

The Kargopol type ceramics – the first pottery of the northern part of the East European Plain?

Ekaterina Kashina, Nataliya Yu. Petrova

State Historical Museum, Department of Archaeology, Moscow, RU
eakashina@mail.ru

ABSTRACT – *The small group of early ceramics was found between the 1930s and 1990s, but was previously underestimated as a source that points directly to the origins of ceramic production in the boreal forest zone c. 5500–5000 BC. The Kargopol type ceramics demonstrate very archaic technological traits: a straight rim with round holes below the rim and clay paste with sand temper. This type of ceramics had a wide distribution and was made uniformly, at least concerning vessel capacities and basic decoration patterns, probably reflecting the birch bark vessel features. We recognize this phenomenon as key to understand how the process of ceramic production emerged in the zone of Russian boreal forest.*

KEY WORDS – *Early Neolithic; hunter-gatherer-fishers; pottery; East European Plain Northern part*

Keramika tipa Kargopol – prva lončenina na severnem delu Vzhodnoevropskega nižavja

IZVLEČEK – *Manjša skupina zgodnje keramike je bila odkrita med leti 1930 in 1990, vendar so jo v preteklosti podcenjevali kot vir podatkov, ki kaže na neposreden izvor keramične proizvodnje na območju borealnih gozdov ok. 5500–5000 pr. n. št. Keramika tipa Kargopol kaže zelo arhaične tehnološke značilnosti: raven rob ustja z okroglimi vbodi pod ustjem in lončarsko maso z dodanim peskom. Keramika tega tipa je bila razširjena na večjem območju in je izdelana enovito, vsaj kar se tiče prostornine posod in osnovnih okrasnih motivov, ki verjetno posnemajo videz posod iz brezovega lubja. Pojav te lončenine razumemo kot ključen pri razumevanju načinov, kako se je keramična proizvodnja pojavila na območju ruskih borealnih gozdov.*

KLJUČNE BESEDE – *zgodnji neolitik; lovci – nabiralci – ribiči; lončenina; severni del Vzhodnoevropskega nižavja*

Introduction

In this paper we have made an attempt to analyse a small group of Neolithic ceramics which was not the focus of previous studies in Russian papers concerning the northern part of the East European Plain, but was only sporadically mentioned. According to our new study of the morphology and technology of these type of ceramics, we assume that these materials reflect the early, initial phase of ceramic production in the vast territory stretching from the Onega Lake to the west to the Pechora River downstream to the east, thus covering a zone of around 1000km

by length, which seems to be the most outstanding length for Russian Stone Age (Neolithic) ceramics, based on current knowledge. We are waiting to obtain the ¹⁴C dating results for organic residues on the inner sides of ceramic fragments in the near future, which would allow us to check the arguments proposed in this work and provide more firm proof of our ideas.

The northern part of the East European Plain has an enormous area (nearly 1 400 000km²), and consists

of several large administrative units of Russian Federation (Fig. 1): the Republic of Karelia, the Murmansk, Arkhangelsk and Vologda Regions, the Republic of Komi and the Yamalo-Nenets autonomous district. Obviously, archaeological surveys have only been made locally here, and while a long series of large material collections obtained in the 20th century is available in the various capital cities' local museums, most of these have still not been fully studied. This territory was populated immediately after the end of the last glaciation (*Subetto et al. 2002*). Most of the related sites were situated within lake depressions, and have been found to contain multi-layer settlement materials of different epochs, sometimes not clearly stratified or even totally mixed in sandy sediments. This settlement pattern is typical for the whole boreal forest zone of the East European Plain in prehistory, populated by hunter-gatherer-fishers, living in the conditions of a moderate continental climate (*Oshibkina 2003*).

Our particular interest in the Early Neolithic history of this area rose after the new ¹⁴C dating results obtained for the burials at the Kubenino site (Arkhangelsk region), which were previously dated to the 4th millennium BC. However, in the course of recent collaboration with Finnish colleagues, these burials were dated to c. 5000 BC (*Ahola et al. in press*). That is why we started to ponder which types of ceramics might have existed there at such an early period, at the hypothesized border between the Final Mesolithic and Early Neolithic, the last being distinguished by the presence of pottery while the whole toolkit seemingly stayed the same (*Gerasimov, Kriiska 2018.307*).

Aleksandr Zhulnikov (Republic of Karelia, Petrozavodsk) (*pers. comm.*, March 2017) gave us the first data about the special and rare sherds of the so-called Kargopol type, and we started to explore its historiography deeper. These ceramics were first documented by Aleksandr Brussov during his excavations of the Karavaikha site (Vologda Region) in the early 1950s (*Brussov 1961*). Some other researchers have also found the same pottery fragments, but attributed them to the Bronze Age or even Iron Age (*Foss 1952; Burov 1967*). Com-

ing after Brussov, in a series of recent studies the Kargopol type ceramics were described more accurately by their morphology and technology, but again no one declared their innovative and archaic provenance, recognizing them only as a synchronous variant of Pitted Ware or Pit-Comb Ware – the huge conglomerate of ceramic types spread along the whole territory of the East European Plain forest zone (*Lobanova 1997; Ivanischeva 2014*). Though in some studies the Kargopol type ceramics from the territory of the Republic of Komi were recognized as one of the earliest ceramic types there (*Kosinskaya 1997; Karmanov, Volokitin 2004*).

To date we have made a technological analysis of 22 ceramic fragments from the Karavaikha site, and additionally studied the morphology of c. 30 fragments from the same site and several neighbouring ones, which are kept in the State Historical Museum (Moscow) collections. It is still not possible to count the total number of fragments based on the literature, and instead we can only produce approximate figures. According to Nadezhda Lobanova, 400 fragments are known for the whole Karelian territory (*Lobanova 1997.86*). For each settlement, it doesn't matter in which region it was situated, the number of the Kargopol type sherds can vary from one to several dozen (*Ivanischeva 2014*). It seems that the scale of production for these vessels was much smaller than that seen with the main younger Neolithic ceramic types in Northern Russia, like the Pitted Ware, Pit-Comb and Comb-Pit Ware.

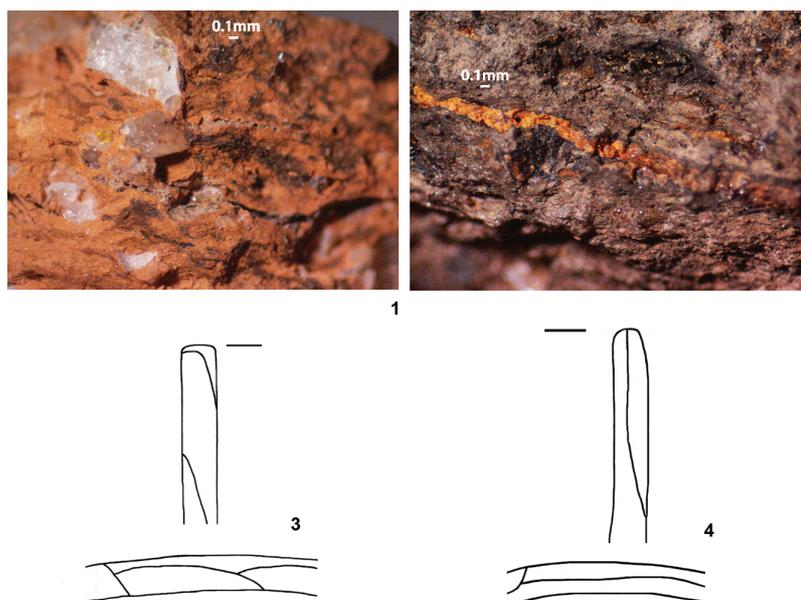


Fig. 1. Technological analysis of the Kargopol type pottery: 1 inclusions of sand (microphoto); 2 traces of organic solution (microphoto); 3 slab construction (drawing); 4 paddling (drawing) (all photos and drawings by N. Petrova).

It should be noted that no one has yet discussed whether this type of ceramics could have been the oldest pottery in the territory of the northern part of the East European Plain. The first reason why no one has discussed this is obviously the multi-layered character of this pottery's find contexts: usually it has been found mixed with younger finds of Pitted and Pit-Comb Ware, or even younger, depending on the site. Only at the Karavaikha site (Arkhangelsk region) and at the group of Karelian sites in the Vodlozero microregion, has it been possible to detect it in the lowest part of the cultural layers, but again mixed with younger ceramic types (*Brussov 1961; Kosmenko 1992:122*). Another reason is the lack of technological studies for this type of pottery: most descriptions are based on superficial inspections by researchers who are not familiar with the methodology of archaeological ceramic studies (*Kosinskaya 1997; Lobanova 1997; Ivanischeva 2014*). That is why we applied this approach here, based on methods developed in the USSR and later in Russia by Aleksandr A. Bobrinsky and Yuri B. Tsetlin (*Bobrinsky 1978; 1999; Tsetlin 2017*).

Technological analysis of the Kargopol' type pottery

After looking through the State Historical Museum collections (based on excavations by Brussov of Karavaikha and Kubenino in 1952 and 1961 and by Maria Foss of the site in the mouth of the Olga River), we obtained 22 fragments of the Kargopol type pottery for further analysis. Microscopic technological analysis of the surface and of cross-sections of ceramic samples at all stages of pottery technology was carried out using the method devised by Bobrinsky (*Bobrinsky 1978; 1999*), with a binocular microscope MBS-10, stereo-microscope Carl Zeiss 2000-C and metallographic microscope Olympus MX 51. A study of raw materials and pottery paste, methods of construction, vessel surface treatment, and firing was performed (Fig. 1). Samples of modern clay from sites Karavaikha III and IV were taken to explore the natural mineral inclusions. These samples together with ancient ones were re-fired in a muffle furnace under identical conditions (850°C), which allowed us to determine the relative degree of clay ferrugination and detect evidence of organic solution as one of the paste components.

Vessel diameters vary from 10 to 36cm with 0.3–0.7cm thick walls, which agrees with Lobanova's measurements of Karelian fragments (*Lobanova 1997*).

In four cases a crust was detected on the inner sides of four relatively large vessels, having a diameter from 23 to 35cm. All rims are straight and decorated in a particular way. It seems that the vessel bodies were not decorated at all, but in order to avoid mistakes in Early Neolithic pottery detection (as Karavaikha is in fact a multilayer site), we did not study the undecorated walls, concentrating only on rim fragments. Thus we have absolutely no relevant data on the Kargopol type vessel bottoms. Medium-ferruginous clay with the average quantity of mineral inclusions was used, with visible plant inclusions as imprints of 0.7–0.8mm in length, pointing to the use of silt clay as a raw material (*Vasilieva 2011*). The deliberately added inclusions are represented by non-rounded smooth sand (units or conglomerates) and by the organic solution of unknown origin (the amorphous or filamentary cavities) (Fig. 1.1–2). The slab construction is evident, with slabs measuring 2–3cm length; then vessels were paddled, as the slabs had a rather thin cross-section (Fig. 1.3–4). The surface treatment of the vessels was obviously made by fingers and some firm tool, probably made of bone, which made the sand particles glossy on the outer surface. The lightness of the outer layers of clay paste, detected not deeper than 1mm, could witness the short stay at the heating temperature (at least 650°C), and the sharp colour difference between outer and inner layers indicates fast cooling.

The Kargopol type of vessel decoration is simple and consists of only two motifs: a row of pierced round holes made before firing, and a row of short incisions at one or both rim edges. Pierced holes were made from the outer side at 0.3–0.9cm below the rim edge, and the spaces between them are from 0.5 to 1.6cm. Two kinds of holes were distinguished according to their diameter: small (1.5–2mm) and large (3–4mm). Short incisions, usually made on both sides of the rim edge, can be vertical or slightly inclined to the left or right. No correlation between hole sizes and incisions were detected. Such a composition is recognized as a 'proto-décor', reflecting the raw, initial stage of the potters' knowledge about methods of vessel decoration (*Tsetlin 2002*).

The pierced holes were inherent to ceramic vessels over a huge territory at the initial stage of pottery production all over the world, and researchers give different explanations of their purpose, *e.g.*, aesthetic, to hang the vessel, to attach a lid, or technological traces in the case of a wicker mould used for vessel modelling. We detected neither traces of mechanical hole damage, nor wicker mould traces, that

is why we propose the following explanation of the Kargopol type vessel decoration.

Most likely an imitation of organic material containers (e.g., the birch bark vessels) took place, where the edge was strengthened by sewing a narrow band over the container's edge (Tsetlin 2002). In collections at the State Historical Museum there is a birch bark container fragment from the Middle Trans-Urals settlement Gorbunovo, dated to the Early Bronze Age, 3rd millennium BC (Kashina, Chairkina 2012), where those traces of sewing are clearly visible, reminiscent of holes and incisions in the Kargopol type ceramics (Fig. 2.1–2). According to ethnographic data on traditional North Eurasian and North American communities, making birch bark items was a typical female handicraft, being technically very close to sewing. The making of birch bark containers included sewing, and those items were always among women's personal belongings even after getting married or divorced (Chernetsov 1964; Croft, Mathewes 2013). A number of researchers maintain that the making of hunter-gatherer pottery was a predominantly female handicraft, and we completely agree



Fig. 2. The Gorbunovo peat-bog site birch bark container fragment: 1 general view; 2 enlarged rim area with traces of perforations and sewing (photos by E. Kashina).

with them (Tsetlin 1998; Zhulnikov 2006). Accordingly, Stone Age birch bark handicraft and pottery production were very close to each other, and both birch bark containers and the Kargopol type vessels (as we reconstruct moderate volumes for some of them) could have been simply taken from one site to another, and this is how these ceramics may have travelled considerable distances.

As a result of our study, we have some evidence that the Kargopol type ceramics could have been the earliest pottery in the territory of the northern part of the East European Plain:

- ❶ simple pottery paste recipes, the minimal deliberate sand admixture;
- ❷ simple decoration, the so-called 'proto-décor' stage.

We also have preliminary proof which enables us to speak not only of the abstract 'genetic ties' between the Kargopol type ceramics and the Sperrings, the Pitted Ware, and the Pit-Comb Ware, dispersed over the northern part of the East European Plain. We recognize the similarity of their recipes, as we concluded after analysing the narrow random series of Karavaikha site ceramic fragments which belong to all three mentioned groups. Finally, we can make an assumption that according to its technological features the Kargopol type ceramics could have been older than other ceramic types on this list, and perhaps even given rise to them.

Morphological analysis of the Kargopol type pottery

Despite the rarity of these type of ceramics, their fragmentation, and absence of clear archaeological settlement/burial contexts, it has several clear morphological traits which help to separate it from the whole ceramic assemblage at multi-layered sites: a straight rim, pierced holes in a horizontal row, and incisions along the rim edges. Observing the data concerning our museum materials, other museum collections and publications, we found multiple variations of Kargopol pottery decoration besides the basic elements of holes and incisions (for this finding we are grateful to Aleksandr Zhulnikov and Ekaterina Dubovtseva for their valuable data and photos of the Arkhangelsk and Syktyvkar museum materials).

Four variants of the Kargopol type ceramics were distinguished (Fig. 3), as follows.

- Variant 1. Vessel fragments have only the basic decoration elements – pierced holes in a horizontal

row and incisions along the rim edges. This variant is widely spread over the territory of the northern part of the East European Plain, from the Onega Lake Eastern shore area to the Pechora River downstream. The amount of fragments at each site differed from one piece to several dozen (Fig. 4.1–6);

- Variant 2. Besides the basic elements, a row of shallow rounded pins was made on the rim. However, only two such fragments are known so far, at the sites Vodla V and Yavronga I (Fig. 4.7);

- Variant 3. Besides the basic elements, shallow rounded pins can also be placed between each basic hole, in a number from one to four pins. Only six such fragments are known date, from the at sites Yerpın Pudas I, Karavaikha, Vshivaya Tonya and Yavronga I (3 pieces) (Fig. 4.8–10).

- Variant 4. Besides the basic elements, multiple elements and motifs made using different kinds of stamps have also been found. This variant has been discovered at many sites over a wide area. The total number of fragments is not known, but it seems to be quite numerous, especially in the Republics of Karelia and Komi (Fig. 5.1–4).

In two cases a mixture of variants occurred: the Kubenino site fragment combined variants 3 and 4, the Yavronga I site fragment combined variants 2 and 3 (Fig. 5.5–6).

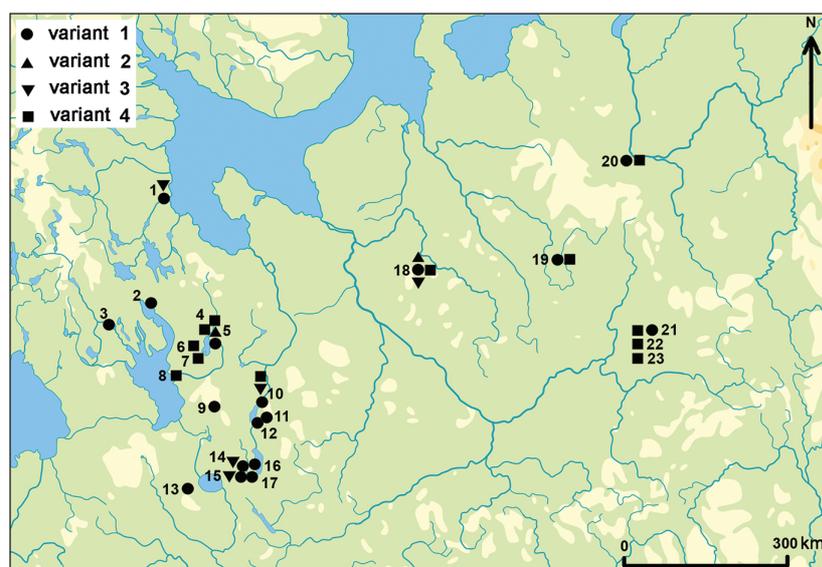


Fig. 3. Map of the Kargopol' type pottery distribution, four variants. 1 Yerpın Pudas I; 2 Voynavolok V; 3 Cheranga III; 4 Ileksa IV; 5 Vodla V; 6 Okhtoma I; 7 Somboma I; 8 Ust'-Vodla III; 9 Soydozero I; 10 Kubenino; 11 River Olga Estuary; 12 Popovo; 13 Andozero II; 14 Karavaikha; 15 Vshivaya Tonya; 16 Mys Brevenniy; 17 Modlona; 18 Yavronga I; 19 Ust'-Komys; 20 Pizhma II; 21 Vis I; 22 Vis II; 23 Vis III (map by E. Kashina).

There are also some distribution features. At the Karelian sites with the well represented variant 4 no basic variant 1 sherds were detected, according to Lobanova's data, except at only one site, Vodla V, where the variant 1 coexists with variants 2 and 4. On the other hand, at the sites to the east from the Kubenino settlement to the Pechora River basin both variants 1 and 4 coexist at all sites (Lobanova 1997; Kosinskaya 1997.168–169).

We still have not explored some other archaeological site collections of the huge Arkhangelsk region and the Republic of Komi, which have been mentioned in passing in the literature (Ivanischeva 2014). Moreover, some similar materials could be detected in the multi-layered site collections of Eastern Finland, in the Kainuu area, situated very close to the westernmost point with Kargopol type ware – at the Cheraंगा III site in Karelia (Lobanova 1997.87).

Discussion

A preliminary overview of the Kargopol type ways of distribution and change could be explained as follows: the very first vessels (variant 1) emerged in the Onega River basin area (Kubenino and the neighbouring sites). Then this tradition moved further both to the west (to Karelia) and to the east – probably up to the Pechora River basin. Later, the process of decoration complexity was triggered, causing the emergence of other variants (2 and 3) right in the initial zone. The flourishing of the most sophisticated and probably most numerous variant 4 could have appeared later, but in broader area like Karelia (west) and Komi (east). In the decoration patterns inherent to variant 4, the features of later ceramic types of the Neolithic epoch can already be observed (Kosinskaya 1997; German 2002).

The Kargopol type ceramics were disseminated over a surprisingly huge territory, around 1000km in length (Fig. 3). We suppose that the tradition of making this pottery moved step by step from one lake depression to another, thus forming segments not longer than 200 to 300km. The distribution of

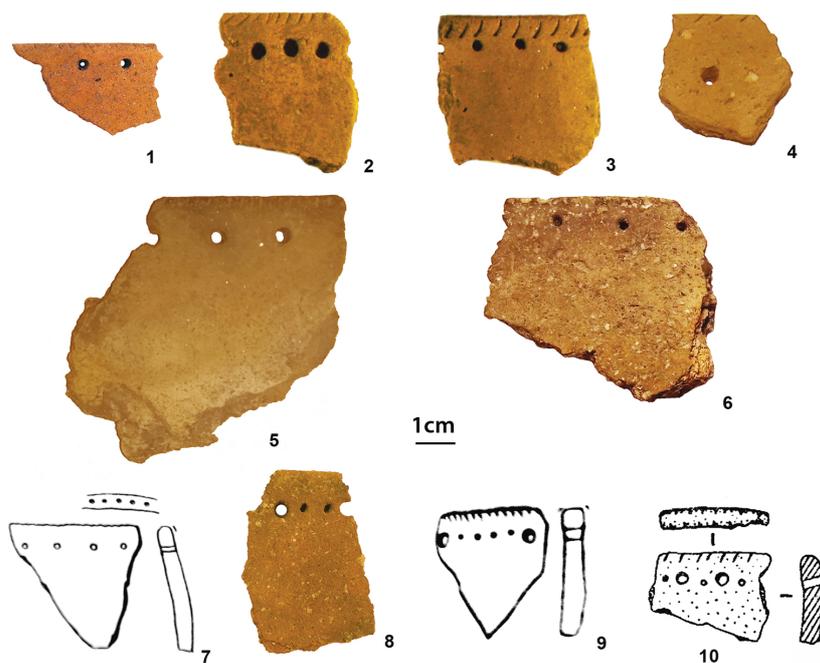


Fig. 4. The Kargopol type pottery fragments, variants 1 to 3: 1–6 variant 1; 7 variant 2; 8–10 variant 3. 1–3 Kubenino; 4 Soydozero I; 5, 6 Karavaikha; 7 Vodla V; 8 Karavaikha; 9 Yerpín Pudas I; 10 Yavronga I (photos by N. Petrova and E. Kashina, figures after Lobanova 1997).

these vessels probably happened not only by matrimonial ties, but also by the vessels direct transport, as they sometimes had rather modest volumes.

The small number of finds could reflect different circumstances:

- ❶ the Early Neolithic communities were seemingly rather small; the moderate vessel size noted for some of the vessels, along with the known presence of food crust, point to the cooking function, but for only a small number of people, possibly members of one small family;
- ❷ the production of vessels was limited, probably due to their innovative character; ceramic vessels were probably recognized as a novelty by local communities within these huge territories.

The longitudinal character of the distribution of Kargopol type ceramics has also drawn our attention, being dispersed along the directions west-east/east-west, pointing at the particular marriage alliances and directions of goods exchange in the northern part of the East European Plain. It reminds us of the ways in which some other artefacts, ideas and traditions moved, e.g., the Eastern Baltic amber ornaments, ceramic vessels of Comb Ware with human heads on the rim and with stamped waterfowl images turned right instead of left (Zhulnikov 2008; un-

published data of E. Kashina). Though these examples belong to the 4th millennium BC, together with the case of the Kargopol type vessels they seemingly represent some regularity, which still needs to be appropriately explained in future work. Another example, although not really of longitudinal character, are the rare finds of wooden skis decorated with sculptural elk heads on the front part, found at three sites of the northern part of the East European Plain (Ivanovskoye III, Veretye, and Vis I) and dated to approx. 6000–5000 BC (Burov 1989). The distance between sites is 500–700km as the crow flies, and the clear morphological similarity of these ski fragments points to the fact that the

makers knew the exact way and manner of their production, obviously having direct contacts with each other.

Thus, the Kargopol type ceramics are a precious resource for revealing of social interactions between the inhabitants of lake depressions during the Early Neolithic. This raises some issues for future research: about the estimated level sedentarism, the population number, the directions of social connections and their probable changes in time and space.

The Kargopol type ceramics relations inside the whole East European Plain

Which places took these ceramics in the general context of the East European Early Neolithic epoch? It would be of great interest to establish the reasons and circumstances of their emergence at a particular moment and area, namely in the north of East European Plain, and their relations with previous ceramic types of neighbouring territories, primarily the southern ones. According to a handful of studies, performed at the central and southern parts of East European Plain, the earliest known ceramic vessels appeared here around 6000 BC, seemingly spreading their influence further to the north (Zaitseva et al. 2016). The given millennia (6th to 5th millennia BC) are of great research interest from a different perspective, being not only the era of first appearance of

ceramics and their dissemination all over the East European forest zone, but also the increase in sedentarism and associated population growth. Also, at the beginning of the 5th millennium a general change of ceramic traditions together with the replacement of blades by flakes and the use of bifacial technology in flintknapping took place. The explanation of an obvious change in lifestyles due only to Atlantic climate conditions does not seem sufficient, and these processes could have had some deeper reasons.

Returning to ceramics, as a result of southern influence the so-called Verkhnevolzhskaya (or Upper Volga) ceramic type emerged and spread over a large territory in the central part of East European Plain, including the Volga-Oka interfluve and the Valdai Upland, united by the presence of fine clay paste with grog, a smooth surface and different decoration patterns, from only pierced holes under the rim to sophisticated narrow stamp compositions covering the whole surface of the vessel (*Kraynov 1996.166–172*).

A series of recent studies focused on interpreting the new AMS dates, made on ceramic residues/food crusts, sometimes aiming to represent the most ancient appearance of ceramics at the given areas (*Zaitseva et al. 2016*). But from our point of view, the represented data frequently lack any firm bases, such as an archaeological context and other AMS data which could help to verify the vessel crust dates. The weakest point of those studies' conclusions about the start of mass ceramic production of the Upper-Volga ceramic type around 6000 cal BC is seen when we look at the highly reliable corpus of the Finnish first ceramics dating results, which consists of a large number of crust dates, verified by the dates of associated contexts (*Nordqvist, Mökkönen 2017*). By the way, the given data fully coincide those of Karelian researchers (*Tarasov et al. 2017*) and the main conclusion is that the first pottery, namely the Säräisniemi I and Sperrings I types, occurred in Karelia and Finland no earlier than 5000 cal BC. The question arises: how to explain such an incredibly slow movement of the initial pottery making tradition (over a period of one thousand years) from the central to northern parts of Russia (e.g.,

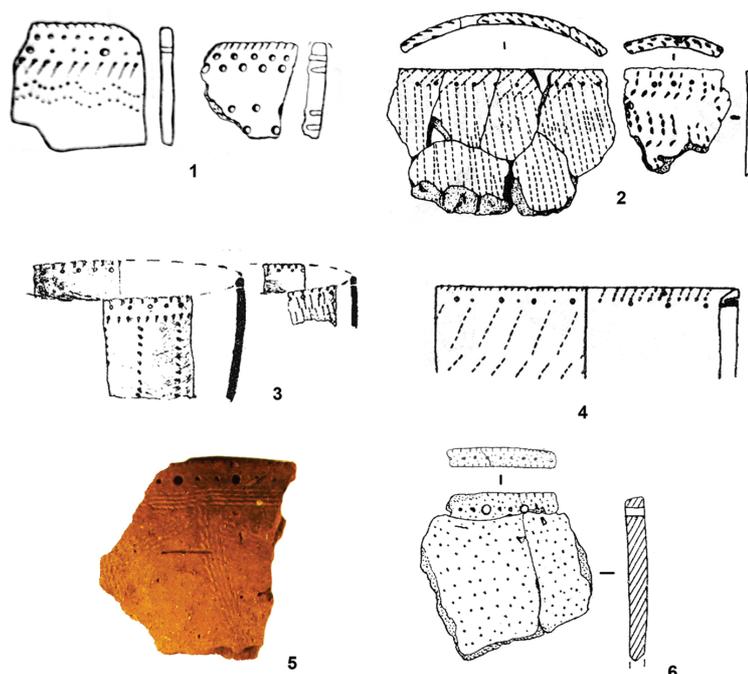


Fig. 5. The Kargopol type pottery fragments, variant 4 and variant mixings: 1–4 variant 4; 5–6 variant mixings. 1 Okhtoma I, Vodla V; 2 Vis I, 3 Ust'-Komys, 4 Pizhma II; 5 Kubenino; 6 Yavranga I (photo by A. Zhulnikov, figures after Burov 1967; Kosinskaya 1997).

from the Upper Volga to the Onega Lake area) in the conditions of a plain landscape, rich in waterways (*Gerasimov, Kriiska 2018.309*)? The simplest answer is that it is necessary to revise the whole assemblage of ¹⁴C dates of the Upper Volga ceramic type: the time of its appearance and distribution was probably not earlier than mid-6th millennium BC, and then the idea of ceramic production could move quickly further to the north.

It was supposed by researchers that undecorated vessels and those with pierced holes around the rim zone were the earliest in different parts of north Eurasia (*Tsetlin 2002*), as well as at the East European Plain. The Upper Volga ceramic type vessels from the Middle Volga, Upper Volga and Tver Volga regions have a steady and universal grog admixture in their clay paste, together with a universal decoration motif – the row of pierced holes under the rim, the last feature reminiscent of the Kargopol type decoration. Were the Upper Volga ceramics a prototype for the Kargopol type? Absolutely not: a characteristic of the Kargopol type is the total absence of grog together with the presence of rim incisions, a unique and highly recognizable decoration motif along with pierced holes. According to this, we can observe no similarity between these two types of Early Neolithic ceramics. The Kargopol type recipe was obviously invented quite independently.

We present here only a simplified view of the process of the development of the first pottery from the south to the north of the East European Plain. In reality, the distribution of the very first local ceramic types could have been much more patchy and differentiated. Aside from the basic Early Neolithic types from the East European Plain, each represented by numerous ceramic fragments, there obviously existed some other variants, known from an extremely small number of sherds, dispersed very locally, which contradict some of the conclusions on the already distinguished ceramic types' basic traits. The good northern examples are those found at the borders or inside the zone of the Kargopol type distribution: the earliest Sukhona River basin ceramic type demonstrates the same pottery paste but the different decoration patterns (*Nedomolkina, Piezonka 2016*). The earliest Tuzozero Lake (neighbouring the Onega Lake from the east) ceramic type demonstrates the absence of grog and a local decoration pattern (*Ivanischeva et al. 2016*). Some earliest Komi Republic types contain grog (*Karmanov, Volokitin 2004.5*), which was supported by Dubovtseva (*pers. comm.*, October 2018). Thus, seemingly

several of the earliest ceramic types existed simultaneously at different areas of the northern part of the East European Plain, and the Kargopol' type itself probably slightly overlapped the initial period of the Pitted Ware (and Pit-Comb Ware), at least in Karelia and the Onega River basin around 5200–4900 BC. Nevertheless, the Kargopol type, based on its morphological and technological characteristics, could have been the earliest in the northern regions. We will try and look into this further by performing AMS residue dating on these materials in the near future.

More illustrations can be obtained from <https://www.academia.edu/37660053>

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