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On Localization of Ancient Bearers of Y-DNA R1a Haplotype in Eastern Europe Neolitic Cultures. Part III. New Findings Support the Comb Ware («Pontic Impresso») Version

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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 Mesolithic and Neolithic **Pre-Corded Ware** archaeological sites. Based on the analysis of findings of the 2017 year (described in other works) this paper supports and finds new arguments that the areas of Comb Ware cultures of Eastern Europe could be the possible areas of archaic Y-DNA R1a1 subclades dispersion in the pre-Copper Age period. This paper deals with new haplogroup findings in Eastern Europe and Central Asia. Also the findings of H2a2 in Mongolia are considered as the support of our hypothesis. The link between archaic R1 subclades distribution and Uralic and Altaic language dispersal is developed. We identify two mega-areas of different Neolithic traditions: the one R1b-preM73 dominated, and the second one of «Pontic Impresso» connected with R1a bearers. It is also shown that both groups could move to Altai in the Neolithic times.

Keywords: Y-DNA haplotype, R1a1, R1b1-preM73, Mesolithic, Baltics, Serteya, paleogenetics, paleolinguistics, subclades.

1. Introduction

In our previous works (Semenov, Bulat, 2016, Semenov, Bulat, 2016a) we associate the Neolithic distribution of pre-Corded Ware R1a1 bearers with Comb Pottery area from Pontic Region to the Baikal Lake. Also we noticed, that according to F. Kortlandt's framework, that process could be the initial stage of the dispersal of Proto-Indo-Uralic and Altaic super families. The new genetic findings released in 2017 support this view and give the future directions of study. The new findings in the Ukraine and Estonia supports the hypothesis about the R1a1-M459 dispersal along with the Comb Ware cultures trajectories. Besides, another layer of the wide dispersal of R1b1-pre M73 is identified, which precedes that of R1a1 by time. The latter can be identified with the waves of population movement which affected the Caspian region. The hints on connection between dispersals of haplogroups and those of ceramic styles are being found explicitly.

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2. Materials and Methods

The main materials for the research are data from paleogenetic samples described in other grouped in Table 1.

Table 1. The newest data on paleogenetic samples of Eurasia

Sample	Y-DNA	MtDNA	Source
R1a1			
Dnieper-Donets, Vovnigi 2, Ukraine_N1 4519-4343 BC	R1a1-M459	U4	Pinhasi, 2017, Genetiker
Estonian Comb Ware, Kudrukula 3 3900–1800 BC	R1a5-YP1272 (refined to R1a1-YP1335)	U2e1	Willerslev, 2017, Genetiker
R1b1			
Zvejnieki, Latvia_HG2 5841–5636 BC	pre-R1b1-M73 /M478	U2e1	Pinhasi, 2017, Genetiker
Zvejnieki, Latvia_HG3 5302–4852 BC	pre-R1b1-M73 /M478	U5a2d	Pinhasi, 2017, Genetiker
Zvejnieki, Latvia_MN1 4251–3976 BC	R1b-P297	U4a1	Pinhasi, 2017, Genetiker
Bol'shemysskaya, IV mil. BC	R1b1-P297	No data	Hollard, 2014

The main method is the study of the correlation between ancient haplogroup distribution, archaeological cultures, and ceramic similarities.

3. Discussion and Results

Firstly, the new R1a's were found in Estonia and Ukraine, in the layers which fit the area of Comb Ceramics. The Estonian sample belongs to R1a1-YP1335 (Willerslev, 2017: 8; Genetiker), Dnieper-Donets belongs to R1a1-M459* (Pinhasi, 2017, Genetiker). So we see the presence of another archaic R1a's in Comb Area and in the Pontic Area as we predicted in (Semenov, Bulat, 2016).

Secondly, the mitochondrial haplogroup H2a2, typical for European peoples, was found in the Neolithic Mongolia (Rogers, 2016: 174), what coincides with the migration of R1a1 bearers to the Lake Baikal in the Neolithic times, discussed in (Semenov, Bulat, 2016a). Both R1a1-M17 and H2 were reported in Serteya (West Dvina), in the Pontic area (Smyadovo, Vinogradnoe, H2 only), and in Khvalynsk in the Neolithic-Eneolithic times. So, H2a2 in Asia supports the version of Western roots of R1a in Kitoi culture.

Thirdly, the most important new result was the analysis of the situation in Neolithic Baltics. Last year new interesting data, concerning the population of the Neolithic Narva culture, and Latvian Neolithic in general were released. The latter culture spread within the Baltic States down to the Neva and dated back to VI-III mil. BC (Zinkevičius, 2007). Earlier it was found that representatives of the Narva culture, who lived about 4200 BC had mitochondrial haplogroup U5b (Bramanti, 2009). The new findings are more impressive: Y-haplogroup R1b1 was found in representatives of the Narva culture from Zvejnieki burial ground (Latvia), who lived about 5600 BC till 3900 BC. Also, two I2a1 were found in Spiginas1 and Kretuonas 1B sites (Mittnik, 2017). In the paper (Pinhasi, 2017) it is mentioned that earliest pottery in Latvian sites started around 5400 BC.

It should be mentioned, that two examples of R1b1 found in Neolithic Baltics can be attributed to various subclades (Genetiker) between root R1b1-M297 and R1b1-M73/M478. To this branch also belongs an archaic R1b1 in Middle Volga Culture (Lebyazhinka-IV) (R1b Tree). So, we then suppose, that the ceramics of both cultures could belong to **Azov-Caspian** province and then in the Baltic area could happen the transition to «Pontic impresso» (Comb Ware) which we discussed in previous works (Semenov, Bulat, 2016).

This transition was described by A.M. Miklyaev on the example of nearby cultures of Near Dvina. A.M. Miklyaev defines the evolution of the Serteya ware the following way: «*Sertey culture, encompassing a-c phases of ware development, is the early Neolithic culture. A-phase refers to the pieces of thick-walled, mitre-shaped vessels, manufactured by linear method 'with overlap'. The lines werelinked after the drying and their joints were ironed by comb-like molding tool for the fail-safe joint. Organic matters and shells served as dough plastificator; dough kneads well. The surfaces of finished vessels were coated with the thin layer of clay, and then ornamented in the form of geometric patterns, made in retreat-stroke or (less frequently) only in stroke manner. Vessels were not burnt, just dried. The idea of clay ware, as judged by the motifs and methods of ornamentation (Smirnov, 1989), was probably brought from Azov-Caspian cultural province, but this hypothesis cannot be proved by firm facts yet. But it is possible that Serteya culture was a part of a large early-Neolithic community, stretching from the south of the Russian plane to the Valdai at least*» and further: «*During the next stage, the form of vessels became close to caldron-shape. The ornaments contained more compositions, made by* ***comblike molding tool*** *and the pits and notches, which appeared for the first time. As a rule, the ornament was located in the upper half of vessels and can be called* ***stroke-comb ware****. The range of analogues for this phase is narrower – ware of Upper-Dnieper culture (Artemenko, 1954; Kalechits, 1987) and from the Lithuania territory (Rimantane, 1966 and 1973). It can point to the separation of local groups inside the above-mentioned community. In this particular case the group, located in the interfluve of the Dvina and the Loval rivers, the Upper Dniepr and Lithiania should be mentioned. It is possible that the connection of this group with the Upper Volga Region and the left-bank Ukraine becomes looser*» (Miklyaev, 1992).

Rudnya culture, following immediately after the Serteya culture in the Lovat Region, demonstrates the influence from the Baltics. Thus, if a-phase (Serteya culture) shows the influence of Azov-Caspian Neolithic tradition, b-phase – the influence of Upper-Dnieper cultural community, c-phase – the narrow group of analogues to the Neolithic Age of Lithuania. The influence of the Baltics on the Rudnya culture phase enhances very hard and it can be considered as the evidence of the direct contacts (including migration ones) of Serteya (Uper Dvina) and Baltics: «*Analogies of d-phase ware can be seen in the early-Neolithic monuments of Lithuania (Loze, 1983 and Zagorskis, 1973) and Estonia (Yanits, 1934). Flint industry increases new forms of tools, which analogues are found in the Baltic States*» (Miklyaev, 1992).

So, we see that R1b in Baltics can be inherent to the influence of Azov-Caspian area, and R1a1 in Estonia belongs to the Comb Ware which was explicitly found in Dnieper-Donetsk culture (Genetiker) and in Serteya.

Vovnigi in the Dnieper Area, where R1a1 was detected, is the site, which refers both to Dnieper-Donetsk community and to Mariupol ethnocultural community. Antropological and odonthological analysis showed its European affinities. «*The group from Vovnigi-2 burial ground has a composition slightly different from the other Ukrainian ones. First of all, there is one case of prominent spade-shaped upper incisors. Secondly, its major difference from the others is much more prominent archaism of dentition structure. Finger-shaped crests of the upper incisors and canines, additional distal crest of the upper canins, several cases of hypercone hypertrophic odontogenesis and the posterior fossa of the first upper molars were discovered in this series. The lower premolars had additional mesio cusp, the lower molars had additional central one. It brings the group, having left Vovnigi-2 burial ground and the upper Paleolithic populations of Europe together*» (Zubova, 2016: 147). So far as the stable character of population at the boundary of the Middle and Lower Dnieper Region is mentioned, we can suggest the role of the preceding Bug-Dniester culture in the formation of the population of Vovnigi-2 type. It is another argument for D.L. Gaskevych's hypothesis, who considers Samchinskaya ware of VII-VI millenia BC, as one of the branches of Cardial ware («Pontic Impresso») and the one, preceding the proper Comb ware (Gaskevych, 2010).

So, we see that in the Eastern Europe the Azov-Caspian Influence which can be preliminary associated with the dispersal of R1b-pre M73, is replaced with «Pontic Impresso» (Comb Ware) which is possibly associated with R1a1. The diagram 3 below shows the future hints of possibility (affinity of ceramic styles and Y-DNA haplogroups).

These results can have the possible connections for the history of the Neolithic Central Asia.

Firstly, one of typed Lativans has K1b2 mitochondrial DNA (Gyvakarai1 [9]). The same was reported in Botai culture (Kazakh DNA)]. As it was mentioned in (Zakharov, 2010), Balakhna Pit-Comb area which succeeds Upper Volga culture, and the latter could be connected with Narva and Middle Volga cultures (both with R1b-preM73). So, Botai can be connected with Azov-Caspian province more precisely and have R1b-preM73 bearers. Nevertheless, the first Y DNA data from Botai showed the East Asian O2 Y-haplogroup, which is present in Japanese, Korean, and Tungusian populations (Kazakh DNA). This coincides with the fact of the archeologically attested infiltration of the bearers of the eastern ceramic tradition to the center of the steppe (Semenov, Bulat, 2015), and the mixed character of the Botai.

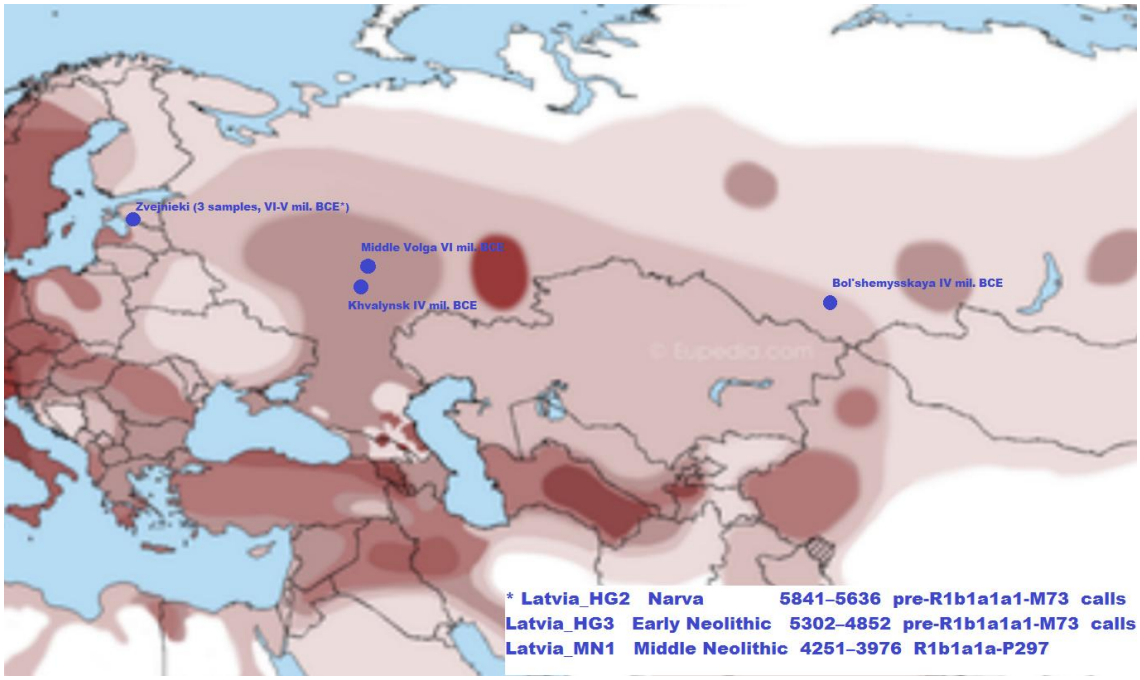

Diagram 1. R1b distribution in Eurasia (www.eupedia.com) with old findings of R1b-preM73.

Another Asian R1b1-P297 was detected in pre-Afanasievo Altai in Bolshemysskaya culture, namely site Tytkesten-VI. In (Kiryushin, 2014: 138) in the mentioned work it is supported the opinion that Bolshemysskaya culture was characterized by the penetration of people from Kazakhstan and Central Asia to Altai. The latter are obviously connected with Caspian region. In is shown than «*Tytkesten-2* (near Tytkesten-6- authors*) findings fix different elements of material culture, which reflects the penetration to Altai the populations from Central Asia and Kazakhstan. The most probable we see the small group of migrants, who get in touch with local population. In the latter and final Neolithic (first half and middle of IV mil. BC) the penetration became more wide, and this is fixed in the increase in Caucasoid component in the anthropological type of mountain and forest-steppe Altai*». The findings of (Kiryushin, 2014: 138) also show the Comb character of the ceramics, and the resemblance of and Pontic pottery is striking (Diagram 2). So the replacement of R1b-preM73 to R1a1-dominated population in the Eastern Europe, the presence of Comb Ware style in Baikal sites (Semenov, Bulat, 2016a) and the Altai, R1a1 in the Neolithic Baikal, R1b1 in the Neolithic Altai show that the migration from the West was made by mixed R1a1 and R1b1-dominant population. In the Indo-Uralic-Altaic framework, proposed in (Semenov, Bulat, 2016a), we can see the hint that R1b-preM73 earlier expansion reflects the Altaic language

dispersal (R1b-preM73 is present in many Altaic language populations), and consequent archaic R1a1 (R1a1-M459) expansion reflects the Indo-Uralic one, according to F. Kortlandt. Though we earlier propose that R haplogroup can belong initially to the bearers of Sino-Caucasic language, the presence of U mtDNA subclades (namely, U5a) in almost all mentioned burials, can lead to conclusion that the languages had become Nostratic-like according to our model. The latter states that groups of male R1 bearers marry the bearers of U5 and possibly other U's as mitochondrial haplogorups, what lead to the language transformation.

Definitely, we see that in Asia Comb ware ceramics was present and Asian Comb ware cultures possibly had the representative of previous Azov-Caspian wave (R1a1 in Baikal and R1b1-M297 in Bolshemysskaya).

Presence R1a1 and H2 in Neolithic Central Asia and striking resemblance of vessels show that Pontic influences (according to D.L. Gaskevych) could enter the Altai area or they have common center somewhere in Eurasia.

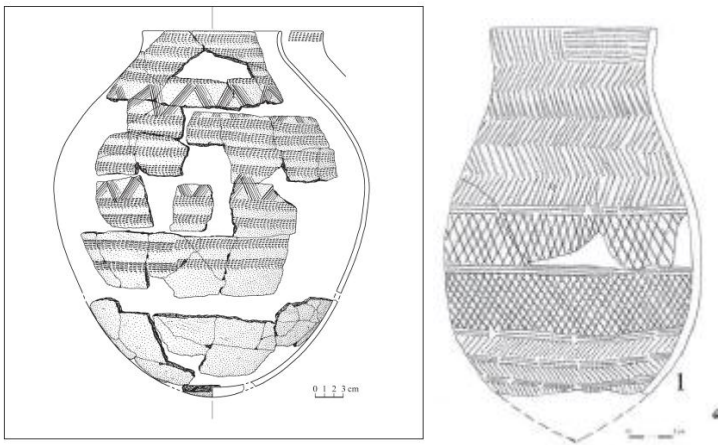

Diagram 2. The vessel from the «Pontic Impresso» (Comb Ware prototype (Gaskevych, 2010) – left, the vessel from pre-Afanasievo Altai (Kiryushin, 2014) – right

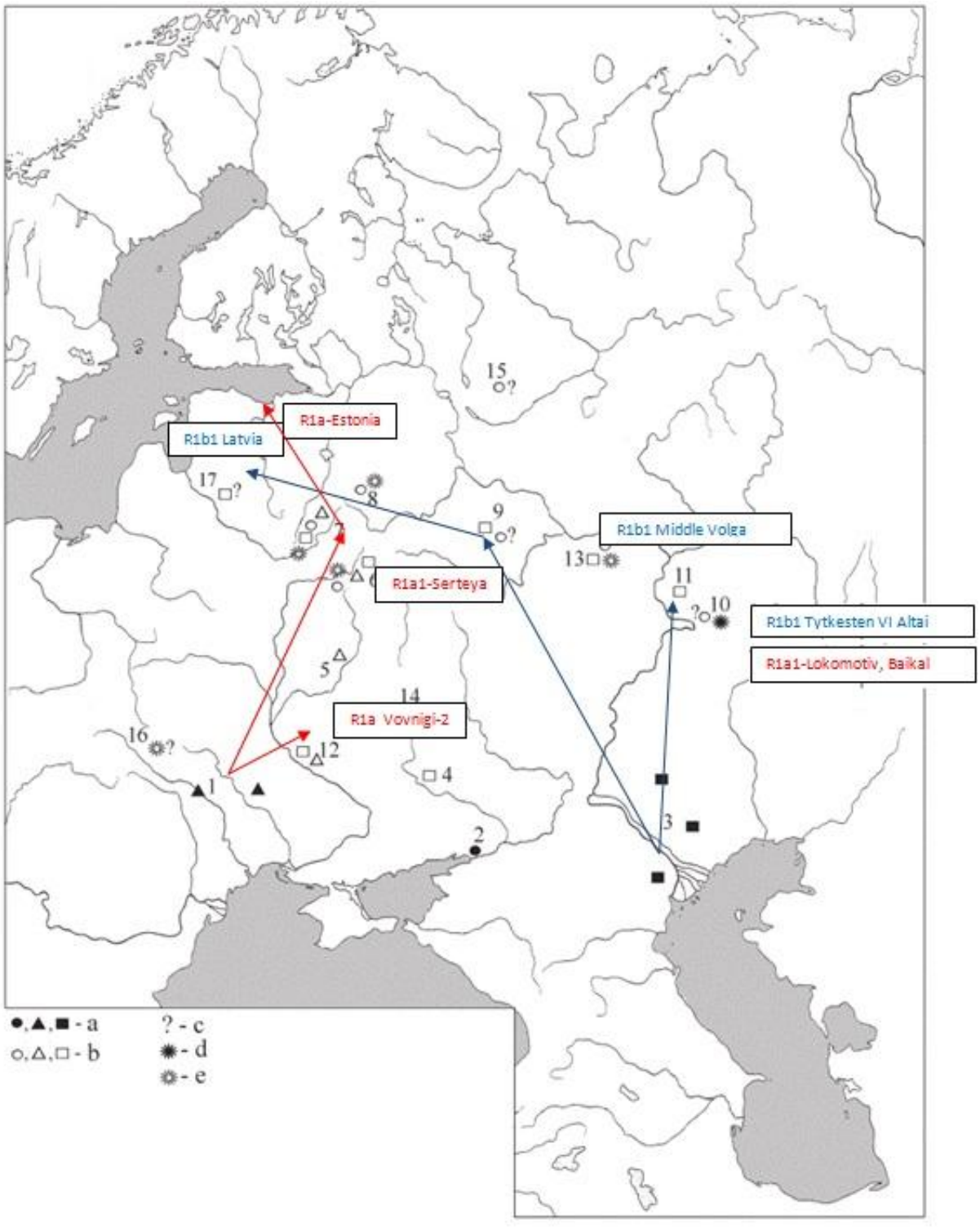

Fig. 1. Distribution of the Early Neolithic pottery traditions, cultures and sites in Eastern Europe (*a* — primary centers; *b* — sites with pottery traditions influenced by the primary centers; *c* — influence is probable; *d* — Yelshanian pottery (*10*); *e* — Yelshanoid pottery; *1* — Bug-Dniester culture; *2* — Rakushechny Yar; *3* — Low Volga culture; *4* — Middle Don culture; *5* — Desninskaya culture; *6* — Upper Dnieper culture; *7* — Serteyskaya culture; *8* — Valdayskaya culture; *9* — Upper Volga culture; *11* — Middle Volga culture; *12* — Dnieper-Donets culture; *13* — sites of the Sura-Moksha basin; *14* — Karamyshevo 5; *15* — Berezovaya Slobodka II–III, VI; *16* — Gora Strumel'; *17* — Zvidze)

Diagram 3. The grouping of the Neolithic ware (Mazurkevich, 2013) and the possible correlation with Y-DNA haplogroups (added by the authors).

4. Conclusions

In the light of all the above-stated, we can make the final conclusions:

1. The influence of the Middle-Volga Region can be the first significant Neolithic influence in the Baltic region (eventually from Volga-Ural Region), what can result in genetic continuity between Latvia and Volga in Neolithic times.

2. We can suppose the existence of some kind of a belt of the expansion of male haplogroup R1b1-preM73 from the Neman to the Caspian Sea and farther to the east.

3. Finally, the emergence of R1a1 in the region can be connected with the later influence of the Lower Dnieper «Pontic Impresso» cultures (via Dnieper-Donets culture and preceding).

4. The dispersion of the Comb Ceramics could go along with R1a1 and also R1b-preM73 Y-haplogroup bearers (maybe in minor quantity and share).

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