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GLASS BEADS IN THE NORTHERN REGIONS OF RUS': ISSUES OF TRADE ROUTES AND CHRONOLOGY

In memory of Sergei Zakharov

Abstract: The article is devoted to issues connected with trade routes and chronology of glass beads in the northern regions of medieval Rus': Priladozh'e and Beloz'er'e (Russian North), corresponding today mainly to the Leningrad and Vologda regions. Barter in the fur trade caused huge quantities of glass beads to be concentrated in settlements of the region. Different bead types were present in three chronological periods: 10th–beginning of 11th c., 11th, 12th–13th centuries. Comparison of certain bead types traces the routes by which glass beads came to the north of Rus'. Another method calls for comparing bead necklaces from burials. Cemeteries of the 11th c. in Beloz'er'e have helped to clarify some of the issues. A characteristic of trade routes in the 12th–13th centuries is limited due to a decline in the number of beads from archaeological sites.

Keywords: medieval Rus', glass beads, Russian North, trade routes, fur trade

Beads are a special glass category and carry particularly extensive information as a historical source. Their typological diversity, distribution in medieval Rus' in pre-Mongol times and traceable presence give grounds for a study of economic relations of Rus', allowing trade routes to be identified in particular and solving issues of chronology. These were the topics that researchers have focused on in recent decades.

Glass beads are numerous and occasionally even mass finds, but their numbers related to Rus' of the late 10th–1st half of the 13th c. vary in archaeological collections. Sites dating from earlier periods usually have more beads than those with later layers (Shchapova 1956, pp. 178–179; L'vova 1968, pp. 64–65; Leont'ev 1996, p. 147). Bead types also changed over time. Three chronological periods can be distinguished: until the beginning of the 11th c., the 11th–early 12th c., and the 12th–13th centuries.

From the 2nd half of the 10th c. until the beginning of the 11th c., the prevailing types were monochrome, drawn tube beads, mainly yellow, as well as blue and, less frequently, green, long segments of drawn tubes, cut seed beads, melon and decorated drawn beads, beads with metal (mainly silver) foil, 'millefiori' beads, beads with different eyes and large wound beads with eyes in ovals, etc. (Figs 1a; 2) Most of these types are prevalent at sites in medieval Rus'. Beads of oriental origin are almost wholly predominant. Their regional distribution are often not traceable.

New types of beads emerged in medieval Rus' at the end of the 10th and beginning of the 11th c. They share the technique (winding for individual items and small batches), decoration and composition of molten glass. These types are considered



Fig. 1. Main types of glass beads from the Minino 1 settlement and from the Minino II ground burial
 a – late 10th–early 11th c.; b – 11th c.; c – 12th–13th centuries.

Compiled by I. Kuzina, photo S. Zakharov

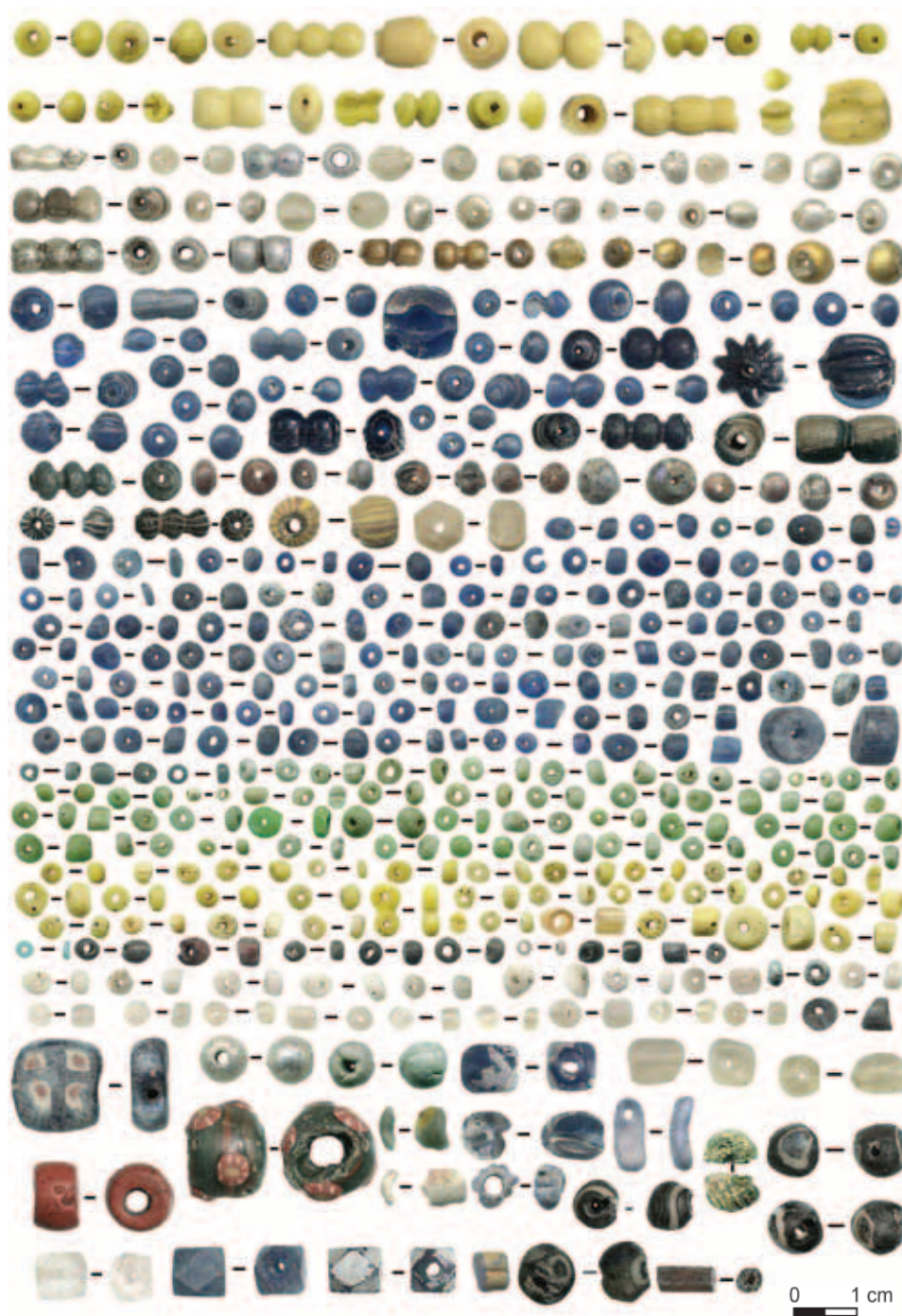


Fig. 2. Glass beads from Krutik, 2nd half of 9th–beginning of 11th centuries.

After Zakharov 2014a, p. 224, Fig. 7

to be of Byzantine origin and they dominated the glass jewelry that was popular in eastern Europe in the 11th c. Particularly noticeable among these are beads of different shapes, of transparent glass colored with cobalt blue (often with rhombic decorations) and beads with gold and silver foil, blackberry like (lumpy) beads, and 'triangular' opaque glass beads with three bulging eyes (Fig. 1b).

The range of glass beads found in medieval Rus', including its northern regions, changed at the turn of the 11th and 12th centuries. Cobalt glass beads were replaced with light olive, yellow, green, brown, purple, blue (copper-colored) beads of transparent and opaque glass. Beads were mainly round in shape (Fig. 1c). The change was due among others to developments of glassmaking in Rus'. In addition to items produced in Rus', there are those imported from Volga Bulgaria and probably from the western regions of Europe.

The numbers of beads vary notably by region and they are particularly numerous on sites in the Russian North (Table 1).

Zlata A. L'vova examined in detail the glass beads and their distribution patterns in the northern part of Europe, searching for an explanation to the significant concentration of beads in these areas in early times (L'vova 1968, pp. 91–94; *eadem* 1977). A thorough analysis of the enormous material enabled the researcher to

Table 1. Glass beads from Rus' sites (after Zakharov, Kuzina 2005)

Category of site	Name	Period (century)	Total number of finds	Glass beads (number)	Proportion of glass beads (%)
Rus' towns	Staraya Ladoga	10 th –11 th	2773	1875	67.6
	Novgorod	end of 10 th –beginning of 13 th	1888	46	2.4
	Fortified settlement of Syas	10 th –beginning of 11 th	261	153	58.6
	Beloozero	end of 10 th –beginning of 13 th	18330	4881	26.6
	Rostov	end of 10 th –beginning of 13 th	1836	314	17.1
	Vladimir	2 nd half of 12 th –13 th	2950	154	5.2
	Smolensk	12 th –13 th	2842	69	2.4
	Novogrudok	11 th –13 th	7681	141	1.8
Settlements of the Russian North	Krutik	10 th –11 th	5385	2267	42.1
	Nikolsk V	10 th –11 th	801	452	56.4
	Minino 1	end of 10 th –beginning of 13 th	5214	1398	26.8
Burials of the Russian North	Minino 2	end of 10 th –beginning of 13 th	11 burials	1921	
	Nefedevo	11 th –beginning of 13 th	32 burials	3208	
	Nikolsk III	11 th	30 burials	564	

conclude that this phenomenon was driven by the fur trade. Beads were one of the most important goods in the chain of unequal exchange 'beads-furs-silver'. Trading could often be multi-staged, and the cost of furs must have increased many times as they were resold. But until recently, the significant role of the fur trade in the barter system in medieval Rus' was hypothesized mainly on the basis of written sources, circumstantial evidence and logical constructs. Excavations in the last quarter of the 20th c. and in recent years, carried out on medieval sites in the northern periphery, including the Lake Beloe region, have provided a more solid foundation. The results of a detailed analysis of osteological collections from the excavated sites established the presence and production of huge quantities of furs in Northern Rus' as an archaeological fact (see Ryabinin 1982; Makarov 1997; 2012; Frenkel 1997; Nosov *et al.* 2005; Khvoshchinskaya 2004; Zakharov 2004; 2014a; Zakharov, Kuzina 2008; Makarov, Zakharov 2009). A correlation between large quantities of glass beads and the osteological collections is apparent in all the settlements studied and thus additionally supports the idea put forward by Z.A. L'vova, based on her research on the earlier material from Staraya Ladoga. More recent investigations have expanded significantly the chronological boundaries for the phenomenon, encompassing all of the pre-Mongol period for the northern regions of eastern Europe. This article focuses on new finds of glass beads from sites in the northwest of Rus' and the Russian North, that is, the environs of Sankt Peterburg, the Vologda region and part of the Novgorod region – historically, southeastern Priladozh'e and central Beloozer'e. These historical areas share a number of features that are similar and distinctive from a historical and archaeological point of view. Ladoga was actively involved in the economic and political processes of the earliest Rus'. Active colonization of central Beloozer'e began in the 2nd half of the 10th c. The archaeological boundary between the Ladoga region and central Beloozer'e follows the line of distribution of burial mounds with only one mound being known from the latter area (Fig. 3). Early colonization of central Beloozer'e came from southeastern Ladoga, whereas beads and other goods were supplied to the population of the Russian North through Priladozh'e (Boguslavski 1992). The unequal exchange described by Z.A. L'vova was typical of both regions and it can be observed especially well in the Russian North¹.

In order to be able to identify all parties to this unequal exchange, it is essential to identify the trade routes along which glass beads came into different parts of Rus' for more than two centuries. The main routes of the 10th c. are from the Vikings to the Greeks, the Volga route and its branches, and the sea route around Europe to settlements on the Baltic coast, first of all to Staraya Ladoga². For glass beads,

¹ In connection with this theme it should be said that by the end of the 11th c. the import and distribution of glass beads in Rus' depended entirely on international trade. The Kievan princes had total control over the fur trade in the country, including the north, but apparently, the state control of this trade was limited to custom dues. A significant change in the situation is noticeable only from the beginning of the 12th c. (Makarov 1993).

² During this period, in the North and North-West Russia all the beads are similar among the beads from Scandinavia, where their diversity is much greater. Supposedly, some types of beads are made there (see Steppuhn 1998).

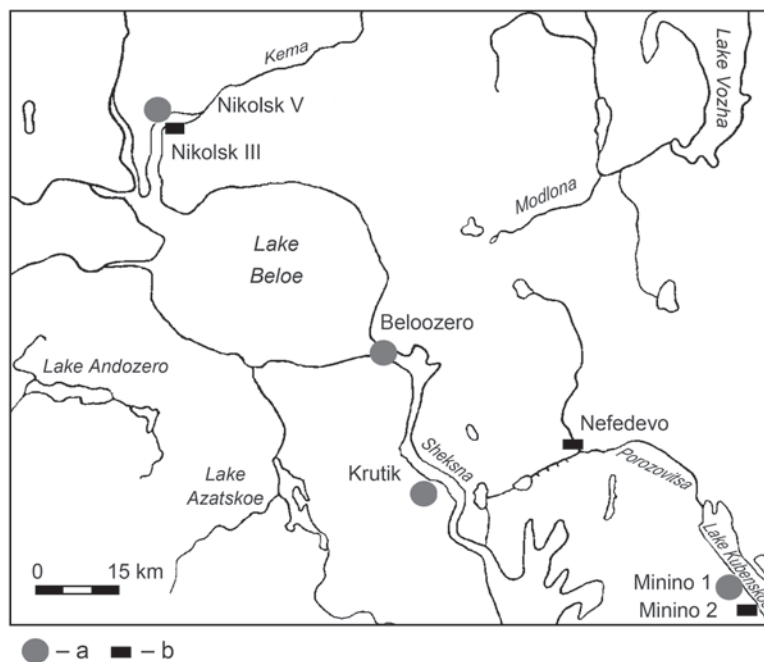


Fig. 3. Archaeological sites of central Belozër'e discussed in the text
a – Russian town Beloozero and settlements; b – cemeteries.

Processing I. Kuzina

however, we often talk about the main directions. The actual routes traced in an archaeological material only. Much more has been written about bead distribution in Rus' in the 11th c. The river Volga and the Western Russian route are assumed to have been the main trade arteries along which Byzantine glass products travelled to Rus' in the 11th c. In the early 11th c. the Byzantines 'inherited' the Volga route from the Arab merchants (Shchapova 1991, pp. 159, 162, 163). Byzantine beads are well known in Novgorod, at sites along the River Daugava and in the lakes Chudskoe and Onega regions. From Rus' they were probably transferred to Finland and Gotland (Thunmark-Nylén 1995). Merchants travelled from Byzantium to the lower reaches of the Volga along the foothills of the Caucasus, then went up to Bolgar, from where reseller merchants distributed Byzantine goods across Rus', in particular to the north, to Lake Beloe.

The Volga route was important but certainly not the only route for Byzantine goods to reach the north and northwest of medieval Rus' in the 11th c. Elena A. Rybina believes that some of them were supplied to Novgorod along the Dneper route throughout the 11th c. and later (Rybina 1971). According to Svetlana I. Valiulina, some luxury goods, including Byzantine glassware and window glass, reached Volga Bulgaria through Russian lands, i.e., bypassing the Volga region (Valiulina 2005, p. 121). At the same time, the western parts of Rus' were traditionally connected with the Black Sea and the Baltic Sea region *via* another route running from the Lower



Fig. 4. Wound beads (a) and beads made of drawn tubes (b), from Nikolsk III, 11th c.

Photo I. Kuzina

Danube along its left tributaries, the Western Dvina and the Neman (Mugurevich 1965, pp. 98–99; Shchapova 1991, p. 170). This route, along with the routes down the Elbe, Vistula and Oder rivers, was just as important for connecting Byzantium with countries of central and northern Europe as the route along the Dneper and the Volga was for the Russian state. As for the lands of the Dregoviches and further north into Ponemanye and toward the Baltic Sea, Byzantine beads were brought there from the Black Sea region through Hungary and Bulgaria, bypassing Kiev (Fig. 4; Shchapova 1991, pp. 170–171).

Some of these main directions were identified by Yuliya L. Shchapova based on the distribution and the largest concentration of wound beads of cobalt colored glass found at Russian sites. It was possible to identify the most probable distribution paths for two types of beads: beads with gold and silver foil and beads of cobalt colored glass with white rhombic decoration. In the 11th c., they were brought to Rus' along the branches of the western route, bypassing the Volga route, and to the lower reaches of the Volga from the west along the Caucasus mountains (Zakharov, Kuzina 2008, pp. 212–214).

As for the period of the 12th–13th centuries, there is not enough data for a more detailed identification of internal trade routes to deliver glass beads. At this time, the number of glass beads in Russian territory dropped significantly. The production and sale of glass appear to have been prerogatives of Russian craftsmen and merchants, but virtually no research has been done on a regional characteristic of glass bead finds.

Admittedly, there is no unified method for identifying specific trade routes or common directions of trade, but some successful efforts at developing methods have been undertaken. Among the first were Yu. L. Shchapova and Yu. A. Likhter, who compared the composition of bead necklaces and identified the routes along which glass beads were brought to the territory of the Gnezdovo archaeological complex (Shchapova, Likhter 1991). Another example comes from the Kursk Posem'e region. By comparing the number of beads with metal foil and beads of cobalt colored glass with white rhombic decoration in the sets found in the Gochevski and Lipinski burial mounds (Fig. 5), Vladimir V. Ėnukov attributed them to different trade routes: the overland road from Kiev to Bolgar for the Gochevski burials and a waterway leading to the rivers Oka and Volga in the case of Lipinski cemetery (Ėnukov, Shchachev 1996, p. 26). He speculated in consequence that the Byzantine beads could have been brought to Posem'e from the Dneper region in the west by the well-known water route to Kursk. A typological and statistical analysis of glass bead collections from cemeteries and settlements in the central part of the Lake Beloe region and in the Lake Kubenskoe region identified the main routes along which beads came to the Russian North and traced in greater detail the trade relations in the region (Zakharov, Kuzina 2008, pp. 198–215).

The present study is based on an analysis of a collection of thousands of glass beads originating from a number of sites in the Lake Beloe region, excavated from the 1980s through the 2000s and yielding a wealth of bead material (Fig. 3; Makarov 1990; 1997; Zakharov 2004; 2014a; Zakharov, Kuzina 2008; Kuzina 2009; 2015). These included two settlement sites in the central part of the region dating from early in the Russian colonization of Belozër'e: Krutik (9th and 10th centuries) and Nikolsk V on the Kema river (10th–early 11th c.). Their economy was based on the fur trade, as indicated by numerous beads which tended to be similar to, but much less varied than the beads from southeastern Priladozh'e at this time. Of particular importance were burial grounds: Nikolsk III (Kemsky necropolis) on the left bank of the Kema river flowing into Lake Beloe, Nefedevo on the Porozovitsa river in the area of the Voloĭ Slavenski, and Minino II on the western coast of the Lake Kubenskoe at the point where the river Dmitrovka joins it (Makarov 1990; 1997; Zakharov, Kuzina 2008). The first one consisted of burial mounds and flat inhumations dating from the 11th c.; the second one was a ground cemetery in general dating from the 1st half of the 11th to the 1st half of the 13th c.; and the Minino II burial grounds existed between the late 10th and the 1st half of the 13th c. Finally, there was the town of Beloozero (mid–10th–early 14th c.). Nefedevo and Minino were located on the same route, which was the most convenient way to travel from the upper Volga region to the Dvina and Pomor'e regions: the way to the east, toward the rivers Sukhona and Northern Dvina, ran along the left tributaries of the river Sheksna, and then *via* Voloĭ Slavenski (near Nefedevo) into the river Porozovitsa flowing into Lake Kubenskoe. The Novgorodians preferred a different way to bypass Lake Beloe and, correspondingly, the lands of the princes of Rostov: from Lake Onega to the Onega river, and then toward the left tributaries of the Northern Dvina. Therefore, the villages on the Kema may seem to be little related to settlements on

the Porozovitsa river and Lake Kubenskoe. However, in the 11th c., there was another well-known route that connected all the three areas: from Lake Onega *via* a portage toward the Kovzha, Lake Beloe (near settlements on the Kema) and further to the east along the Ukhtoma river toward the Modlona river and the Vozha lake, and finally toward the upper reaches of the Onega. From the Beloe lake this route led directly to the Volga through the Sheksna (Fig. 5g; Makarov 1997, Fig. 32).

In Nikolsk III, glass beads were found in 30 graves, both in mounds and flat inhumations (Kuzina 2015, p. 241, 243). Numerically significant sets came from 18 identifiable female graves and three children's graves. The beads represented two main technological groups, wound beads and drawn beads (Fig. 4). The number of wound beads (81%) was greater than that of drawn beads (19%). The two groups typically coexist and are superior in number over all other groups in sets from the 11th c. from Russian sites. Neither is the proportion surprising. Similar patterns are observed in burials from the 11th c. at Nefedevno (76% wound and 22% drawn beads) and Minino II (83% and 16%, respectively). However, it is still unclear why other technological groups (such as 'millefiori', carved beads, puff glass beads, etc.), which are usually low in number, but still typical of finds from the 1st half to the middle of the 11th c., are completely missing from the burials at Nikolsk III. At Nefedevno they account for about 2% of the total number of beads found and for about 1% at Minino II. The absence of such beads at Nikolsk III may be due to superficial excavations, which failed to retrieve all objects, but the same can be said of other burial grounds in the region, including Nefedevno and Minino II (the latter still not examined completely). Therefore, the random sample of beads from Nikolsk III should be considered as representative.

Most of the wound beads from Nikolsk III have gold or silver foil. These account for 57% of the entire glass bead collection. Six sets are entirely comprised of beads with gold or silver foil, and one of these additionally has several beads of other types. Glass beads with gold found in 6 male graves were used as buttons. In one case, they were found on a temple ring. Beads of these types were totally absent from two female graves and accounted for less than 2% in two others. The four 11th c. complexes from Nefedevno had wound beads with gold or silver foil exclusively (graves 20, 27, 28 and 60 – Fig. 6a, b). In two cases, glass beads with silver or gold foil were found together with drawn beads: grave 41 had eight drawn beads against 17 wound beads with foil, and grave 31 had 74 drawn beads against two wound beads (Fig. 6c); the proportion is similar to that for two sets found in the Nikolsk graves. The earliest of the above complexes in Nefedevno is grave 20 which did not have any drawn beads with silver foil.

Eleven graves in the Minino II burial ground, which were dated from the 2nd quarter of the 11th c. until the beginning of the 12th c., contained 665 beads in total (excluding the seed beads found in grave 17, which were most probably stitched onto a shawl). This amount is comparable to the collection from Nikolsk III. However, Minino II had about two times as many beads per grave, that is, about 60 items. Wound beads with gold or silver accounted for 146 items or 22% of the total number of beads found in 11th c. burials. This is significantly fewer than in Nikolsk III, but



Fig. 5. Scheme of spatial disposition of archaeological sites mentioned in the text and the main trade routes of Medieval Rus'

a – medieval towns; b – archaeological sites; c – overland trade route from Kiev to Bolgar; d – Dnieper route ('from the Vikings to the Greeks'); e – great Volga river route; f – southern branch of the great Volga route and waterways to the White Sea; 1 – Krutik; 2 – Nefedovo; 3 – archaeological complex of Minino (ground burial and settlement); 4 – Nikolsk III, V; 5 – archaeological complex of Gnezdovo; 6 – Izbrizhie; 7 – archaeological complex sites of Gochevo and Lipino; 8 – burial mounds on the Vym river; 9 – burial mounds at Dudino and Novinki; 10 – fortified settlement on the Syas river. No scale.

After Makarov 1997, p. 96, Fig. 32; Petrukhin 2002, p. 58; Motsya 1992; compiled by I. Kuzina



Fig. 6. Nefedovo. Glass, stone and ceramic beads from graves 20 (a), 60 (b), 31 (c), 11th c.

Photo I. Kuzina (a, c) and I. Papin (b)

then in one case in Minino the set was entirely comprised of glass beads with gold (48 items), which is the same as at Nikolsk. As said above, the proportions of the two main technological groups are comparable for the two cemeteries.

At Nefedevo, glass beads from the 11th c. were found in six female graves and three male ones. The female graves yielded 533 items (excluding seed beads), with 89 beads on average (about three times as many as in the Kema burials). Male burials had one or two beads found in the neck area. Another feature of the Nefedevo finds is the number of seed beads (beads with a diameter statistically less than 4.5 mm) found in the graves. More than 1650 wound beads in different colors were recorded in three graves from the 1st half to the 3rd quarter of the 11th c. Strings of seed beads were added to bead necklaces in two cases (graves 20 and 41) and comprised the entire set in one burial (grave 31 – Fig. 6c). At Minino several hundreds of green and black seed beads had been stitched on a shawl, which was presumably part of the burial dress (grave 17, about 460 items). One set in Minino from the last quarter of the 11th and 1st half of the 12th c. was comprised of only small wound seed beads (43 items from grave 25). A similar situation was observed in the Nikolsk burials. The only necklace entirely comprised of wound seed beads (44 in all) was found in grave 2 of burial mound 4.

Wound beads with gold or silver foil from the 11th c. numbered 76 (or 14% of the total number of beads) in the Nefedevo burials. But then one burial (grave 60) had almost exclusively ribbed beads with silver foil (28) and another one had 23 beads with gold foil (grave 28). This number is comparable to that in the sets found in Nikolsk III.

A comparative analysis of the sets of glass beads from the three cemeteries indicate both similar and distinctive features (Table 2).

Table 2. Comparative characteristics of the sets of glass beads from burials at Nikolsk III, Minino II and Nefedevo

Characteristics	Nikolsk III	Minino II	Nefedevo
Number of female graves with beads	18	11	6
Average number of beads in female graves	28	60	89
Wound beads (%)	81	83	76
Drawn beads (%)	19	16	22
Beads with gold and silver foil (%)	57	22	14
'Triangular' beads (%)	0.5	18	15
Wound seed beads of different colors (%)	18	11	310

The percentage of wound beads and drawn beads is approximately the same in all three cemeteries. The average number of beads in female graves at Nikolsk is two times less than in sets in Minino II and three times less than in Nefedevo. The sets from Nikolsk have notably more wound beads with gold and silver foil. The Nefedevo burial ground features a huge number of seed beads in female graves. When drawing parallels between the sets of glass beads from the three cemeteries,

we should certainly keep in mind that fewer than 10 graves dating from the 11th c. were found at Nefedevo and Minino II, while Nikolsk III yielded 18 female graves with beads. It cannot be excluded that given the same number of complexes in the sites compared the picture would have been somewhat different.

The next step in comparing the three sites was to identify types of combinations for the glass beads sets from each grave in accordance with Robert Andrea's theory applied for the first time in Russia by Yu. L. Shchapova and Yu. A. Likhter (1991, pp. 249, 250). Briefly, the theory is as follows: an ideal combination is comprised of beads of the same origin that had passed through no more than two intermediaries on their way from the manufacturer to the consumer. A complex combination is a set made up on site by the owner of the necklace using beads of different origin and possibly also date of manufacture, which the last owner received through more than two intermediaries. The main combination is between the ideal and the complex, and may be closer to one or the other, depending on the composition. To my mind, this theory gives grounds for determining the nature of economic ties between the manufacturer of glass beads and the end user, as well as the chain of reseller merchants between them. The result describes either the direct or indirect interests of the parties in the exchange. In practice, each of the combinations can be interpreted in two ways (compare for example: Shchapova, Likhter 1991 and Stolyarova 2008). First, beads of the same origin can be understood as belonging to the same school of glassmaking. The origin of beads is defined by a rather extensive region in a specific period (Byzantium, Rus', Volga Bulgaria, Syria, Egypt and the Eastern Mediterranean). This approach faces many obstacles: its successful application requires that the place of production of all the beads under study is identified and this is a difficult issue at best. In the second approach, beads of the same origin are understood as those manufactured by the same workshop by one or more craftsmen during a short period of time. Here the question that arises concerns the actual set of characteristics that would identify products from a specific workshop.

At first glance the fundamentally different understanding of Andrea's theory seems to be an insurmountable obstacle in its practical application. A closer look reveals, however, that these differences help to develop the basic premises of the theory and to adapt them to solving specific problems. Experience shows that once a type of a glass beads set is determined based on the region of production, it is possible to trace the external trade relations of Rus' at a time when its own glassmaking was still in its infancy and the market was saturated with imported products, that is, in the late 10th–11th centuries. Describing sets based on a workshop of origin also meets the goal of identifying domestic ties in the 12th c., when glass beads manufactured in Rus' became predominant. Other solutions are possible as well.

Eight out of the 17 identifiable sets found in the Nikolsk necropolis can be regarded as ideal combinations (burial mound 7, grave 2; burial mound 9, grave 1; burial mound 13, grave 2; burial mound 16, grave 1; burial mound 22, grave 1, burial mound 33, grave 2; burial grounds 7 and 9). First, these are sets comprised entirely of wound beads with gold and silver foil, occasionally enriched with a few other beads, also of Byzantine origin. There are probably six main combinations

(burial mound 4, grave 2; burial mound 8, grave 1; burial mound 10, grave 1; burial mound 27, grave 2; burial grounds 11 and 13), with two of them being close to ideal in their composition (burial mound 27, grave 2; burial ground 13). Both of these have Byzantine beads along with Middle Eastern beads. The others are complex combinations (burial mound 7, grave 1; burial mound 8, grave 2; burial mound 25, graves 1–4). Thus, ideal combinations account for 47% of the identifiable sets, 35% are main combinations, and just 18% are complex combinations (Kuzina 2009).

In the Minino II burial ground, ideal combinations and the main or close to ideal combinations are approximately equal in number. They contain beads of both Byzantine and Middle Eastern origin. Only one complex is comprised of only glass beads with gold foil. One necklace from the 11th century can be considered as a complex combination (grave 18). In sets from the Nefedevno burial ground, complex combinations are numerous and even prevalent in the early stages. Out of six female graves dating from the 11th c., only one (grave 60) yielded a necklace close to an ideal combination (comprised almost entirely of ribbed glass beads with silver foil); others were all complex combinations (83%).

Given the apparent prevalence of ideal and main close to the ideal combinations among the sets of beads found in Nikolsk III and Minino II, it may be argued that in the 11th c. glass beads were brought to settlements along the Onega–Sukhona route, including the northern coast of Lake Beloe (Fig. 5), through a minimum number of intermediaries. So, the merchants who brought glass beads to this region had relations with their manufacturers either directly or through a minimum number of reseller merchants, this because a significant portion of ideal combinations among the necklaces found in Nikolsk III and Minino II can be considered indicative of a reduced reseller chain.

These finds are not consistent with the prevalence of complex combinations in the Nefedevno burial ground. The location of Nefedevno and Minino on the same trade route and the small distance between them (about two days' march) would suggest a close resemblance, but it is not the case apparently. It could be due to incomplete information and difficulties with the identification of the place of manufacture of some of the beads. One should add that the difference in the number and value of beads in the necklaces found in northern Russian burial grounds is not due to age or social differences among the buried women as indicated by anthropological studies of the skeletons and analysis of grave goods. In a system of unequal exchange, glass beads represent savings and are indicative of the owner's financial situation. Therefore, the composition of the set depended solely on the purchasing power of the owner at the time that the beads were purchased (Makarov 1997, pp. 140, 143, 144). Interestingly, ideal combinations numerically predominate among the Nefedevno glass necklaces of the 12th c. (Fig. 7). It illustrates the changes occurring in the economy of this region and of Rus' as a whole.

The concentration of glass beads at sites in the Lake Beloe region is very typical of the material culture of the region in the 11th c. As said already, researchers believe that the area became one of the main fur trade regions in medieval Rus' at the time and beads were an important link in the chain of unequal exchange 'beads-



Fig. 7. Nefedovo. Glass beads from graves 6 (a), 11 (b), 17 (c), 42 (d), 12th c.

Photo I. Kuzina

furs-silver' (L'vova 1977, p. 107; Zakharov, Kuzina 2005). The prevalence of ideal and complex combinations of glass beads in graves at Nikolsk III and Minino II is fully in line with this.

It should be kept in mind, however, that beads entered the region not only with traders, settlers being another group that came bringing with them complete necklaces. It may be why very similar necklaces come from burials in central Belozer'e and the upper Volga (Safarova 1998) and why also the earliest bead sets from Nefedovo differ in composition from those found at Nikolsk III and Minino II.

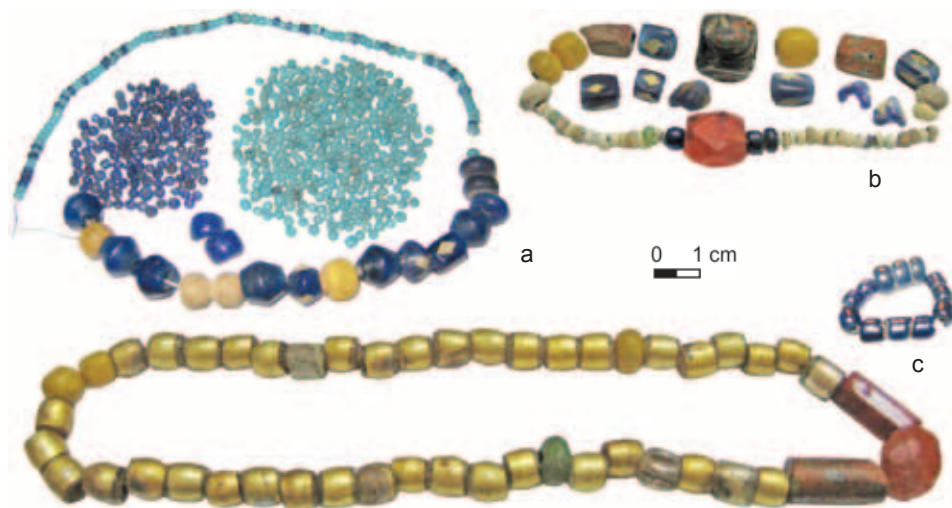


Fig. 8. Southeastern Priladozhë. Glass and stone beads from burial mounds 11th c.
a – Novinki (burial mound 8, grave 1); b – Dudino (burial mound 7); c – Dunino (burial mound 3).

Photo I. Kuzina

A comparison of glass beads coming from the three cemeteries described has thus enabled a study of the transfer of these goods over a relatively small section of the trade routes, that is, on a microregional level.

The typological structure of the assemblages in question can also be helpful in identifying the main directions of trade relations of the settlements associated with these cemeteries. Wound beads with gold and silver foil, which were well known in other regions of medieval Rus' (Fig. 8) and also, to a lesser extent, abroad (see Artsikhovski 1930, pp. 32–34; Uspenskaya 1953; Shchapova 1956, Pl. II 12; Fekhner 1959, p. 162; L'vova 1959, pp. 326–327; Kochkurkina 1973, p. 25; Callmer 1977, Pl. 4; Lehtosalo-Hilander 1982, col. Pl. III 8, 9, gr. 56, 404. col. Pl. IV 10, gr. 58; Goldina, Kananin 1989, Fig. 63:114–117; Saveleva 1987, p. 149; Mugurëvich 1995, p. 34; Ėnukov, Shchavlev 1996; Safarova 1998; Zakharov 2004, p. 45; Makarov 1997, p. 121; Dekówna 2007; Zakharov, Kuzina 2008, etc.), were absent from sites in Volga Bulgaria. The same was observed for the prismatic and double trapeze wound beads of cobalt colored glass with white rhombic or stripe decorations (Valiulina 2005, p. 104; Zakharov, Kuzina 2008), found in the burials at Nefedovo and Minino. These beads must have been costly, considering that the same graves contained also coins. They were a by-product of workshops manufacturing expensive glassware, an assumption further supported by recent research by Maria Dekówna (Dekówna, Purowski 2015, p. 250) which showed that the white rhombic decoration on blue prismatic beads was ornamented with silver paint.

Both types of beads are considered to be of Byzantine origin (Shchapova 1998). Given the generally similar patterns of distribution of other types of glass beads in the 11th c. from sites of Volga Bulgaria and the Russian North, as well as the key role played by Bolgar in the Volga trade, it should be assumed that Byzantine beads

with metal foil and white rhombi came to the Lake Beloe region mainly *via* western routes, bypassing Bolgar (Zakharov, Kuzina 2008). A series of wound beads with gold foil was found recently at Bolgar³ and only one bead with white rhombi is known from past excavations (Poluboyarinova 1988). Hence the Volga route cannot be completely excluded for these two types, especially given their occurrence in the northeastern parts of Rus'. It is also possible that the beads appeared in Bolgar as a result of population shifts rather than trade.

Cobalt glass beads with white rhombi could have come to the upper Kama from the west, *via* the rivers Sheksna and Sukhona (through the Minino region) and portages. Beads with gold and silver foil were delivered to the basin of the Vym river *via* the Sukhona–Vychegodsk route (Fig. 5). All this suggests that both types of beads were a special export item intended specifically for the Russian lands. The concentration of Byzantine beads with metal foil and white rhombi corresponds with finds of denarius coins on sites in the Lake Beloe region. These beads may have served as a means of payment in Rus', particularly in the north (Zakharov, Kuzina 2010, p. 33).

The distribution of 'triangular' beads follows a different pattern. These red-brown (or green, black or brown) wound beads with three yellow or yellow-green bulging eyes are particularly numerous at sites in Volga Bulgaria. Their exceptional numbers in some Bulgarian settlements led Valiulina to identify them as an Izmerian type and to assume that they were manufactured locally (Valiulina 2005, pp. 105, 142). Shchapova believes that beads of this type were manufactured in the capital of Byzantium (Shchapova 1998, p. 152). Triangular beads account for about 18% of the Minino collection and for 15% of the total number of decorated wound beads found in the 11th c. burials in Nefedevo. Morphologically, they are very close to 'tablet' beads (red-brown, green and yellowish-white round shaped beads with a thread hole that is narrow compared to wall thickness) which are also notable in their numbers, especially in complexes of Nefedevo and Minino II (Fig. 1b). These were made of glass of the same chemical class and existed contemporaneously with triangular beads; therefore it is reasonable to assume that both have the same origin. Only two triangular beads were found in Nikolsk III, which is less than 0.5% of the total number of decorated wound beads from this cemetery. Tablet-shaped beads are more notable in number, but are represented only by yellowish-white beads. It is possible that the differences in the composition of the collections from the three sites are due to their location relative to the Volga route and Bolgar: the relative proximity of the first two sites and apparent remoteness of the third.

Therefore, it may be said with confidence that there were at least two major routes along which glass beads travelled to the area of Lake Beloe in the 11th c.: western and southeastern. When determining the quantities of glass beads brought *via* the Volga route, we can probably take into account other types of beads in addition to the rectangular and related types, that is, mainly drawn beads and some wound beads with or without decoration. Thus, the number of beads brought to the area of Lake Kubenskoe *via* the Volga route is more than three times that of beads that probably came to the region from the west (Zakharov, Kuzina 2008), although the

³ I thank Vladimir Yu. Koval for information on unpublished findings.

material from Nikolsk III produced an entirely different result. Calculations were made on a very limited list of bead types which could be attributed to certain trade routes, at least by implication. However, the results of analyses of other categories of finds from the burials in question, as well as changes in the material culture of the Lake Beloe region in the 11th c. as noted by researchers (Makarov 1997, pp. 92–96), are in line with the above conclusions.

A comparison of the three large cemeteries on the Onega–Sukhona route indicates equal involvement of the respective settlements in general economic processes taking place in the region in the 11th c. Qualitative and quantitative characteristics of the bead sets found at Nikolsk III, Nefedevo and Minino II show that merchants were directly interested in trading with these regions. The three sites were obviously different on the microregional level given the observed differences in the average number of beads in graves from the three sites and the difference in the percentage ratio between wound beads with metal foil and beads of other types. The population of Volok Slavenski (Nefedevo) and the western bank of Lake Kubenskoe (Minino II) were apparently more engaged in the Volga trade, whereas the economic relations of the villages on the Kema river (Nikolsk III) centered on the western trade routes (Zakharov, Kuzina 2008).

It would be logical to conclude that in the early period beads came to the Lake Beloe region, which was historically closely linked to the Ladoga region, from a northwestern direction (from the Baltic Sea). However, this assumption does not appear to be indisputable. The presence of objects originating from the region between the rivers Volga and Oka in the early stages points to strong and stable relations of Lake Beloe with the Merya region. Early penetration into the region should perhaps be attributed to the influence of the Merya culture, given that early beads were widespread, extending to the area between the Oka and Volga. Even so, the most plausible assumption is for beads coming into the area *via* two different routes in the early period.

It may have been from the Orient (*via* the Volga route) that yellow lemon-shaped beads made of two-layered glass came to the North. Seldom researched, beads of this kind have been noted in collections, without being separated from yellow lemon-shaped drawn beads in general. In the Lake Beloe region, yellow two-layered lemon-shaped beads were found in Krutik, Nikolsk V, Minino, Beloozero and Nefedevo. Their presence has been recorded at Birka, Ladoga and Sarkel-Belaya Vezha. They have not been found in the upper Kama region and Hedeby (Zakharov, Kuzina 2008, p. 211). Yellow two-layered lemon-shaped beads are particularly numerous in Bulgarian settlements. According to Valiulina (2008, p. 288), these beads account for more than 54% of all the beads found in the settlement of Semenovskoe I. The collection from this site includes other types of glass beads that are widely represented in the Lake Beloe region, including yellow, colorless and blue ribbed drawn beads. Decorated beads from Semenovskoe I find analogies in graves from Minino and the earliest of the studied burials from Nefedevo. Even so, the present state of research does not permit an assessment of the extent to which the demand for glass beads in the Lake Beloe region was satisfied by trade flowing from different directions.

At the beginning of the 11th c., the Lake Beloe region saw major shifts, with the ratio between western and oriental types changing dramatically. Artifacts of western, Baltic-Finnish origin started to dominate the ceramic assemblage and a whole range of household items and jewelry. A significant number of denarii found in the settlements and burials of the region suggests stable economic relations with the Northwest (Zakharov, Kuzina 2010, p. 33).

Research on glass beads from eastern Europe today use the collections from the Zemlyanoe stronghold of Staraya Ladoga and Novgorod as a chronological scale. Beads from 8th to 10th c. layers at Zemlyanoe stronghold were studied and published by Z.A. L'vova (1968; 1970). Yu. L. Shchapova (1956) studied the 10th–14th c. beads from the Nerevskoi site in Novgorod. Detailed chronological identification of the cultural layers at the two sites combined with the huge number of beads studied (6456 items from Staraya Ladoga, which is only part of the collection, and more than 800 from excavations in 1951–1954 in Novgorod) have made these bead assemblages an excellent reference collection. A statistical look at the distribution of beads in the Zemlyanoe stronghold layers led to the revision of the chronology of other eastern European archaeological sites. However, a number of significant drawbacks have been observed recently. The Novgorod beads were described by morphological features in the publication, typology classification by technological features becoming a standard only later (L'vova 1958; 1959); hence, comparative studies with this collection are limited. New excavations in Novgorod in the past decades have yielded glass beads, but these finds have not been examined. As for Staraya Ladoga, the state of preservation of layers from the 2nd half of the 9th and from the 10th c. causes problems for the chronology. In the 11th c., the site was turned into a cemetery and hence the cultural layer was formed in a different way (Frenkel 2011).

Another problem has come up in recent years. Increasingly archaeologists have been using a flotation technique with respect to the excavated cultural layer, resulting in a significantly higher number of finds, primarily glass beads (Table 3). Sergey

Table 3. Content of glass beads in cultural layers of some medieval sites excavated by traditional techniques and by the new flotation technique applied to the whole cultural layer (after Zakharov 2014b, p. 185, Table 1)

Archaeological sites	Excavation by traditional methods			Excavation with the new flotation technique		
	Glass beads (items)	Excavated area (m ²)	Finds per m ²	Finds per m ²	Excavated area (m ²)	Glass beads (items)
Staraya Ladoga	~11,250	2048	5.49	–	–	–
Novgorod (Nerevski site)	~1500	3396	0.44	–	–	–
Beloozero	892	5500	0.16	–	–	–
Gnezdovo	373	1316	0.28	4.86	98	476
Krutik	432	1589	0.27	27.60	70	1936
Nikolsk V	18	120	0.15	12.90	35	452
Total	14,340	13,969	1.00	14.10	203	2864

D. Zakharov has demonstrated that traditional excavation techniques brought to light bright and large beads much more often than dark and small ones (Zakharov 2014b; 2015). This has changed the existing pattern of discoveries, rendering the statistical studies of bead types from layers in Staraya Ladoga obsolete. This is especially true of the drawn-tube group of beads (Fig. 8a).

This article has concentrated on trade routes and chronological issues as seen through the prism of beads as a category of finds. Recent finds of glass beads (large numbers from Krutik and from a few burial mounds in southeastern Priladozh'e), once they are studied, will surely contribute new data to the present discussion.

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