Research Article

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Keeping the Frontier: Steps “Towards Neolithization” in the Eastern Gulf of Finland

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Abstract: This article is an attempt to understand the driving forces behind the process of Neolithization in the Eastern Europe Forest zone, where the consumption economy existed till the Bronze or even till the Early Iron Age. Main peculiarities of the sociocultural development in the eastern part of the Gulf of Finland region (EGF) on the transition from Mesolithic to farming societies (sixth – first ka. BC) are discussed in relation to the changes in material culture, subsistence strategy, communication system and settlement pattern. The process of neolithization lasted there for several thousand years. Overview of the dynamics of the social and cultural development in the region revealed several phases of substantial changes in archeological materials (presumably reflecting considerable sociocultural changes). These changes happened later than in the neighboring territories and were preceded by dramatic environmental transformations that affected prehistoric communities in the coastal zone. For the population of the region, innovations could be considered as not “steps toward,” but “retreat in the face of” neolithization. Resistance of the population of EGF to the innovations could be based on environmental conditions that were extremely favorable for hunter–gatherers’ subsistence, but made farming (especially early farming) rather risky.

Keywords: Neolithic, early pottery, hunter–gatherer subsistence, Gulf of Finland, Ladoga Lake

1 Introduction

The process of neolithization is generally perceived as the development or progress of human society and culture. Neolithization of Europe has been discussed in terms of “waves of advances,” often associated with population movements (Ammerman & Cavalli-Sforza, 1984; Aoki, 2020; Kaczanowska & Kozłowski, 2003). Those “waves” were weaker in the Eastern Europe Forest zone. Pottery appeared there already in the end of the seventh ka. BC, but fishing, hunting and gathering remained the basis of subsistence strategy for several millennia. Other “elements of neolithization” that reflected a growing complexity of the society, such as diversification of used raw materials, development of lithic technologies, large long-term settlements and establishment of regular interregional communications, became archeologically visible in different chronological periods (Nordqvist, Kriiska, & Gerasimov, 2015).

In the eastern part of the Gulf of Finland region (EGF; Figure 1), several phases of substantial changes in archeological materials (presumably reflecting considerable sociocultural changes) in transition from Mesolithic to farming societies happened later than in the neighboring territories and were preceded by

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Figure 1: Map of the study area and neighboring territories.

dramatic environmental transformations that affected the local population. Thus, for the population of the region, those changes could be considered as not “steps toward” but “retreat in the face of” neolithization.

EGF is situated between three major research centers – Tartu, Saint-Petersburg and Helsinki, and for more than 150 years, this territory was a focus of active archeological, geological and paleogeographical studies (Gerasimov, Kriiska, Nordqvist, & Kholkina, 2018). Dynamic environmental changes in EGF in the Holocene left well-preserved detailed natural archives (such as bottom sediments and coastal forms of different generations) that provide a reliable geochronological scale for correlation of archeological data and also a background for interpreting sociocultural processes of the past (Figure 2).

Environmental history of EGF in the Holocene has been studied for many decades, which has resulted in the rather comprehensive paleogeographic model (e.g., Miettinen, 2002; Miettinen et al., 2007; Rosentau et al., 2013; Sandgren, Subetto, Berglund, Davydova, & Savelieva, 2004). Two main factors affected the geological development of the region after deglaciation – oscillations of the World Ocean and neotectonic land uplift of Fennoscandia. The last is a spatially and temporally uneven process. For the territory in question, its speed increases from the South-East to the North-West, while also generally slowing down from the Early Holocene to the modern time. An isostatic land uplift determined the Early Holocene history of the Baltic Sea and also caused several catastrophic rearrangements of hydrological systems in EGF in the later time. One more geological peculiarity of the region to be mentioned here is the absence of natural flint sources. That is why the main raw materials in the Stone Age lithic industries here were quartz and slate, and flint artifacts were obvious imports or made of imported materials.

Figure 2: Chronology of the main cultural units and paleogeographic events in EGF.

2 Materials and Methods

The 150 plus years of research have led to over 500 Stone Age sites being currently known in the Karelian Isthmus and the Ladoga Lake area, and to about 100 sites on the South-Eastern coast of the Gulf of Finland, including Narva-Luga Klint Bay area (Gerasimov, 2019; Gerasimov, Lisitsyn, & Timofeev, 2003; Nordqvist, Seitsonen, & Uino, 2008). Notes of several times more points of Stone Age finds in the Karelian Isthmus are kept in the archives of the Finnish National Board of Antiquities.

Archeological excavations of different scales have been conducted on about 25% of the reliably located Stone Age sites. In the beginning of the archeological studies of the Stone Age in the region (end of the nineteenth century to the first half of the twentieth century), excavations of Neolithic settlements covered large areas of sites and yielded huge archeological collections, but were often taken without precise documenting of the original position of findings. Collections from those excavations often contained materials of different periods, which could not be divided into chrono-cultural units on any other basis than the archeological typology. In the last decades, new light could be cast on the issue thanks to the direct dating of organic matter in potsherds from different museum collections (e.g. Nordqvist & Mökkönen, 2017; Pesonen, Oinonen, Carpelan, & Onkamo, 2012).

Nowadays, archeological excavations in EGF are getting more precise, but at the same time take more efforts, time and expenses. Over 50% of excavated Stone Age sites in EGF were studied in the last two decades in accordance with the current field methodology. It gives an opportunity for reasonable studying of chronological attribution of finds, defining phases of peopling a site. It allows to model the environmental conditions in the past and subsistent strategies of ancient societies as well. However, it also sets the obvious limitation on interpreting the studied archeological contexts (Gerasimov, 2015). Large-scale excavations of the Stone Age sites in accordance with the up-to-date methodology are possible only within the long-term projects (usually with the governmental support) or for construction purposes. So only a few

square meters of the cultural layer have been studied on most of the sites that were excavated in EGF in the last decades. Excavations of more than 50 m² are rare nowadays; excavations of over 8,000 m² on Okhta one site in St. Petersburg (Gusentsova & Sorokin, 2012) and of 1,500 m² on Berezovo 2 (Gerasimov, Tkach, & Goncharova, 2018) are outstanding cases.

It was suggested (Nordqvist et al., 2015) that the main characteristics of sociocultural development in the prehistoric past that can be described through archeological data are material culture, subsistence strategy, communication system, and settlement patterns. Lithic industries are basically the means to characterize material culture in EGF before the appearance of pottery. Artifacts of organic materials are usually not preserved in prehistoric archeological contexts on this territory. In the last decades, several sites with Neolithic contexts sealed by aquatic sediments were studied at the southern shore of the Ladoga Lake (Gusentsova, Kulkova, Ryabchuk, Sergeev, & Kholkina, 2014). Those contexts contain well-preserved organic artifacts. Organic artifacts were also preserved in few Mesolithic contexts – Narva Joaorg, Sijvertsi, Antrea Korpilahti (Carpelan, 2008; Kriiska & Gerasimov, 2014; Pälsi, 1920). Bad organic preservation in the Stone Age archeological contexts of EGF put some limitation on possibilities to study prehistoric subsistent strategies as well – most paleozoological definitions are based on the analyses of burnt (calcined) bones that can cause biases in reconstructions (Seitsonen, Seitsonen, Broderick, & Gerasimov, 2017).

The absolute chronology of the materials discussed is based on a quite representative series of radio-carbon dates. Over 100 dates were obtained for the Stone Age context in Karelian Isthmus, and most of them were systematically published (Seitsonen, Nordqvist, Gerasimov, & Lisitsyn, 2012). About 50 dates came from Okhta 1 site in St. Petersburg (Kulkova, Gusentsova, Nesterov, Sorokin, & Sapelko, 2012), and about 10 dates came from the inundated Neolithic contexts in the Southern Ladoga area (Gusentsova & Kulkova, 2018). Some further 40 dates were obtained from the Stone Age contexts at the southern coast of the Gulf of Finland, mainly in the Narva-Luga Klint Bay area (Rosentau et al., 2013).

3 Main Cultural Phases in the Stone Age of EGF

Sociocultural development of the territory in the context of environmental changes of the Early – Middle Holocene was a topic of a special study (Gerasimov & Kriiska, 2018). Peopling of EGF began about 9000 BC (Pesonen et al., 2014). According to the available data, there were sufficient sociocultural changes in EGF after 7300 BC during the Lithorina Sea stage. Those changes were distinctively seen in the archeological data and allowed the Early and the Late Mesolithic to be clearly distinguished in the regional periodization (Kriiska & Gerasimov, 2014). As distinct from the Early Mesolithic, interregional communications got much weaker in the Late Mesolithic; the lithic industry was oriented to use local raw material sources almost exclusively, and very few flint artifacts were found. The exploitation of the sea and large lakes' littoral zones became a substantial or even the major part of the economy.

Pottery spread in EGF after 5500 BC. Early pottery was represented in the region by two traditions – the Narva pottery and the Sperrings pottery, distinctively different from each other in technology, vessel shapes and ornamentation (Figure 3). Although in Russian archeological periodization Stone Age contexts with pottery belong to the Neolithic period, the appearance of pottery was not accompanied by any other distinctive changes in material culture or in the subsistent strategy and the settlement patterns. Therefore, some authors consider the Narva and the Sperrings traditions as belonging to the Pottery Mesolithic period (Kriiska et al., 2017).

The areal of the Sperrings pottery includes Central, Southern and Eastern Finland, Karelia and Karelian Isthmus, Southern Ladoga area and continues to the east to the Vologda region in Russia (Figure 1). The Sperrings pottery was represented by weakly profiled vessels with rounded bottoms, flattened rim cut and thick (up to 1.2–1.4 cm) walls, made of clay with the admixture of coarse sand and gravel. Vessels were covered with ornament of drawn lines, pits, imprints of flat or coarse comb stamps. There are local variants

Figure 3: Early pottery from EGF: (1 and 2) Sperrings Ware from the Karelian Isthmus (Komsomolskoye 3, MAE RAS); (3–5) Narva Ware from the Narva-Luga Klint Bay area (Kuzemkino 6, MAE RAS).

of this tradition, but in general, the Sperrings pottery differs from the other pottery traditions that were present at the same time in the neighboring territories, as well as from the following Typical Combed Ware.

Another early pottery tradition of so-called Säräisniemi 1 type existed in the northern Finland, northern Karelia and on the Kola Peninsula simultaneously with the Sperrings pottery. The ornamentation of the Säräisniemi 1 pottery contains elements that never appeared on the Sperrings pots and *vice versa*, but the ornamental motifs, morphology of vessels, and the making technology of these two pottery groups are rather similar. Also areas of sites with the Sperrings and the Säräisniemi 1 pottery overlap. This allowed to suggest that the two pottery traditions belonged to two related groups of population (Pesonen et al., 2012), although a different opinion was also expressed (Piezonka, 2015).

According to the radiocarbon dates, the Narva pottery appeared on the Southern coast of the Gulf of Finland and in the territories of the Baltic countries and Belorussia after 5500 BC (Kriiska et al., 2017), at the same time as the Sperrings in Eastern Fennoscandia. The Narva vessels have thinner walls; they were made of clay mass with the admixture of shells and chopped plants. The technology of clay bands connection also differs from the Sperrings. The vessels were ornamented by scratched lines, comb stamps and pinholes. There are local variants within the Narva pottery tradition as well.

Just like in the Late Mesolithic period, the lithic industries of the Sperrings and the Narva traditions were using the local raw materials almost exclusively. This determined the composition of the lithic

assemblages and the local peculiarities of the lithic industries within the areas of both the pottery types. In the area of the Sperrings pottery in Finland, Karelian Isthmus and Northern Ladoga coast, the main used raw material was quartz; slate was widely used at the Western and Northern shores of the Onega Lake, and at the Southern shore of the Onega, local flint was available (Kosorukova, 2017; Tarasov & Gogolev, 2017). Quartz was also used a lot in the area of the Narva pottery, but the local low-quality flint and some other rocks were used as well (Kriiska et al., 2017). As from the Early Mesolithic time, quartz became the main raw material in the Stone Age lithic industries in the Eastern Fennoscandia and particularly in EGF. The bipolar knapping technology (very efficient for the treatment of quartz) dominated in the region.

The subsistence strategy was formed in the Late Mesolithic and continued without any changes after the appearance of pottery. It was based on combined exploitation of forest and littoral resources. The amount of imports (flint artifacts) from the Early Pottery archeological contexts was even lower than in the Late Mesolithic materials, so there was no evidence of well-established interregional contacts. Thus, the population of EGF after the spreading of the pottery continued in the way of cultural development that began in the Late Mesolithic period.

About the turn of the fifth and fourth ka. BC, the Typical Combed Ware (TCW) spread at the territories of both the Narva and the Sperrings pottery traditions and even wider. This pottery was distinctively different from the previous (Narva and Sperrings) traditions. TCW (Figure 4) is dense and well fired, with the admixture of sand and fine gravel. Vessels have a round bottom and tilted rim cuts, and the cuts are often ornamented with comb stamp. During the first centuries after its appearance, it was quite unified in technology, morphology and ornamentation in the whole territory where it was present, although there were local and temporal peculiarities (Nordqvist & Mökkönen, 2015). During the first half of the fourth ka. BC, subregional and local variations within the TCW area became more prominent. The radiocarbon dates

Figure 4: Typical Combed Ware from EGF: (1–3) Narva-Luga Klint Bay area (Izvoz 3, MAE RAS); (4 and 5) Karelian Isthmus (Komsomolskoye 3, MAE RAS).

Figure 5: (1–3) Late Combed Ware, Narva-Luga Klint Bay area (Izvoz 3, MAE RAS); (4–7) Asbestos Ware (Pöljä type), Karelian Isthmus (Berezovo 2; MAE RAS).

obtained from the archeological contexts with TCW, as well as directly from TCW potsherds, show that this type of pottery was in use till about 3300–3200 BC. But already about 3600 BC, the Late Combed Ware (Figure 5(1–3)) appeared and soon became dominant in EGF in contexts that contain TCW. The Late Combed Ware label unites different variants of pottery that had some similarities with TCW in morphology and ornamentation, but also new ornamental elements and motifs. The use of the different kinds of mineral and organic admixture in clay mass also produced technological variations within the same tradition.

After 3600 BC, pottery with the admixture of asbestos (Figure 5(4–7)) in clay mass became a big or a major part of the pottery assemblages in the territories of Finland, Karelia and Karelian Isthmus, in the Ladoga area and in Russian Vologda and Arkhangelsk regions. Several distinctive types of the Asbestos Ware were identified in different regions, such as Kierikki and Pöljä in Finland and Vojnavolok and Orovnavolok in Karelia (Carpelan, 1979; Zhulnikov, 1999); common traits can be found between those types

as well. The Early Asbestos pottery (Ka1:2 with asbestos, and specific Kaunissari Ware) dated back to the beginning of the fifth ka. BC was described in Finland (Pesonen, 1996); in Karelia and Karelian Isthmus, vessels with the admixture of asbestos were present in the Sperrings contexts as well. The areas of the Sperrings tradition in the fifth ka. BC and of the Asbestos Ware of the fourth and third ka. BC overlapped considerably. In EGF, the South-Western limit of the area of the Asbestos Ware strictly follows the border between the Narva and the Sperrings early pottery traditions (Gerasimov, Kholkina, & Gusentsova, 2020), and the easternmost known sites of both the Sperrings and the Asbestos Ware are located in the Kenozero lake basin in the Arkhangelsk region (Oshibkina, 1995; Zhulnikov, 2006).

The replacement of the early pottery types (Sperrings and Narva) with TCW and the later traditions was accompanied by considerable changes in other components of the material culture and also in the communication networks and in the settlement patterns. The amount of the artifacts made of imported materials, such as flint (mainly from the Upper Volga region), amber from the Eastern Baltic and metamorphic tuff from the Western Onega, increased considerably in the contexts with TCW comparing to the earlier materials.

According to the paleozoological data (Seitsonen et al., 2017), the subsistence strategy of EGF population in the fourth ka. BC was developing in the same way as in previous times. So the location of the sites was determined by the coastal adaptation, and quite often the settlements with TCW, the Late Combed and the Asbestos Ware were situated at the same places as the Sperrings or the Late Mesolithic contexts. After the spreading of TCW, a kind of prehistoric “villages” with a number of dwellings arranged in certain patterns appeared in the region (Mökkönen, 2011), although single dwellings were documented in EGF in earlier contexts (e.g. Khrustaleva, Roog, Kholkina, & Kriiska, 2020).

In the second half of the fourth ka. BC, a phenomenon of specialized workshops developed in the region discussed and in the neighboring territories (Karmanov, Muravev, & Tkach, 2020). Numerous amber decorations of very standardized types from workshops in the Eastern Baltic were distributed for hundreds kilometers. A lot of such decorations were found in Karelia, Arkhangelsk and Vologda regions, in the interfluvium of Volga and Oka rivers, and further East (Zhulnikov, 2008). Specialized workshops for producing chopping tools were studied at the Western shore of the Onega Lake (Tarasov, 2015). Because of the high quality of the lithic raw material (local metamorphic tuff) and the advanced production technology, those tools were distributed for hundreds of kilometers as well, also to the Eastern Baltic – they were found in Latvia. Also because of the taphonomic conditions, it is difficult to estimate the variety and the amount of the artifacts made of organic materials that were transported for long distances across North-East Europe and farther. Specialized workshops and long-distance goods delivery are evidence of the well-established interregional communication networks with stable delivery channels from remote territories. The increased variety of minerals and other materials is used in the second half of the fourth ka. BC (Nordqvist & Herva, 2013), and the fact that goods were produced mainly or specially for distribution is a sign of the growing value of the rare “exotic” artifacts in the society.

The Corded Ware culture spread in EGF as a result of the mass migration of early farmers from the European Steppe zone in the beginning of the third ka. BC (Saag et al., 2017). Interaction of the newcomers with the autochthonous population led to the appearance of the regional specifics in material culture, such as the Estonian variant of Corded Ware (Kriiska, Nordqvist, & Gerasimov, 2017) (Figure 6); also an influence of the Fatyanovo tradition (the Upper Volga variant of Corded Ware) led to the appearance of new types of Asbestos Ware, such as Palayguba (Zhulnikov, in press). Although the spreading of the Corded Ware tradition is generally associated with the spreading of farming, it seems that the subsistence strategy of the population in EGF did not change rapidly in the third ka. BC. Evidence of agricultural activity in the region already in the fourth ka. BC (and even fifth) was widely discussed (for details, see Alenius et al., 2020). But even if the population was familiar with the agricultural technology, this activity was very limited and did not play any significant role in the population’s subsistence. Archeological sources of the second ka. BC are rather sparse in EGF, but they are evident that it was still peopled by hunter–gatherer population (Juškova, 2006).

Figure 6: (1–6) Corded Ware, Estonian variant (Rosson 9; MAE RAS).

4 Discussion

Pottery of both the Sperrings and the Narva types appeared in EGF simultaneously in the second part of the sixth ka. BC. In the territories to the East and South (Western Dvina river, Upper Volga and Oka rivers interfluvium, eastern part of the Onega Lake), first pottery is dated back to the second half of the seventh ka. BC (Mazurkevitch & Dolbunova, 2015; Piezonka, 2015). Thus, pottery appeared in EGF about a thousand years later than in the neighboring territories. It is hardly possible to assume that the local population did not know about pottery – judging by the rare flint imports in the Late Mesolithic contexts (Girya, Gerasimov, & Fedorova, 2013), the interregional connections during the Late Mesolithic and Early Neolithic periods, although weak, did exist. The rather rapid spreading of pottery in EGF, on the other hand, is likely to have been a result of considerable sociocultural changes even if it was not accompanied by any other archaeologically visible changes.

The appearance of pottery in EGF is strongly correlated with the maximum of Litorina transgression (a stage of the Ancient Baltic Sea history). Apart from the radiocarbon dates, the stratigraphy and the location of the Late Mesolithic and the Early Neolithic sites also confirm this. All the coastal Late Mesolithic sites were inundated and covered by aquatic sediments during the transgression maximum about 5500 BC. At the same time, none of the contexts with the Narva or the Sperrings pottery have been discovered to have been inundated by the Litorina transgression; some, however, were affected by later floods. All the coastal Early Neolithic sites are located on the terraces, which were formed by Litorina maximum (Gerasimov & Subetto, 2009; Kriiska & Gerasimov, 2014).

According to the models of the shoreline displacement in the Gulf of Finland, the final stage of the Litorina transgression was rather rapid, with the water possibly increasing up by 5–7 m in less than 200 years (Miettinen et al., 2007; Rosentau et al., 2013). So, although it is unlikely that there had been a dramatic flood with victims and destructions, people had to move from the settled places. Water stood at the maximum level for about 200–300 years, and then, the shoreline moved down as a result of an isostatic

land uplift. In many cases, sites with early pottery appeared on the dried terraces in the same spots where Late Mesolithic sites had been situated before.

It is very difficult to estimate how the Litorina transgression affected coastal societies and almost impossible to suggest causal relationship between the transgression and spreading of the pottery making tradition. However, a strong correlation between the Litorina maximum and the shift from the prepottery to the pottery cultures in EGF allows to suggest that such a relationship did exist.

Noticeable sociocultural transformations and the increasing complexity of the society, which became “truly Neolithic” in everything but farming, can be linked in EGF to the spreading of TCW tradition at the turn of the fifth and fourth ka. BC. These changes became archeologically visible at different times throughout the fourth ka. and became prominent in the middle and the second half of the fourth ka. BC (Nordqvist et al., 2015).

In the Southern Finland and the northern part of the Karelian Isthmus, the appearance of TCW is strictly correlated with a dramatic rearrangement of the hydrological system. Because of the gradient isostatic land uplift, the bath of the Ancient Saimaa Lake, which originally drained to the Gulf of Bothnia, was tilted along the South-West to North-East axis, which caused the increase of the North-Western shores and the submerging of the South-Eastern coastal areas. The activation of the neotectonic processes and a possible earthquake (Shvarev et al., 2017) caused a break of the Ancient Saimaa waters through the Salpausselkä moraine into the Ladoga Lake via the newly formed Vuoksi river. In a very short time, the coastal zone of the Saimaa Lake system has been considerably shortened. That might have brought about the disappearance of a huge part of landscapes previously exploited by the local communities, and as a consequence, strong competition for resources. Extensive evidence of such catastrophic flooding of the sites with Sperring pottery has been found in the Vuoksi river drainage area (Gerasimov & Kulkova, 2003; Gerasimov, Seitsonen, & Nordqvist, 2008). A clear chronological correlation of the Saimaa breakthrough with the replacement of the pottery tradition and other cultural changes in the Saimaa area was shown thanks to a representative set of radiocarbon dates (Oinonen et al., 2014). This correlation is well confirmed by the stratigraphy of the multilayer sites at the Vuoksi drainage – archeological contexts with the Sperrings pottery are always overlaid by alluvial deposits of the Saimaa breakthrough, and contexts with TCW are always situated on top of them (Gerasimov & Subetto, 2009).

According to paleogenetic studies (Mitnik et al., 2018), the spreading of TCW is associated with the infiltration of a new population in the region. Also, a recent study on the dynamic of the spreading of new cultural elements in the Saimaa area after the breakthrough has shown that they first appeared in full scale in the southern part of the territory and then gradually spread into the northern part (Mökkönen & Nordqvist, 2016). This can also be explained as an effect of the Saimaa breakthrough – the southern shores of the lake were affected by the catastrophe much more than the northern.

There were no rapid environmental transformations in EGF for about 3000 years after the Vuoksi breakthrough. The climate was changing relatively gradually, and the shoreline of the Litorina Sea got lower following the isostatic land uplift. At the same time, the level of the Ladoga Lake was rising up. Originally, the Ladoga Lake was drained to the Gulf of Finland via former Heinijoki strait in the northern part of the Karelian Isthmus. The threshold of the Heinijoki strait rose up with the isostatic land uplift, causing the flooding of the Ladoga southern coastal areas (Gerasimov & Subetto, 2009; Saarnisto, 2008).

It seems that the new population with the Corded Ware pottery tradition and originally productive economy integrated with, or even assimilated the local population. But at the same time, there is very few reliable evidence of any farming activity in EGF during the third and second ka. BC, so farming did not constitute any significant part of the subsistence strategy till the first ka. BC. In the Ladoga area, the spread of farming was related to another catastrophic rearrangement of the hydrological system. About 1200–1300 BC, the Ladoga waters broke through in the southern part of the lake, and the Neva river became a new drainage. This event was again related to a short period of tectonic activity and a possible earthquake (Nikonov, 2017). The level of the Ladoga Lake dropped down by 5 or more meters, which also considerably shortened the shoreline. The catastrophe totally destroyed the living system on the southern and western coast of the lake. In the first half of the first ka. BC, after the Neva breakthrough, the farming population from the Ilmen' lake and the Volkhov river area spread around the Ladoga lake (Juškova, 2006) to exploit

the fertile lowlands that had just risen out from the waters and were covered with the lake bottom sediments – perfect soil for agriculture.

5 Conclusion

Overview of the dynamic of social and cultural changes in EGF on the transition from Mesolithic to Neolithic allows to assume that each distinctive “step toward Neolithic” was somehow related to the social stress caused by rapid environmental transformations. Even if it is difficult to trace casual relationships between natural and cultural changes, the correlation between them cannot be ignored.

The presented overview of neolithization of EGF shows that Stone Age farming itself can hardly be seen here as a cultural advantage. The costal adaptation that combined exploiting resources of the littoral zone of large water bodies and the forest was very effective subsistence strategy. Environmental conditions in EGF were extremely favorable for hunter–gatherers subsistence, but made farming (especially early farming) rather risky. At the same time, the settlement pattern of hunter–gatherers population in EGF made habitation areas very sensitive to shoreline displacement – most of the known sites in the discussed territory were on the shores of huge lakes or the sea.

Neolithization of EGF can be seen as a sequence of retreatments by “archaic” cultural tradition(s) under pressure of unfavorable circumstances.

Abbreviation

MAE RAS	Peter the great museum of anthropology and ethnography, Russian academy of sciences
EGF	eastern part of the Gulf of Finland region
TCW	Typical Combed Ware

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