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Published in the Russian Federation
Russian Journal of Biological Research
Has been issued since 2014.
ISSN: 2409-4536
E-ISSN: 2413-7413
Vol. 6, Is. 4, pp. 227-240, 2015

DOI: 10.13187/ejbr.2015.6.227
www.ejournal23.com



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On Localization of Ancient Bearers of Y-DNA R1a Haplotype in Eastern Europe Neolithic Cultures

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Abstract

The work considers the problems of genetics, archeology, and anthropology connected with problem of localization of R1a* Y-DNA haplotype bearers in Meso- and Neolithic **Pre-Corded Ware** archaeological sites. Based on the analysis of findings of 2014-2015 years (described in other works) this paper proposes a hypothesis that the areas of Comb Ware cultures of Eastern Europe could be the possible area of archaic Y-DNA R1a1 subclades spread. The ancient R1a1 Y-haplotype (M198-, M459+) bearers could be possibly accompanied with those with J2b Y-DNA haplotype. As for pre-Mesolithic time, the situation remains unclear as more Eastern and more Southern localizations of R1a* and R1a1* bearers are possible according to modern data.

Keywords: Y-DNA haplotype, R1a1, J2b, Mesolithic, Yuzniy Oleni Ostrov, Khvalynsk, Serteya, paleogenetics, paleolinguistics, subclades.

Introduction

The interest in the origin and early localization of carriers of Y-DNA haplogroup R1a1 is serious, since this Y-DNA subclade is inherent to the significant percentage of the population of Central and Eastern Europe, India, Middle East. It is widely recognized and already proven in terms of archeology and paleogenetics that a significant concentration of R1a1 Y-DNA haplotype was inherent to the population of European Corded Ware culture (authors note that there also existed less famous East Asian Corded Ware culture group (**8**)). However, the location of R1a1 bearers of Pre-Corded Ware horizons causes debates due to a lack of data. However, over the last year such data emerged, allowing formulating a data-based hypothesis.

Materials and Methods

The main materials for the research are data from paleogenetic samples described in other works:

Sample	Y-DNA	MtDNA	Source
R1a1			
Yuzniy Oleni Ostrov burial № 125, 5500-5000 BCE.	R1a1*-M459+, M198-	C1g (formerly C1f)	7, p 25
Serteya archeological site, middle of V-IV mill. BCE	R1a1	H2	10, p 294
Khvalynsk-II burial 5200-4000 BCE.	R1a1, preliminary classification was determined as R1a1*-M459+, M198- (14)	U5a1i	9
J			
Yuzniy Oleni Ostrov burial № 40, 5500-5000 BCE.	J	U4a	9
Satsurblia burial (Georgia), Upper Paleolithic	J	K3	12
Kotias burial (Georgia), Mezolithic	J2a	H13c	12

The main research method of this paper is the interpretation of recently obtained genetic data which are compared with archaeological cultures distribution.

Discussion and Results

R1a1*, M459+, M198- on Yuzhniy Oleni Ostrov burial (North-Western Russia)

One of the most well studied Eastern European archeological sites is the Yuzhniy Oleni Ostrov burial on the shores of Lake Onega (Karelia, Russia) and it is dated back to the developed and late Mesolithic period of VII-V millennium BC. Three individuals from the Yuzhniy Oleni Ostrov, who lived 7500 years ago (UZOO-7, 8 and UZOO-UZOO-74), possessed a non-existing now in Europe mitochondrial haplogroup C1f (**4**). Also among the burials of Yuzhniy Oleni Ostrov were found mitochondrial haplogroups U4, U2e, U5a (**5**), J and H (**6, p.36**). The Mesolithic inhabitant of Yuzhniy Oleni Ostrov (burial № 10061) possessed Y-chromosome haplogroup R1a1 (SR10831.2, M198- subclade) (**7**) and mitochondrial haplogroup C1g (formerly C1f) (**7**). The other Mesolithic inhabitant of Yuzhniy Oleni Ostrov (I0221 / UZOO40) possessed Y-chromosome haplogroup J, and mitochondrial haplogroup U4 (**9**).

The author of one the most detailed publication on Yuzhniy Oleni Ostrov antropology V.P.Yakimov adhered to the Eurocentric point of view on the formation of the Mesolithic Onega inhabitants. He suggested that their origins are linked to the Paleolithic population of Eastern Europe, who moved along the glacier to the northern and northeastern directions (**2**). But some cross-breeding with Eastern population was also confirmed: «Later, it was concluded that it belonged to the described in the southern edge of the region so-called «flint» Mesolithic culture associated by origin with cultures of the Volga-Oka area, and (since the appearance in the VIII millennium BCE) coexisted with an earlier (since the X millennium BCE) local «quartz-slate» culture created by people from the North Urals and Trans-Urals and related to Finnish Askola – Suomusyarvi» (**3**). Currently, researchers emphasize that «Yuzhniy Oleni Ostrov burial site is as an archaeological source extremely multifaced» (**ibid**) and represents a particular genetic type, different from the classical Mongoloid and Caucasoid (**ibid**). A very heterogeneous composition of the population is now well proven by the presence of Y-chromosome haplogroup J, which indicates the influence of the southern areas and communication of Yuzhniy Oleni Ostrov people with populations of the Black and Caspian Sea.

On the scheme of Yuzhniy Oleni Ostrov (13, p. 5) burials with determined Y-DNA haplotypes are located as follows, according to (7, p. 25), (13, p. 35).

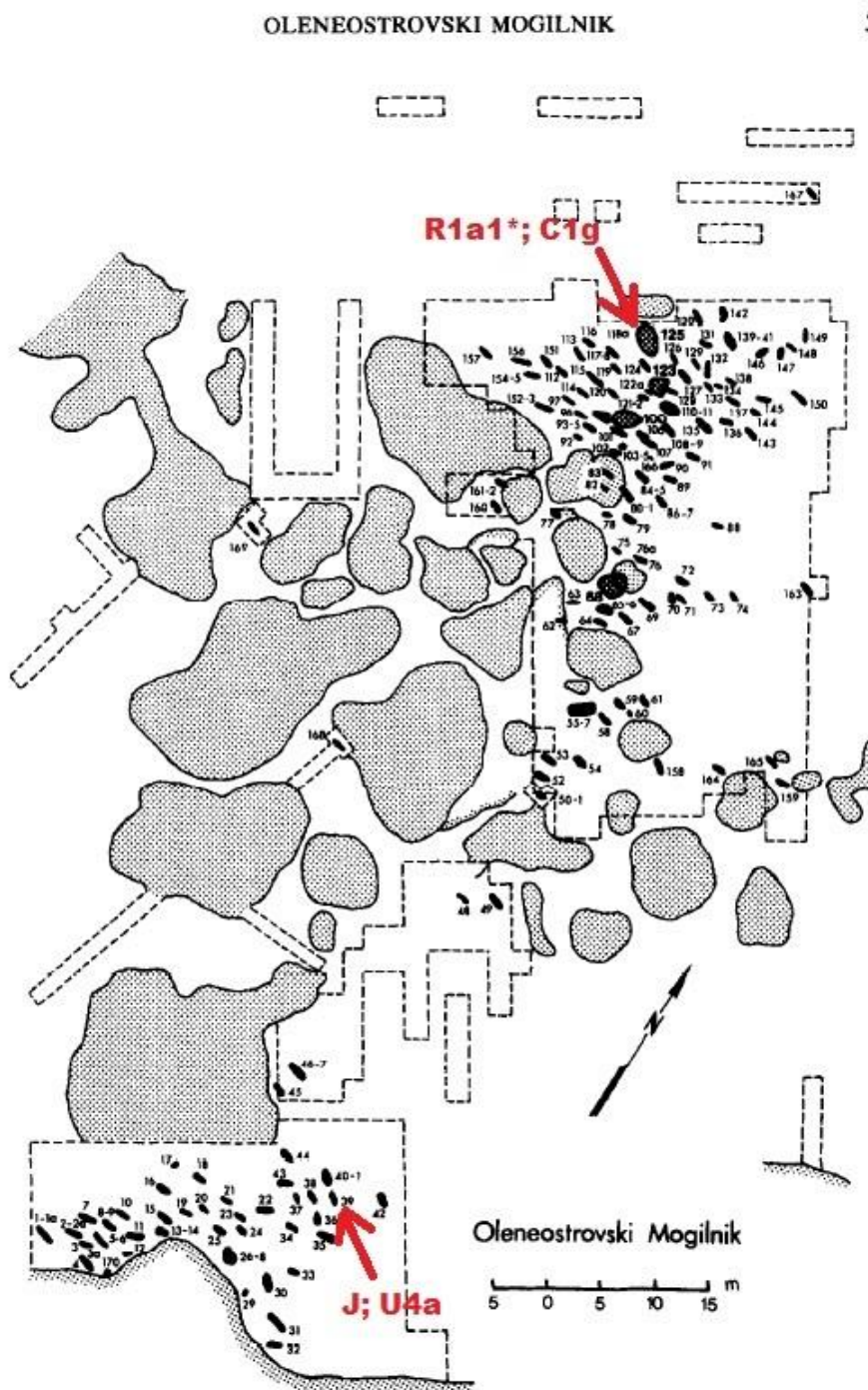


Figure 1. Y-DNA R1a1 and J typed samples in Yuzhniy Oleni Ostrov burial

The question if the culture of Yuzhniy Oleni Ostrov is non-ceramical Mesolithic or ceramical Neolithic is still open. It should be mentioned that P.N. Tretiakov in his book «Finno-Ugrians, Balts and Slavs at the Dnieper and Volga» mentioned: «*The population, which left behind the Oleni Ostrov burial ground seems to be familiar with the ware. It is proven by the bone plates with pinked edge, which must have served as ornament molds for clayware. If this statement is true, the Oleni Ostrov burial ground should be connected with the ancient culture of the Pottery Neolithic of the East Baltics – the Sperrings culture*» and further: «*Comb ware of Sperrings type (Pic. 3), according to different researchers, has the closest analogs to the Neolithic cultures of the*

Kama Region, the Cisuralian area and Trans-Urals, and we agree with this statement. Anyhow, there is no doubt that numerous Ural and Kama analogs to Sperrings ware, which have been detected in the recent years are incomparably more convincing than the Middle Dnieper one» (15, p. 24). This supports the version of the possible connections of Yuzhniy Oleini Ostrov people with the southern or eastern Neolithic cultures.

In addition to the local component the cultural influences on Yuzhniy Oleni Ostrov, the influences of most far-off regions have been mentioned in different works. For example, one article highlights the unexpected similarities of Yuzhniy Oleni Ostrov inhabitants and the representatives of culture Çatalhöyük (16, p. 92): «*However, the distribution observed on the charts provokes a number of questions because of the convergence of typological characteristics of the groups diametrically opposed geographically and for which the likelihood of direct biological kinship and mutual contacts excluded. The most vivid illustration of this is the convergence of characteristics a series of Mesolithic Oleni Ostrov burial ground with sample from Çatalhöyük by the values of the second factor ...*». But the finding of the Y-DNA haplotype J, which is associated with significantly more southern regions, only confirms ties of Yuzhniy Oleni Ostrov with the Southern cultures.

This way, the southern Neolithic influences on Yuzhniy Oleni Ostrov seem to be strongly probable and they could originated from the Neolithic tribes of Comb Ware cultures.

R1a1 in Serteya Culture (Western Russian Plain). The Usvyaty Culture or the Usvyaty level of Serteya culture is another area of finding of an R1a1 bearer of pre-Corded Ware period (10, p. 294). According to A.N. Mazurkevich: «*The first ceramic ware within Pskov area emerged no later than in the middle of the VI millennium BC. At this time the sites of Serteya culture were located in the Lovat-Dvina interfluvium on the shores of lakes, running into the stream, connecting the basins. The population built small rectangular houses with the pillar construction of walls and sunk floor. The first clayware appeared. These are small raw clay vessels with cylinder body and conic bottom. The pots were made of the small clay 'stripes' with the beveled edge and were covered with the thin clay wash. After that the surface of the vessels was ornamented with the ornament mold, leaving the triangle, double or comb prints. The ornament was often molded in plotted manner. The similar ware emerged in forest, forest-steppe and steppe zones of the Russian Plain, as well as in the Lovat-Dvina interfluvium. Other components of the material culture (stone, bone and horn artifacts) did not have the fundamental changes in time of the spread of this ware. It enables to propose the emergence of this type of ware in one center and the quick spread of the idea of the ware industry from this area. Such center was supposedly located in the Lower Volga Region and the North Caspian Sea Region in the VI millennium BC*» (18).

A.M. Miklyaev also gives a detailed picture of emerging the ware industry in Serteya Region «*The most ancient early Neolithic culture featuring ware development phases of the area is the Serteya Culture. This phase includes fragments of heavy-walled vessels produced through the 'overlap' method. After drying, the ribbons were jointed together and their joints were smoothed out by a comb press for a proper binding. The surface of ready vessels was covered with the thin clay wash and the ornament in a form of geometric composition, performed in a stroke-setback or (more rarely) in a stroke manner. The vessels were not burnt, but dried up. Judging by the ornament techniques (Smirnov, 1989), the idea for pottery manufacture came from Azov-Caspian Cultural province, but it cannot be proved by reliable sources of information so far. It should be noted that the Serteya Culture could have entered the Early Neolithic Community extending from the South of the Russian Plain to as far as Valdai*». Therefore, the first stage has links to the Caspian region.

Then «*The next stage features the cauldron-type vessels. This time, the ornaments included more compositions performed by a comb press and the first appeared dents and cuts. As a rule, an ornament was placed in the upper part of a vessel. This stage ware has a narrower range of analogs – The Upper Dnieper tableware (Artemenko, 1954; Kalechits, 1987) and Lithuanian territory (Rimantane, 1966 and 1973). This may indicate to a separation of local groups within the above said community. In this case, it is a group located between two rivers: the Dvina and the Lovat, the Upper Dnieper and Lithuania. The links between the Upper Volga Region and the*

*Left-bank Ukraine are getting weaker» (19). The Upper-Dnieper Culture located to the South of Serteya can be classified as a forest culture with **comb ware** traditions (20, p. 73) and could be considered as a more Western tradition than what had come from the North Caspian area and Lower Volga.*

The genotyped carrier of R1a1 haplotypes belongs to Usvyaty culture group. According to A.M. Miklyaev «*The Usvyaty ware culture, phase g is a vivid ware tradition of uncovered f and f1 ceramic phases. Back in 1979 V.A. Semenov believed that there were links between the Usvyaty culture and the world of Line-Banded Ceramics. Now, his ideas can be confirmed by existing materials. In general, the Usvyaty culture, judging by the ornaments, should be considered as a kind of oriental-style culture of funnel beakers and globular amphoras.... a certain connection with Central Europe was being preserved. The peculiarity of flint Usvyaty industry is a reflection of this link» (19, p. 20). Though mentioning of central European connections, A.M. Miklyaev notices that the ceramics of the Dubokrai-V level is still technologically close to that of Serteya. «*From technological perspective, the green ware of Dubokrai V is close to phase b and c ware of Serteya culture, but unlike the others, its ornament was placed up to the spreading of the surface with a certain substance, making it dark or even sometimes bright black» (ibid).**

In the text A.M. Miklyaev indicates that Serteya culture can be divided into three phases: a, b and c, followed by phase d and e of Rudnya culture. Ceramic phase and is characterized by stroked technique, in phase b **comb stamp** appears, in the next phase c **comb stamp** becomes prevailing, holes and notches appear (A.M. Miklyaev with reference to Artemenko and Rimantene relates this last phase with Upper Dnieper Early Neolithic culture and Lithuanian Neolithic) (20, pp. 16-22). Usvyaty culture dating from the late IV till the middle of the III millennium BC (21 p. 369) allows comparing its comb-stamped ceramics with a close-type comb-stamped pottery of the North European part of Russia, for example in Kargopol culture (22 p. 222). In the A. M. Miklyaev's work is emphasized the connection of the population of the region with the Narva culture, especially during the Rudnya culture stage (19, p. 24).

Periodization phases of Serteya microregion cultures is complicated by the fact that this land was attractive for multiple migrations, and comprises all types of ceramics in Eastern Europe. In this respect, we can (of course, in the first schematic approximation) see in the history of ceramics in the region of Eastern Europe Neolithic period a certain competition between the two types of pottery: **comb** inherent to the North and the North –West and **stroked**, what came from the South and the South-East, and is most likely connected with the Lower Volga Neolithic cultures. And Usvyaty culture belongs to the time **continuing the large period of comb ware domination**, having undergone the influence of european Linear Band Ceramics.

So forth, the zone of Neolithic cultures of Serteya region was within the bigger zone of comb ceramics culture of Eastern Europe. During early stages, the eastern connections were prevailing, but then the west and south-west connection became defining. Usvyaty stage emerged after Comb Ware domination and moreover has definite Central European connections.

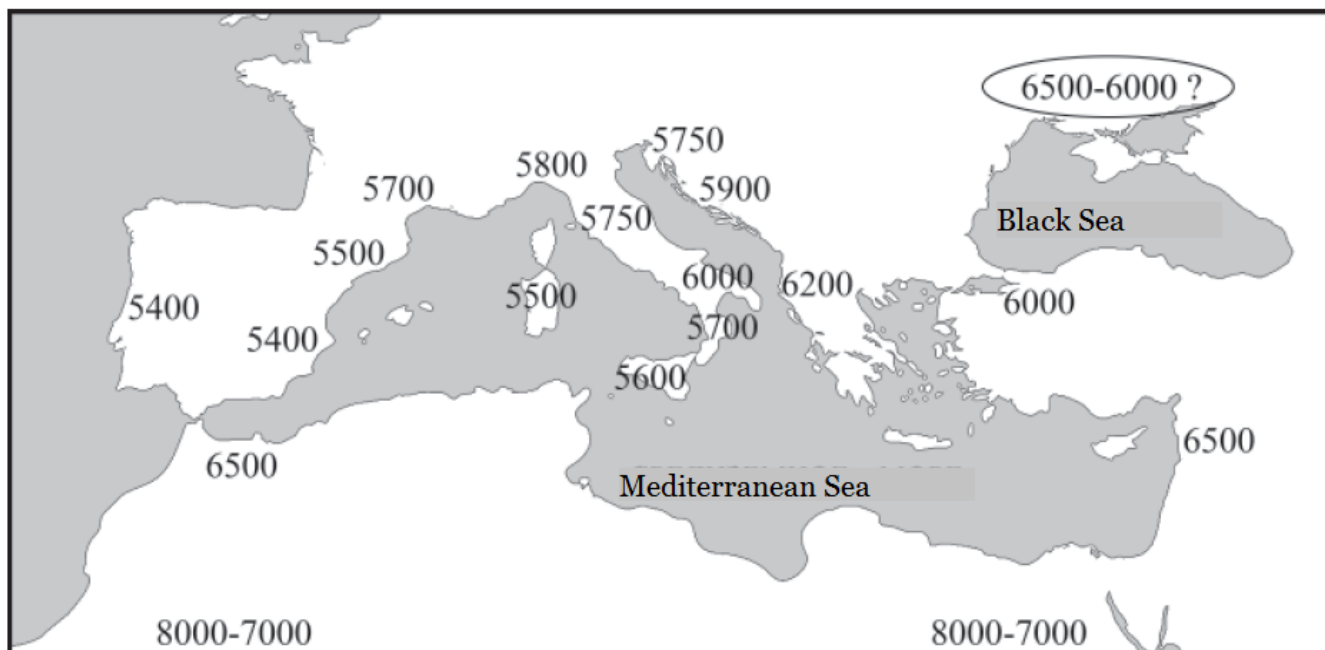
R1a1*- M459+, M198- in Khvalynsk-II burial (Steppe Volga Region). The mentioned before connection between Serteya and the Low Volga Region lead us to the analysis of Khvalynsk-II burial culture, which also belongs to the pre-Corded Ware comb-stroke ornament group: «*Khvalynsk culture can be characterized by flat-bottomed and sharp bottomed ware ... Ornament composed of the rows of horizontal strokes separated by horizontal wave lines, usually covers all the ware specimen or its upper half» (24, p. 39). I.N. Vassilieva gives the characteristics to the ornaments of ware in the Khvalynsk I and Khvalynsk II burials: «According to the opinion of I.N. Vassilieva, based on the microscopic research of the Khvalynsk ceramics technology, the ornament was made by the wicker factures... Sometimes the ornament was made by ammonite prints, strokes, short lines or **comb stamp» (25, p. 66). The similar technique has the analogs in the b and c phases of Serteya Culture, identified by A.M. Miklyaev (18).***

The analysis of the ceramics of Khvalynsk culture shows that it definitely does not belong to the Corded Ware areal, and can be referred as belonging to the cultures of comb-and-stroked pottery.

The areal of comb-ware cultures. Y-haplotype J2b as a possible companion of R1a1 on Neolithic sites.

The analyzed material showed that the discovery of Y-haplotype R1a1 bearers in pre-Corded Ware sites happens in the areas influenced by cultures of comb-stroked ceramic, and everywhere the presence of a comb ornament is noticeable. In the context of the analysis of cultural influences in the Eastern Europe, it is necessary to distinguish between stroked and comb pattern. Comb pattern is traditionally considered to be brought about from the north to the south of Eastern Europe, but D. L. Gaskevich in his long article «North Pontic Impresso: the origin of the Neolithic Pottery with Comb Decoration in the South Eastern Europe» (26) wrote the opposite. He made quite a bold assumption that runs counter to the tendency to minimize the migration, and proposed the origin of this type of pottery in the northern Black Sea coast.

«The absolute data collected over the last 15 years in Kiev Radiocarbon Laboratory, have revealed that such ware appeared in the North-Pontic region earlier than in Upper Dnieper, Volga Region, Kama basin, Trans-Urals. However, in the steppe Pontic region it appeared earlier than in forest-steppe. All these data have proved unreliability of above mentioned hypothesis. As an alternative, the author suggests considering the Pontic region Neolithic area with **comb ceramic** ornamentation as a part of Neolithic cultures with Impresso ware from the Mediterranean region» (26, p 246-247). His hypothesis was affirmed by the map (26, p. 239):



Approximate time of appearance of ceramics Impresso in Greater Mediterranean (Messrs. Cal BC) (according Balossi, Frangipane 2002; Daugas et al. 2008; Forenbaher, Miracle 2004; Mohammed-Ali, Khabir2003; Robb 2007; Zilhao 2001).

Figure 2. The estimated time of appearance of Impresso Ceramics in Big Mideterranian Region (26, p. 239).

This way, according to D. Gaskevich we see in the Eastern Europe only a small episode of a big process, which took place from Sahara to Trans-Urals and from Marocco to the Levant. Probably, the early appearance of ceramics in Samara region and in the Mideterranian area are two faces of one wave of the spread of the Neolithic technologies. The ancient subclades of Y-DNA R1b haplotype can be detected both in the Volga-Ural region and in the Northern Africa, and the Neolithic findings of R1b are attributed to the Elshanskaya (Lebyazhinka IV) and Els Trocs cave (Spain). At the moment of writing the paper the opinion about the spread of R1b Y-haplotype carriers from the Eastern Eurasia is dominating, and in moving westward the R1b (and may be

R1a) bearers of ceramic Neolithic technologies could obviously merge with the carriers of other haplogroups, J among others.

As D.L. Gaskevich refers to the initial spread of the Neolithic within the Eastern Europe, we should consider the issue of the genetic reflection of this process and specify the genetic map of the North Black Sea Region and the adjust territories in the period, preceding the Mediterranean ware adoption (though, there is another possible address of this initial spread, namely Elshanskaya culture and its derivatives up to the Crimea). In VIII-VII millennia BC the North Black Sea Region was inhabited by the bearers of the Kukrek and Zimnikovskaya cultures (27, p. 44-45), the final Paleolithic includes Osokorovskaya culture, considered with the Caucasian Imereti one as a group of «Epi-Gravettian traditions» (ibid, p. 43) (Figure 3).

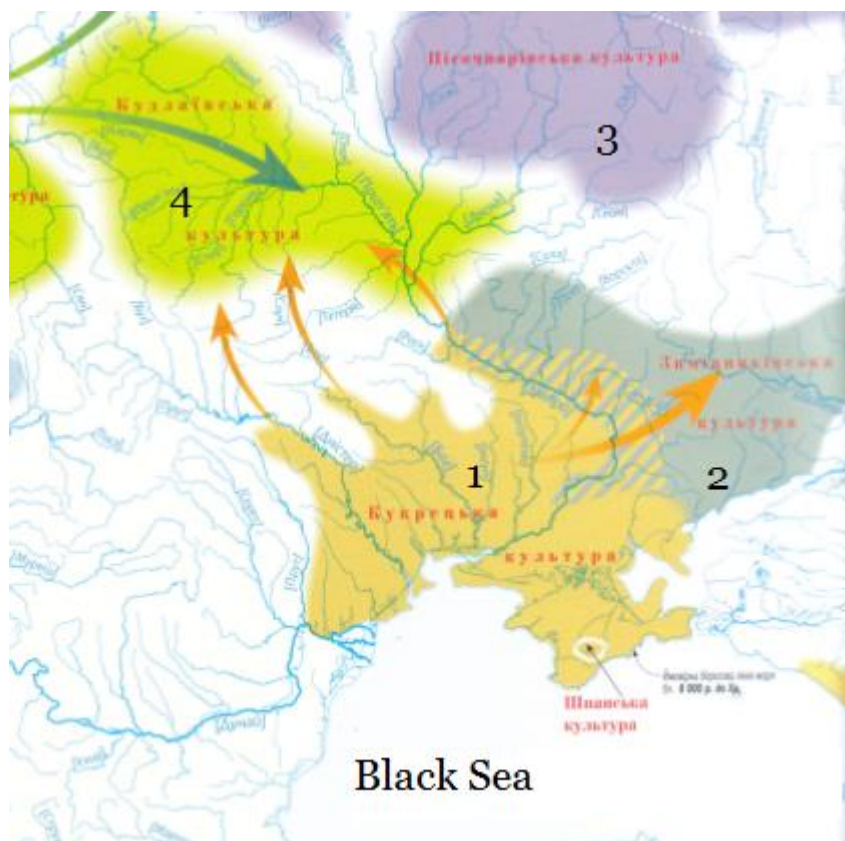


Figure 3. Black Sea area in the end of IX – first half of VII milleina BCE. (28, p. 14).
Epi-Gravettian Kukrek (1) and Imereti cultures are painted in orange.
2 - Zimnikovskaya culture, 3 - Pesochnorovskaya culture, 4 - Kudlaevskaya culture.

Pre-Neolithic Bug-Dniester culture developed on the basis of the Kukrek one. As the above mentioned Satsurbliia and Kotias burial grounds, genetics of which contains the male haplogroup J refer to the habitat of Imereti culture, we can make the conclusion that one of the subclades of the haplogroup J could have been spread across the North Black Sea Region in the pre-Neolithic period (common epi-Gravettian tradition). The mentioned migration by D.L. Gaskevich is supported by genetic data, if we consider that its representatives were the bearers of subclade J2b Y-haplogroup J. Nowadays subclade J2b is widely spread within the zone of ancient migrations of cardial tribes (Figure 4).

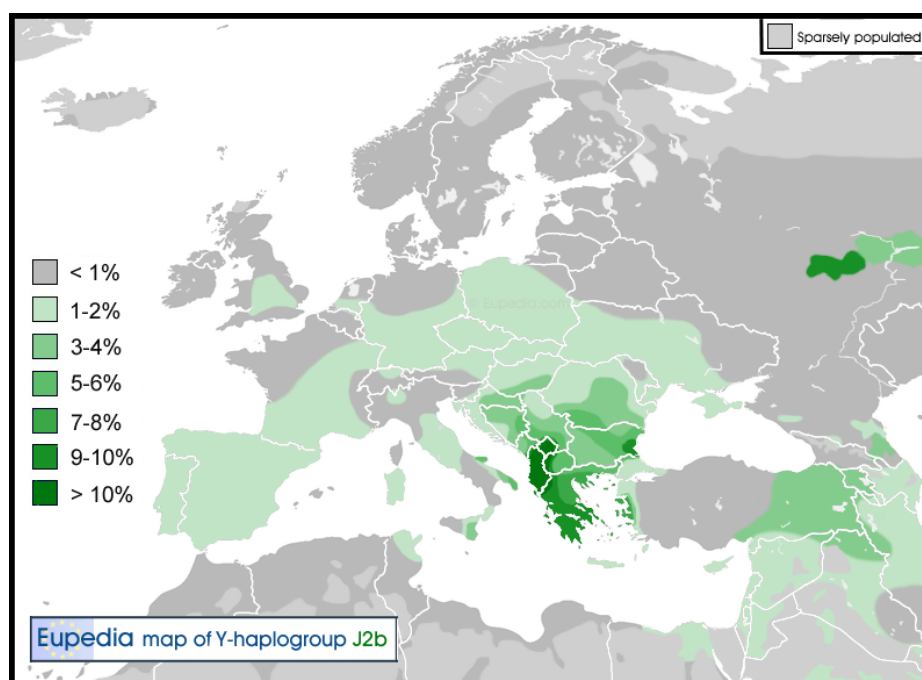


Figure 4. Distribution of haplogroup J2b (M102) in Europe, the Middle East & North Africa.
http://www.eupedia.com/europe/Haplogroup_J2_Y-DNA.shtml

Those cardinal tribes that could have given rise to the **comb ceramics** culture, may have been centered around Black Sea and Adriatic shores, and they could contain Y-DNA subclade which could be different with those of Georgia but related to them. The regions of the highest concentration of the haplogroup J2b bearers, namely Albania, the South-East of Bulgaria, Greece and some coastal regions of Italy (from 10 to 26 % of population) up to the Black Sea are represented on the above mentioned map.

This view is strongly supported by the spread of J2b in populations, which can be considered theoretically connected with the cultures of **comb ware** and were least of all Indo-Europeanized among all the East of Europe (nowadays they speak Uralic languages with some pre-Uralic substrate **(46)**). So, the presence of J2b in these populations may not reflect the Indo-European migrations, but earlier waves of Neolithic spread.

Firstly, the spot of the noticeable spread of **J2b (10-15% of population) is Mordovia** (central Russia) (particularly, Moksha environment **(29)**). V.V. Stavitsky in his thesis work on the theme «Neolithic, Eneolithic and the Early Bronze Age of Sura-Oka Interfluve and the Upper Prikhoper'e: Dynamics of North and South Cultures' Interrelations in the Forest-steppe Zone», says: «*The spread of comb-stroke ware across Moksha river area is apparently concerned with the advance of the definite groups of Upper-Volga population. The carriers of the stroke ware, focused on the forest-steppe landscapes, must have moved to the south-west and south-east, to Ryazan Oka and Ulyanovsk Volga Region. But some part of the previous population must have not left Moksha river area and had contacts with the Middle-Volga tribes. It is reflected in the data of the 1st Kovylyaskaya site, where the weakly ornamented ware of the Elshanskaya type lies together with the comb-stroke ceramics. The stroke group of the Inerskaya site has combined under the influence of the forest-steppe traditions. These processes are reflected in the comb-stroke ware of the settlement Gorodok 1, which is similar to the ware of Kovylyaskoe settlement. The simple motives of the ornament, consisting of horizontal rows of the slanted prints of the short low arched stamp, often interspersing with the plain sections are most common for the comb ware here. The stroke ware commonly uses the hatched zones of differently directed rows of strokes. Since recently there was an opinion that the Middle-Volga population left Moksha river area under the influence of the pit-comb ware. But the examination of Ozimenki 2 site showed that the local population continued the development of the Upper-Volga traditions at the late stage of this culture existence without leaving the region.*

The ornamentation of the ware of Ozimenki 2 site widely uses the broad-toothed prints of the long stamp with the rare rows of deep patches on top, having the complete analogs in the late Upper-Volga ware»(30). V.A. Yurchenkov in his book, which is the review of academic research, says about the prevailing **comb nature** of Moksha river area ware: «There are 20 memorials with the so-called comb-stroke ware in the Moksha basin. The prints of comb stamp prevailed in the ware decoration; the share of stroke ornament is low» (31, p 113). Thus, the penetration of J2b into Mordovia territory can be explained by the migration from the south, and the Mordovian J2b peak can be explained by the fact that the population of comb-stroke ware had not left the territory.

Secondly, **Saami J2b phenomenon**. The Saami have the reputation of the relict, some kind «reserve» of the ancient genes of Europe (and the bearers of the considerable pre-Uralic language substrate), that is why it is not surprising that one of the first Neolithic migrations to the European continent could be preserved in the genes of this isolated northern people, unaffected by «Indo-Europeanization» (32). The population of the Saami within Kola Peninsula contains about **14% of haplogroup J2b (17)**. As the comb ware cultures in pure form were displaced to the north of the Eastern Europe in early Bronze Age, it is quite possible that their creators could have played an important role in the Saami formation.

The further search of R1a1 roots. Thus, we can suppose that haplotype R1a1 could be found in the wide range of comb-stroke cultures, especially comb ware cultures often accompanied by J2b (at the north-west area – in Karelia and Mordovia exactly comb cultures exist in the considered period) in the Neolithic horizons. Besides, it is also possible that the epicenter of the spread and divergence of modern most widespread subclades R1a1 (M198+, M417+) was located to the west of Serteya, which is indicated by the relations of Serteya culture with the funnel beaker (developed on the basis of Ertebelle) and Narva cultures (Fig. 5.).

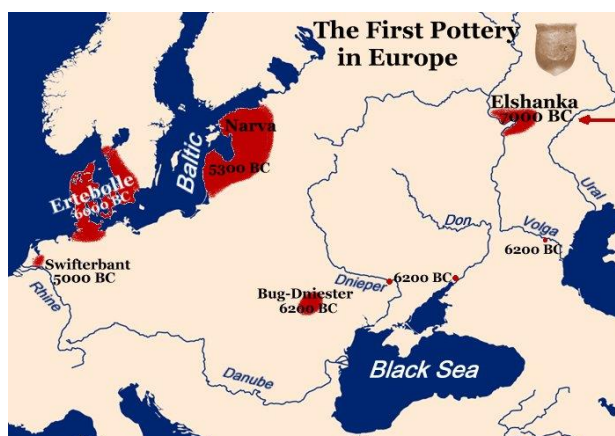


Figure 5. Main Ceramic Neolithic Cultures of Europe

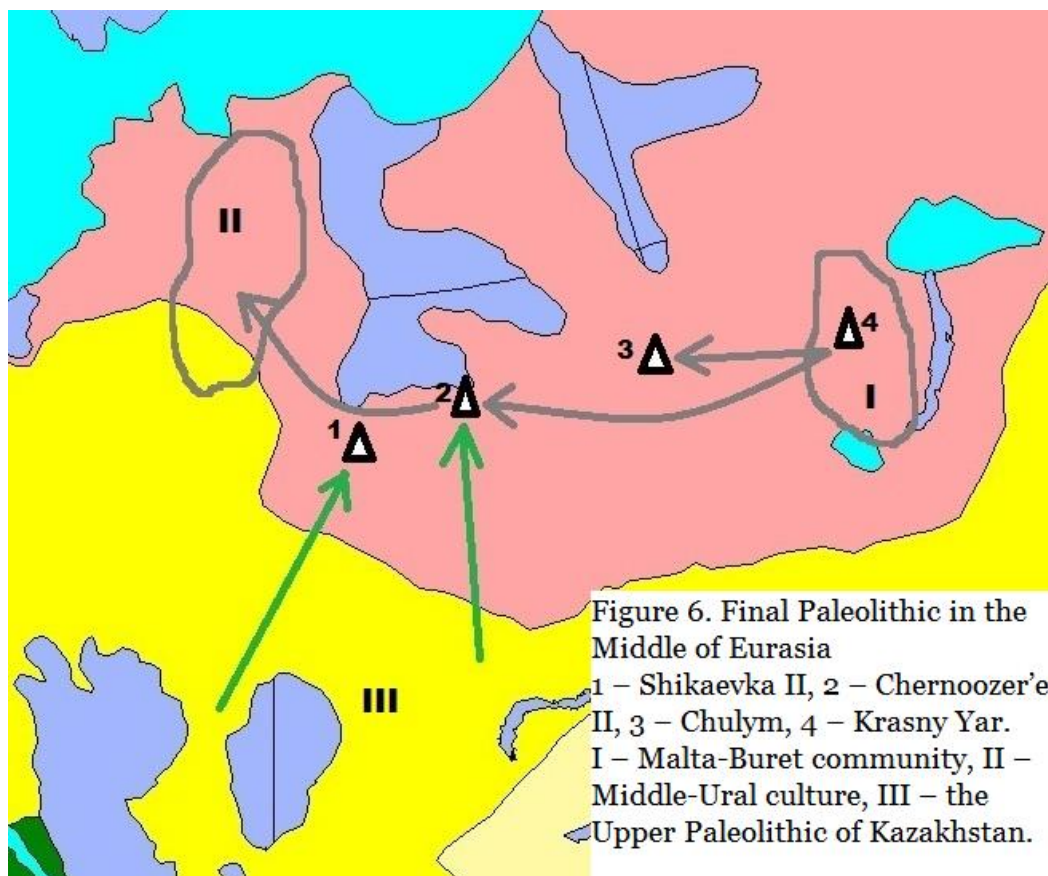
But the issue of R1a1 bearers' Upper Paleolithic origin is debatable. Firstly, the variant of the Black Sea Region origin is still possible, as this haplotype can be present in Bug-Dniester culture and further southward. This fact is supported by the detection of basal haplotype in the population of the Middle East Region: «... more basal (R1a-M420*) Y-chromosomes have been detected in Iran and eastern Turkey. Overall, our detection of haplogroup R1a1 in a northwest Russian hunter-gatherer establishes the early presence of this lineage in eastern Europe, and is consistent with a later migration from eastern Europe into central Europe which contributed such haplogroups to the Corded Ware population» (7).

Some data enable to consider that it also can have an origin not necessarily concerned with the Middle East via north Black Sea Region. The choice of candidate cultures is rather small, as many cultural layers (Ienevo, for instance) of the Eastern Europe have post-Swiderian or post-Ahrensburg type have Western European origin, while the present consensus considers the deep emergence of R1 in the Paleolithic in the eastern part of Eurasia. If we accept the theory, concerning the Neolithic nature of the Yuzhny Oleni Ostrov, the R1a1 haplotype could have come with the first group of ware bearers to Karelia. If we accept the pre-ware theory of R1a1 emergence

in Karelia, it is possible in terms of Butovo or Kunda culture, but, taking into consideration the (partly) western post-Swiderian nature of these cultures' origin, we should search for the eastern substrate in them. And there exists one. According to M.G. Zhilin: «*The first significant penetrations of the population of Swiderian cultural tradition into the Upper Volga trace back to the middle of pre-Boreal period (the site Tikhonovo). The site Mar'ino-4, the goods of which are similar to Tikhonovo-1, should be dated back the same time, or a bit earlier. But the major cultures of the Upper Volga Region, namely Ienevo and Butovo have already formed by that time. Probably, the certain groups of the population of Swiderian tradition, having penetrated into the Upper Volga Region, were quickly assimilated by the population of Butovo culture*» (33, p. 7-16).

And the primary pre-Swiderian population of the Butovo culture could have the occidental origin. When the researchers found the archeological site Chernoozer'e II, located 140 km to the north of Omsk, they were surprised by the similarity with the Krasnyi Yar site at the Angara, which referred to the cultural groups of Malta-Buret community (containing proven Y-haplotype R*). The distance between these sites is 1800 kilometers, but it was not a problem for the migration of mobile Paleolithic hunters (34, p. 303, p. 310). A little bit later in early 1980s, the Chernoozer'e was estimated as the unique site within the West Siberia, but «having proximity with the Kazakhstan late Paleolithic» (ibid, p. 310). If we speak of the neighboring cultures, the famous Shikaevka II, which artifacts are close to the Caspian Sea Region, but different from Yangelskaya culture, is located to the west of Chernoozer'e (ibid). This subtlety enables to distinguish Shikaevka from the Yangelskaya culture of the south Caspian and later – Zarzian origin and compare it with pre-Zarzian late Paleolithic of Kazakhstan, which originated the part of the population of Chernoozer'e. In the period of late and final Paleolithic, the creators of Shikaevka and Chernoozer'e inhabited the south coast of Mansi periglacial sea-lake (35). The tie of Chernoozer'e with Malta-Buret cultures enables to consider the late Paleolithic migrations of the latter to the west and estimate the impact of these migrations on the ethnic and general archeologic history of Ural and the adjacent territories: «*The middle Ural culture was formed on the basis of the emergence of new groups of the population in 16–17 millenia BC, genetically connected with the north-Asian Paleolithic*» (36, p. 54). Migration of the creators of Chernoozer'e is not the only one, concerned with Malta-Buret community. The Upper Paleolithic Chulym, located at the border of the West and Middle Siberia, was also created by the expatriates from the Angara banks (37). Consequently, we deal with the rather wide migration from the Baikal Region to the west of the late Upper Paleolithic period, which had a great affect on the North Urals. In general, a great group of the sites of the West Siberia, Urals and the north of the European part of Russia: Byzovaya, Shikaevka, Il'murzinskaya, Talitskogo, Deukovskaya, Ust-Kamskaya, Karacharovo, Altynovo and Zolotoruch'e, as well as Kapova and Medvezhya Peshchery are combined into the so-called 'north-western area of the late Paleolithic', equivalent by the proximity of Podonskaya cultures or South-Western areas. Microplated industries of sites, named after Talitsky, Shirovanovo and Medvezhya Peshchera have direct links with the similar techniques of the Middle Siberia (Malta-Buret ones), dated back to the XXV-XV millenia BC. (38, p. 43). Concerning Altynovo and Zolotoruch'e sites, which are located at the edge western flank of the above mentioned late Paleolithic area and are situated on the east of the present Yaroslavl Region, they were compared with the middle Volga Region sites Syukeevsky Vvoz and Postnikov Ovrage, as well as Gornaya Talitsa site (39). Syukeevsky Vvoz and Altynovo are the basis for the development of the influences, coming from the west, which are called «the east Federmesser» (40, p. 205). A.Kh. Khalikov considered that the early Mesolithic sites of the Middle Volga belong to the Siberian circle, which is indicated by the data of the sites Syukeevsky Vvoz and Postnikov Ovrage (37).

We can make the justified conclusion that the western influences of the early Mesolithic (like eastern Federmesser and Swider), having formed the Butovo culture, were combined with the occidental ones in the Upper and Middle Volga Region, concerned with the migrations of the Siberian groups, having created Altynovo and Zolotoruch'e in the final Paleolithic Age. Thus, the Upper Volga Region became the zone of intense Paleo-ethnic and Paleo-genetic contacts approximately in XI-VIII millenia BC (Fig. 6).



The landscapes of the XVI thousand years BC are highlighted in colors: glaciers in blue, tundra in pink, «mammoth steppes» in yellow; source (41).

Proceeding from the fact that the north-eastern area of the late Paleolithic extended to the Upper Volga and the North Dvina, we can consider that it may also be ancestral for the creators of the Oleniy Ostrov burial ground, the bearers of R1a1-M198-, C1f. The east-Eurasian origin of both male and female haplotype indicates this possibility. If we consider that the bearers of this type came from the east, but via the Black Sea Region and penetrated into the Oleni Ostrov from the south, we can compare their mtDNA with the mitochondrial C of the Neolithic time found southward. There are some mtDNA haplogroup C findings in the cultures of Dnieper-Donetsk circle, but they refer to a different subclade C4 (42), having parted with C1 in Paleolithic Age. In other words, the population of Oleni Ostrov and the bearers of Dnieper-Donetsk cultures have related, but different mtDNA haplotypes C subclades.

But there's an argument against the eastern trace. The above mentioned migration came across Urals, having left Ilmurzinskaya culture. There are statements that Romanovo-Ilmurzinskaya culture could be relevant to the Elshanskaya one: «*The issue of the origin of the Elshanskaya culture should be solved, firstly, by the comparison of its flint industry with the relevant industries of the earlier, Mesolithic era. Nevertheless, the data of such sites as Krasnyi Yar I, Chekalino II, Staro-Torskaya and some other memorials shed light on this problem. The flint collection of these memorials has definite similarity with the Elshanskaya one... Basing on the similarity of these industries with the Elshanskaya flint complexes, we come to the conclusion that the roots of the local Neolithic culture should be sought in its Mesolithic traditions of Volga-Kama and perhaps some adjacent areas, located to the north or to the north-west from the Elshanskaya memorials' area, rather than to the south*» (43).

The genetics of the Elshanskaya and related cultures is well-studied by now. The burial of Lebyazhinka IV possessed mtDNA U5a1d (7, p. 25). Also «*Bramanti et al. (2009) tested*

Mesolithic remains from several locations across Europe, and found one haplogroup U5a(9,800 ybp) at the Chekalino site in the Volga-Ural region of Russia, one U5a1 (10,000 to 8,000 ybp)» (44). The Khvalynsk culture contains mitochondrial haplotype U5a (together with U4 and H) (9). If the migrants moved via the mentioned territories, the found subclades of mt-DNA C in Mesolithic-Neolithic remains could be the evidence (as they preserved in Yuzhny Oleni Ostrov and Dnieper-Donetsk area), but there are no such findings. According to (45), C1f is rather frequent in Yuzhny Oleni Ostrov and Bolshoi Oleni Ostrov (also the north of Russia). Thus, C mt-DNA haplotype has been preserved there till late Mesolithic and Neolithic and was displayed in the first genotyped findings in the North of Russia but is still absent in contemporaneous findings in the Volga-Ural area. Probably, in case if R1a1 has come to the North-East Europe from the East, rather than from the South, we deal with another population, different from the one, having formed the Romanovo-Ilmurzinskaya culture, concerned with the late Upper Paleolithic of Kazakhstan and Urals. But the strong presence of haplotype C in the Black Sea Region in the Neolithic time demand consideration of the variant of R1a1 migration from the East via the south regions (Near East or Black Sea).

Thus, we can conclude that the presence of haplotype R1a1 is strongly probable in the cultures of Comb Stamp Ware (with J2b bearers as well) in the Neolithic context, but the origin and the trace of R1a1 migration is still unclarified and more data are needed.

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