IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Genetic Bloggers And Ethnogenetics Enthusiasts About The Origin Of The Slavs
(Viewed From Polish Perspective)

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Abstract: In the search for the origins of the Slavs, many fields of science are referred to, of which in recent years, when it comes to ethnogenetic research, population genetics has clearly come to the fore. Genes, they say, don't lie. The only issue is the correct assessment of the data obtained, because we have already encountered a similar problem in historical research, where the same messages were interpreted differently, in linguistics, where various etymologies of individual ethnonyms or local names, including the name 'Slavs', were given, as well as in archeology where some people attributed the finds to the Germanic tribes, others to the Celts, and there were those who associated them with the Slavs. The dispute over the origin of the Slavs has been going on for a long time, but today we have easier access to data and knowledge from various fields, thanks to which it may be easier for us to solve this puzzle. In this review article, I focus on online sources of knowledge in the field of population genetics. I am discussing here mainly the views of the so-called. genetic bloggers who deal with the issue of the origin of the Slavs. I believe that some of their analyzes of the available fossil DNA results are even more accurate than the archaeogeneticists themselves, who are great at obtaining data, but sometimes have trouble interpreting it, or even avoid it.

Keywords: **archaeogenetics, Slavic ethnogenesis, population genetics, DNA genealogy, genetic anthropology, Internet sources, genetic bloggers, ethnogenetics enthusiasts.**

I. INTRODUCTION

Genetic research conducted successively for several years confirms the theory of the indigenous origin of the Slavs. Based on the analysis of mtDNA (female) and Y-DNA (male) haplogroups, geneticists can determine, among others, the kinship of individual nations, their age, mutation or migration routes. Scientists have suggested that the ancestors of modern Slavic populations may be representatives of Neolithic cultures or at least from the Bronze Age in central Europe. Thus, archaeogenetics has become a new field of science, helpful also in ethnogenetic research, and its importance in determining the ethno- and topogeny of the Slavs is invaluable.

Internet sources, mainly genetic blogs, are the fastest way to access basic information on this topic, which is used not only by amateurs who want to know the results of fossil DNA analysis, which have been widely discussed for several years, but also by scientists from fields other than genetics, using such knowledge for his research.

On sites such as *Eupedia*, apart from basic information about the research results of individual scientists, you can also find effective charts, tables and maps that vividly present certain aspects of their work. Thanks to the accessibility of the information presented in this way, together with the less scientific language used in the descriptions, many people from outside the academic environment can independently expand their knowledge in the field of the ethnogenesis of the Slavs, Indo-Europeans and other peoples, because archaeogenetics is today one of the key sciences helpful in resolving key issues on the migration and origin of individual ethnic groups. People interested in the topic can then turn to scientific studies to gain more professional knowledge in the field.

Of course, it should be borne in mind that the content presented on websites devoted to archeogenetics and population genealogy are private opinions of bloggers who have more or less knowledge in the subject. Therefore, I would not advise drawing categorical conclusions based on individual opinions from any genetic blog. Just as scholars argue not only about details, but even key issues, as exemplified by the multitude of concepts about the origin of Indo-Europeans, including Slavs, Internet commentators do not agree here.

The article is of a review nature and its purpose is to popularize knowledge about population genetics and to encourage self-learning in this field. Knowing one's own roots strengthens the sense of national identity, shapes a healthy patriotism based on knowledge and awareness, not just emotions and often incited by various political environments.

II. REVIEW OF INTERNET SITES ABOUT POPULATION GENETICS AND DISCUSSION OF THE VIEWS OF SELECTED GENETIC BLOGGERS

A lot about the division of haplogroups into individual countries or larger national and regional groups can be found, among others, on the websites of *FamilyTreeDNA*, *ISOGG Wiki*, *Yhrd*, *Eupedia*, as well as blogs, for example, by Carlos Quiles or *Eurogenes* and *Polishgenes* or *Vayda*.

Researchers analyzing fossil DNA data currently have more than 2,000 haplotypes at their disposal from the *Ysearch* database and *FTDNA* geographic projects *(FamilyTreeDNA)*, as well as from scientific and private laboratories; most 67 markers, although Anatole Klyosov in his DNA genealogy prefers 111 markers as more accurate [42].

I wrote more about *the Polish FTDNA project* in a separate article [1]. Here I would like to focus primarily on a short discussion of selected articles published on the websites of genetic bloggers Quiles *(indo-european.info)*, Davidski *(eurogenes.blogspot.com/polishgenes.blogspot.com)*, Vayda *(blog.vayda.pl)* and Hay *(eupedia.com)*. Other similar ones can be found in the *Top 70 List of Genetic Sites and Blogs* [2]. The *Eurogenes* blog, run by Dawid Wesołowski, is on the 29th place in this ranking. Other genetic blogs can also be found on the *ISOGG* website [3]. Oddly enough, *Eupedia*, whose infographics are very popular, is not on these lists.

On the *Eupedia* website we find a whole lot of results, graphs, maps and analyzes in the field of population genetics [4]. There you can find, among others, the results of research on the genome of the inhabitants of Sardinia, in which some find the descendants of the Vandals who occupied this island during their reign in North Africa in the 5th century CE. Keep in mind, however, that this is a private site run by Maciamo Hay, an independent Belgian researcher who publishes

some articles on *Academia.edu* [5] [6] and has some knowledge of genetics, but is not impartial. He is accused of manipulating information, giving inappropriate names to individual haplogroups, and even philogermanism [7].

However, it presents a whole lot of data, well organized, grouped thematically, and also with professionally prepared proprietary infographics (maps, diagrams, charts, tables). That is why the *Eupedia* pages are used by so many users looking for basic as well as more detailed knowledge in the field of archaeogenetics about the origin of the Indo-Europeans, as well as the Slavs.

Also in this area, the sources we use are important, but in my opinion *Eupedia*, even with the mentioned imperfections, is still one of the friendliest blogs about population genetics. And most importantly, constantly updated. I know many examples of websites and blogs where outdated data has been hanging for years, which is worse, along with nationalist comments or texts showing the complete lack of orientation of the authors in the subject matter.

We will not verify all the inaccuracies reported by genetic bloggers, independent researchers, commentators, journalists, columnists, and some scientists. It's more important to focus on what's important. Therefore, as a form of summary of this topic, a collection of information collected on the *Eupedia* website about haplogroup (hg) R1a [8] should be treated, on the basis of which a summary of the state of DNA research in Central Europe for mid-2021 also appeared on the *Lusatian Culture* website [9]. This text, which is largely a Polish translation of Hay's article from *Eupedia*, lacks the latest information, but even scientists find it difficult to keep up with developments in the field of population genetics, as many projects in this field are in the implementation phase and soon further results can be expected, which often verify some of the previous theses. For the most up-to-date data, check out several of the websites previously discussed here, as well as research journals and DNA lab websites.

In order to note and consolidate the state of archaeogenetic research, concerning mainly Poland and, more broadly, the Slavic region, I would like to post here this quite neat summary from the mentioned portal about the Lusatian culture, after some corrections and additions on my part. I have mentioned many points here before and they may seem like repetitions, but gathering the most important information in the form of a kind of résumé will probably be useful to many readers.

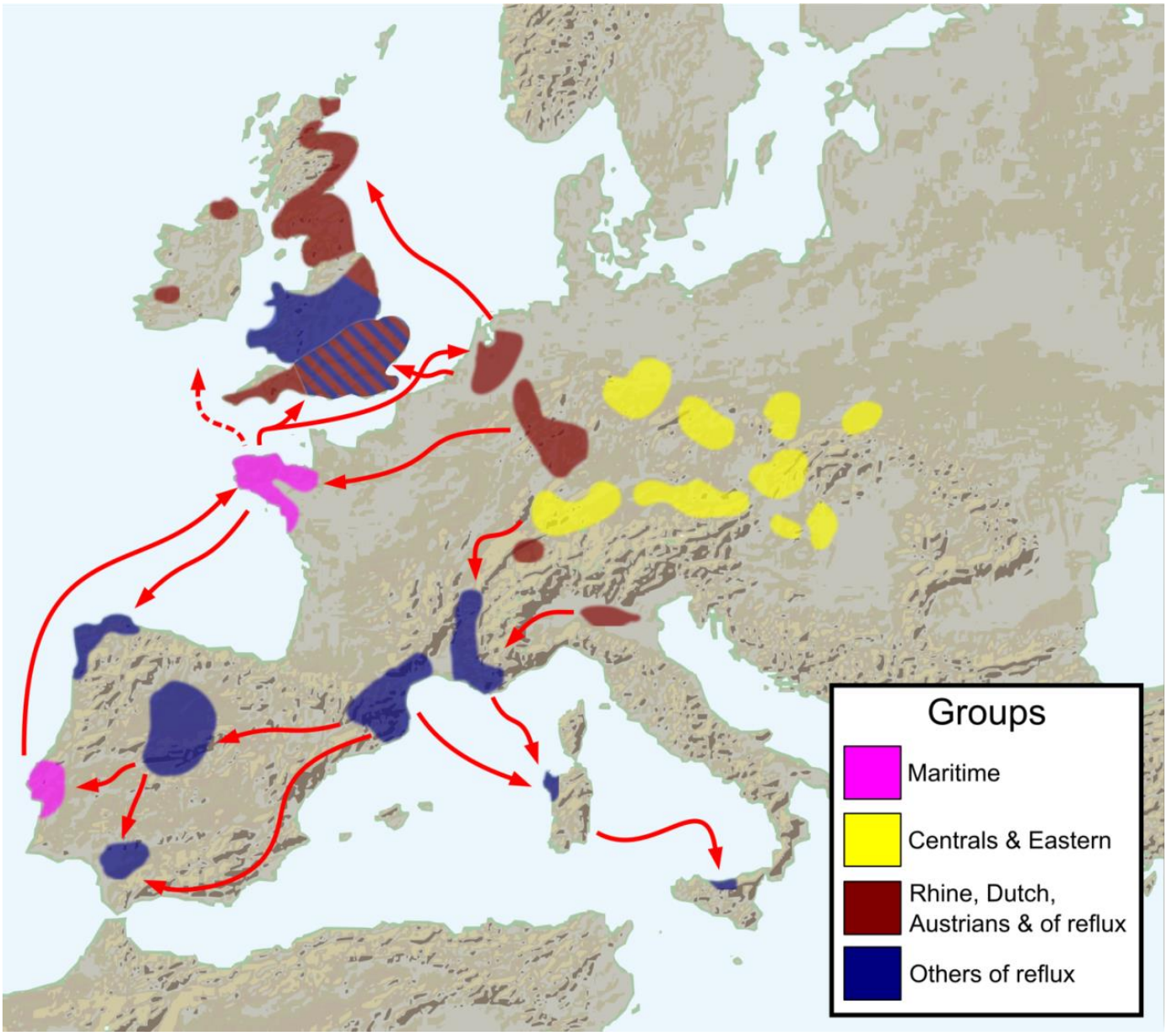
Coming back to *Eupedia*, the value of this website, apart from the wealth of information presented in various forms, also arousing certain doubts and suspicions, including accusations of philogermanism, is the forum where views on available data from archaeogenetic research are exchanged.

Eupedia commentators believe, for example, that the presence of Germanic lines on the island should be indisputably of Vandal origin. Based on a detailed study of the Y chromosome of 1,200 Sardinians by Francalacci [10] [11]. It turned out that the Vandals had 35% R1a, 29% I2a2a, 24% R1b, 6% I2a1b and only 6% I1. Subclades identified are I1a3a2 (L1237+), I2a2a (L699+ and CTS616+), I2a1b (M423+), R1a-Z282 (including some Z280+), R1a-M458 (L1029+), R1b-U106 (Z381+), R1b-L21 (DF13) >L513+), R1b-DF27 (Z196>Z209+).

The likely reason for the elevated (proto-)Slavic R1a and the presence of Eastern European I2-M423 is that the Vandals stayed in Poland before migrating to the Roman Empire. More than a third of the male Vandal lines were thus of Proto-Slavic origin [12].

Much of the DNA research data is displayed on genetic laboratory websites, such as the *David Reich Lab* website, which hosts research papers by key paleogeneticists published in scientific journals. Therefore, it is a kind of online archive of knowledge in the field of archaeogenetics, which is used not only by scientists to promote their work or get acquainted with the results of research by other genetic archaeologists, but also by other researchers and enthusiasts of the subject who disseminate this knowledge. There we find works by such scholars as Sirak, Narasimhan, Liu, Nikitin, Olalde, Mathieson, Lipson, Lazaridis, Fu, Patterson, Harney [13].

This website, as well as many similar websites of laboratories or author profiles of individual scientists on scientific portals such as *Academia.edu* or Researchgate.net, as well as the strictly genetic portals discussed above *(FTDNA, Eupedia, Ysearch, Yhrd, ISOGG Wiki)*, use also so-called genetic bloggers who publish and comment on research results, often also preparing various lists, summaries, maps and charts to facilitate the assimilation of data.



Map. 1. Approximate range of the Bell Beaker culture (author: Fulvio314, Wikimedia Commons, CC-BY 3.0)

One of them is the Spaniard Carlos Quiles, a doctor of biology, a graduate of the Universidad de Extremadura, who has been dealing with the subject of the origin of Indo-Europeans and the analysis of fossil DNA research for several years. He is not only a blogger, but also the author of two books on the subject. Despite a fairly high level of professionalism in his approach to the subject, he has a visible tendency to favor theses and information about the Bell Beaker culture, which comes from the Pyrenean Peninsula, i.e. its native lands.

At the same time, he does not agree with the archaeologists' version that the migration from the Yamnaya culture reached Iberia, where it formed the Bell Beaker. In his opinion, it was the other way around and it was the expansion of the people of the Bell Beaker culture that caused changes in Central and Eastern Europe, and its representatives migrated successively from the west on the east. This is a clear example of the so-called patriotic science, which, for example, is openly practiced by Anatole Klyosov [74]. In my opinion, there is nothing wrong with it if the authors prefer one or another version of data interpretation, they focus more on information about their country or nation. But the problem arises when the facts begin to be manipulated for specific purposes, and the sympathy for certain content begins to obscure the truth.

In one of the texts, based on the works of Olalde *et al.* and Mathieson *et al*. [14], from 2018, where Quiles saw, of course, his favorite Bell Beaker, writes that:

> "also the revival of the R1a-Z645 subclades in the Czech and Polish lands (from previous Corded Ware migrants) accompanying other indigenous clans of this region – it seems to have occurred only after the expansion of the Bell Beaker culture into these territories, in the Bronze Age, possibly leading to the formation of the Balto-Slavic community."[15]

Let us recall that the products of this culture appeared at the end of the fourth millennium BC on the Iberian Peninsula. However, in the 19th-18th centuries BC a small number of representatives of this culture appeared on both sides of the Carpathians, most likely traders, some of whom stayed permanently in the new lands and quickly assimilated with the local population. Archaeogenetic studies, however, show a limited genetic affinity between Iberian and Central European representatives of this culture. Therefore, Quiles' claim that these Iberians could have had any influence on the integration of the Balts and Slavs is detached from reality and clearly results from his iberocentrism.

Further, based on one sample, the blogger suggests a common cultural heritage of the Balto-Slavs and Germans:

> "The fact that the R1b-U106 subclade sample appears in this area is interesting from the point of view of common substrate with Germanic, as is the earlier BB sample R1b-Z2103 because of its relationship with Greek-Aryan dialects."

However, this is nothing, because he even tries to convince that these data allow us to believe that the Iberian representatives of Bell Beaker had a significant impact on the formation of north-western Indo-European dialects:

> "All this suggests that the northwestern Indo-European dialect – the ancestor of Italo-Celtic, Germanic and Balto-Slavic – supported in linguistics by most modern Indo-European schools of thought, spread roughly along the Danube, and later into northern, eastern and western Europe with an expansion Bell Beaker culture, supported in anthropology by Mallory, and by Prescott for the development of Norse or pre-Germanic in Scandinavia since 1995." [15]

Fortunately, he is able to approach many issues critically, and also tries to impartially present data, for example on the origin of the Balto-Slavs. Although at the time of collecting data for this study, the subpage on his blog about Balto-Slavs did not work. I do not know if he deliberately removed it after numerous disputes and comments from Polish commentators disagreeing with some of his views and conclusions, or is it just a technical error of the server [16].

Other posts about Balto-Slavs are available, for example, the Balto-Slavic language community. In his opinion, the similarities in the Baltic and Slavic languages justify the reconstruction of one original community of Central and Eastern Europe since the disintegration of the Bell Beaker culture, speaking a North-West Indo-European dialect. Most of the internal differences between Baltic and Slavic languages can be explained as innovations. He is quite skeptical about views regarding the Balto-Slavic (or Baltic and Slavic) language as one of the most archaic Indo-European dialects. He is similarly ironic about the nationalistic approach of the Copenhagen group of scholars (Guus Kroonen, Rune Iversen, Kristian Kristiansen), which considers the Proto-Germanic language to be the most archaic in Europe.

It assumes that the exact identification of the Proto-Balto-Slavic community remains elusive, although the best solution remains the Unetice-Iwanowice-Mierzanowice triangle, where the Trzciniec culture shows what appears to be an Early Slavic population reaching as far as the eastern Baltic [17].

On the other hand, in the text about the circle of Tumulus culture, from the period 1600-1300 BC, on the basis of an article by Przemysław Makarowicz, he states that it has a proto-Sorbian and potential Proto-Balto-Slavic origin:

> "The entire text [by Makarowicz] is interesting from the point of view of the potential formation of the Proto-Balto-Slavic community in the Proto-Sorbian or Silesian-Greater Polish Tumulus culture before its eastward expansion."[18]

As can be seen, he is not a supporter of the allochthonous concept of the late arrival of the Slavs to Central Europe, since he sees Proto-Slavic elements in the Długołęka culture, developing in the years 1550–1200 BC in Silesia, Saxony, Lusatia, Wielkopolska (Great Poland) and Kuyavia.

However, he writes that after the publication of the aforementioned works by Olalde *et al.* (2018) and Mathieson *et al.* (2018), the only possible alternative to the pre-Lusatian cradle of the Balto-Slavs is the area of eastern Yamna (3300–2600 BC). They may have formed an Indo-Slavic community there, from where they later moved west, giving rise to the Srubnaya culture from the Bronze Age (1800-1300 BC) formed in the Volga steppes [18]. The problem in this reasoning, however, is the lack of Slavic clades of hg R1a in the Yamnaya culture. Therefore, when looking for the Slavic-Balts' ancestral homeland, we should, in my opinion, focus on pre-Lusatian cultures.

The data provided on *Eupedia* is commented on by many enthusiasts, including Dawid Wesołowski alias Davidski, who presents the issues of the origin of the Slavs quite factually, stigmatizing examples of manipulation of research results or their obfuscation. He runs the site himself *Eurogenes* with results, analyzes and comments on population genetics, as well as a website *Polishgenes* dedicated specifically to the origin of Poles based on the results of fossil DNA research.

Wesołowski writes, among other things, about Bronze Age warriors from the Tollense Valley (Pol. Doleńca), who were very close relatives of the modern Slavs. This is suggested by the following principal component analysis (PCA) developed by him (**Figure 1**), which shows that

many of the victims from "Pomeranian Troy" (Welzin_BA) are concentrated in a specific Slavic part of the infographic (the relevant datasheet is available here).

He writes about it like this:

> "I designed this PCA for the sole purpose of using Balto-Slavic-specific genetic drift to distinguish Slavs from Germans, except of course for those with multiple Slavic ancestry, who are usually of eastern German and Austrian descent.
>
> Admittedly, these Welzin_BA samples are low-quality rough drafts, but I can assure you, people who don't have significant Slavic ancestry never focus on this part of the plot. The only other ancient samples that are grouped in the Slavic zone are, as expected, an Early Slav from Bohemia and, interestingly, a Bronze Age individual from present-day Hungary. But we have already seen strong genetic, and even genealogical, links between another Bronze Age Hungarian genome and modern Slavs (Cassidy *et al.*) [19].
>
> So what's going on? Did the proto-Slavs appear in the Bronze Age, in contrast to the generally accepted Early Middle Ages? And did they come from what is now Hungary [Pannonia]? Or maybe they migrated there from the Baltic region?"[20]

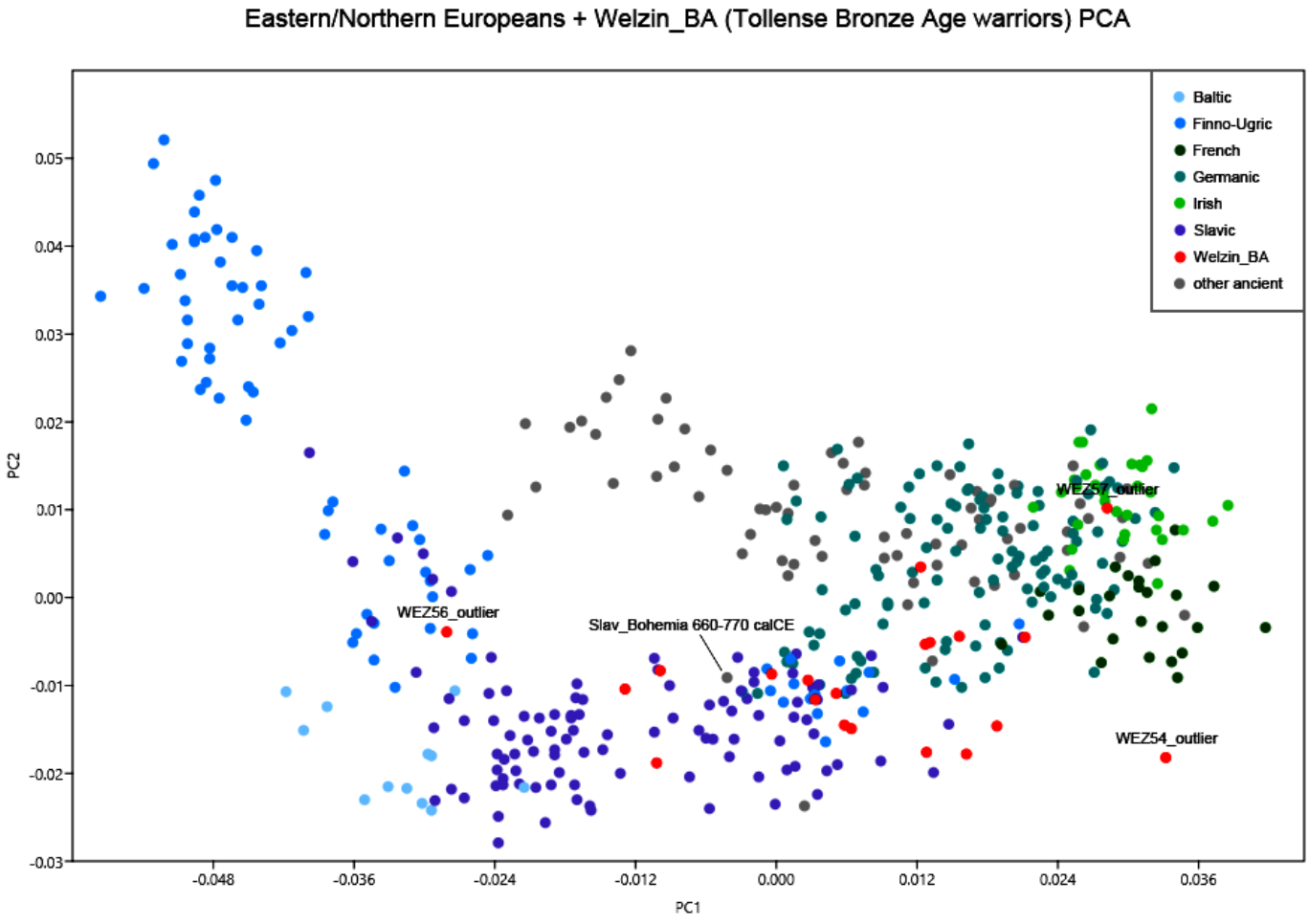


Figure 1. PCA diagram with genetic similarities between Europeans and fallen warriors in the Tollence valley in the Bronze Age (Eurogenes).

As you can see, Davidski, pretending to be surprised and embarrassed, shows the discrepancies between the results of genetic research, including those from the Bronze Age near Szczecin (the Tollense Valley), and the hypothesis of Slavic allochthonism.

In an article about another battle, at Himera, which took place in 480 BC during the Carthaginian-Syracuse war, based on genetic data from sites associated with that event [21], Davidski writes about the participation of the Balto-Slavs and the Sarmatians, adding to the text an appropriate PCA similarity chart:

> "Basic distance analysis with G25 data in Vahaduo shows that the two samples designated Himera_480BCE_3 are either early Balts or Slavs. I suspect they are Slavs because I believe the early Slavs had this type of genetic structure similar to the Balts before they mixed with their non-Slavic-speaking neighbors." [22]

He adds that

> "On the other hand, I'm pretty sure that the two samples of Himera_480BCE_4 are Sarmatians." [22]

He sees an increasing number of Bronze Age and Iron Age samples from Central Europe and surroundings with a peculiar set of features, such as common genetic drift with modern Balto-Slavic speakers to the exclusion of most other Europeans, and an extremely low level of steppe ancestry associated with Yamnaya, so much so that they are often they are beyond the reach of modern European genetic variation.

Referring to the key examples of this extraordinary population, i.e. the samples:

- HUN_Mako_EBA_o:I1502 (Mathieson *et al.* 2015) [23],
- HUN_EIA_Prescythian_Mezocsat_o1:I18241 (Patterson *et al.* 2021) [24],

from the Carpathian Basin in present-day Hungary, suspects that, like the Bronze Age warriors from Wilczyn (Germ. Weltzin) in north-central Europe, they were closely related to the modern group that eventually gave rise to the proto-Slavs. Alternatively, they could somehow contribute to the ethnogenesis of the Balto-Slavs [25].

In another post, he writes about the proportions of ancestors related to the Yamnaya culture in contemporary Poles using the *qpAdm* software [26].

Wesołowski is also able to convincingly challenge the interpretations of some scholars who all too often draw hasty conclusions, for example that Poles are descended from Turks, because they allegedly have 25% of "Turkish" genes. He advises not to believe everything that is written in peer-reviewed articles, because there are also many misinterpretations [27].

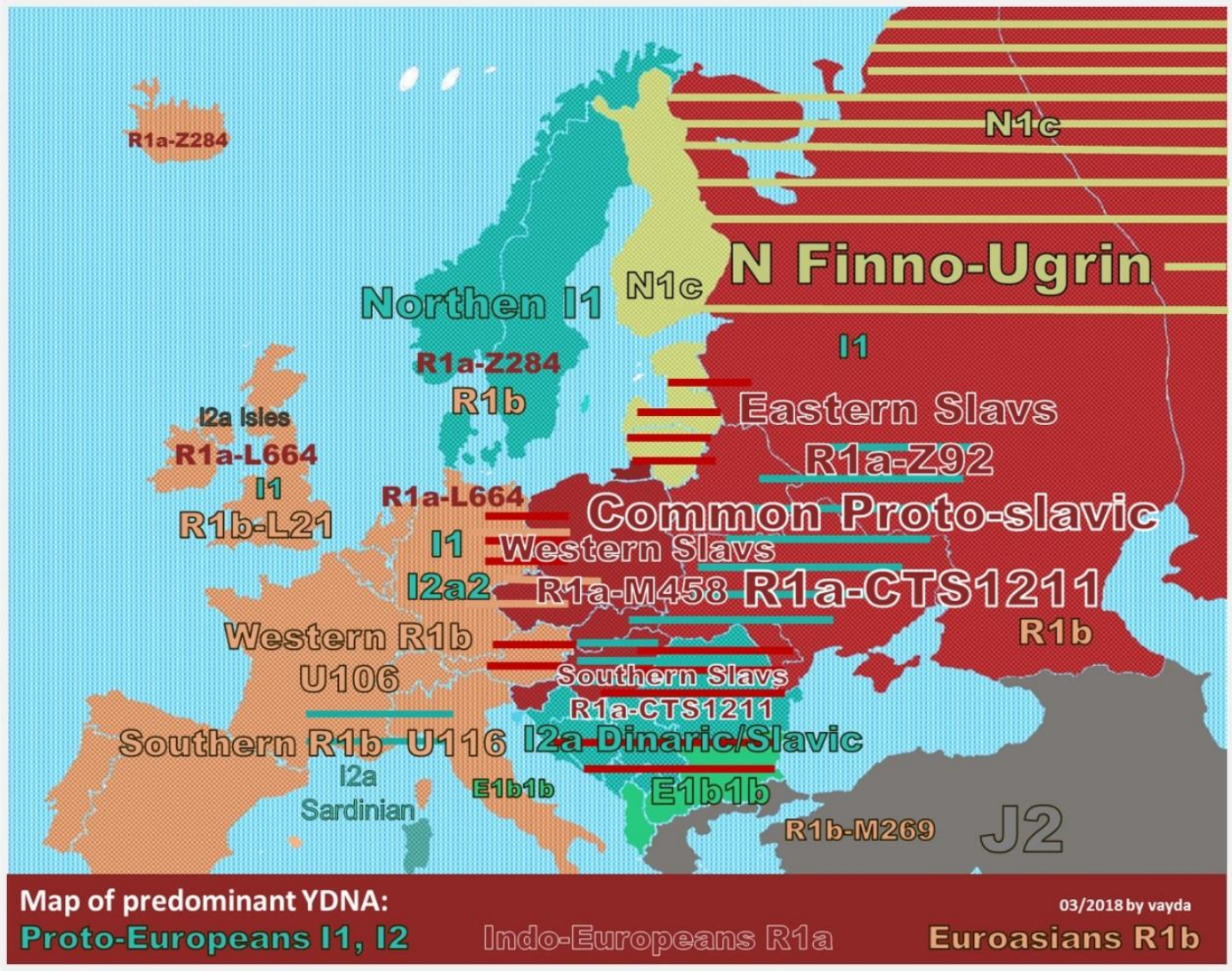
On the *Polishgenes* blog there are articles from *Eurogenes* on Polish affairs, such as a comparative analysis of contemporary Poles and peoples of the Eastern Baltic from the Bronze Age. Based on the PCA he constructed, he believes that:

> "Without doubt, these Eastern Baltic Bronze Age peoples, and in particular the four individuals from Turlojiske in Lithuania, are very closely related to the modern Balts and northern Slavs. They may be our ancestors, or at least their close relatives. This is sufficiently well argued and demonstrated by Mittnik *et al.*" [28]

Overall, all prepared PCAs clearly show higher cuts of indigenous European hunter-gatherer ancestors compared to modern Northeastern Europeans. You can see how in one of the PCAs he presented, Baltic_BA samples are headed towards European hunter-gatherers compared to the Baltics, and especially the Poles. Davidski is not yet entirely sure what the explanation is. Indeed, there may be several different explanations. But he thinks it's probably largely the result of post-Bronze Age genetic influx into the Baltic region from central Europe [29].

We also find an article presenting data (Mathieson *et al.* 2018), which shows that people from two burial sites in present-day Poland and Ukraine from the Globular Amphora Culture (GAC) were clearly different from people from Yamnaya. In it he also writes:

> "At the end of the GAC period, Central and Eastern Europe was suddenly dominated by a new archaeological complex called the Corded Ware Culture (CWC). Although most CWC individuals studied so far show little GAC-related ancestry, they are overwhelmingly Yamnaya-like, suggesting that the CWC population is basically derived from the Pontic-Caspian Steppe. In fact, some of the earliest examples of CWC from the Baltic states, such as Latvia_LN in the ADMIXTURE bar chart, are basically identical to the inhabitants of Yamnaya." [30]



Map.2. Predominant Y-DNA haplogroups in Europe (Vayda)

There are hundreds of such articles on Wesołowski's portals and there is no space here to discuss them in detail, especially since many of the topics discussed by him have already been referred to by other authors. However, I have to say that Davidski does an exceptionally good job of commenting on the results of research by leading scientists in the field of population genetics on an ongoing basis, and his pages, along with his own infographics, are a mine of knowledge for non-scientific recipients who are somewhat versed in the subject. For laymen, short press releases with catchy headlines or posts on social networks will suffice.

Also blogger Vayda on its pages it presents data on the Slavic haplogroup R1a and I2a1b2 (L621), which it calls Dinaric/Slavic (Dinaric-Slavic). His bilingual (Polish-English) blog, despite the fact that it has not been updated for some time, is still a source of interesting information in the field of Slavic population genetics.

The ethnos of the Slavs, in his opinion, consists mainly of two male Y-DNA genetic formations: haplogroups R1a (Indo-European, Slavic) and I2-Dinaric (alternative names I2-Slavic, I2a-Slavic; according to *ISOGG* classification I2a1b; according to SNP markers I-L621). He calls the Lechite haplogroup the subclad YP256 hg R1a. For Slavic subclades R1a also has CTS1211, M458 and Z92. On the other side of the Elbe, R1b (Eurasian, Keltic) and I1 (Nordic, northern) dominate [31].

Vayda seems to attach particular importance to the popularization of information on the "Dinaric" hg, which is to be omitted in detailed analyzes by archaeogeneticists. In the phylogenetic tree of the *Eupedia* portal, however, it is marked as a faction I2a1ab/L621, three subclades of which occur in Slavic countries (S1 7250, Y4460, Z1 7855).

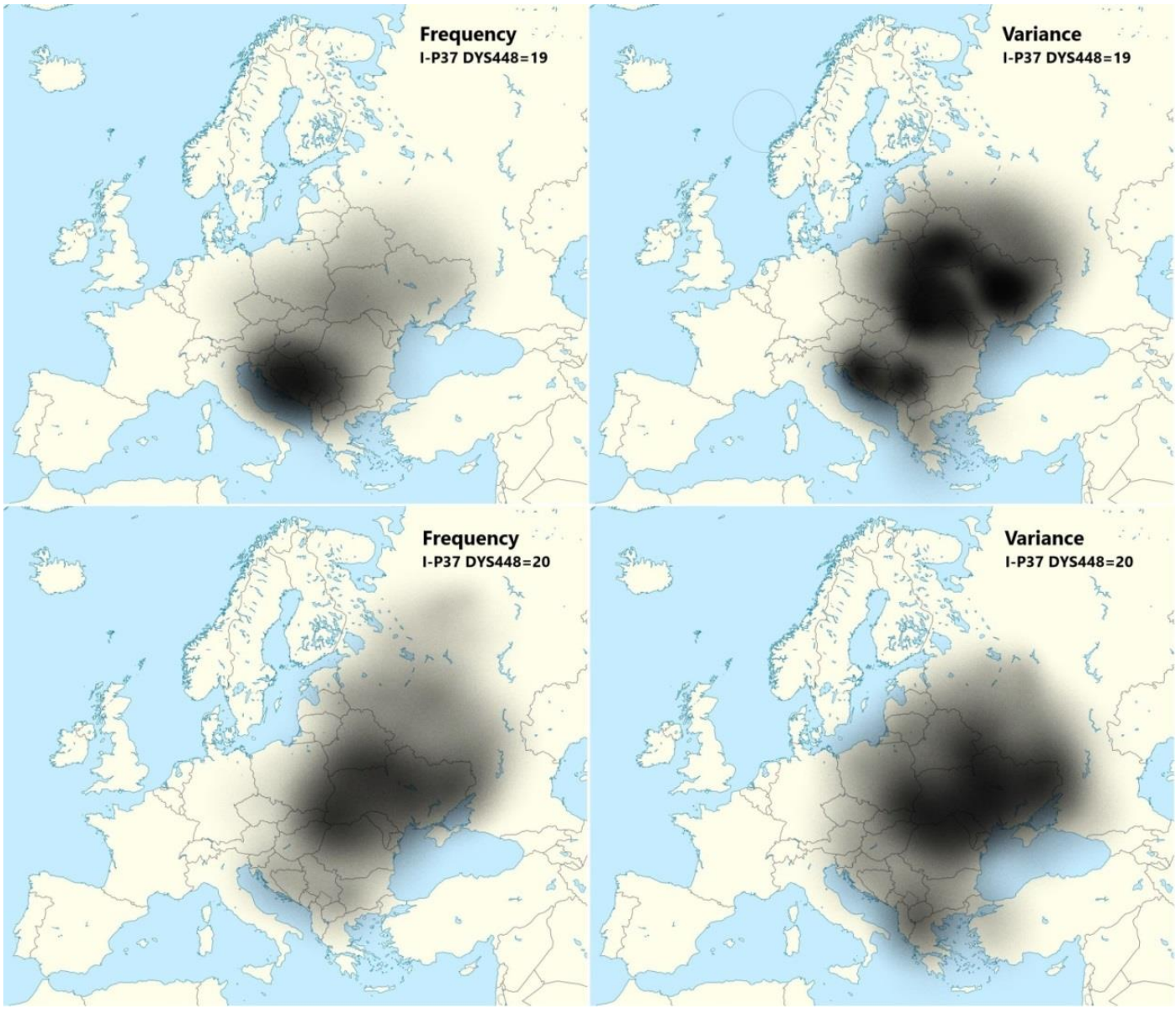
The I2a1a2b-L621 clade is typical of Slavic populations, highest in southeastern European regions of Bosnia and Herzegovina and southern Croatia (>45%) [32] [33] [34], in Bosniaks (43.53-52.17%), Croats (37.7-69.8%) and Serbs (36.6-42%), because of which it is often called "Dinarian" [35]. It has the highest variance as well as high concentration in Eastern Europe (Ukraine, Southeastern Poland, Belarus).

Research by Olga Utevska (2017) shows that STR haplogroup haplotypes have the greatest diversity in Ukraine, with the ancestral STR marker score "DYS448=20" covering the "Dnipro-Carpathian" cluster, while the junior derived score "DYS448=19" covering "the Balkan cluster", which is dominant among the South Slavs. This "Balkan cluster" also has the highest volatility in Ukraine, indicating that the very high frequency in the Western Balkans is due to the founder effect. Utewska calculated that the divergence of the STR cluster and its secondary expansion from the middle reaches of the Dnieper or from the Eastern Carpathians towards the Balkan Peninsula occurred about 2860 ± 730 years ago, referring it to the times before the Slavs, but much after the collapse of the Cucuteni-Trypillia culture. However, calculations based on STR give overestimated dates, more specifically the "Balkan cluster" is represented by a single SNP, I-PH908, known as I2a1a2b1a1a1c in the I*SOGG* (2019) phylogenetic tree and according to *YFull, YTree* formed and had a TMRCA around 1850- 1700 YBP (2nd-3rd century AD) [36].

Based on the available data published in scientific studies and portals dealing with the promotion of archaeogenetic research data, such as *Eupedia* or *FTDNA* (I2a Y-Haplogroup project), the blogger emphasizes that this is a 24-million male population, which is almost 7% of European men and 35% haplogroup I (I1+I2), called proto- or old-European. He also points out that the total population of haplogroup I in Slavic countries is almost 32 million, which is 46% of the total of this hg (68 million people in total). At the same time, the slightly more numerous I1 is not as homogeneous in terms of ethnos as the Dinaric one.

Vayda explains that:

> "The name of the Dinaric haplogroup results from its large share in Dinaric countries such as Bosnia, Croatia, Serbia, Montenegro (30-55%), with as much as 70% among Bosnian Croats. Nevertheless, this name is symbolic and does not reflect reality, neither as a place of development and origin of early mutations, nor a large number of this population - in the countries mentioned, it is about 3 million (13% of the population of the Dinaric haplogroup). The high share of this haplogroup in this region is related to migration (together with R1a) from Central and Eastern Europe, quite late, after the fall of the Roman Empire. The correct name should not be Dinaric but Slavic (I2-Slavic) and there is no »pushing« here, because 90% of this population is the current Slavic ethnos created together with R1a for several thousand years. The Dinaric mutation itself was created in the period when men with hg R1a began to appear in Europe from the east, so they could co-create the Proto-Slavic ethnos." [31]



Map. 3. Approximate frequency and variance distribution of haplogroup I-P37 clusters, ancestors of the "Dnieper-Carpathians" area (DYS448=20) and derivatives of the "Balkans" region (DYS448=19: represented by a single SNP I-PH908), in Eastern Europe, according to O. M. Utewska (2017). Author: Miki Filigranski, Wikimedia Commons, CC-BY-SA 3.0.

He doubts the allochthonous hypothesis of the Slavs:

> "Taking into account the number of mutations from 2,000 years ago, characteristic of the current population of this area, the size of the population, the frequency of occurrence in Poland and Germany, it is impossible to conclude that the Slavs of the M458 haplogroup arrived in these countries at the beginning of the Middle Ages. It is hard to imagine that some rapid migration of tribes from the Migration Period would be able to "take" with it dozens of mutations that originated several hundred years earlier, where their populations were still scarce."

He also adds:

> "The theory that the Western Slavs come from Polesie and Volhynia is not confirmed. This migration in the Middle Ages could only be for a small YP515." [37]

HAPLOGROUP R1A - DISTRIBUTION OF MAIN SUBCLADES IN EUROPE

Ethnos/Region	ISOGG classification	Markers	Date of creation/TMRCA [ybp]	Population [mln]	Distribution
Slavs	R1a1a1b1a2b	Z280>CTS1211	4600 / 4400	34,2	44%
Western Slavs	R1a1a1b1a1	M458	4700 / 4700	23,4	30%
Eastern Slavs (Balto-Slavs)	R1a1a1b1a2a	Z280>Z92	4600 / 4200	11,3	14%
Scandinavians	R1a1a1b1a3	Z284	4700 / 4300	3,0	4%
North-West Europeans	R1a1a1a	L664	4700 / 4100	1,6	2%
Asians (Indo-Aryans)	R1a1a1b2	Z93	5000 / 4800	0,3	0,4%
			others	4,2	5%
			TOTAL	78,0	100%

Table 1. Occurrence of the main R1a subclades in Europe (based on Vayda, Feb 2018)

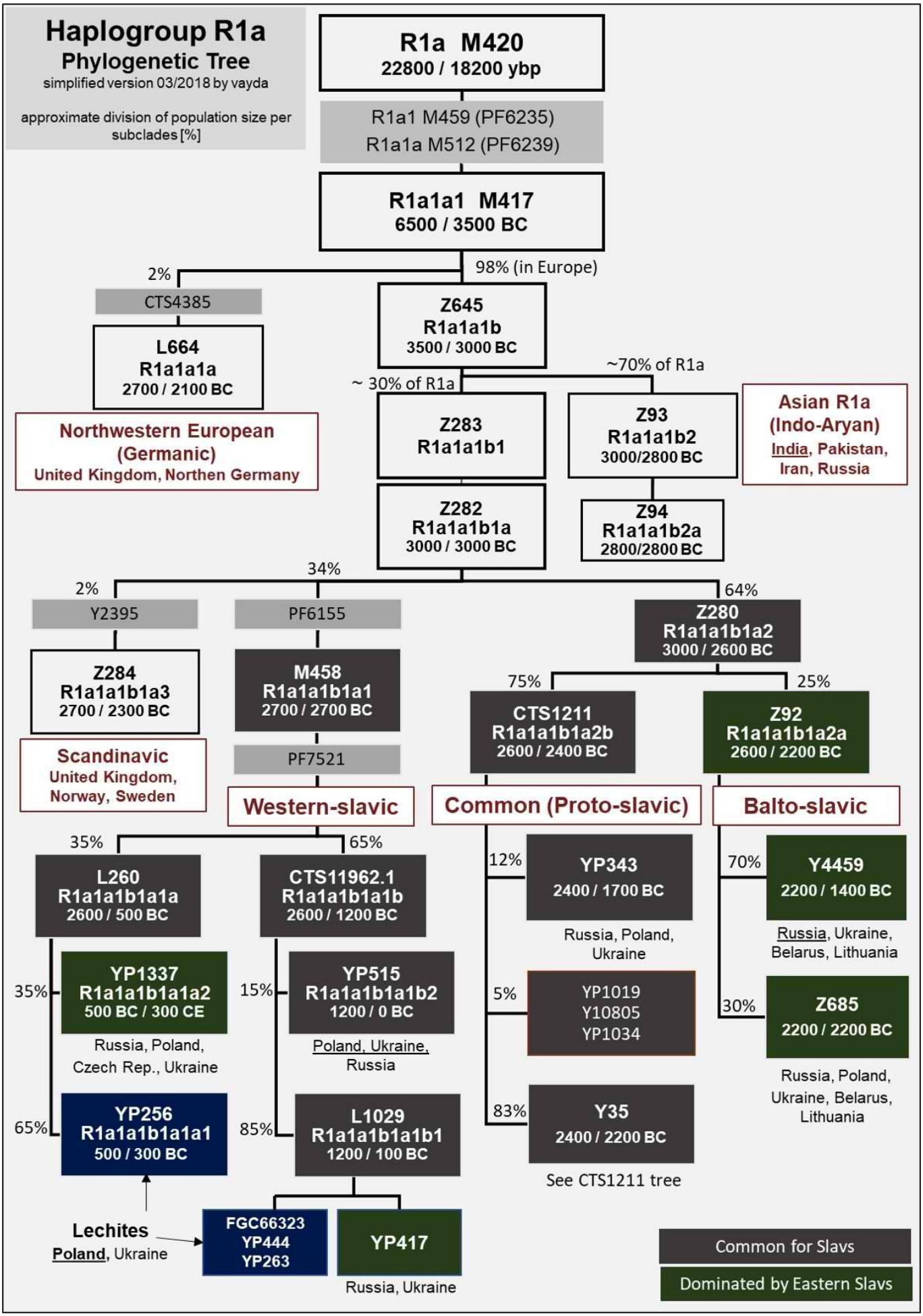


Figure 2. Phylogenetic tree of hg R1a (Vayda, Mar 2008)

Based on the available data from March 2018, he developed his own version of the hg R1a phylogenetic tree (**Figure 2**). It also provides some important information:

> "The CTS1211 haplogroup (from the Z280 branch) is common to all Slavs, not just East Slavs, and is evenly distributed geographically with a share of 40-55% in R1a among West and East Slavs. Currently, it occurs in the populations of Poland and Russia with the same frequency of about 25%. It developed intensively in the 2nd millennium BC. It can be considered as proto-Slavic. The area of eastern Germany, Poland, western Ukraine, south-western Belarus has an almost identical composition of the CTS1211 subclades, which indicates several thousand years of common history of the tribes of these regions. Eupedia's CTS1211 frequency map does not give such a picture and leads to incorrect conclusions. (…)
>
> Haplogroup M458 is West Slavic, it developed later than CTS1211 (1st millennium BC) in Central Europe from the Rhine to the middle Dnieper (European Sarmatia), especially in Poland. Independently or as a result of migration, a large eastern subclad YP417 developed. The share of M458 in R1a is clearly decreasing from west to east (Czech Republic 60%, Russia 20% of R1a population)." [37]

As for the occurrence of R1a-M458 in individual European countries, the situation is as follows (**Figure 3**):

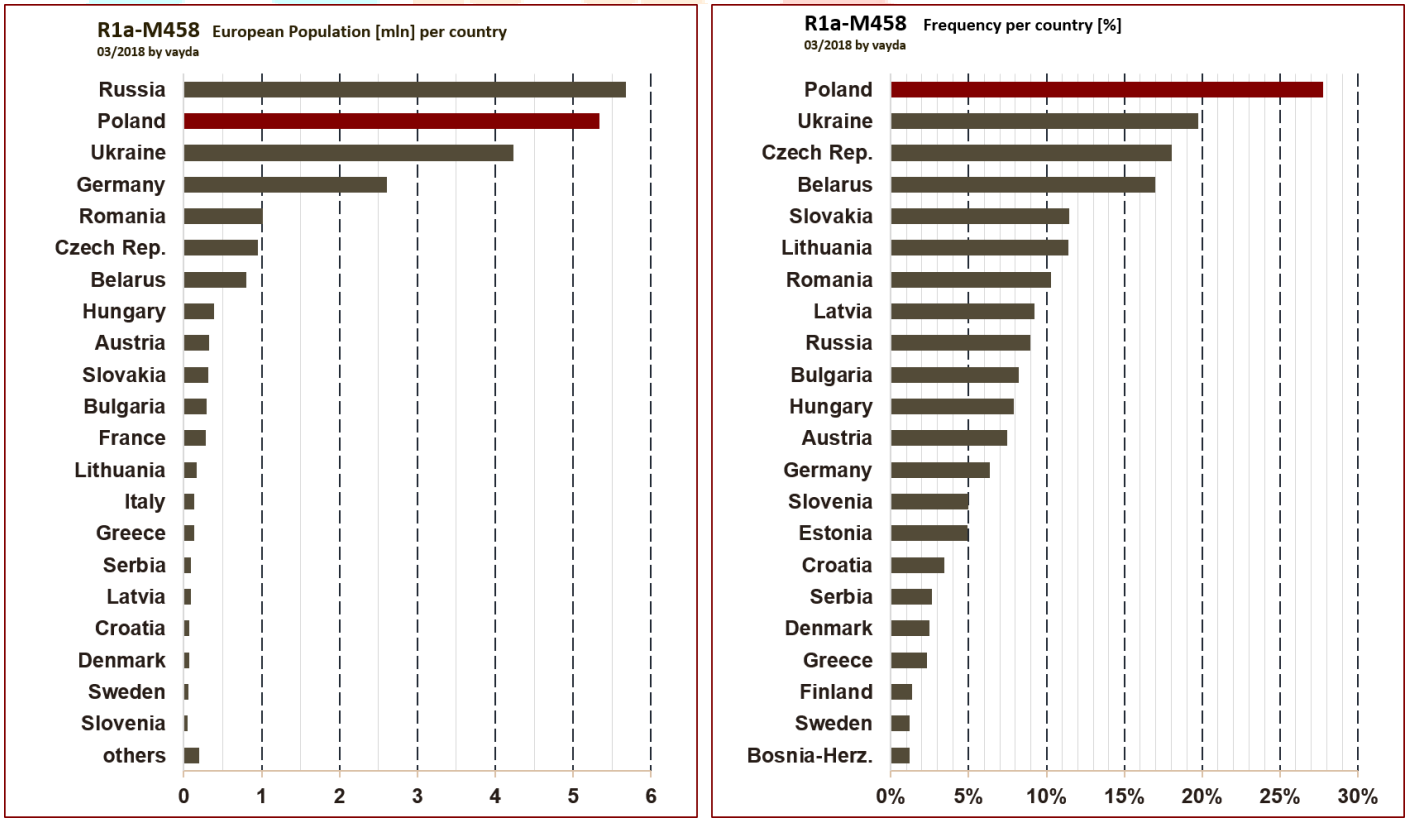


Figure 3. Prevalence of R1a-M458 in the European population by country (Vayda)

Vayda once again points out that the genetic data do not confirm Kossinna's thesis about the Pripyat origin of the Slavs:

> "There is no significant settlement originating from Belarus (Pripyat) so favored by scientists. Rather, you can see the settlement of Belarus from all directions."

Country	R1a [mm]	R1a [%]	CTS1211	M458	Z92	Z284	L664	other	samples
Poland	**11.1**	**57.5**	**23.3**	**27.8**	**4.9**	**0**	**0.1**	**1.4**	**764**
Belarus	2.4	51	19.6	17	13.1	0	0	1.3	93
Russia	29.2	46	23.9	8.9	10.3	0.3	0	2.6	721
Ukraine	9.4	44	16.1	19.8	6.3	0.3	0	1.5	204
Slovakia	1.1	41.5	26.5	11.5	3.5	0	0	0	50
Latvia	0.4	40	24.6	9.2	3.1	0	3.1	0	18
Lithuania	0.6	38	15.2	11.4	10.1	0.6	0	0.7	81
Slovenia	0.4	38	29.7	5	1.7	0	1.7	0	27
Czech Rep.	1.7	33	11.9	18	1	0.5	1	0.6	66
Estonia	0.2	32	19.7	4.9	4.9	2.5	0	0	13
Mldavia	0.5	30.5						0	<10
Hungary	1.5	29.5	19.8	7.9	0.9	0	0.3	0.6	109
Norway	0.7	25.5	0.3	0.3	0	21.5	1.9	1.5	322
Croatia	0.5	24	20.6	3.4	0	0	0	0	16
Island	0	23						0	<10
Austria	0.8	19	10.9	7.5	0	0	0	0.6	34
Bosnia-Herz.	0.3	18	16.2	1.2	0.6	0	0	0	32
Romania	1.8	18	5.1	10.3	2.6	0	0	0	19
Serbia	0.6	18	12.4	4.4	1.3	0	0	0	385
Bulgaria	0.6	17	6.6	8.2	1.6	0	0	0.6	34
Germany	6.6	16	6.2	6.4	0.7	0.3	1	1.4	345
Sweden	0.8	16	1.1	1.2	0.2	10.1	1.6	1.8	203
Danmark	0.4	15	3.3	2.5	0.8	6.7	1.7	0	24
Macedonia	0.1	13.5						0	<10
Greece	0.6	11.5	6	3	1,6	0	0	1	12
Albania	0.1	9						0	<10
Scotland	0.2	8.5	0.4	0.1	0.1	7.2	0.8	0	148
Montenegro	0.02	7.5						0	<10
Finland	0.1	5	1.6	1.4	0.6	1	0.3	0.1	96
England	1.2	4.5	0.1	0.2	0.1	2.1	1.5	0.5	249
Belgium	0.2	4						0	<10
Italy	1.2	4	2.3	0.4	0.3	0	0	1	50
Netherlands	0.3	4	1.1	0	0	0.4	1.8	0.7	17
Switzerland	0.1	3.5	0.6	1	0	0.3	0.6	1	11
France	1	3	0.4	0.9	0	0.4	0.4	0.9	21
Ireland	0.1	2.5	0.2	0	0	1.1	0.7	0.5	106
Spain	0.5	2						0	<10
Portugal	0.1	1.5						0	<10
North. Ireland	0.01	1	0	0	0	0.8	0.2	0	16
Europe	**78 mm**	**21.6%**	**9.5%**	**6.5%**	**3.1%**	**0.8%**	**0.4%**	**0.013**	**4317**

Table 2. Frequency of R1a haplogroups in Europe (Vayda).
Sources: Eupedia (R1a frequency [%]); FTDNA R1a-Project (R1a sample); https://dnk.poreklo.rs (additional samples R1a Serbs – 358)

With a certain dose of irony, he also evokes demographic data that make us doubt such a rapid increase in population in a relatively short period of time, if we accept the version of Pripyat and the migration of the Slavs from the Dnieper to the west in the 6th century:

> "2,000 years ago, the R1a Slavic population (including women) numbered at least 5 million, and Eastern Europe at least 10 million (the demographic indicator for Europe for the last 2,000 years is a 20-30-fold increase in population). I forgot to add that these 5 million R1a lived over Pripyat."

If we take a closer look at the quantitative and percentage occurrence of R1a in individual European countries, prepared in tabular form (Table 2) by Vayda, based on data from *Eupedia* and *FTDNA*. In Poland, the R1a dominant is the highest, as much as 57.5%. In Russia, 46% of the population with hg R1a live, which is 29.2 million people.

Let us now take a look at the data from the work of Pericić *et al.* (2005), where it was stated that Sorbs have the most R1a1 - 63%, then Poles - 55% and Belarusians - 50% (**Table 3**). Thus, it can be concluded that the intensity of occurrence of hg R1a in given populations is also an indicator of their "genetic Slavicness".

Haplogroup R1a1 in Europe

Nationality	%	Nationality	%
Sorbs (Lusatians)	63	Latvians	40
Poles	55	Estonians	33
Belarusians	50	Norwegians	30
Russians	46	Hungarians	25
Lithuanians	45	Swedes	20
Ukrainians	43	Germans	20

Table 3. Percentage of R1a1 among European nations (Pericić *et al.* 2005)

On the other hand, Mariusz Kowalski, a geographer and member of the Polish Academy of Sciences, who also deals with the interpretation of fossil DNA analyzes in ethnogenetic research, presents data collected from the publications of several scholars, according to which Lusatian Sorbs have 65% of R1a, and the inhabitants of Krakow slightly less, i.e. 64%, of Lublin – 62.5%, Kashubian – 62.3% (**Table 4**).

At the same time, he draws attention to the important role of ancestors of Slavic origin in the development of the East German community, referring to the historical records of the existence of Limes Sorabicus in the 9th century, which was then the border between Slavs and Teutons, running more or less along the Elbe line. Later acts of conquest of the Zalabian (beyond the Elbe) territories by the Franks and Saxons, as well as the processes of Germanization of the local Slavic inhabitants changed the state, cultural and linguistic borders (except for the Sorbs, who managed to preserve their identity and language), but genetics clearly shows the existing kinship and connections of Germans from eastern lands with the Slavs (**Table 5**) [38].

City	R1a	R1b	I	Other
Lusatian Sorbs	65.0	9.8	14.7	10.6
Kraków	64.0	8.0	15.0	13.0
Lublin	62.5	12.5	11.6	13.4
Kashubians	62.3	9.3	18.1	10.3
Bydgoszcz	55.6	14.8	18.3	11.3
Lithuanians	44.9	5.1	10.2	39.8
Dresden	32.6	31.5	18.0	18.0
Rostock	31.3	32.3	22.9	13.5
Halle	27.4	30.3	20.9	21.4
Leipzig	27.1	43.1	14.6	15.2
Berlin	22.3	23.3	32.0	22.4
Magdeburg	21.0	34.0	25.0	20.0
Greifswald	19.2	37.5	24.0	19.3
Hamburg	16.8	37.9	31.7	13.6
Cologne	15.6	41.7	19.8	22.9
Mainz	8.4	44.2	22.1	25.3
Münster	7.8	37.3	26.5	28.4
Flemings	4.2	62.9	20.0	13.0
Dutch	4.0	57.9	27.8	10.3

Table 4. Genetic structure (%) in Poland, Lithuania, Germany, Belgium (Flemish) and the Netherlands by the most numerous male lines (Y-chromosome polymorphism). Source: Kowalski (2020), based on research by Kasperaviciūte *et al.* (2004), Immel *et al.* (2005), Kayser *et al.* (2005), Rodig *et al.* (2007), Rębała *et al.* (2013), Larmuseau (2015) and Altena *et al.* (2019).

Y-DNA haplogroup	Lusatian Sorbs (Rębała 2013)	Poland (Kayser 2005)	*Germania Slavica* (German Prussians)	*Germania Slavica* (whole)	Czech Republic (Zastera 2010)	*Germania Slavica* (ethnically German)	West Germans (Kayser 2005)	Flemings (Larmuseau 2015)
R1a	65.0	57.5	40.5	38.3	36.9	35.8	12.7	4.2
R1b	9.8	12.5	19.7	21.7	24.8	23.6	42.4	62.9
I1	9.8	17.3	14.0	11.7	8.3	12.6	24.1	20.0
I2	4.9		5.7	5.1	9.1	5.6		
N	0.0	3.7	6.1	3.8	2.4	4.3	2.7	0.0
Other	10.6	10.4	14.0	19.4	18.5	18.0	18.1	13.0

Table 5. The structure of the male line (%) of Germans from the east (between the Elbe and the Niemen) against the background of the structure of today's ethnic populations. Source: Kowalski (2020), based on research: Rębała *et al.* (2013), Kayser *et al.* (2005), Larmuseau *et al.* (2015), Zastera *et al.* (2010) and databases FTDNA.

The popularization of the results of archaeogenetic research on websites such as *Eupedia* or *Eurogenes*, and especially *Polishgenes*, contributed to the dissemination of knowledge on paleogenetic issues in the country. Thus, they have become a popular topic for many commentators from the world of science, as well as independent researchers. There have been many articles and entries on bloggers' websites that more or less comprehensively present the progress in this field. Although there is no shortage of disputes and various interpretations, there is an increasingly clear picture of the origins and migrations of Eurasian peoples.

Stanisław Pietrzak, the catholic priest, one of the pioneers of popularizing knowledge about population genetics on the Polish Internet, wrote several years ago

> "EUREKA! Thanks to genetic genealogy, I now know where Poles, Slavs, Europeans, other peoples and myself come from!" [39].

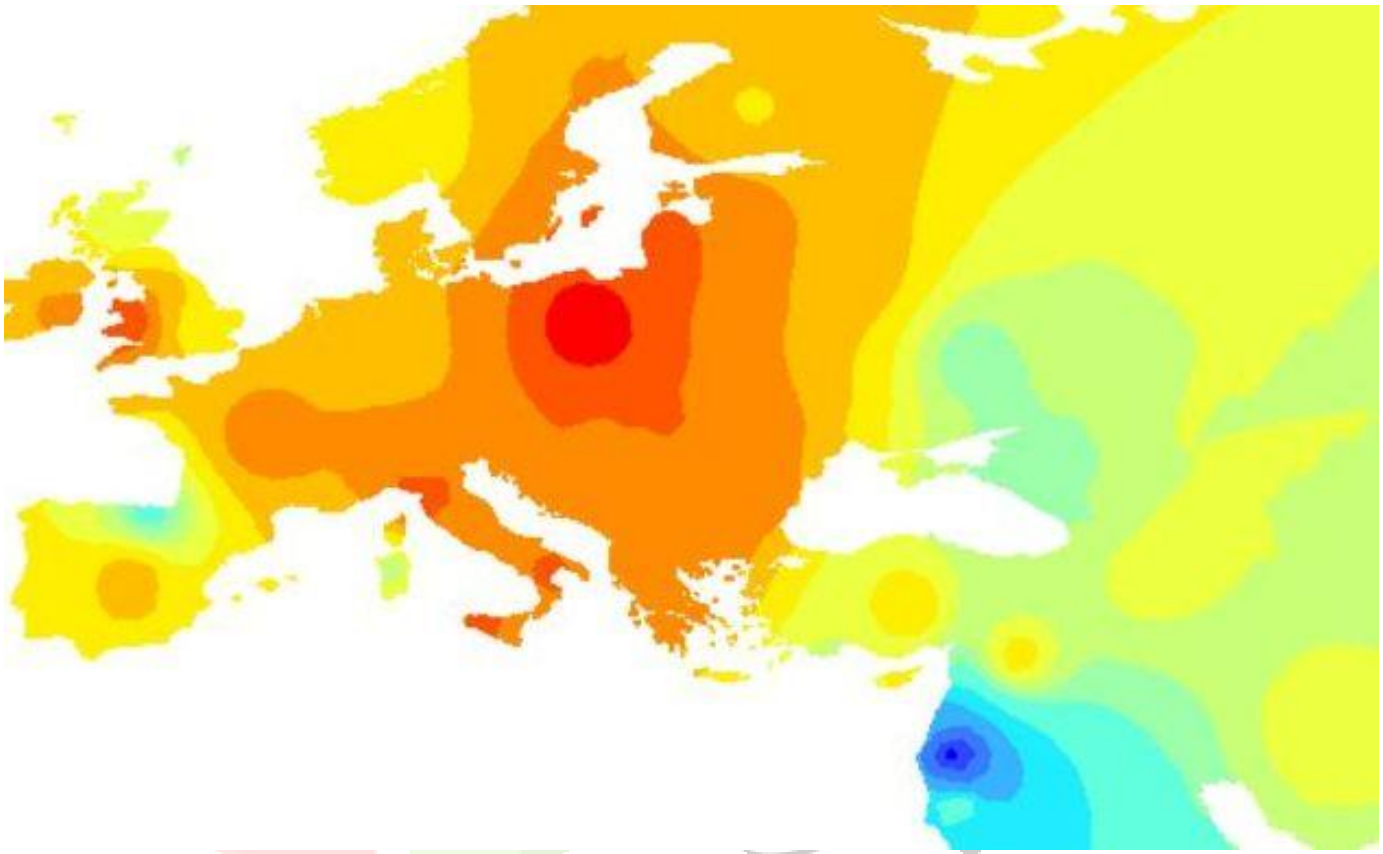
He initiated in Poland not only the publication of research into the ancient DNA of Slavs and other peoples, but he is also one of the first independent commentators of archaeogenetic data. He refers to many scientists in the field of population genetics, including Peter Underhill [40] [71].

On the parish website (run in Polish) where he is the pastor, we can find a number of articles about genetic genealogy:

1. Genealogy of Y-DNA, mtDNA and DNA autosomes. How to test your DNA?
2. Eurasian and Indo-European haplogroups R1 and R1b
3. Mitochondrial mtDNA
4. Y-Adam, the forefather of all modern humans
5. Geographical and ethnic cradle of modern people
6. Family A00 Development Fund in Cameroon
7. The origin of the people of Europe, Proto-Indo-Europeans, Slavs and Poles
8. Indo-European genesis of Scythians, Tocharians, Indo-Iranian Aryans, Anatolians and Armenians)
9. Non-Indo-European and Indo-Europeanized Y-DNA lineages in Europe
10. Proto-Indo-European genesis of the Slavs
11. Poles, where are you from and who are you from? Biological and cultural roots of Poles
12. Origin of the population in the Dunajec basin and its region
13. Other Selected Regions
14. "Old Carpathian" branch of the R1a family: YP343.
15. "Polish Mycenae on the Dunajec" – Otomani-Füzesabony culture
16. Evolutionary creationism

Pietrzak's analyzes show that today's Poles in 91% of the genome are descendants-heirs of the autosomal DNA of three cultures of the Bronze Age:

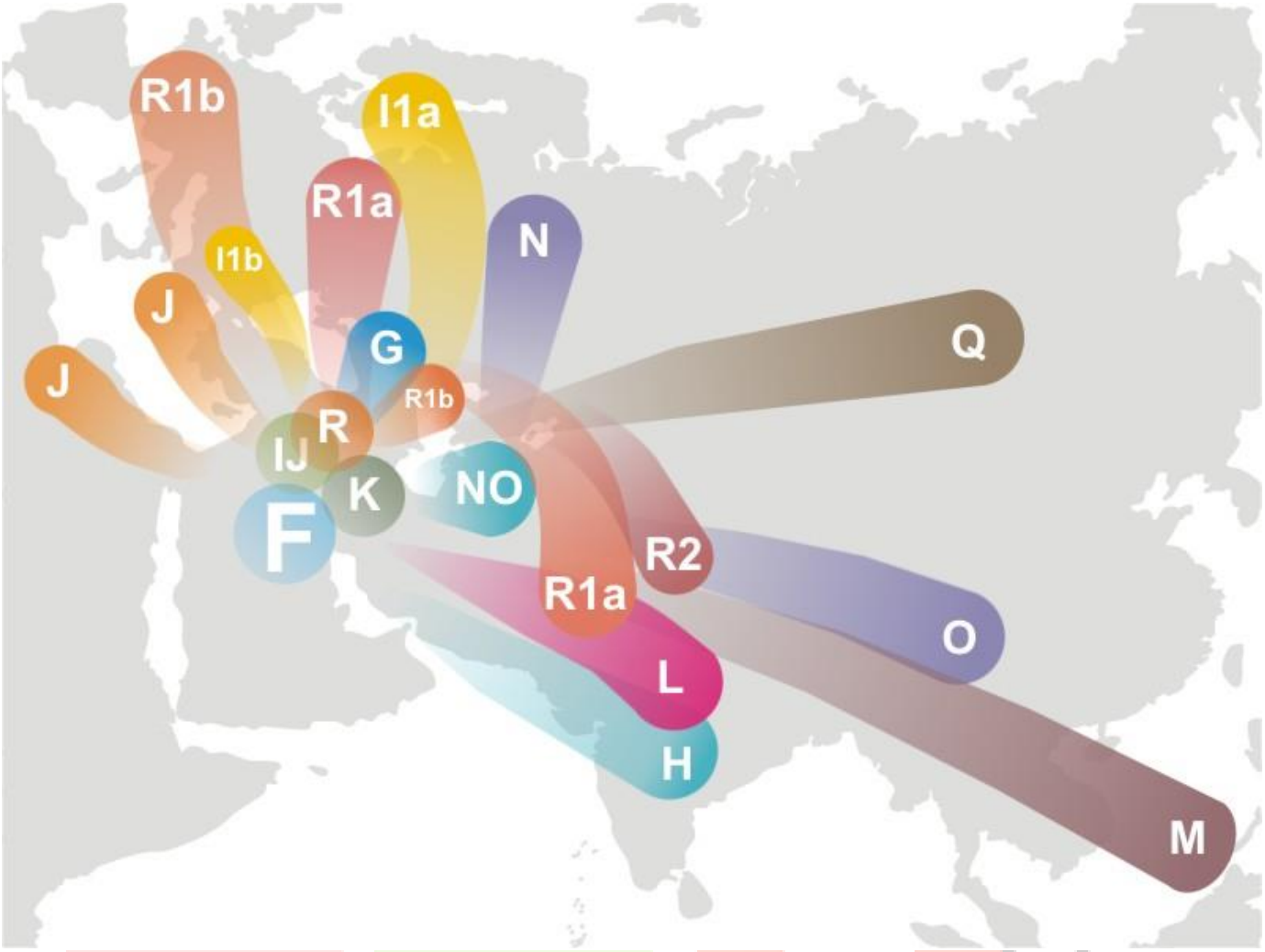
- the population of the Unetice culture, whose representative in the research was a man from Przecławice, County Wrocław, around 1700 BC, symbol RISE150 – 25%
- population of the Lusatian culture, whose representative in the research was a man from Ludas (Hungary/Slovakia) from around 1200 BC, Bronze Age, symbol BR2 - 23%
- population of the Pomeranian-Western Baltic culture, represented by a man from Turlojiske (Polish-Lithuanian Suwałki) from around 900 BC, symbol RISE598 – 43%.
-



Map 4. The intensity of autosomal DNA similarities in Europe to the representatives of the Kyjatice culture BR2 (south-eastern region of the Urnfield culture circle, including also the Lusatian culture) from the work of Cassidy *et al*. (2015).

Passionate about population genetics in a cassock, he relies, among others, on the work of Lara Cassidy's team (2015), in which we also find a map showing that the greatest similarity in autosomal DNA to a Bronze Age man (BR2) from Ludas (Hungarian-Slovak borderland) from Lusatian culture (Kyjatice) have Poles who continue the Proto-Slavic settlement in the nearby area of the basin of the Oder and Vistula rivers (**Map 4**) [19].

On **Map 5** we can see what the further migration of our ancestors looked like (divided into Y-DNA haplogroups) after the arrival from Africa to the Arabian Peninsula about 70,000 years ago. It was there that hg F first separated, from which other fractions were formed, including R1a.



Map. 5. Development of haplogroup F (Y-DNA) originating from the Arabian Peninsula, where the ancestors of Eurasian human populations came from Africa about 70,000 years ago (by: Sasha 1, Wikimedia Commons, CC-BY 3.0)

According to the findings of archaeogeneticists, the formation of the Slavic ethnos proceeded as follows:

- 70 thousand years ago – the migration of our ancestors from Africa to the Arabian Peninsula;
- 58 thousand. years ago – the transition of representatives of the IJK complex haplogroup to the Caucasus;
- 33,000 years ago - the emergence of a community with haplogroup K, which migrates to Southeast Asia;
- 30,000 years ago – in Altai, a family with a combined MNSOP haplogroup is separated;
- 26 thousand years ago – between Lake Baikal and the Russian Plain, a group with the R haplotype emerges from the MNSOP group;
- 23 thousand years ago – between the Aral Sea and the Hindu Kush, R1 is isolated from R;
- 21 thousand years ago – R1a is created (which currently dominates most Western Slavs, including Poland);

- 7,800 years ago, north of the Danube, between the Dnieper and the Elbe, the newcomers from R1a mixed with the local I2 and I1 (with the dominant role of R1a), which is the beginning of Slavism;
- 4500 BC part of the Proto-Slavs R1a goes along the Carpathian arc to Moldavia and Ukraine, where it forms the Trypillia culture; those who stayed behind develop the Vinča culture, which invented the world's first protopismo.
- 4000 BC The Proto-Slavs living in today's Poland develop the Lengyel culture, which gives the world the cultivation of cereals and the construction of a wheeled cart;
- 3000 BC another wave of R1a migration from Europe reaches the upper Yenisei and Altai, creating the Afanasievo culture (R1b);
- 2300 BC part of the people of the Trypillia culture reaches Western Siberia and Kazakhstan, creating the Andronovo culture; meanwhile, the Proto-Slavs living in today's Poland develop the Mierzanowice culture, within which the art of building fortifications flourished;
- 8th century BC between the Altai and the lower Volga, the Scythians emerge – with R1a1
- 7th century BC part of the Scythians heads west and reaches the areas between the Vistula and the Oder, where they mix with the proto-Slavic R1a people, who have been on the site for 5,000 years [41].

Some archaeogeneticists (Malmström [55], Klyosov [42] and others) argue that the ancestor of today's eastern Slavs from hg R-M417 lived in Ukraine and Russia from about 2800-2600 BC. From there, the Proto-Slavic culture was to develop further eastwards, towards the Volga and the Urals, with some participation in the development of the barrow circle of the Yamnaya culture (Klyosov attributes it to the R1b1a2 population) [42]. In the Pontic-Caspian steppes, Proto-Indo-European cultures were also said to have domesticated the horse, introduced the carriage and popularized the breeding of domestic animals [43].

This guess about the Ukrainian origin of the Proto-Slavs, however, has not been confirmed by the results of ancient DNA research, because so far in the region of Ukraine and Russia no genetic traces of the older population of R1a1a, expected by scientists, have been found, where Ornella Semino's team (2000) had already looked for them. They were found in the Balkans. Therefore, the Dnieper area is not the original homeland of all Slavs, and it was certainly not their only territory of residence in the 6th/7th century AD, as allochthonists claim. If at that time even some part of the eastern Slavs moved west, which was not recorded in historiography at all, apart from a certain wave that could have taken part in the Hunnic expansion, such re-emigration, at most, slightly strengthened the settlement of southern Slavs in the Balkans [39].

The wise priest proudly emphasizes:

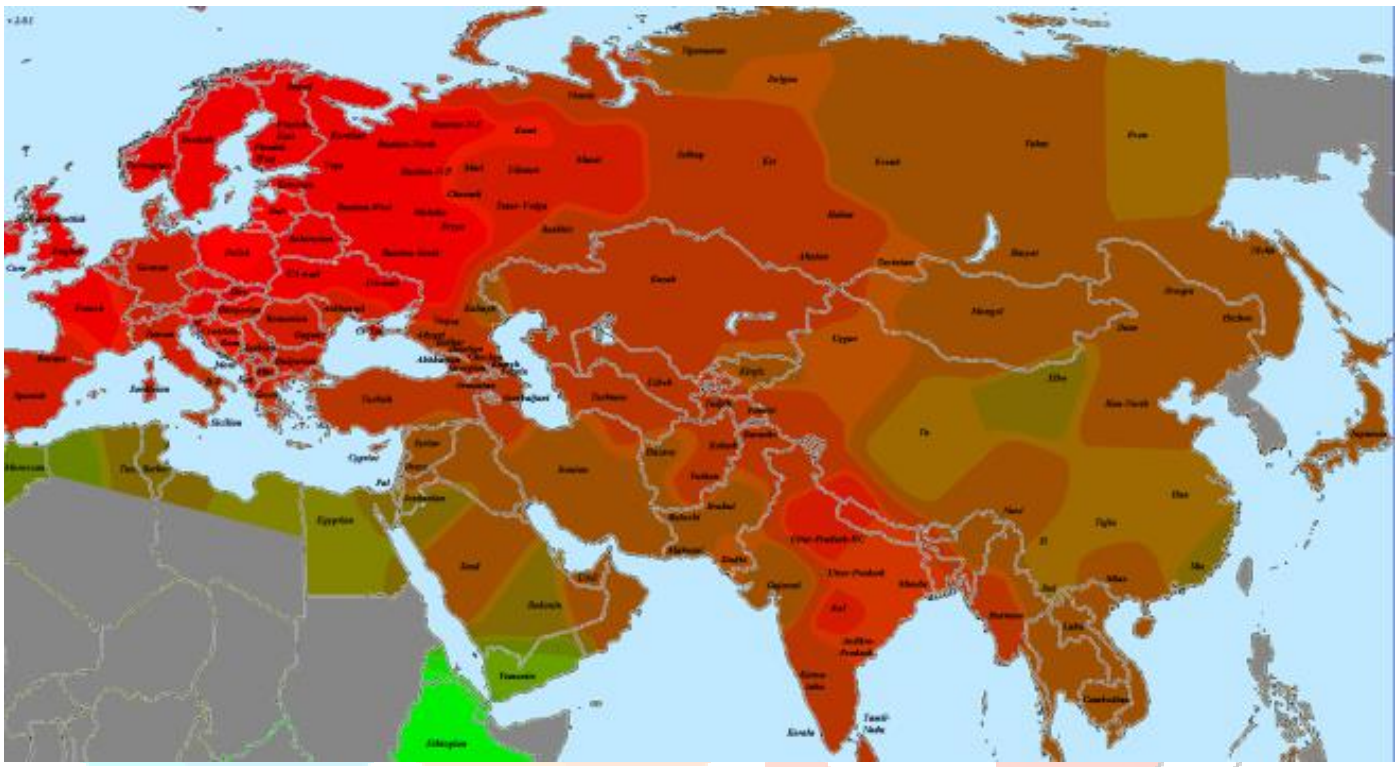
> "It seems that in our [Polish] autosomal DNA we are the nation most 'faithful' to the genetic roots of Europe, the closest to the base auDNA of Europe found in the archaeological 'Goyet man', who lived just about 40,000 years ago." [41]

As **Map 6** shows, in the autosomal DNA, the closest descendants of the Goyet-Q116 man, of the Aurignacian culture, live today in Poland, Lithuania and Latvia (intensive red).

Pietrzak supposes that:

> "… some descendants of Goyet man, who survived the glacial maximum in the Solutrean culture in central-western France, where they lived from hunting wild horse, after the glacier left, they moved to Polish lands, living from hunting reindeer and northern deer in the Swiderian culture (about 10,700 to 8,100 BC). Already in the Holocene, people migrated from

the Swiderian culture towards the east and north-east, which is shown by the above map of autosomal DNA. The Swiderian culture became a kind of matrix for the slightly later settlements on the Pripyat, the Nemunas, the upper and middle Volga." [44]



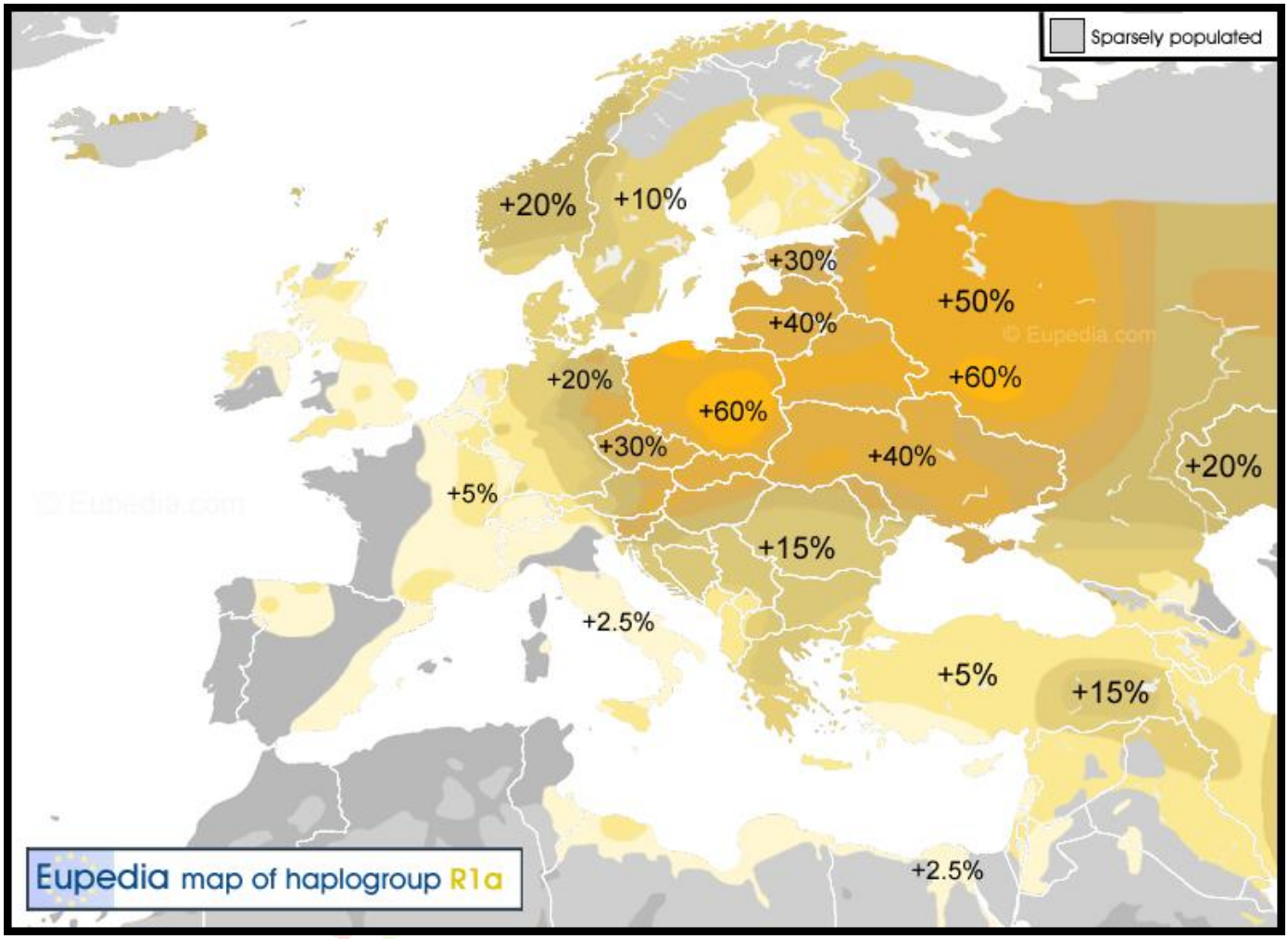
Map. 6. The most saturated red in Poland and the Baltic states denoting the highest percentage of Goyet-q116 human autosomal DNA (Vadim Verenich)

Great emotions and numerous comments were caused by the results depicted in the form of a map published on *Wikipedia* (**Map 7**) showing the saturation of hg R1a in Europe (currently, another version is presented, but with a similar intensity of this hg in individual European countries).

The map above clearly shows that the high intensification of R1a is strongly associated with Slavic language speakers. This 20% in western Norway and around Swedish Birka may be a remnant of the Wendish colonies in Scandinavia. Also in Iceland we see 20%, which can only confirm that the Slavic hg was brought there by the Wends from Pomerania, called in Slavic wicięg (in "Widsith" is written as a 'vicing') [45], who took part in Viking expeditions. Thus, genetics coincides with the findings of archaeologists about Slavic traces in the Scandinavian Peninsula and Iceland [46] [47]. It was probably these Viking groups that carried hg R1a to Ireland and Scotland.

As noted by one of the Slavic bloggers, Indian Chinook, the description under this map on Eupedia suggests that the kentum languages are as root to Proto-Indo-European as the satem languages, which is a misunderstanding as the original Indo-European language was a satem language. The blogger calls it Scythian or Proto-Slavic. It is from it that all today's satem languages derived from Old Slavic (the common language of hg Y-DNA R1a1, i.e. Scythians and hg Y-DNA I, i.e. Old Europeans): Slavic, Albanian, Romanian, Hungarian, Baltic, Persian, Hindi, smokes and others [48].

Here, in turn, he is rather wrong, because haplogroup I – Old European is considered older in Europe than R1a1, so its representatives used a different language than PIE. They could only adopt the language of the newcomers or through creolization on the basis of both languages, the original, proper for a given tribe, and the newer PIE, whatever we would call it (Proto-Slavic, Scythian or Proto-Slavic-Balto-Aryan), languages of peoples with a large predominance of hg I could have arisen and R1a. Assuming, of course, that language follows the genes.



Map. 7. R1a distribution in Europe *(Eupedia)*

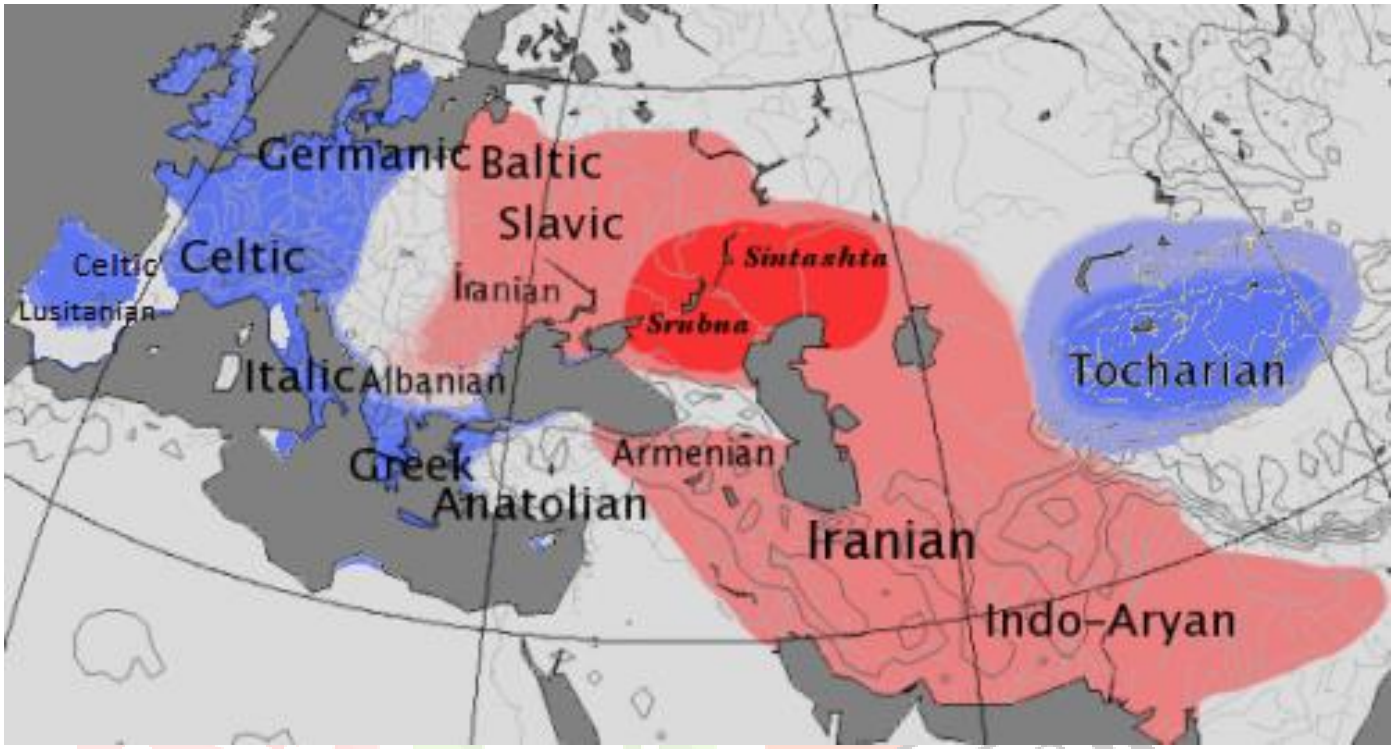
Fortunately, the Indian Chinook recognizes that in these languages there are components of other genetic Y-DNA foundations, which causes their visible differentiation, for example, in Baltic or Hungarian – N, in Persian – J, in Pali and Hindi – L, H (Gypsies) and R2 (Dravids) [48].

On **Map 8** we see two language areas - kentum and satem, although I would move the satem border further west, even to the Rhine, and certainly to the Elbe, where, in my opinion and supporters of the theory of the indigenous origin of the Slavs, at least from the Paleolithic (Alinei) [49] [50], the ancestors of the Slavs must have lived probably speaking satem languages.

Simply put, in the satem language league, the number 100 is satem – one hundred in the Avestan language, not centum (kentum), as in Latin, from which the name of the kentum group was derived. Kentum languages are called peripheral languages and satem languages central. The

satem group includes Slavic languages (including Polish), Baltic languages, Indo-Iranian languages, Armenian and Albanian.

However, this blogger believes that the earlier Proto-Indo-European language common to the Scythians (R1a) and Celts (R1b) was satem, which can be discussed, but this requires a separate linguistic dissertation. The blogger speculates that the representatives of the entire main haplogroup R1 used the Proto-Celtic satem proto-language, and only later did the process of kentumization take place in the Celtic branch.



Map 8. Kentum and satem languages in the early 1st millennium CE. Blue – kentum languages, red – satem languages. The hypothetical center of Indo-European palatalization is marked in dark red (author: Dachmann, CC-BY-SA 3.0)

The subject of population genetics was also dealt with by Sławomir Ambroziak. He believes, for example, that genetic research coincides with the information provided by some Byzantine chroniclers identifying the Slavs with the Dacians (Gets), which was also supported by Polish chroniclers, like Lelewel and Bielowski. Research shows that we share most common ancestors from the Iron Age that preceded the Middle Ages with the Balkan peoples. Postulated by archaeologists and linguists, and usually approved by historians, the shifts of the Balkan population (including Dacians) to the territory of today's Poland, under pressure from the Romans, are clearly reflected in the genes [53].

He writes about Poles and Hungarians that:

> "Poles share most common ancestors from this period with themselves, which definitely excludes the possibility of these ancestors coming from somewhere outside, e.g. from the east. Poles generally share an uninterrupted common ancestor since the Bronze Age, which can be clearly seen in the section of the charts related to this period. We also share common ancestors

from the Bronze and Iron Ages (about half of what we share with ourselves) with Germans, while Germans from the same period - twice as much (Bronze Age) or as many (Iron Age) as we do with ourselves, each other, with Poles. And this makes us even more biologically attached to our geographical location in Europe.

It's just that we share the most common ancestors (more than ourselves) from the Bronze Age with Hungary. In this matter, however, we do not owe the Hungarians, because they, in turn, share the most common ancestors from that period, more than with themselves, precisely with the Poles. This is most likely the effect of the Lusatian culture as a factor integrating the populations covered by it, in which culture, as experts suggest, was supposed to shape the basic genetic image of later Poles. This phenomenon is confirmed by research carried out on archaeological DNA from human remains, showing that the closest relatives of the population of the Lusatian culture from today's Germany and the Kyjatice culture (southern variant of the Lusatian culture) from today's Hungary are, among all modern European nations, mainly today's Polish people [52]. The results of archaeogenetic research should be considered here as a repeated, positive verification of the findings of Ralph and Coop, because the former correspond perfectly with the latter in the case of kinship of Germans and Hungarians with Poles.

Thus, it can be seen that the mutual belief of Poles and Hungarians about a common origin (it is said that »Lengyel, Magyar – két jó barát«, which means »Pole, Hungarian – two nephews«) actually has a solid genetic basis." [53]

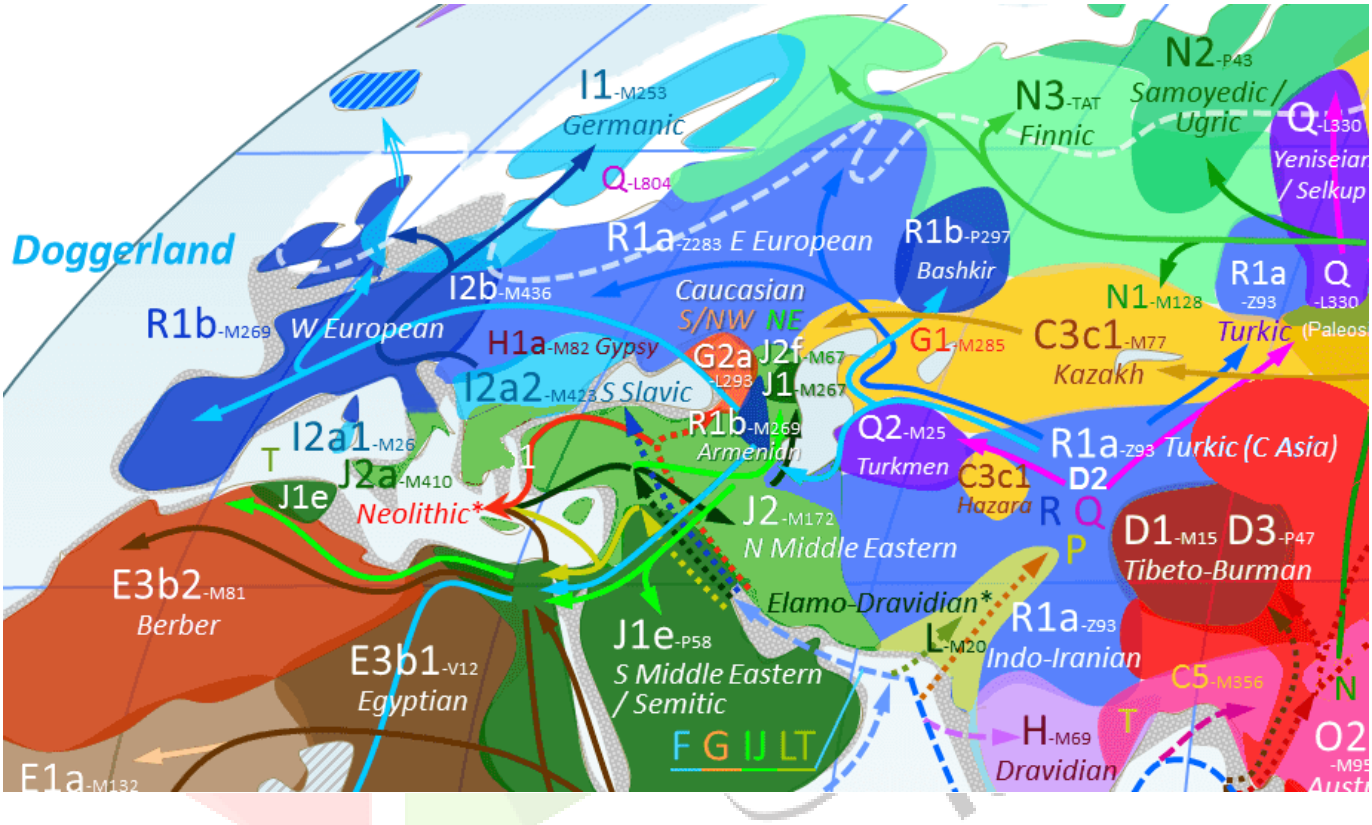
On the other hand, Italians share the most common ancestors from the Migration Period in the first place with Hungary, and in the second place - basically equally – with Scandinavians and Poles. As for the genetic relationship with the Germans, Ambroziak writes that: "Of course we also share a certain, though generally small, number of common ancestors from this period with the Scandinavians." [53].

The DNA tests on which these claims are based include, but are not limited to:

- Ralph and Coop analysis published in 2013;
- research on the history of the Slavs based on mitochondrial DNA (mtDNA) – scientists from the Collegium Medicum of the Nicolaus Copernicus University in Bydgoszcz, under the supervision of prof. Tomasz Grzybowski (2007);
- genetic research from Masłomęcz, the Tollense river valley and other sites (works by A. Juras, M. Lewandowska, T. Grzybowski, etc.), which indicate the continuity of habitation of Polish and German lands by the same people since prehistoric times (Tollense) , through ancient times (including Masłomęcz) to the Middle Ages and modern times;
- analyzes (UAM Poznań/Juras *et al* 2015) of the mitochondrial DNA of 43 people living in Poland during the period of Roman influence (2nd century BC – 5th century AD) and in the early Middle Ages (5th–13th century) indicating the genetic continuity of Slavs/Poles in the basin of the Oder and Vistula rivers (scientists: Dr. Anna Juras, Prof. Janusz Piontek, Dr. Jakub Z. Kosicki and Dr. Mirosław Dabert, they were supported by researchers from Denmark, Sweden and Estonia).

As Ambroziak notes, historians and archaeologists are reluctant to use the latest results of ethnogenetic research, because they destroy their hardened views on the origin of the Slavs. Genetics is an exact science, less exposed to manipulation and politicization, similarly to anthropology. It is strange that both archaeogeneticists and anthropologists practically reject the

allochthonous theory of the Slavs. Historians and archaeologists, defending their positions, claim that genes do not determine the ethnos. I wonder why so far, without such restrictions, they attributed individual cultures to ethnic groups, such as the Goths of Wielbark or the Vandals of Przeworsk, since "pots do not speak"? This cognitive relativism is astonishing. It seems that scientists do not care about searching for the truth, but about selecting facts for their own theses and theories, unfortunately often politically conditioned. Fortunately, thanks to comparative studies, we know more and more about the ethnogenesis of the Slavs and other Eurasian peoples, and propaganda theories straight from the era of Germanization are becoming a thing of the past [53].



Map 9. A fragment of the world map with the distribution of Y-DNA haplogroups (author: Chakazul, Wikimedia Commons CC-BY 3.0)

A quite reliable analysis of the problem of the ethnogenesis of the Slavs based on archaeogenetic research was presented by an enthusiast of history, Slavic culture and ethnogenetics, Adrian Leszczyński, who also refers to the painstaking work of Father Pietrzak, who paves the way for disseminating knowledge about the results of fossil DNA research for people outside the scientific circle.

In his article on the history of the R1a genetic lineage we read:

> "The American geneticist Peter A. Underhill, based on the research of the most basic, primary mutations of the R1a haplogroup, is inclined to conclude that the development of this genetic lineage took place in the Middle East (Iran or eastern Turkey) about 25,100 years ago. He specifies the possible origin of this family to be 21,300 to 29,000 years ago." [54] [71]

Around the same time, from the common R1 lineage, apart from R1a, the R1b subgroup also emerged.

From the Middle East, the R1a people made their way to Europe through three possible routes:

– through the Caucasus

– through Central Asia

– through Anatolia and the Balkans.

Over time, more mutations began to appear in the R1a population, and the population of this family gradually began to grow.

At this point, it is worth noting that Underhill [71] did not rely on the analysis of specific samples of fossil DNA from various places in Eurasia, but on the basis of a modern genetic map, he tried to reconstruct how the migrations of various peoples took place in the past. The papers presenting the results of Y-DNA and mtDNA tests have slightly verified the findings of his team, although they did not destroy their concept of the continuity of Slavic settlement in the lands of the basin of the Oder and Vistula rivers since the Bronze Age.

Leszczyński reports that the oldest R1a sample, dated to 8825–8561 BC discovered in Vasylevka, Russia (Mathieson *et al.* 2018) [14]. Another fairly old R1a sample comes from the Yuzhnyy Oleni Ostrov site on Lake Onega in Russian Karelia (Fu *et al.* 2016), which dates back to around 6400 BC. It was the period of the late Mesolithic, when the local population led a nomadic, hunter-gatherer lifestyle. In turn, the oldest sample of the M417 subclade (R1a-M417 or R1a1a1), which covers almost 100% of the modern R1a lineages, has so far been isolated in Ukraine. Sample number (ID) I6561 comes from the Alexandria site and is dated to 5000–3500 BC. The oldest samples of R1a-M417 discovered so far from Central Europe (Obłaczkowo, Poland) date back to 2880–2630 BC (Malmström *et al.* 2019) [55].

Slightly younger samples of fossil Y-DNA with a derivative haplogroup R1a are found in Germany and Sweden. The remains belonged to the people of the Corded Ware culture: Tiefbrunn (2750 BC, Germany), Bergrheinfeld (2650 BC, Germany), Eulau (2600 BC, Germany), Esperstedt (2473–2348 BC, Germany) and Viby (2550 BC, Sweden). Thus, the R1a1a1 haplogroup, which is the filial branch of R1a, can be easily identified with the people of the Corded Ware culture, which geneticists commonly do. One sample of fossil Y-DNA with haplogroup R1a1a1 was also found in Poland - the site of Łęki Małe (2150 BC, Greater Poland Voivodeship).

The author argues that:

> "The genetic lineage of R1a, according to the current state of knowledge, probably developed in the Middle East. It was then that he split up with another, related family of R1b. After the separation, both families went to Europe. It is here that the descendant branches of R1a began to create great prehistoric material cultures and absorb the local population of other haplogroups (mainly I1 and I2). It was here that, thanks to agriculture, the population of this family began to grow demographically. It was here that the horse was domesticated and from here, thanks to horse transport, distant, even Asian territories began to be conquered. It was the R1a lineage that brought to Asia known old material cultures that were continuations of European cultures and its European language, from which the Aryan languages in Asia and Slavic languages in Europe developed, today collectively known as Indo-European languages. In some cases, branches of this gens mixed with other genetic families, creating new language

groups (e.g. Germanic and Baltic) and thus new ethnicities. Sometimes the European population of R1a mated with Asian women losing their paternal language (e.g. Kyrgyz, Uighurs). Other times they were assimilated and also lost their language (e.g. Pannonian, Polabian, Tyrolean or Bavarian Slavs).

It was the descendants of the R1a family that conquered Iran and India and created powerful state organisms on those lands. In Europe, they inhabited huge areas and formed powerful tribes of Scythians, Sarmatians and Vandals, later known as the common name of the Slavs. There are also quite reasonable theories that the R1a family had a significant impact on the formation of Hellenic or even Etruscan civilizations. Time will tell whether these concepts will ultimately be confirmed. According to geneticists and numerous representatives of other fields of science, the R1a lineage has been present in Central Europe for thousands of years. Peter Underhill claims that even more than 11,000 years. It was mainly this family, together with the absorbed other, less numerous peoples with other haplogroups, which formed, among others, the Corded Ware culture, the Lusatian culture, and the Przeworsk and Wielbark cultures. Therefore, it should not be surprising today that the descendants of this family - the Slavs – occupy most of Europe. For they also occupied it in remote times." [56]

This inquisitive history enthusiast not only meticulously analyzes the conclusions of the works of archaeogeneticists on the origin of Indo-Europeans, mainly Slavs, but also sees clear connections between specific genotypes and Indo-European languages, with particular emphasis on the relationship between Slavic languages and hg R1a1. It also explains why, for example, many Kyrgyz also have such a haplogroup, which some authors call "Ario-Slavic" (Aryans and Slavic people) [57].

As he argues, the published analyzes and opinions show that:

"… more and more contemporary scientists share the view of the continuity of the habitation of the Polish and Polabian lands by the same Slavic population, which is currently associated with the sub-branches of the R1a haplogroup from the Corded Ware culture period and later cultures. We remember that the great Polish archaeologist, Prof. Józef Kostrzewski. He rightly connected, among others, the creators of the Lusatian culture with the Proto-Slavs. As evidenced by the growing number of studies of modern fields of science – he was right." [59] [63-67]

In addition, more and more confirmations are being found that not only the entire allochthonism of the Slavs and the "settlement void" is nonsense, but also most of the theses of Underhill [71], Klyosov [42], Alinei [49] [50] or Kortlandt [51] are true. One of my favorite commentators on historical, ethnogenetic and linguistic topics, Maciej Bogdanowicz, a historian by education, who runs the well-known *RudaWeb* blog, ecstatically states in this context:

"We have been Europeans for millennia. Mario Alinei's theory that since the Paleolithic period proves to be true. The Indo-Europeans are from the Danube, not from the Don. Their language originated thousands of years before the overrated Yamnaya steppe culture. That may be the conclusion of the latest fossil samples from the Balkans." [59]

One of Bogdanowicz's conclusions is that this

"From the area at the junction of Central Europe and the Balkans, at least a satellite Indo-European group, which is now called Indo-Slavic or Arios-Slavic, would move to other regions of Europe and Asia."

He adds that too

> "…in the work of Alexander Immel's team (2020), the »scenario of Yamnaya horsemen migrating en masse and armedly to Central Europe« was questioned. Immel emphasizes that the PCA and f3 analyzes also suggest a genetic relationship between the individuals from Moldova and representatives of the Funnelbeaker and Globular Amphora cultures from Central Europe. The consequence of these findings of the researchers may be the statement that Indo-European dialects were first created in Central Europe – between the Vistula and the Dniester, on the basis of the Danubian cultures (Tripolye, Funnelbeaker and Globular Amphora). Considered to be steppe, the Corded Ware culture would be a derivative of this subsoil and the result of adaptations to climate change on site, rather than immigration from the Black Sea steppes. This is further evidence that the Aryan migration should originate somewhere in Central Europe, as an already formed cultural complex, which is supported by the common vocabulary regarding beliefs in Slavic and Indo-Iranian languages. Not to mention the cremation ritual, the most characteristic of these ethnic groups." [58] [59]

A blogger from *RudaWeb* argues that "it is already clear that the so-called barrow theory (warrior horsemen from the steppes imposed the language and culture of Old Europe in the third millennium BC) has fewer and fewer points of support". He recalls what he wrote 3 years earlier:

> „...the steppe culture did not invade agricultural culture, but developed among formerly agricultural natives as a response to climate change. The pastoral Corded Ware culture develops over or alongside the older and agricultural Funnelbeaker culture. As a result of the steppe, people had to change their lifestyle in order to survive. At the same time, the pastoral economy was associated with greater mobility of our ancestors. Hence their control of, for example, southern Scandinavia (in which the representatives of the Funnelbeaker culture – known from megalithic tombs and the Bronocice complex) and the British Isles already had a foothold, and also (paradoxically) the transfer of agricultural terminology and knowledge to these regions. The more so that the finds in Europe show that the people of the Corded Ware culture were farming the land" [60].

Based on work of Papac *et. al.* (2021) [61], Bogdanowicz reports that the expansion of R1a in the heart of Europe in the 3rd millennium BC it was supposed to be caused by the above-average reproductive efficiency of men and the higher survival rate of their descendants than representatives of other haplogroups. Archaeogeneticists presented conclusions from the analysis of 271 human genomes, dated to around 4900-1600 BC, from the Czech Republic.

Bogdanowicz concisely reports the results of these studies, stating that

> "…around 2800 BC three genetically and culturally diverse groups coexisted in the study area. This is not a special discovery, because it was already known that in Central Europe (understood as the area between the Danube and the Baltic Sea and the Rhine and the lower Dnieper) we had three communities at that time: old European hunter-gatherers I2 and R1, farmers from Anatolia - mainly mutations male haplogroups E, G or J and pastoral-nomadic R1a and R1b. The Czech study is therefore another confirmation of this state of affairs. However, with the appearance of the Corded Ware culture, descendant mutations from R1a-M417 (xZ645) would appear in the western part of central Europe, which undoubtedly gave rise to Indo-European communities within the Venedic-Balto-Slavic complex. They then became the source of the great Tocharian and Prascythian waves and Aryan civilizations. On the Old Continent, they influenced the formation of Scandinavian - ultimately Germanic

> populations. Both R1a and R1b men in Europe 2600–2400 BC replaced a significant percentage of men from other genetic lineages." [62]

This gives grounds for locating the proto-Balto-Slavic origins further to the west than previously assumed, and thus we can talk about assigning the Unetice culture (2300-1600 BC) to the Slavic region covering the area of Moravia, Bohemia, Slovakia, Germany and Poland. In the majority of this circle, in the following centuries, the Lusatian culture arises and develops, which the autochthonists from prof. They identified Józef Kostrzewski at the head with the Pre-Slavs [63-67]. The findings of archaeogenetics give more and more confirmation that the Lusatian culture, as well as the preceding Unetice culture – the Corded Ware culture, were created by proto-Slavic communities.

An interesting discussion takes place on the *RudaWeb* blog under the articles, which is a big advantage of this type of portals. Such an exchange of views allows you to obtain additional information and sometimes to verify your views.

For example, under the article by Bogdanowicz cited above, the user Robert wrote on June 5, 2022:

> "Balticness – if we take into account the findings of genetics so far (the time of the appearance of the mass haplogroup N in the Baltic area), the beginning of the formation of the Baltic genotype can be estimated as late as 1,000 years BC. From the paleolinguistic point of view, Alinei saw the Thracians and Balts as peripheral Slavic groups, which corresponds to archaeogenetics. As for the »Slavic« I2a autosomality – it was already involved in the formation of the Starčevo cultures, it dominates in the culture of spherical amphorae and was visible, for example, in the Tripolye culture. Hence, it can be assumed that it was here that the Proto-Slavic land developed mainly. Besides, R1 also appears in these cultures (see Vlasac). Today it is certain that from the third thousand BC R1a becomes a genetic marker of Indo-Slavic ethnicities."

In another text, Bogdanowicz unexpectedly states that

> "...the biblical and/or legendary messages recorded by Długosz are largely consistent with the findings of contemporary scientists […] Repeated, following the Bible and tradition from ancient times, Długosz's genealogy of Poles begins to coincide with the migration of Indo-Europeans from the Middle East to the Vistula River, which is reconstructed by genetics, anthropology, archeology and linguistics." [68]

Bogdanowicz is a supporter of the concept of the creation of the Slavic ethnos by combining the Old European population of hg I with the **newcomers** from the east, who were supposed to arrive through Anatolia, according to the theory of Colin Renfrew, in the vicinity of the middle course of the Danube around 10,000 years ago **[69]**.

He then states that:

> "About 9,000 years ago in this area we are already dealing with the beginnings of the cultures of the Old Continent, which gave rise to the first European civilization – Vinča. In the meantime, the ice sheet left the lands of today's Poland. This enabled the further march of the first civilization of our continent. Their speech, Proto-Indo-European, from which almost all languages of Europe and other languages derive, was a Proto-Slavic language." **[68]**

Jan Długosz's fragment about Lech leaving the lands in Pannonia "corresponds to the expansion of the Lengyel culture to Central Europe. Lech could therefore have migrated from today's Slovenian-Croatian borderland at the beginning of 5,000 BC. At that time, to the east (from Pannonia), the Trypillia culture was already being born. At the same time, genetics places the »Polish« mutation of haplogroup R1a on our lands from the beginning of the next millennium." Thus a fairy tale becomes science, and science becomes a fairy tale [68].

Polish historians also considered the Master Wincenty Kadłubek, a Polish chronicler from the 12th century, to be a fairy tale writer, especially his stories about the Lechites, whose myth has returned in recent years in the form of the concept of "Great Lechia" propagated by Janusz Bieszk, Paweł Szydłowski, Czesław Białczyński, and also Maciej Bogdanowicz and other authors.

The blogger from *RudaWeb* wrote in more than one article that this historical concept is beginning to take shape before our eyes, thanks to archaeogenetic and paleolinguistic research. With regret, sadness and disappointment, he speaks about his fellow historians, who in our country are stuck in a sort of vicious circle of ignorance and seem not to accept the findings of modern science:

> "Consecutive research by specialists from the most outstanding scientific centers in the world talk about the ancient roots of Slavic cultures in Europe. They paint a fascinating picture that is hard to find in Polish history textbooks. Rather, it fits the hypotheses presented in the so-called »Turboslavian« websites. Maybe because there were no Polish scientists in the international team that determined it."

He informs that:

> "23. geneticists, anthropologists, biochemists from around the world, from such renowned centers as Stanford and Cambridge, included over 16,000 in a powerful study genotypes representing 126 populations from across Eurasia. The project was an extension of a study conducted in 2009 by a team led by Peter A. Underhill from Stanford University in the USA. Let us recall that in 2009, the conclusions of Underhill's **team** shook the dogma about the history of the Slavs, especially Poles. Scientists concluded that our ancestors had the same genes as most of today's citizens of the Republic of Poland, and we have been on the Oder and Vistula rivers for a modest 11,000 years. This meant that the hitherto theories of historians about the stay of the Slavs in today's Polish lands only from the 5th century CE that's nonsense.
>
> A further consequence of this conclusion was to challenge the thesis of German nationalists that all cultures before this period were Germanic. Until the exact sciences entered, it was easy to refute the claims of some Polish archaeologists and historians that the Slavs were the **creators** of all cultures in our lands, at least from the Lusatian one. It was easy to laugh at the primitivism of the Poles in comparison to the highly civilized Germans. Unfortunately, after 2009, the mainstream of Polish historiography did not take advantage of the gift given on a platter from across the Atlantic and tucked its tail under itself." [70]

In 2014, it turned out that Uderhill overestimated the dating of the formation of the "proto-Polish gene" R1a-M458 based on the STR analysis and the coalescence method from 2009. His team recalculated the time of creation of this haplogroup using data from fossil DNA, and based on this more modern method, the age of the "Slavic" haplogroup was estimated at about 5,800 years.

As Bogdanowicz adds:

> "Underhill's 2014 results also meant that Indo-Iranian hg R1a-Z93 and no doubt Slavic R1a-Z282 diverged around 6,000 years ago and that they never met again, because there is no R1a-Z282 in India and Iran, and there is no R1a-Z93 in Central and Eastern Europe. The time of separation of these families can be connected with the time of the final disintegration of the Proto-Indo-European community and with the beginning of the formation of the Proto-Indo-Iranian and Proto-Slavic languages."

Even though Underhill admitted he was off by about 5,000 years [71], his new findings did not undermine the theory of several thousand years of uninterrupted stay of Proto-Poles on their present lands. The publication summarizing the 2014 study states:

> "Note that the earliest R1a lineages found so far in ancient European DNA, dating to 4,600 years ago, correspond to the Corded Ware culture. Three DNA samples were obtained from the earlier Linear Pottery culture (7600-6500 years ago). This gives a possible picture of the wide and rapid spread of R1a-Z282, lineages associated with copper and early Bronze Age communities that stretched from the Rhine in the west to the Volga in the east, including the proto-Slavic Bronze Age culture that originated in central Europe around the Vistula." [71]

It is difficult to accuse the American scientist of Turbo-Slavicism or Great Lechism, but his scientific activity gives a powerful scientific tool as an argument to defend many theses and accounts of ridiculed Polish chroniclers and a group of contemporary enthusiasts who speak with pride and conviction about the ancient Great Lechia as a Slavic federation tribal, stretching for thousands of years in the area from the Rhine to the Volga [72].

Bogdanowicz notes and points out that:

> "There were no Polish scientists. German ones too. And I'm not surprised at all. In Underhill's team, however, there were inquisitive Americans, Indians, Croats, British, French, Russians, Italians. Hence, perhaps the works of Underhill's team are of little interest to official doctrinaires of Polish historiography. Therefore, I believe more in specialists from the best academic centers of the modern world than in the speculations of our »luminaries«. And I am ashamed because, like the Vistula professorship, I am also Polish – only maybe a little different. Unless it's our particularly creative »historical policy« – let others take our heritage from us, but let us rejoice at the late baptism of bellow savages from the swamps." [70]

Archaeogenetics began to be discussed not only in scientific circles, but also on strictly archaeogenetic blogs (*Eupedia, Eurogenes, Polishgenes, Vayd*a), as well as Slavic and historical forums, where, in addition to factual texts by the aforementioned Maciej Bogdanowicz (*RudaWeb*), Stanisław Ambroziak, Stanisław Pietrzak, Czesław Białczyński or Adrian Leszczyński, you can find more or less professional comments and assessments. A dozen or so articles in the press in a popularizing form presenting the most important conclusions from the research were also published, and some Polish authors also began to write and publish books on the subject.

III. SUMMARY

This review article, of course, does not exhaust the topic of the importance of archaeogenetics as an auxiliary science in the study of the origin of the Slavs. I hope, however, that the presented material makes us realize that "genes do not lie", and "Pharisees of science" with their lying anti-Slavic theses, whether in terms of the late arrival of our ancestors to Central Europe or their

lower level of civilization development in towards the Germans or Celts (Kossinna and others), or the complete emptiness of settlement in our lands in the first centuries of our era (Godłowski and others), they will beat their breasts and apologize for their naivety, servility or calculation. It's time to stop spreading these harmful and untrue nationalist views. Let us remember that anti-Slavic theses are racism and chauvinism in every way and we should not allow unpunished preaching of untruths about our ancestors, their history and heritage.

Genetic arguments are very strong in the discussion about the autochthonism of the Slavs, and supported by the views of paleolinguists, such as Frederik Kortlandt [51] or Marco Alinei [49] [50], confirming the long-known theory of Professor Józef Kostrzewski [63-67] and a whole group of other scientists in various fields who are in favor of the indigenousness of the Slavs in Central Europe, as I wrote in the article Autochthonism versus allochthonism, the eternal dispute about the origin of the Slavs [72], should retire disgraced professors spreading false and anti-Slavic theses.

Science based on knowledge, without a political background, should serve the purpose of understanding between nations, not quarreling about which of them was or is better or more developed in terms of civilization. It's time to write the true history of the Slavs and restore them to the glory they deserve.

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