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## EXCHANGE OF AMBER IN NORTHERN EUROPE IN THE III MILLENNIUM BC AS A FACTOR OF SOCIAL INTERACTIONS

The article discusses the driving forces and mechanisms of the massive spread of amber in the forested zone of eastern Europe in the III millennium BC. Study of spatial-chronological aspects of this phenomenon has allowed proposing that the increase of exchange of prestigious items at the end of the Neolithic period was caused by an increase of the role of social interaction in adaptive strategies of hunter-gatherers in the forested zone of eastern Europe.

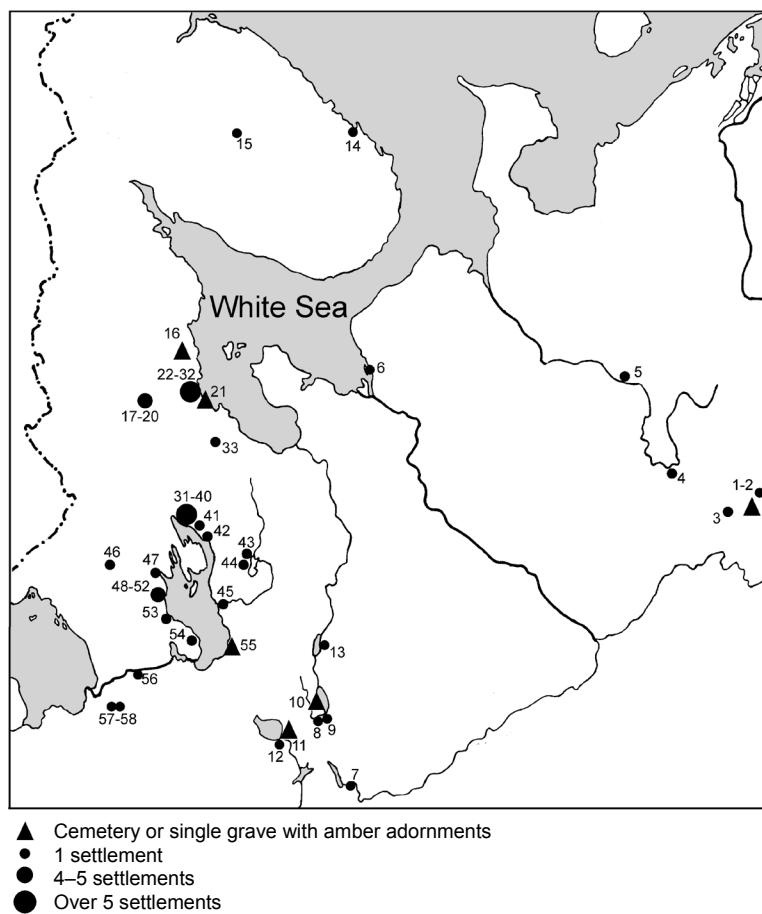
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Adornments made of amber have been found in numerous settlements and cemeteries investigated in the large territory of northern Europe. For instance, only in the White Sea basin, there are 31 locations, where amber items have been found, including 27 settlements, 4 cemeteries and single graves (Fig. 1). In Estonia, 20 sites with ancient amber adornments are known (Ots 2001). In Finland, there are about 50 locations with amber items (Äyräpää 1947; 1960; Pesonen 1994; Karjalainen 2002). In the Leningrad district in Russia, according to my data, not less than 15 settlements with amber are found, most of them are located in Karelian Isthmus. Cemeteries with numerous amber adornments have been investigated in the Msta River basin, Upper Volga region, region located to the south from Onega Lake (Utkin 1993; Zimina 1993; Kostyleva & Utkin 2000; Oshibkina 2001).

Types of amber adornments known in the region under discussion belong to the East-Baltic group of adornments determined by Richard Klebs (Klebs 1882). The period of massive use of amber adornments in the forested zone of eastern Europe is quite short – the end of the IV – the beginning of the II millennium BC (here and henceforth in the article non-calibrated radiocarbon dates are used).

Three explanations of the spread of amber adornments far away from the south-eastern Baltic have been suggested so far.

According to the majority of researchers, the spread of amber items in northern Europe had to do with intensification of exchange in the hunter-gatherer societies.



**Fig. 1.** Map of sites with amber adornments in the White Sea Basin and neighbouring regions. 1–2 Vis II, 3 Yugu-Yar, 4 Choynovty II, 5 Pop'juga, 6 Mud'yug, 7 Veksa I, 8 Modlona, 9 Protiv Gostinigo Berega, 10 Mys Brevenny, 11 Kargulino, 12 Beloozero, 13 Ust'ye Kinemy, 14 Mayak II, 15 Mys Semerka II, 16 Putkinskaya I, 17–20 Tunguda III, XV, XVII, Berezovo XVIII, 21 Zalavruga II, 22–32 Zolotets I, VI, VII, X, XI, Zalavruga I, IV, Besovy Sledki I, III, Porog Shoyruksha, Ostrov Shoyruksha, 33 Sumozero XV, 34–40 Voynavolok VI, XXIV, XXV, XXVII, XXXVIII, XLII, Kochnavolok II, 41 Chernaya Guba IX, 42 Chelmuzhskaya Kosa XXI, 43 Kelka I, 44 Ochtona II, 45 Pervomayskaya I, 46 Sunskaya Ia, 47 Lachta II, 48–52 Solomennoye V, Peski IVa, Verhov'ye IV, Fofanovo XIII, XIV, 53 Derevyannoye I, 54 Rozmeka II, 55 Tudozero VI, 56 Negezhma, 57–58 Ust'-Rybezhna I, II.

Another explanation has been recently proposed by Elena Kostyleva and Alexander Utkin. The authors assume that cemeteries with amber adornments in the region of Upper Volga were left by the male part of the population of Volosovo culture, who migrated from the south-western Baltic (Kostyleva & Utkin 2000).

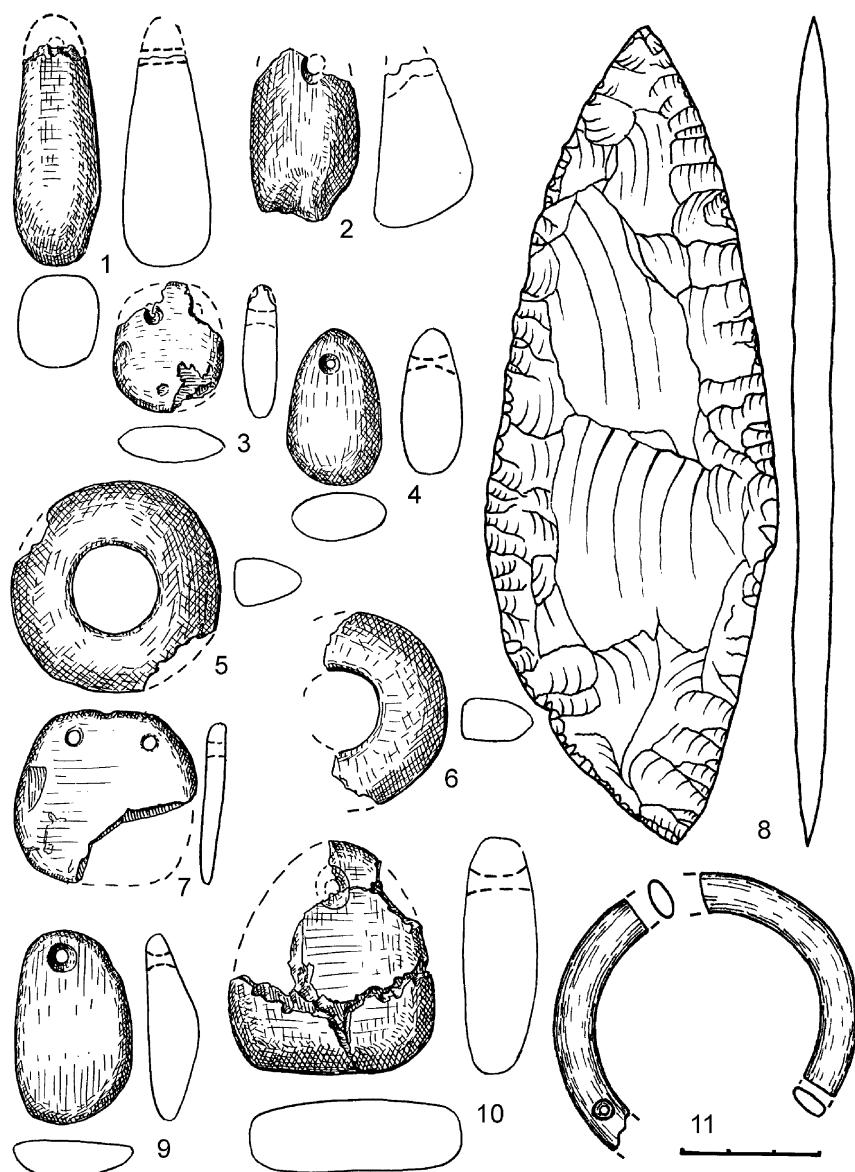
The third point of view is presented in the work by Finnish researcher Jukka Vuorinen, who emphasized the fact that the majority of amber items found outside of the Baltic region come from cemeteries (Vuorinen 1984). Based on this fact, the researcher proposed that the spread of amber had to do with the so-called ceremonial exchange. The exchange of this kind involves prestige and valuable objects and implies that the majority of exchanged items does not remain a property of one person for a long time and is used as a gift again. The influence of the distance from the area of origin of the item, according to ethnographic data, is not very considerable (although there are some limits). In the archaeological record, the majority of items obtained through ceremonial exchange are present in graves. To compare when raw materials and practical items are exchanged, the amount of the wares decreases dramatically outside of the contact area (Vuorinen 1984, 55).

In order to figure out the driving forces and mechanisms of the massive spread of amber in the forested zone of eastern Europe, the author of this paper has attempted to study spatial-chronological dynamics of this phenomenon. The resulting data has been compared with the data concerning the spread of ceramic types in northern Europe, with dynamics of the flow of flint and slate items and some kinds of raw materials into the area of Karelia. At present, the chronology of some types of slate tools and flint arrowheads has been defined more precisely (Zhulnikov 1999), and local territories, where workshops producing these categories of Eneolithic artefacts had been located, have been specified as well. The available data allow defining the main directions of the flow of these artefacts in the neighbouring regions.

The relative chronology of the amber adornments of East-Baltic types has been developed by Ilze Loze on the basis of studying materials from settlements in Lubāna lowland (Loze 1969). Slightly stratified settlements with ceramics belonging to different chronological periods prevail there. Later, during investigations of cemeteries in the basins of rivers Msta and Upper Volga, Dmitry Kraynov and Maria Zimina revealed that some types of adornments defined by Ilze Loze as early and late, quite often could be found in the same graves (Krajnov 1973, 53; Zimina 1993, 227).

In the last decades, small series of amber adornments were found during excavations of Neolithic and Eneolithic semisubterranean dwellings in the territory of Karelia and Finland. Many dwellings have been radiocarbon dated (Karjalainen 2002; Pesonen 2004; Zhulnikov 2005). This data allow more precise defining of the chronology of complexes with amber adornments. In the European part of Russia and Finland three chronological groups differing by the assortment of amber adornments can be distinguished. The first group is characterized by pendants (asymmetric, oval, four-sided), including those made of natural pieces of amber with minimal additional working, rings, “pucks”. Amber adornments in cemeteries often occur together with slate rings. The settlements and cemeteries of this group are radiocarbon dated to the last quarter of the IV millennium BC. The earliest complex of amber adornments in the area close to the White

Sea that belongs to the first group originates from destroyed grave on the site Putkinskaya I (Fig. 2). The sites of the second group contain trapezoid pendants, trapezoid pendants with concave base, buttons, hollow cylinders. Slate rings are rare. The group is dated to the first half of the III millennium BC. Trapezoid pendants with concave base disappear from the cemeteries and settlements



**Fig. 2.** The inventory of the grave in the settlement Putkinskaya I. 1–6, 9–10 amber, 7 yellow slate (?), 8 flint, 11 slate.

belonging to the third group, which is connected to the Porous and Asbestos Ware (Kierikki (Siiriäinen 1967), Polja, late Volosovo ceramics, Choynovtinskaya). Slate rings are rare or absent. Some cemeteries associated with the third group contain elongated arrowheads (Utkin 1993; Oshibkina 2001) and copper items. The group is dated to the second half of the III millennium BC – the beginning of the II millennium BC (Zhulnikov 1999).

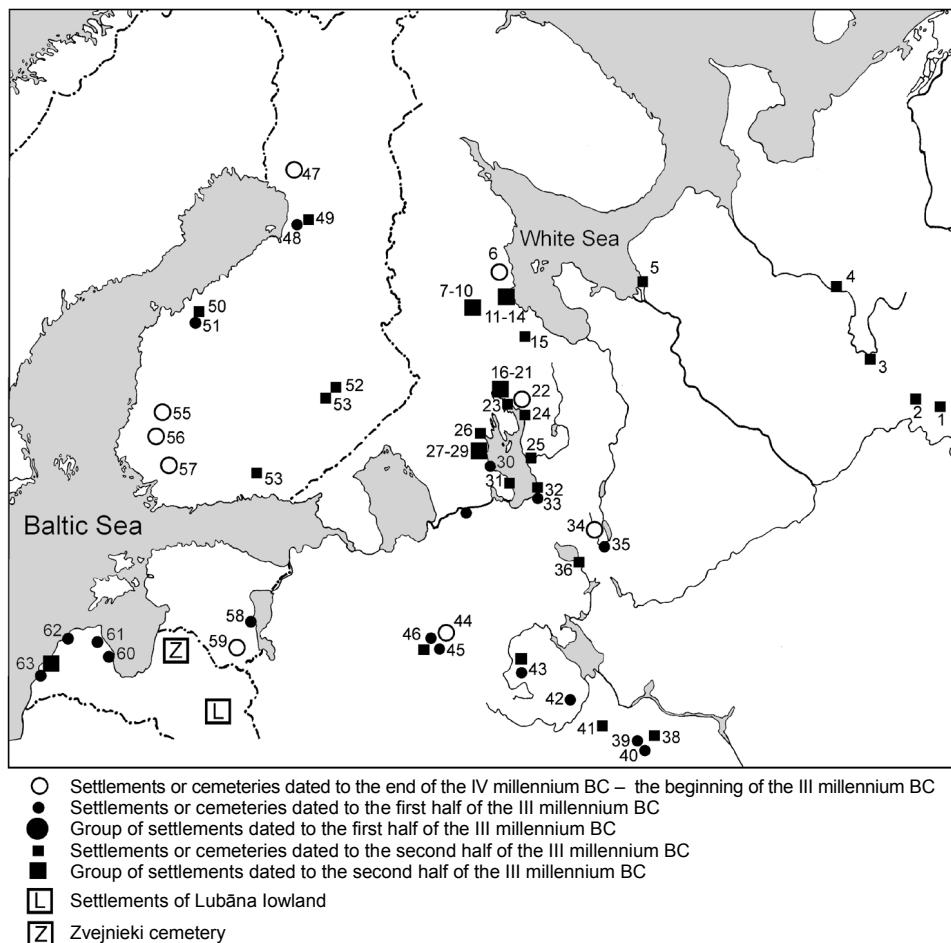
In the eastern Baltic region one more, fourth group can be distinguished, which is probably partly synchronous with the third. It is associated with the Corded Ware. This group is characterized by specific types of amber adornments that are almost absent in the areas located to the east and to the north from the Baltic: elongated narrow pendants, rectangular and rounded buttons with a cut along their edges, boat-shaped buttons, elongated and key-like pendants with a hole for hanging (which is drilled horizontally from the lateral side or slantwise from the upper side) (Loze 1993, fig. 8). In some cemeteries and settlements with the Corded Ware of the eastern Baltic region dated to the end of the III – the beginning of the II millennium BC slate rings are present (Yanits 1952; Loze 1993), whereas on the settlements of Karelia and Finland dated to the second half of the III millennium BC this type is absent.

It should be especially emphasized that the majority of the types of amber adornments existed without changes for about a thousand years. Because of this, it is not justified to use these adornments for defining the absolute chronology of the sites where they were found.

During the Late Neolithic and the Eneolithic, amber spread in the forested zone of western Europe among groups adopting different types of ceramics. In the end of the IV – the beginning of III millennium BC amber adornments were left in cemeteries and settlements with Comb Ware in Karelia and Finland, Rhomb Ware in Karelia and Leningrad district, Pit-Comb Ware in Valdai (Fig. 3). These cultures are probably related, but not identical, and this fact does not confirm the hypothesis that the spread of amber was caused by a migration of Baltic peoples.

Eastern types of amber adornments spread in northern, north-eastern and eastern directions. Southern direction, to the contrary, is not discernable. In western Europe and southern Scandinavia during the Neolithic some types of adornments are known, which are absent in the areas located to the north and to the east from the southern coast of the Baltic Sea (Larsson 2001). This fact testifies to different directions of interaction of the ancient inhabitants of the eastern Baltic.

The mapping of sites with eastern types of amber adornments and with more than 10 found items has showed that the majority of them are evenly distributed within the borders of the “north-eastern” sector with maximum distance from the Lubāna lowland and the south-eastern coast of the Baltic Sea at about 1000–1050 km as the crow flies. This preference in the direction of spreading of the eastern types of amber adornments demonstrates the leading vector of connections of the inhabitants of the south-eastern Baltic in the end of the Neolithic, and, partially, in the Eneolithic.



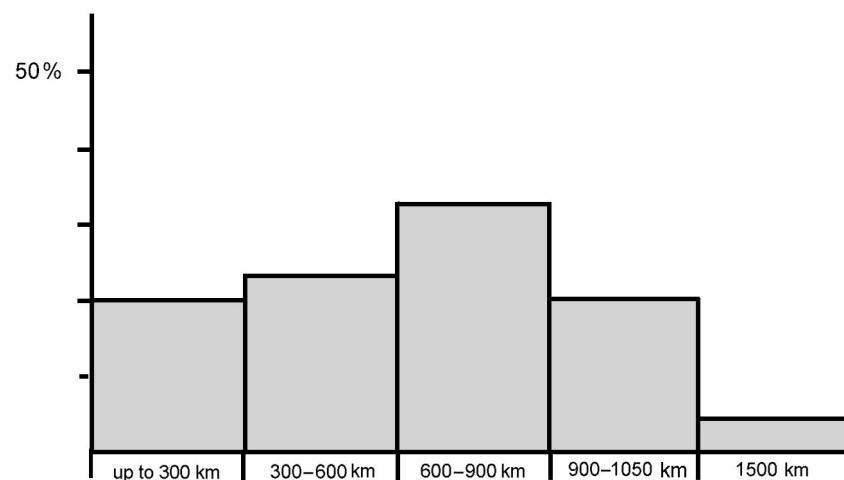
**Fig. 3.** Map of sites with amber adornments belonging to different chronological groups. 1 Vis II, 2 Yugu-Yar, 3 Choynovty II, 4 Pop'juga, 5 Mud'yug, 6 Putkinskaya I, 7–10 Tunguda III, XV, XVII, Berezovo XVIII, 11–14 Zalavruga I-II, Zolotets VII, X, 15 Sumozero XV, 16–21 Voynavolok XXIV, XXV, XXVII, XXXVIII, XLII, Kochnavolok II, 22 Chernaya Guba IX, 23 Chernaya Guba IX, dwelling 5, 24 Chelmuzhskaya Kosa XXI, 25 Pervomayskaya I, 26 Sunskaya Ia, 27–29 Verhov'ye IV, Fofanovo XIII, XIV, 30 Derevyannoye I, 31 Rozmega II, 32 Tudozero VI, the group of graves 2 – 9–10, 33 Tudozero VI, the group of graves 1 – 1–8, 34 Mys Brevenny, 35 Modlona, 36 Kargulino, 37 Negezhma, 38 Sachtysh II, 39 Sachtysh IIa, 40 Sachtysh VIII, 41 Vashutino, 42 Yazykovo I, 43 Ilovets I, 44 Repische, the layer of turf, 45 Repische, the cemetery, 46 Konchanskoye, 47 Tervola Törmävaara, 48 Yli-Ii Kuuselankangas, 49 Yli-Ii Kierikki, 50 Evijärvi Isokangas, 51 Evijärvi Timonen, 52 Outokumpu Sätös, 53 Laavussuo, 54 Pukkisaari, 55 Kokemäki Pispa, 56 Kolmhaara, 57 Kukkarkoski, 58 Akali, 59 Tamula, 60 Silinupe, 61 Purciems, 62 Särnate, 63 Šventoji.

The distance of 1000 km is probably the maximum limit for the kind of exchange that is responsible for the massive spread of amber adornments from the south-eastern Baltic region.

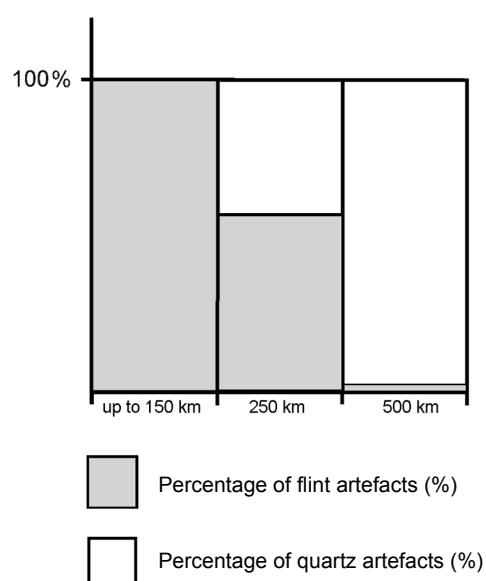
Amber adornments originating from settlements are most often broken and have traces of repair (Zhulnikov 1999), and this can be considered as an evidence of their practical use. At the same time, some categories of amber adornments, especially buttons, are too brittle to be used on a daily basis as clothing accessories. Close to cemetery Repische containing hundreds of amber adornments, a most likely synchronous settlement is located (Repische V), where amber adornments are few (Zimina 1993). This data allow proposing that cloth enriched with amber adornments was used only on special occasions, mostly during rituals and feasts.

Analyzing the distance of workshops from settlements and cemeteries with amber adornments shows that the number of the latter is generally constant up to the interval of 600–900 km (Fig. 4). Obviously, the influence of the factor of distance, when exchange of amber is concerned, is quite weak.

The dynamics of the spread of amber adornments is much different from the dynamics of the spread of flint as a raw material and items made of flint and slate. As an example, data concerning the degree of flint supplies of several regions of the western White Sea, located outside of the “flint zone”, can be presented here. In the middle of the III millennium BC, in the sites distanced from the outcrops of flint in the middle stream of Onega River at 150 km as the crow flies, the amount of the flint artefacts reached 100% of the stone collection; at 250 km (the lower reaches of Vyg River) – slightly above 50%; at 500 km – only 1% (Fig. 5). Similar results were obtained when studying the dynamics of the spread of slate wood-chopping tools of the Russian-Karelian type in the



**Fig. 4.** The dynamics of the distance of settlements and cemeteries with amber adornments from the workshops in south-eastern Baltic region (30 localities are registered, including local groups of sites containing more than 10 amber objects altogether).



**Fig. 5.** Changes in the degree of flint supplies in the western White Sea in the middle of III millennium BC (in connection to the distance from sources of the raw material).

adornments mainly among culturally-related populations fully correspond to the traits of ceremonial exchange of prestige items. According to C. Renfrew, when this type of exchange is present, the items obtained through the exchange are not stored for a long time and exchanged again; only a small part of them is used, but not on the daily basis (Renfrew 1972). Most likely, the exchange of gifts took place during annual celebrations, in which representatives of different communities took part. The question whether the exchange of amber was organized through a chain of exchanges between numerous communities, or some groups of ancient Neolithic and Eneolithic inhabitants of northern Europe made distant expeditions similar to trade expeditions of Australian and South-American aborigines (Aleksandrenkov 1996, 124), is left open.

It is important that the exchange of prestigious objects, according to ethnographic data, is organized mainly with the aim of establishing and strengthening the social ties between different groups of people, and not for accumulation of valuables. Vladimir Kabo stresses that one of the most important functions of exchange in primitive societies is the regulation of social relations. Exchange is simultaneously a presentation and an accelerator of kindred and friendly relations, and helps to settle conflicts. In some Eastern-African languages, the words “trade” and “exchange” also mean “peace” (Kabo 1972, 4).

It is well known that in societies of hunter-gatherers the relations between collectives were built on the basis of dichotomy of “relative” – “stranger”.

forested zone of northern Europe. The shape of this type of tools has to do with the peculiarities of processing the preforms with the aid of original knapping technology out of blocks of hard varieties of slates and siltstones (Tarasov 2005). The outcrops of hard slates and siltstones are located to the west from Onega Lake, where quite big workshops specializing in production of the tools of Russian-Karelian type are known (Zhulnikov 1999). Slate wood-chopping implements of this type are quite evenly distributed in neighbouring areas, though their amount decreases dramatically in settlements distanced from workshops at 200–300 km.

The available data concerning the dynamics of the spread of amber adornments, their presence mostly in cemeteries, and the spread of amber

The conversion of “strangers” to “relatives” was organized through broadening of the circle of matrimonial relations or establishing relations of “kinship”. A broad circle of “relatives” increased chances of a collective to obtain support from neighbouring groups of hunter-gatherers in a case of critical ecological situation. With a wide circle of “relatives” a collective had a possibility, if necessary, to move outside the borders of its hunting territory, and also to migrate to another locality. Besides, it is also known that during the Eneolithic first cattle-breeding tribes appeared in the forested zone of northern Europe (Krajnov 1972), and this must have strengthened the solidarity of local hunter-gatherer groups in a case of military threat. To conclude, broadening of the circle of social relations can be considered as one of the leading forms of adaptation.

It is hardly possible that the relations of kinship spread evenly in the whole region where amber adornments are found. Mapping the localities with most numerous finds of amber adornments allows to distinguish three main directions (ways) of their spreading. The first is along the eastern coast of the Gulf of Bothnia, the second – from Onega Lake through the watershed and Vyg River to the White Sea, and the third – from the upper stream of West Dvina or Msta Rivers to Upper Volga with an offshoot to lake Beloye Ozero and, probably, to the basin of Onega River. These directions probably corresponded to the directions of chains of kindred and other social connections and in some periods were especially important for the inhabitants of several regions of northern Europe.

The flow of amber Karelia greatly increases from about the middle of the III millennium BC. Simultaneously, in the lithic assemblages of the settlements of south-western White Sea and south Karelia, the amount of flint and implements of Russian-Karelian type increases greatly as well. This data testifies general intensification of exchange processes in Karelia in the middle of the III millennium BC. Quartz tools appeared again in the settlements of the south-western White Sea and Onega Lake in the end of the III millennium BC; this might have had something to do with the migration of a part of inhabitants of the “quartz zone” in Finland and western Karelia. This migration must have been caused by the migration of tribes with Corded Ware to south-western Finland (Zhulnikov 1999, 90).

Radiocarbon dates of cemeteries with Corded Ware in Finland allow dating the initial stage of this migration to the end of the third quarter of the III millennium BC (Torvinen 1984). It is remarkable that amber adornments are not found in the settlements and cemeteries with the Corded Ware, although the area of this culture is located between sites with Porous and Asbestos Wares and workshops producing amber adornments in south-eastern Baltic. In the settlements and cemeteries of the Corded Ware culture in what are now Latvia and Lithuania, on the contrary, amber adornments are numerous (Loze 1979; Rimantienė 1979). This is an additional argument for the idea that infiltration of tribes with Corded Ware to Estonia and Finland started from Dnepr River and not from the basins of rivers Neman and Visla along the coast of the Baltic Sea, i.e. through Lithuania and Latvia (Tret'yakov 1966, 104–105).

At the initial stage of migration of cattle-breeding tribes to Finland the relations between newcomers and aborigines were evidently hostile. Indirect evidence of this is the presence of clear border between the two cultures, the absence of hybrid vessels at both sides of this border, finds of many thousands of battle-axes in the area of the Corded Ware culture (Äyräpää 1952; Karpelan 1982, 39). Gradually, the exchange of flint and some kinds of stone items was established between the two groups. For instance, one of the graves with Corded Ware contains a slate adze of the Russian-Karelian type (Edgren 1970, fig. 30). It is remarkable that this exchange, obviously caused by economic needs of populations with the Corded Ware, did not include the exchange of amber items. These facts can be taken as additional evidences of the difference in form and goals of exchange of amber adornments comparing to the exchange of lithic materials and lithic implements.

Amber adornments, as it has been already noted, continued to spread among culturally-related groups of hunter-gatherers in Karelia and Finland throughout the whole second half of the III millennium BC. The necessity of steadfast maintenance of social relations between inhabitants of these regions, was probably to a great degree caused by the increase of military threat from the tribes of Battle Axe culture belonging to another economic-cultural type. The main differences in economy and ethnic origin of two local groups of inhabitants, were the likely main factors preventing steady social, including matrimonial, relations. Another example is presented by cultures of hunter-gatherers, where, according to the available data, the unity of economic-cultural type facilitated quite painless overcoming of the cultural-ethnic differences (for instance, the sites of Modlona type and sites with the ceramics of the type Voynavolok XXVII). The exchange of amber, most likely, was part of rituals strengthening social and, eventually, ethnic integration.

The spread of amber in Finland and Karelia ended in the beginning of the II millennium BC. This phenomenon does not correlate with the end of production of amber adornments in the south-eastern Baltic region. The upper layers of sites in Lubāna lowland dated to the first half of the II millennium BC contain quite a number of different kinds of amber adornments belonging to late types, as well as pieces of raw materials (Loze 1979). Layers with amber items investigated here were left by tribes of cattle-breeders and farmers, which did not probably have strong interrelations with hunter-gatherer populations in the North. In the regions of the Upper Volga and the Basin of Msta River, the massive flow of amber ceased with the infiltration of cattle-breeding populations belonging to the Battle Axe culture. Some cemeteries of Fatyanovo culture and cemeteries of the late stage of Middle-Dnepr culture contain amber adornments (Krajnov 1972, fig. 72; Artemenko 1987, 41), and this can be regarded as an evidence of change in vector of the spread of Baltic amber at the turn of III-II millennia BC.

There are some other kinds of prestige items, which spread in the Late Neolithic – the Eneolithic in regions of northern Europe. Besides amber adornments, polished wood-chopping implements of the Russian-Karelian type, slate rings, battle axes and their imitations, some obviously non-utilitarian types of flint

arrowheads (for example those found in a burial construction on the site Zalavruga II (Savvateev 1977, 88) or in single grave in the settlement Il'insky Ostrov (Kozyreva 1971; Zhulnikov 2007). Furs also could be used as prestige items. Collections of settlements Sachtysh I, II, VII belonging to the Volosovo culture contain numerous bones of marten; in the settlement Strelka I bones of marten constitute 80% of the faunal collection. In the Baltic, according to Dmitry Krajnov, marten did not live at that time (Krajnov 1973, 54).

There is also one more aspect of the problem of exchange of amber adornments and other prestige items. It is known that in some tribes of hunter-gatherers of Northern America characterized by quite high level of social development, the aspiration to obtain and accumulate valuable items was evident among their members. This "wealth" helped its owners to maintain high social status. It is possible that the accumulation of amber adornments and other kinds of prestige items could have played the same role in the Eneolithic societies of hunter-gatherers in northern Europe. Some observations concerning the content of grave inventories in cemeteries Repische, Konchanskoye, and Sachtysh IIA support this proposition. Investigations by Elena Kostyleva and Alexander Utkin have showed that in the cemetery Sachtysh IIA, in graves with bone remains the amber adornments were mostly associated with men (Kostyleva & Utkin 2000, 182). In Konchanskoye cemetery amber adornments are absent almost in half the graves, while ritual pouring with red ochre has been registered almost in all graves. In cemeteries Konchanskoye and Repische, there is a small group of graves remarkable for the big amount of amber items. It has been noted that these graves are located in the central part of the cemeteries (Zimina 1993, 226). This placement of graves along with their rich inventory is usually regarded by researchers as an evidence of a high, at least, distinguished status of the buried person.

To conclude, I would like to stress that the increase of the scale of exchange of prestige items was to a great part caused by the increase of the role of social interactions in adaptive strategies of hunter-gatherers of the forested zone of Europe. The Neolithic is characterized by massive and steady spread of several kinds of prestige and valuable items, and this is evidence of some sort of social changes in the structure of communities of the ancient inhabitants of northern Europe.

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### MEREVAIGUVAHETUS PÕHJA-EUROOPAS III AASTATUHANDEL EKR KUI SOTSIAALSETE INTERAKTSIOONIDE FAKTOR

*Resümee*

On käsitletud Põhja-Euroopa metsavöötmes III aastatuhandel eKr toiminud merevaigust ehete massilise leviku põhjusi ja mehhaniisme. Olemasolevad andmed merevaikehete levi dünaamika kohta – merevaigu leidmine peamiselt matmispaikadest, merevaikehete levik suguluses olevates kultuurides – vastavad täielikult sihipärase prestiižesemete vahetuse tunnustele. Sellise vahetuse piirkauguseks oli umbes 1000 km, millisel alal levis Kagu-Baltikumist massiliselt merevaiku põhja ja kirde poole. Vaadeldava ilmingu ajalis-ruumiliste suhete järgi võib arvata, et prestiižesemete vahetuse mastaabi lainemine neoliitikumi lõpul oli tingitud sotsiaalse interaktsiooni kasvust Euroopa metsavöötme jahimeeste ja kalurite adaptsoonistateegiates. Neoliitikumi lõpul algas massiline ja stabiilne mõningat liiki prestiiž- ning väärtesemete (merevaikehted ja üksikud tule- ning kiltkivist esemete liigid) levik ja nende kogumine küttide-kalurite kogukondade üksikute isikute poolt, mis osutab teatud ühiskondlikele muutustele Põhja-Euroopa muistsete kollektiivide struktuuris.