

The Origin of the Slavs

by Joseph Skulj

October 13, 2004

The following two, articles, courtesy of Joseph Skulj, contain very important information on the origin of the Slavs.

Pozdrav, Risto Stefov

"Slavs have been known by many names during the historical period. However, genetically they are descendents of populations that sought refuge in the Balkans and Ukraine during the Last Glacial Maximum approx. 20,000 years ago. In the attachments (marked ITEM 2) is an article which will appear in the Sept/Oct issue of 'The Voice of Canadian Slovenians/GLASILO kanadskih slovencev', which shows a genetic continuity between Veneti and the people in the Balkans. Also included in the attachments (marked ITEM 1) is a letter to Prof. Curta who is of the opinion, that Slavs are a 6th century invention."

(J. Skulj)

ITEM 1

2004-10-13

Joseph Skulj P. Eng. 11 Westacres Dr. Toronto ON, Canada M6M2B7
jskulj@hotmail.com

Prof. Florin Curta Department of History University of Florida

Re: The Making of the Slavs

Dear Prof. Curta:

The Making of the Slavs-Will this book with its eye-catching title tell us about the origin of the ~40 % of the population of Europe who are occupying more than half of its land mass? Will it reveal to us how, when and where they originated? Will we find out why they speak so many sister languages and are known by so many names? What were the mechanisms that caused this spread; how much can be attributed to elite dominance and how much to other factors?

The origin of the Slavs is relatively unclear, but the title of your book suggests that you have found the answer. Recently I ordered your book The Making of the Slavs, through U. of T. bookstore, (since they did not have it in stock), hoping that the information you

compiled would give me a historian's insight into the linguistic and genetic origin of the Slavs and why they now represent ~40% of the population of Europe and occupy more than half of the continent. I was also hoping to learn, why even in the 2nd cent. A.D., one third of all the Roman military bases were located in the northern Balkans.

Now, on reading *The Making of the Slavs*, I find that I have been misled by the title of the book. While the book does provide valuable detailed historical information, specially, from the Arabic and Greek sources regarding the Slavs during the historical period, when they fought against the Roman Empire, the super-power of that time both on land and sea, it does not adequately address their genetic and linguistic origins. You mention the building and renewing of the Roman forts in the Balkans-"eight times more than in the entire Asian part of the Empire". This is reminiscent of the 20th cent. Cold War armaments between the 2 super powers of the day. Since the Roman Empire did not spring into existence overnight, it is reasonable to assume, in the light of historical data you provide, that Slavs have a pre-historical origin. Based on archaeological evidence, scholars such as Alinei and Renfrew posit that there is a considerable continuity in Europe, from the time of the first farmers and that there is no reason to think in terms of large-scale movements of people in association of the spread of metallurgical practices. There is also genetic and linguistic evidence that indicates a pre-historic origin of the Slavs.

Genetic studies indicate that populations of Europe, including the Slavs, were present for millennia before the 6th cent. A.D., in the regions that they now occupy. For instance, Richards M. and 36 others (2000), in their studies of the maternally inherited mitochondrial DNA (mtDNA), conclude that (i) the majority of extant mtDNA lineages entered Europe in several waves during the Upper Paleolithic, (ii) there was a founder effect or bottleneck associated with the Last Glacial Maximum (LGM) 20,000 years ago, from which derives the largest fraction of surviving lineages, (iii) the immigrant Neolithic component is likely to comprise less than one-quarter of the mtDNA pool of modern Europeans. They also estimate that from the Bronze Age to the recent time, the migration events brought the following percentages of mtDNA lineages to various regions of Europe: Alps-6.9%, Southeastern Europe-8.2%, Northeastern Europe-5.5%. And (iv) there has been a substantial back-migration into the Near East. Eastern Europe appears to have been the main source of the back-migration, also the Philistine migration, and the slave trade. In addition, there were also the desertions from the Byzantine army that you point out in your book.

Vernesi C. and 12 others (2004) in their recent study of the mtDNA lineages of the ~2,500 year old skeletal remains of the Etruscans and the Veneti, provide the mitochondrial sequences present in these skeletal remains. Thus they make it possible to compare, genetically, the present day populations with the Etruscan and Veneti upper classes, since those tombs typically belonged to social elites.

Malyarchuk B.A. and 5 others (2003) with their mtDNA study of Bosnians and Slovenians make it possible to compare genetically these extant populations with the ancient populations of Etruria and Venetia. Surprisingly, 4 out of 5 (80%) of the mtDNA

lineages found in the skeletal remains from Adria, which was in the Roman province of Venetia et Histria, are also found in the present day Bosnians and Slovenians. This, along with other studies, is an indication that there has been a genetic continuity for at least 2,500 years, between the people of the Balkans and the peoples of the northeastern Italy.

The research into the paternally inherited Y-chromosomes of the various populations gives the researchers another insight into pre-historical events. In a recent study of the Y-chromosome haplogroup I (Hg I), Rootsi S. and 45 others (2004), find it in Macedonians (northern Greece) at 30 %, Slovenians at 38 %, Croats at 38 %, Bosnians at 42 %, Poles at 18 %, Ukrainians at 22 % and Russian (Cossacks) at 23 %. They conclude that the Hg I subhaplogroup I1b2* in the extant populations, arose in Europe before Last Glacial Maximum (LGM). It is at the highest concentration in the northwestern Balkans at ~40%, but it extends from just west of the Italian Apennines to Eastern Europe, and it probably diffused after the LGM from a homeland in Eastern Europe or the Balkans. The high diversity of these lineages in Bosnia supports the view that they may have been present in the Balkans before the LGM. Semino O. and 16 others (2000), propose that this lineage originated in Europe in descendents of men that arrived from the Middle East 20,000 to 25,000 years ago.

Malyarchuk B.A. and 5 others (2003) note that another Y-chromosome genetic marker Hg R1a is also present in Slavic speaking populations at a high frequency 30%-50% (Poles, Russians, Belorussians, Ukrainians, Czechs, Slovaks). Rosser ZH., and 62 others (2000) quantify this frequency: in Poles at 54 %, Russians-47 %, Belorussians-39 %, Ukrainians-30 %, Czechs-38 % and Slovaks-47 %. It is also present at a relatively high frequency in the Slavic speaking populations in the Balkans: Croats-29%, Slovenians-37%, Macedonians-35%. The Bulgarians are an exception at only 12%. Semino et al. interpret the distribution of this haplotype as a signature of expansion from isolated nucleus in the present Ukraine, following LGM. The lineage appears to have been present in Europe since the Paleolithic times.

Belyaeva O. and 7 others (2003), based on mtDNA studies, propose a central European origin of the Eastern Slavs.

Based on the genetic data available, there is evidence that Slavs developed primarily from two populations who sought refuge during the LGM, one in the Balkans and the other in the Ukraine, and who expanded subsequently from their climatic sanctuaries. The Apennine Mountains appear to be the westerly limit and the Indian sub-continent the easterly limit of this expansion.

Qamar R. and 8 others (2003) note that four out of five frequent haplogroups in Pakistan, which together make up 79% of the total population are also frequent in western Asia and in Europe, but not in China or Japan. The frequency rises to 86% in the Pathan and Sindhi populations who are Indo-European speakers and where the dominant haplogroup is Ra1 at 47%, which is similar in frequency to Slovak and Russian populations.

Bamshad M., and 17 others (2001), in "Genetic Evidence on the Origins of Indian Caste Populations" conclude that for paternally inherited Y-chromosome variation each caste is more similar to Europeans than to Asians and the affinity to Europeans is proportionate to caste rank, the upper castes being more similar to Europeans, particularly East Europeans. Generally, haplogroup Ra1 is the most frequent amongst the speakers of Slavic languages and their cousin languages, the Indic languages. The Slovenian language in the most westerly Slavic country has ~80% of its vocabulary similar to its sister Russian language in sound and meaning. In addition, Slovenian has lexical and grammatical similarities to the cousin Indic languages in particular to the Vedic Sanskrit, where ~20% of the lexicon is similar in sound and meaning.

This grammatical similarity between Sanskrit and Slovenian is well illustrated by the conjugation of the verb, "to be":

English Sanskrit Slovenian Russian Hindi

1. p. sing. I am asmi sem x x (hu:n) 2. p. sing. you are asi si x x (hain) 3. p. sing. he is asti x (je) yest x (hai) 1. p. dual svah sva x x 2. p. dual sthah sta x x 3. p. dual stah sta x x 1. p. plural we are smah smo x x (hain) 2. p. plural you are stha ste x x (hain) 3. p. plural they are santi so x x (hain)

It is anomalous that the present day Slovenian retains so many similarities with the Sanskrit, in particular with the Vedic Sanskrit, despite the wide separation due to time and geography. It should be noted that Slovenian retains many lexical and grammatical similarities with Sanskrit no longer present in Indian and some Slavic languages as can be seen from the example above.

It is rather unfortunate, that the book does not address more thoroughly the origins of the Slavs in the light of the historical information about them in Europe that you amassed and also in light of the linguistic and genetic similarities with the people of the Indus valley, particularly the linguistic similarity with the Vedic Sanskrit and the more recent genetic studies of the Etruscan and Venetic skeletal remains in the west and also the 2500 year old Scytho-Siberian skeletal remains in the east. Perhaps, you are planning a sequel to the book, where you will address the pre-historical origin of the Slavs, not just one name and will incorporate the results of the latest archaeological, genetic and linguistic studies into your hypotheses, using a multi disciplinary approach. Hopefully, you will use the historical records as a guide into pre-history to interpret the results of the current archaeological, genetic and linguistic studies.

Yours truly,

Joseph Skulj P. Eng.

ITEM 2

ETRUSCANS, VENETI and SLOVENIANS: A Genetic Perspective

(J. Skulj P.Eng. The Hindu Institute of Learning, Toronto, Canada. 2004-10-5)

POVZETEK

Genetske primejave Etrušcanov in današnjih Slovencev kažejo na znatne sorodnosti. Etruščanski primerki so vzeti od okostnjakov--njihovih veljakov--iz grobnic, nastalih med 1. in 7. st. pr. Kr.. V te primerjave je vključenih 5 okostnjakov iz mesta Adria, ki je v pokrajini Veneto-v rimski dobi pa je bila Adria v provinci Venetia et Histria. Genetsko najbližji Slovincem so prav ti ~2,400 let stari okostnjaki iz Adria; kar 4 od 5 (80%) ima genetske vrste ki se sedaj najdejo na Balkanu. Sedaj ~20% Slovencev nosi genetske vrste ki so prisotne pri ~2,400 let starih okostnjakih iz Adria. Tako se genetski podatki skladajo s teorijo kontinuitete na ozemlju Slovenije-in podpirajo Venetsko teorijo, ki zagovarja sorodnost Slovencev in Venetov.

INTRODUCTION

Analysis of mitochondrial DNA (mtDNA) of modern populations has become a useful tool for human population studies and for reconstructing aspects of evolutionary history. The maternal mode of inheritance of the mtDNA, allows it to be used for inferring the pattern of prehistoric female migrations and peopling of different regions of the world. It is now technically possible to validate these analyses by directly studying the DNA of ancient people (Malyarchuk 2003, Vernesi 2004).

Vernesi et al. obtained fragments of well preserved skeletons from Etruscan necropolises, covering much of the Etruria in terms of both chronology (7th to 2nd centuries B.C.) and geography. The tombs typically belong to the social elites, so the individuals studied may represent a specific social group, the upper classes. The ancient human remains came from the following sites: Adria, Volterra, Castelfranco di Sotto, Castellucio di Pienza, Magliano and Marsiliana, Tarquinia and also Capua. Two cities, Adria in the Po valley and Capua in Campania, were at the fringes of Etruscan territory. In Adria the hybridization with the Veneti may have occurred (Vernesi 2004).

Vernesi et al. compared the mtDNA results obtained from the ancient remains to a number of modern populations. Unfortunately, they did not take into account the genetic studies of Slovenians (Malyarchuk 2003), who are geographically relatively close to Adria.

The Etruscans are one of the mysterious peoples of the ancient world, who seem to have appeared for a time on the stage of history, and then seemed to have disappeared. In fact, from the end of the Roman period to the Middle Ages, they could be said to have ceased to exist, since the sites of their cities, towns, villages and farms had been completely lost. It was in the 19th century that the study of the Etruscan legacy began in earnest. The heart of Etruria was the territory, in the present day Italy, on the Tyrrhenian Sea between the rivers, Arno on the north and Tiber on the south and extending to Perugia in the east. The

Etruscan influence in the 7th and 6th centuries B.C., went beyond its heartland and extended to, Adria in the Po valley in the north and to Capua in the south. It is generally accepted, that present day Tuscans are the Etruscans' closest neighbors (Wellard 1973, Vernesi 2004).

The Veneti are also one of the historic peoples, subject of many discussions and debates, but who were more widespread than the Etruscans. They were present in many lands (Mogentale-Profizi 2001): Veneti in Paphlagonia -northern coast of present day Turkey- were mentioned by Homer in 9th cent. BC., Veneti in Illyricum (Enetoi) on the lower Danube and in the upper Adriatic, were mentioned by Herodotus in 5th cent. BC.; Veneti in central Europe mentioned by Tacitus and Pliny the Elder, Veneti in Gaul were mentioned by Caesar, and Veneti in Latium who are referred to as Venetulani by Pliny the Elder. The Veneti and Etruscans appear to be related. However, Adria was in the 10th Roman province 'Venetia et Histria' until the downfall of the empire. There is historical, linguistic and topographic evidence that present day Slovenians are indigenous to their land and descendants of the Veneti (Šavli 1996).

DISCUSSION of GENETIC STUDIES

In the bone fragments, taken from the tombs of Etruria, Capua and Venetia, Vernesi et al. have found that out of 22 mtDNA HVS1 haplotypes, which they observed in 28 individuals, only two of them, CRS and 16126, occur in a sample of modern Tuscans and carried by ~14% of them. Tuscans are considered to be the descendants of the Etruscans. Both haplotypes occur in skeletons from Adria and Magliano/Marsiliana. The fragments from Magliano/Marsiliana have been dated at 7th-6th centuries B.C., whereas those from Adria are from 5th-4th centuries B.C. (Vernesi 2004).

Comparing the results of Vernesi et al and Malyarchuk et al, it becomes apparent that, the present day Slovenians, carry more than just CRS and 16126 'Etruscan' mtDNA HVS1 haplotypes found in the Tuscans. Twice as many 'Etruscan' haplotypes have been found in Slovenians than in Tuscans, namely: CRS, 16261, 16223, 16311. These were found in skeletal remains from Adria, Magliano/Marsiliana and also from Volterra. Two additional haplotypes from Adria, 16126 and 16129, are similar to Slovenian haplotypes, but the Slovenian haplotypes differ from the 'Etruscan' ones of Adria, by an additional substitution; 16069-16126 and 16129-16304. However, haplotype 16129 without the 16069 substitution is found in Bosnia. This leaves just one haplotype out of five, namely, 16126-16193-16278, where no similar haplotype is found in Slovenia. However, this 16126-16193-16278 haplotype is similar to that found in skeletal remains from Capua at the southern limit of Etruscan influence where hybridization with Samnium natives or Greek colonizers may have occurred (Malyarchuk 2003, Vernesi 2004).

The root type 16069-16126 HVS1 sequence, present in ~8% of Slovenians, is very diverse and may represent a trace of Neolithic (new Stone Age at the beginning of agriculture) migration from the Middle East (Malyarchuk 2003). Haplotypes CRS, 16223, 16261 and 16311 are carried by ~17% of Slovenians. They belong to haplogroup

H, which is estimated to be ~20, 000 years old; this haplogroup is the most common one in Slovenians at 47% (Richards 2000, Malyarchuk 2003).

Adria in Veneto

Focusing on 5 haplotypes, CRS, 16126, 16129, 16223, 16126-16193-16278 found in skeletal remains from Adria, which was part of Venetia et Histria during the Roman era, (Adria is even now located in Veneto, Italy), and comparing them to the present day populations, we find:

--CRS in Slovenians at 13% (Malyarchuk 2003), in Europe at 24% (Richards 1996)

--16126 is found as 16069-16126 in Slo at 8% (M), in Eu 16069-16126 is at 7% (R)

--16129 is found in Bosnians (Bos) at <2% (M), in Russians at 1% (M1) in Basques at 9% (R); in Slo it is found as 16129-16148-16223-16391 and 16129-16223-16391 at 2% (M).

--16223 is found in Slo at 1%, elsewhere in Eu only in South Germans and Ukrainians (M)

From the above comparison, it can be seen, that there is a genetic continuity between ancient populations as attested from the skeletal remains found in Etruria proper and especially between those found in Venetia and the present day Europeans. While Tuscans share 2 haplotypes with the Etruscans, Slovenians and Bosnians share 3 haplotypes. It should also be noted that 2 additional Etruscan haplotypes from Adria in Veneto, differ from the Slovenian haplotypes by one to three substitutions. Considering the evidence, this shows the relatively strong genetic mtDNA relationship between ancient Veneti and modern day Slovenians.

In addition to the haplotypes in ancient Veneti from Adria, Slovenians also share haplotypes with the skeletal remains of Etruscans from Etruria proper, namely from Volterra (Vo) and Magliano/Marsiliana (M/M). Furthermore, Russians and Poles share one lineage with Castelfranco di Sotto (CS) not found in the Slovenian sample.

--16261 of Vo is found in Slo at 1% (M), in Eu at <1% (R).

--16311 of M/M is found in Slo at 2%, in Bosnians at 7% (M), in Eu at 5% (R)

--16126 of M/M is found in Slo as 16069-16126 lineage at 8% (M) in Eu at 7% (R).

--CRS of M/M is found in Slo at 13% (M), in Eu at 24% (R).

--16189-16356 of (M/M) is found in Poles at 0.5%, Russians at 0.5% and Germans at 0.4% (M1)

Here again, no abrupt differences are seen between skeletal remains from Etruria proper and the present day Slavic populations in the Balkans. Richards et al., in their study of 520 individuals from Europe, where the Slavic populations were not included, did not detect in the 16223 haplotype, which present in skeletal remains from Adria, nor has it been found in a sample of modern Tuscans (Richards 1996, Vernesi 2004), but it has been found in Slovenia, South Germany and Ukraine (Malyarchuk 2003).

The Y chromosome studies revealed that Haplogroup I (Hg I), reached ~40%-50% in two distinct regions-in Nordic populations in Scandinavia and around the Dinaric Alps. Overall, this suggests, that populations carrying the Hg I could have played a central role in the process of human re-colonization of Europe, after the Ice Age (Rootsi 2004). Semino proposes that Hg I (M170) haplogroup originated in Europe in descendants of men that arrived from Middle East 20,000 to 25,000 years ago. This can be associated with an Epi-Gravettian culture in the area of the present-day Austria, the Czech Republic and the northern Balkans (Semino 2000). Subhaplogroup HgI1b* is the most frequent clade in eastern Europe and the Balkans; its subclade Hg I1b2 is found in Sardinia, Castille and in Basques (6%). Rootsi et al., mention and also show graphically, that Hg I1b* and Hg I1b2 co-occur west of the Italian Apennines. In the Veneto region of Italy, Hg I1b* occurs at a frequency of ~10% and I1b2 is absent; only Hg I1b* is present west of the Apennines; east of the Adriatic Hg I1b* reaches its highest concentration in the north western Balkans (Rootsi 2004). This is also an indication that there is a genetic continuity, based on paternally inherited Y chromosomes, between the Slovenians and the people of Veneto region, including Adria..

Barbujani in his paper *Genetics and the population history of Europe*, shows graphically a genetic continuity between the populations of the north western Balkans and the peoples now occupying the land of the ancient Veneti and Etruscans in Italy. A clear demarcation is seen in northern Italy at the western boundary of the Veneto region (Barbujani 2001). In another genetic study of the present day populations, it has been found, that the population in eastern Veneto, is more akin to Tuscanian, than to western Veneto population (Mogentale-Profizi 2001). Furthermore, Malyarchuk et al., have also noted, that Slovenians have a high frequency, at 5%, of H-subcluster 16162, which is characteristic for central and eastern European populations. In the western neighbors of Slovenians, in the Veneto speakers of Italy, this is also present, at 6% (Malyarchuk 2003).

What language did the Etruscans and/or Veneti speak? Barbujani has made an intriguing observation, that partial correlations with language are stronger for the Y chromosome than for mtDNA (Barbujani 1997). Conventional opinion has it, that Etruscans spoke a language isolate, a non-Indo-European language and that it disappeared ~90 B.C., when they lost their autonomy to the Romans (Vernesi 2004). Some Slovenian scholars held/hold a different view. Bor had postulated that Etruscans were people originally linguistically related to the Veneti; (the genetic evidence supports his hypothesis); they came from the north and in course of time merged with another people, which in turn influenced their language. By using Slavic languages, as a point of reference, he was able to decipher some of the older Etruscan inscriptions, including the Pyrgian Tablets, but not

their later inscriptions. On the other hand, he was quite successful in deciphering the Venetic inscriptions (Šavli 1996).

CONCLUSION

There is a genetic continuity between the ancient Etruscans and Veneti and the present day Slovenians.

Genetic information makes it evident, that Slovenians are indigenous to their land as indicated by the mtDNA relationship with the ~2,500 year old skeletal remains of the Etruscans, particularly those from Adria in Veneto.

Genetic information supports the historic quotation from the biography of St. Columban written in 615 A.D. and cited by Tomažič "Termini Venetiorum qui et Sclavi dicuntur"- the land of the Veneti who are also called Slavs (Šavli 1996).

REFERENCES

Barbujani G (1997) DNA Variation and Language Affinities. *Am J Hum Genet* 61:1011-1014.

Barbujani G, Bertolle G (2001) Genetics and the population history of Europe. *PNAS* vol. 98 no.1:22-25.

(M) Malyarchuk BA, Grzybowski T, Derenko MV, Czarny J, Drobnič K, Miscicka-Sliwka D (2003) Mitochondrial DNA Variability in Bosnians and Slovenians. *Ann Hum Genet* 67: 412- 425.

(M1) Malyarchuk BA, Grzybowski T, Derenko MV, Czarny J, Wozniak M, Miscicka-Sliwka D (2002) Mitochondrial DNA in Poles and Russians. *Ann Hum Genet* 66:261-283.

Mogentale-Profizi N, Chollet L, Stevanovitch A, Dubut V, Poggi C, Pradie MP, Spadoni JL, Gilles A, Beraud-Colomb E (2001) Mitochondrial DNA sequence diversity in two groups of Italian Veneto speakers from Veneto. *Ann Hum Genet* 65: 153-166.

Richards M, Macaulay V, Hickey E and 34 others (2000) Tracing European Founder Lineages in the Near Eastern mtDNA Pool. *Am J Hum Genet* 67:1251-1267.

Richards M, Corte-Real H, Forster P and 7 others (1996) Paleolithic and Neolithic Lineages in the European Mitochondrial Gene Pool. *Am J Hum Genet* 59:185-203.

Roots S, Magri C, Kivisild T and 42 others (2004) Phylogeography of Y-Chromosome Haplogroup I Reveals Distinct Domains of Prehistoric Gene Flow in Europe. *Am J Hum Genet* 75:128-137.

Šavli J, Bor M, Tomažic I, trans. Škerbinc A (1996) VENETI: First Builders of European Community. Wien, Boswell: Editiones Veneti [ISBN 0-9681236-0-0](#). pp.80, 197- 199, 344, 443, 501.

Semino O, Passarino G, Oefner PJ and 14 others (2000) The Genetic Legacy of Paleolithic Homo sapiens sapiens in Extant Europeans: A Y Chromosome Perspective. Science vol.290 10 November.

Vernesi C, Caramelli D, Dupanloup I, Bertorelle G, Lari M, Capellini D, Moggi-Cecchi J, Chiarelli B, Castri L, Casoli A, Mallegni F, Lalueza-Fox C, Barbujani G (2004) The Etruscans: A Population-Genetic Study. Am J Hum Genet 74: 694-704.

Wellard J (!973) The Search for the Etruscans. London: Sphere Books Ltd. [ISBN 0 351 18677 8](#). pp.11,113.

HUMAN GENETICS :

Dear Dr. N. K. Yankovsky 2006-11-3

In 2004, your team of researchers published a paper "Gene Pool Structure of Eastern Ukrainians as Inferred from the Y-Chromosome Haplogroups", where you attempt to shed more light on the ethnogenesis of Slavs in general and Eastern Slavs in particular, by studying the Y-chromosome diversity in Ukrainians.

You note that, R1a1 is the most common Y-chromosome variant among the Ukrainians at 43.6%. Analyzing the published results in the literature, it appears that R1a1 is one of the most, if not the most, prevalent genetic marker in the world. It is most frequent in the populations speaking 'satem' I-E languages and the populations bordering on the Slavic speakers in Europe. If we do the math, using the US Census I. P. Center population figures and the percentages presented in your paper and those of others such as Rosser et al., Pericic et al., Sengupta et al., we see that in Europe, ~61 million Slavic speaking males have the R1a1 genetic marker; on the Indian sub-continent the number is more than three times higher, at ~190 million males. Sengupta et al 2006 report that the R1a1 frequency in I-E speakers of Upper Caste is at 45%, which is similar to frequencies in the Slavic populations of Europe.

Another interesting item is the fact that the majority on the Indian subcontinent speak the I-E languages, which are based on Sanskrit. Also in Europe, Slavic languages share many linguistic and grammatical similarities with Sanskrit, particularly Vedic Sanskrit. It is enigmatic that, the speakers of Slovenian language, bordering on Romance, Germanic and Finno-Ugric language families, still share more linguistic similarities with the Vedic Sanskrit than with Latin, German or Hungarian languages and have greater genetic similarity, with respect to R1a1, to the caste populations in India, than to their neighbors in Europe. Some would argue for a recent arrival from the east, but a recent migration from the east would have also picked up and brought haplogroup N3, which is widely distributed in Russia and Ukraine, but which has not been found in the Balkans.

Enigmatically, haplogroup I, common in Ukraine, Balkans and rest of Europe, with the estimated age of 22,000 years, which is posited to have expanded from a refuge in the Balkans after LGM did not reach India.

As mentioned before, haplogroup N3, which is widely distributed among Finno-Ugric populations where the high frequencies occur, is also frequent in the Slavic populations surrounding the Baltic and Black Sea, where the largest absolute numbers occur. This marker, which you consider to be as old as R1a1, has not reached the Balkans, nor has it migrated to India.

Based on the above mentioned genetic markers, one has to conclude that haplogroup R1a1 chromosomes reached the Balkans, before haplogroup N3 expanded between the Baltic and the Black Seas. The expansion of haplogroup I was also stopped before it reached India. All of this would be in agreement and support OIT/Out of India Theory of the 'satem' branch of the Indo-European language family.

It is very difficult to accept the relative young age of R1a1, which you propose to be 4,600-7500 before present. If this R1a1 genetic marker is the youngest, why is it, in this Darwinian world, the most prolific and prior to the discovery of the Americas was the most widely distributed haplogroup? At high frequencies, it stretches like an arc north of the Black and Caspian Seas from southern Adriatic in Europe to the Bay of Bengal and Sri Lanka on the Indian sub-continent.

In the populations north of Black and Caspian Seas:

- What has prevented the carriers of ostensive much older genetic markers from blossoming and taking over the planet and leaving R1a1 chromosome in a minor role?
- What prevented N3 from supplanting R1a1?
- What prevented Haplogroup I from doing the same, or haplogroup P which is believed to be even older than haplogroup I?

In the populations south of Black and Caspian Seas:

- Why have the agriculturists, with haplogroups J and E, lagged behind R1a1, in numbers, since they had a head-start in time, agricultural food production and technology?

The answer will probably be found to be in the evidence that haplogroup R1a1, is considerably older than the estimates you present. If it is not much older than your estimate, then the carriers of R1a1 must have had a tremendous Darwinian advantage to surpass the other 23 Y-chromosome genetic competitors. Did the agro-pastoral way of life provide this advantage, or was it some other form of the 'elite dominance' that enabled this R1a1 chromosome to surpass all others?

In the Attachments, we estimate that agro-pastoral terminology is more than 8,000 years old. Therefore, the people that invented it must have been much older.

Regards,

J. Skulj (P.Eng.) The Hindu Institute of Learning, Toronto, Canada