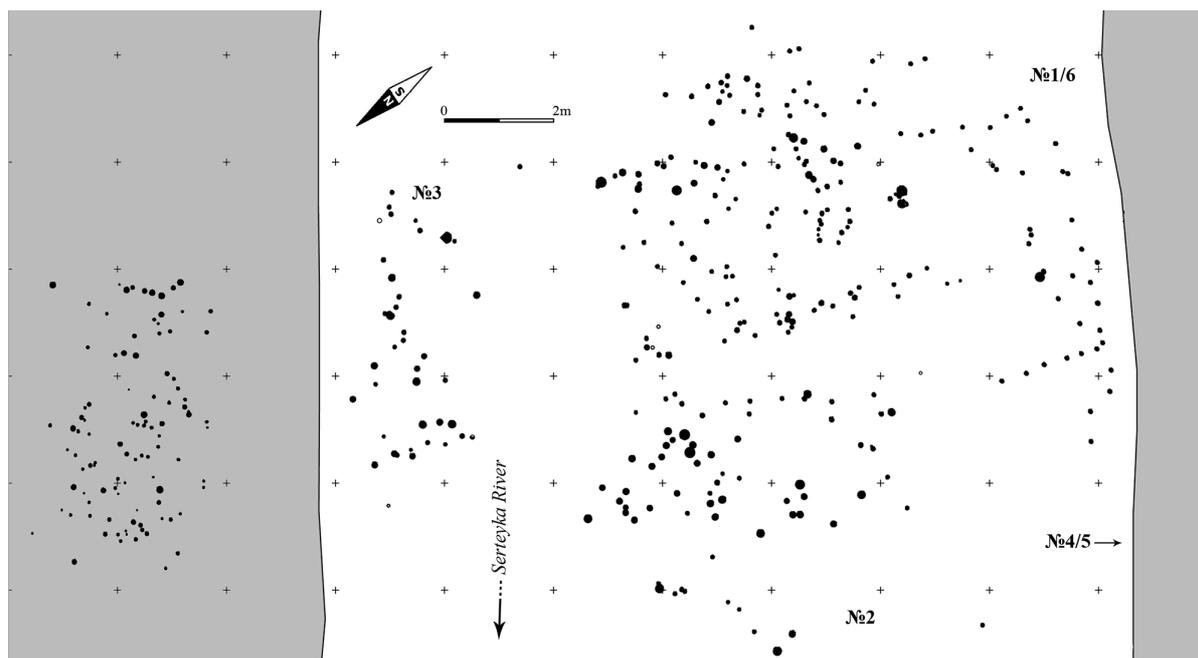


Fig. 11. Piles distribution with pile dwellings indicated at Serteya II.

lens 4–14cm thick and 8.20m in diameter was recorded on the surface. This layer was formed here as the result of a large fire-place which was covered during a burning-out or immediately after one. This is attested by inclusions of small pieces of charcoal and ash distributed above the upper part of an ash layer, which could have been formed as the fire-place was filled with sand. Near the passage under the layer of ash interlayer, there was a dense accumulation of burnt bones, probably put in a container which, according to M. V. Sablin, included elk bones. A dark-green patina – bronze oxydes (identified in the Scientific-technical Department of The State Hermitage Museum) – was recorded on parts of the bones. The burnt elk bones were dated to 3743 ± 50 BP (SPb-1194, 2297–1980 cal BC), and the charcoal to 3485 ± 80 BP (SPb-1203, 2024–1621 cal BC). These dates allow us to attribute this stage of the structure to the end of the second half of the 3rd millennium BC/ beginning of the 2nd millennium BC, which correlates it with the last stage of the pile-dwellings. The dates of layers with charcoal from the layers lying above showed this mound was also used during the late Middle Ages and in the 19th century (Tab.

1.219, available online at <http://dx.doi.org/10.4312/dp.44.10>; Fig. 14.b).

Conclusion

We suggest that the prehistory of Dnepr-Dvina River basin has many features in common with the prehistory of other regions of the forest zone in Eastern Europe. The materials and dates presented here show the difficulties in dividing the Neolithic into three periods. Around ten cultural events can be observed in the Early Neolithic which are represented by the most archaic pottery found in this region, si-



Fig. 12. Skeletal remains found at Serteya II.

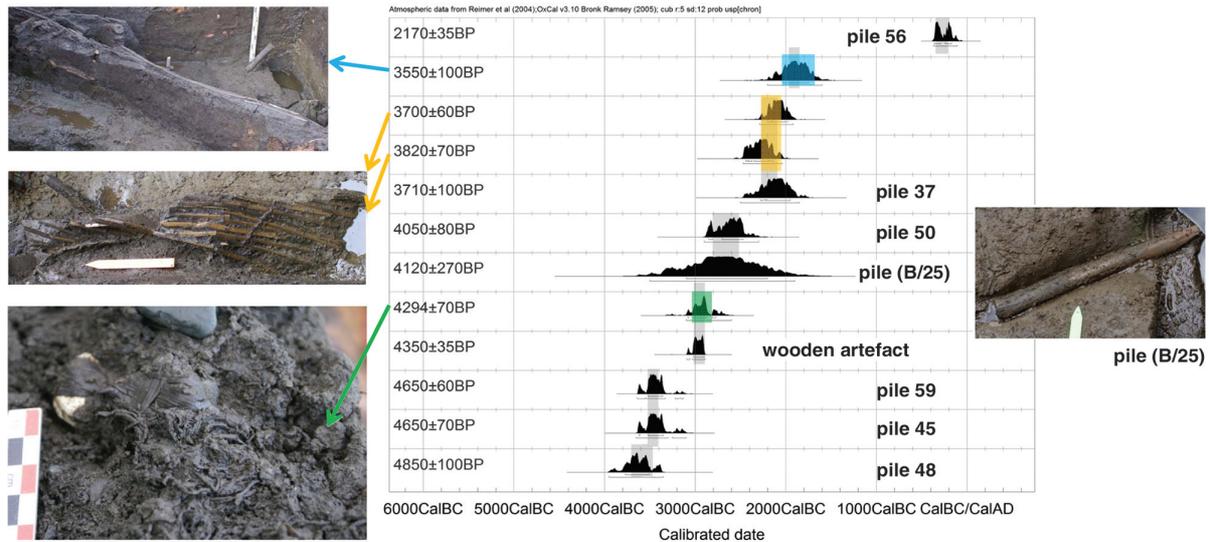


Fig. 13. Chronological scheme based on dates of wooden piles, fishing structures, wooden artefacts and fishing net from Serteya I.

milar to early pottery in other parts of Eastern Europe. This is why it is important to discuss archaeological features to identify the different periods within the Neolithic era (Mazurkevich et al. 2013).

The Early Neolithic traditions had some centres of origin in Eastern Europe, which explains the similarity of the Early Neolithic ceramic traditions over a vast area and independently of the area of origin (Mazurkevich, Dolbunova 2015). Typological analyses might create an illusion of evolutionary development in the different ceramic traditions over a long period. However, direct radiocarbon dating allows us to devise a non-linear scheme showing how material culture developed. We can suppose that the different cultural traditions clearly traced in pottery existed in the Western Dvina basin for rather short periods. They sometimes co-existed with other traditions, quite often of non-local origin, which did not exist for a long period. All of this shows the complicated process of how innovations settled down in a local Mesolithic milieu due to a scenario completely different from the scenario in Central Europe.

This material might also indicate the penetration of small communities into the forest zone, the take-over of unoccupied land. It appears that some of these newcomers did not set-

tle here, as their material culture did not exist later. Nevertheless, some traditions were established in different areas and, due to their isolated character, particularities of contacts with other cultures and some other features, they led to the formation of the first ceramic cultures in the forest zone of Eastern Europe. At a later stage, regional specificity became so strong that, while in some regions the Early Neolithic continued (for example, in the Dnepr-Dvina basin) and in others (for example, the Low Volga basin) a new epoch was defined, the Eneolithic (Vybornov 2016). When did the Early Neolithic period end? What features could serve as markers of this? One of the criteria could be the creation of the first ceramic traditions in different areas. The end of the Early Neolithic for the Dnepr-Dvina basin might be mark-



Fig. 14. Kurgan near Serteya village: platform with the central part covered by ash (a first stage of its construction, Late Neolithic/Bronze Age); slopes of the kurgan with traces of fire (b fourth stage, XIX c).

ed by the end of ceramic traditions which had their origin in the oldest ceramic traditions of the Low Don, Low Volga and/or Baltic area.

The second indicator could be the appearance of highly sedentary communities and, probably, consequently a rise in population. The beginning of the Middle Neolithic is marked not only by changes in the directions of cultural and social interactions. Settlements became occupied all year round, and radiocarbon dates show a continuous occupation in archaeological micro-regions. ¹⁴C dates also allow us to determine when contacts were established between the Dnepr-Dvina basin and other areas and cultures: Funnel Beaker culture, cultures of Balkan agricultu-

ral communities, Globular Amphora culture, communities of the Upper Dnepr basin, and the formation of a very particular culture with pile-dwellings as a prominent architectural form. The Late Neolithic is connected with the appearance of bearers of Corded Ware culture in this region.

However, a clear cultural-chronological scheme even for such a small region seems to be very complicated, because along with archaeological cultures distinguished here, there were singular events which are indicated by particular material culture complexes, and which should be pin-pointed on a cultural-chronological scale and existing networks.

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