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SPECIFIC EUROPEAN Y-CHROMOSOME HAPLOTYPE I AND ITS SUBCLASSES: MIGRATIONS AND MODERN PREVALENCE

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ORIGIN AND HISTORY OF HAPLOGROUP I-M253

Haplogroup I1* together with its relative sub-clades I2a* and I2b* is the native European haplogroup, its frequencies outside Europe are extremely small.

Haplogroup I1 is the most common I subclade in northern Europe. It is found mostly in Scandinavia and Finland, where it typically represent over 35% of the male Y-chromosomes. Associated with the Norse ethnicity, I1 is found in all places invaded by ancient Germanic tribes and the Vikings. Other parts of Europe speaking Germanic languages come next in frequency. Germany, Austria, the Low Countries, England and the Scottish Lowlands all have between 10% and 20% of I1 lineages.

Haplogroup I is the oldest major haplogroup in Europe and in all probability the only one that originated there (apart from very minor haplogroups like C6 and deep subclades of other haplogroups). It is thought to have arrived from the Middle East as haplogroup IJ sometime between 40,000 and 30,000 years ago, and developed into haplogroup I approximately 25,000 years ago. In other words, Cro-Magnons most probably belonged to IJ and I (alongside older haplogroups like F and C6).

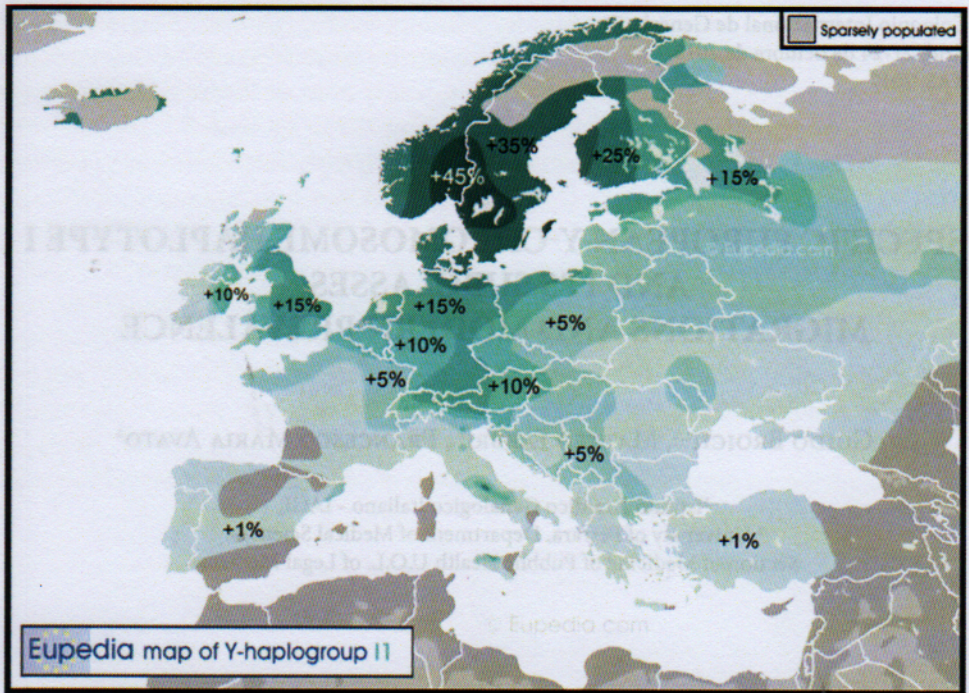


Fig. 1: Haplogroup I1 distribution, <http://www.europedia.org>

The I1 branch is estimated to have split away from the rest of haplogroup I some 20,000 years ago. I1 is defined by at least 25 unique mutations, which indicates that this lineage experienced a serious population bottleneck. Men belonging to this haplogroup all descend from a single ancestor who lived between 10,000 and 8,000 years ago.

It has been speculated that I1 evolved in isolation in Scandinavia during the late Upper Paleolithic and Mesolithic periods, when hunter-gatherers from southern Europe recolonised the northern half of the continent from their LGM refugia. The oldest attested evidence of postglacial resettlement of Scandinavia dates from 11,000 BCE with the appearance of the Ahrensburg culture.

However, evidence emerged (Scécsényi-Nagy et al. 2014) from the testing of Early Neolithic Y-DNA from western Hungary that haplogroup I1 was in fact present in central Europe at the time of the Neolithic expansion. A single I1 sample was identified alongside a G2a2b sample, both from the early Linear Pottery (LBK) culture, which would later diffuse the new agricultural lifestyle to most of Poland, Germany and the Low Countries.

It is therefore possible that I1 lineages were among the Mesolithic European hunter-gatherers assimilated by the wave of East Mediterranean Neolithic farmers (represented chiefly by Y-haplogroup G2a). There is also evidence from the

Neolithic samples of the Early Neolithic Starčevo and Cardium Pottery cultures that haplogroup I2a lived alongside G2a farmers both in south-east and south-west Europe.

The most likely hypothesis at present is that I1 and I2 lineages were dispersed around Europe during the Mesolithic, and that some branches prospered more than others thanks to an early adoption of agriculture upon contact with the Near Eastern farmers who were slowly making their way across the Balkans and the Mediterranean shores. The small group of farmers from the early LBK culture from Hungary might have formed a blend of I1 and G2a men. Yet distinct families would have spread in different directions and met varying successes in their expansion. It would appear that a founder effect in the northern LBK population led to a sudden explosion of I1 lineages, perhaps in part thanks to their better knowledge of the Central European terrain and fauna (since hunting was typically practised side by side to agriculture to complement the farmers' diet). I1 would later have spread to Scandinavia from northern Germany.

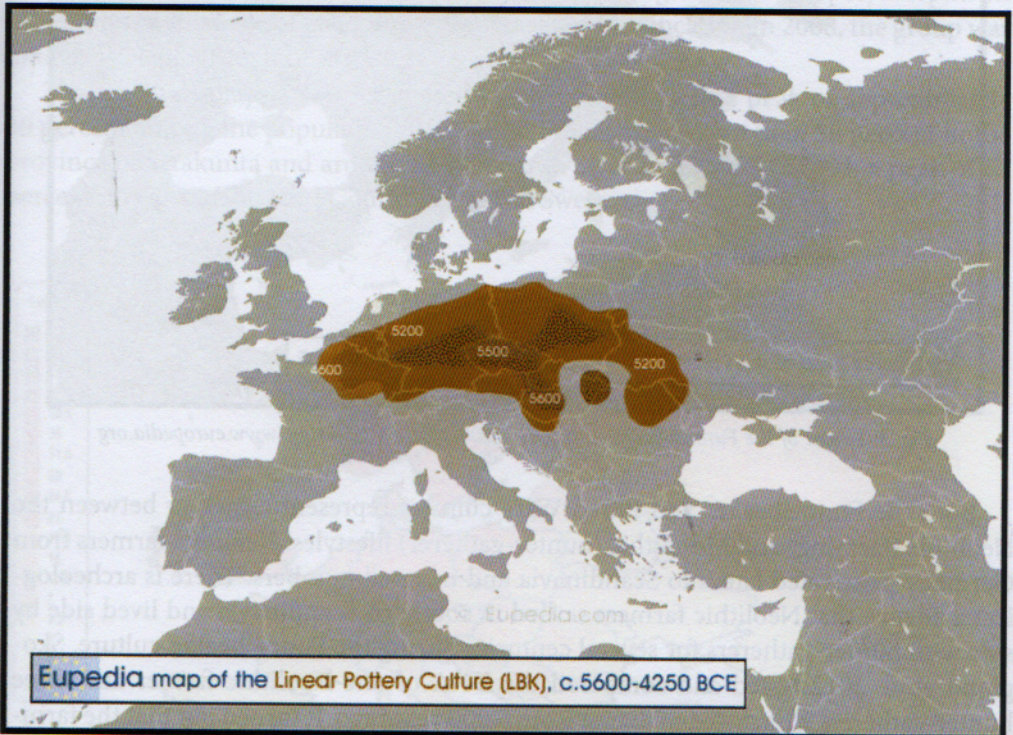


Fig. 2: Extent of the Linear Pottery culture (LBK, c. 5600-4250 BCE), <http://www.europedia.org>

Five Mesolithic samples from Scandinavia dating from c. 6000 BCE were reported by Lazaridis et al. (2014), and yielded two I*, one I2*, one I2a1b, and one undetermined sample. Haplogroup I1 wasn't part of them. Likewise other samples from the same period from Luxembourg and northern Spain turned out to be I2a1b and C1a2. This data is consistent with a Neolithic dispersal of I1 from Hungary with the LBK culture and the subsequent Funnelbeaker culture (4000-2700 BCE) in northern Germany and southern Scandinavia. One Swedish sample from the late Mesolithic Pitted Ware culture (3200-2300 BCE) also turned out to belong to I2a1 and not I1.

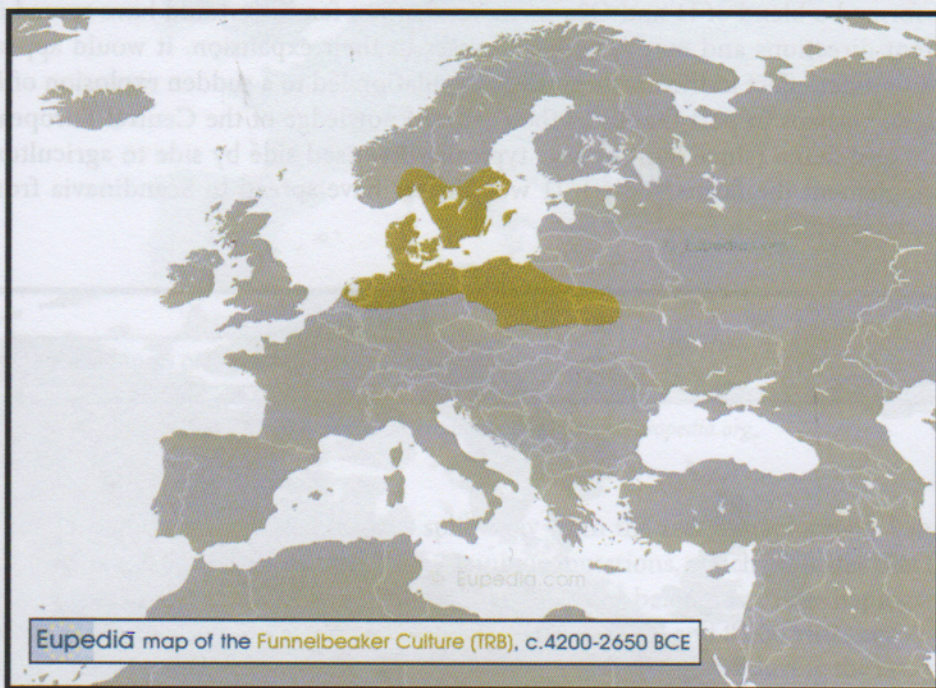


Fig. 3: Extent of the Funnelbeaker culture (c. 4200-2650 BCE), <http://www.europedia.org>

Both the Funnelbeaker and Pitted Ware cultures represent a merger between the Neolithic (farming) and Mesolithic (hunter-gatherer) lifestyles. Neolithic farmers from Germany penetrated late into Scandinavia and in small numbers. There is archeological evidence that Neolithic farmers settled in southern Scandinavia and lived side by side with hunter-gatherers for several centuries during the Funnelbeaker culture. Skoglund et al. 2012 tested and compared the DNA of one Neolithic farmer and three hunter-gatherers from Sweden dating from 5,000 years ago. It turned out that the farmer was much closer genetically to modern Mediterranean people, especially the Sardinians, who are generally considered the best proxy population to Neolithic European farmers. The hunter-gatherers's DNA resembled that of modern Northeast Europeans, and perhaps even more that of the Finns and Samis than Scandinavians.

Scandinavian hunter-gatherers would have adopted the new Neolithic lifestyle little by little, using pottery and keeping domesticated animals (sheep, cattle, pigs and goats) to complement their traditional diet of fishing and game hunting. The cultivation of wheat, barley and legumes was fairly limited due to the cold climate. The cold climate was actually a barrier to the expansion of farmers from the continent. This is why Scandinavians retained a greater percentage of Mesolithic ancestry than virtually all other Europeans, apart from the Samis, Finns, Balts and Russians.

HAPLOGROUP I-M253

Haplogroup I-M253 represent a subclade of the haplogroup I1.

Haplogroup I-M253 is a Y chromosome haplogroup which occurs at greatest frequency in Fenno-Scandia. The mutations identified with Haplogroup I-M253 (Y-DNA) are M253, M307, P30, and P40. These are known as single nucleotide polymorphisms (SNPs). It is a subclade of Haplogroup I. Before a reclassification in 2008, the group was known as Haplogroup I1a.

The group displays a very clear frequency gradient, with a peak of approximately 40 percent among the populations of western Finland and more than 50 percent in the province of Satakunta and around 38 percent in Sweden as a whole, with a peak of 52 percent in Västra Götaland County in central Sweden.

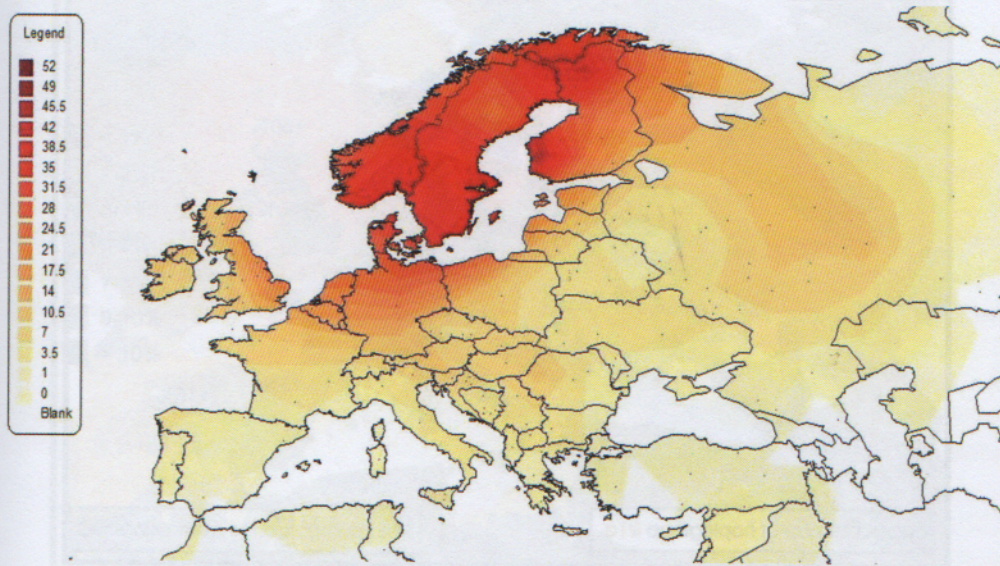


Fig. 4 – Haplogroup I-M253 distribution, <http://www.europedia.org>

Haplogroup I-M253 arose from haplogroup I-M170, which appears ancient in Europe. The haplogroup was previously thought to have originated 15,000 years ago in Iberia, but as of 2010 it was estimated to have originated between 4,000 – 5,000 years ago, in Chalcolithic Europe. A new study in 2015 estimated the origin as between 3,470 to 5,070 years ago or between 3,180 to 3,760 years ago, using two different techniques. It is suggested that it initially dispersed from the area that is now Denmark.

For the history and origin of I1 M253 exist two main theory's. I1 M253 is around 15,000-20,000 years old and originated somewhere in non Nordic Europe then later developed into I1a Df29 spread to Scandinavia after the glaciers retreated starting about 9,000-11,000ybp and while in Scandinavia developed into I1a2 L22 and was the first major human settlement of Scandinavia.

The other theory is that I1 is very young and spread to Scandinavia either in proto Balto Slavic speaking Corded ware culture(2,900-2,450bc) along side R1a1a1b1 Z282 but the I1 was for some reason much higher or spread somehow in the late Neolithic or bronze age. This is based on new very young age estimates of I1 at 5,000 years old. The most popular theory seems to be the theory that I1 M253 is around 15,000-20,000 years old and developed into I1a Df29 in central Europe then migrated to Scandinavia about 9,000-11,000ybp developing into I1a2 L22 and was the original y DNA haplogroup of Scandinavia. There are many reasons if I1 M253 came to Scandinavia only 5,000ybp or so. Almost all Y DNA in Sweden and Norway from over 5,000ybp is gone. all the R1a(almost all under R1a1a1b1 Z283) came with Corded ware culture about 4,900-2,400ybp.

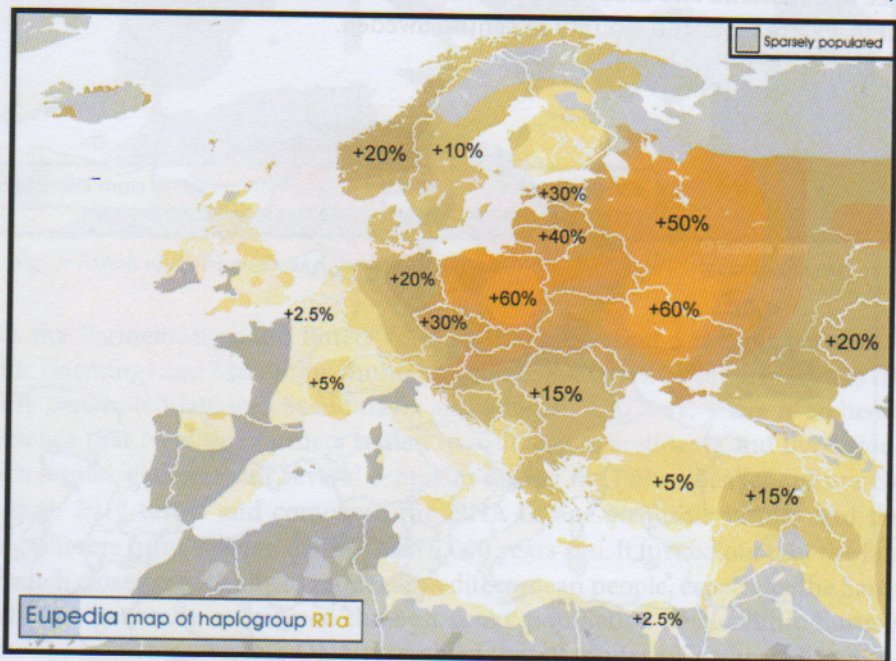


Fig. 5 - Haplogroup R1a distribution, <http://www.eupedia.org>

The R1b (almost all R1b1a2a1a L11 mainly Germanic branch R1b1a2a1a1 S21) and I2a2 P214 are connected to migration of proto Germanic speakers out of central Europe starting about 4,000-3,500ybp.

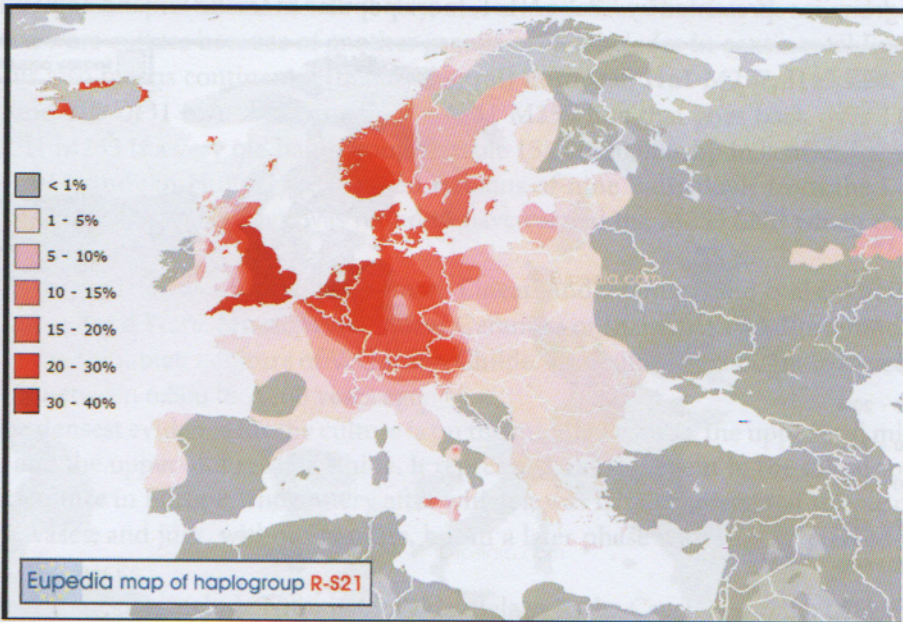


Fig. 6 - Haplogroup R-S21 distribution, <http://www.europedia.org>

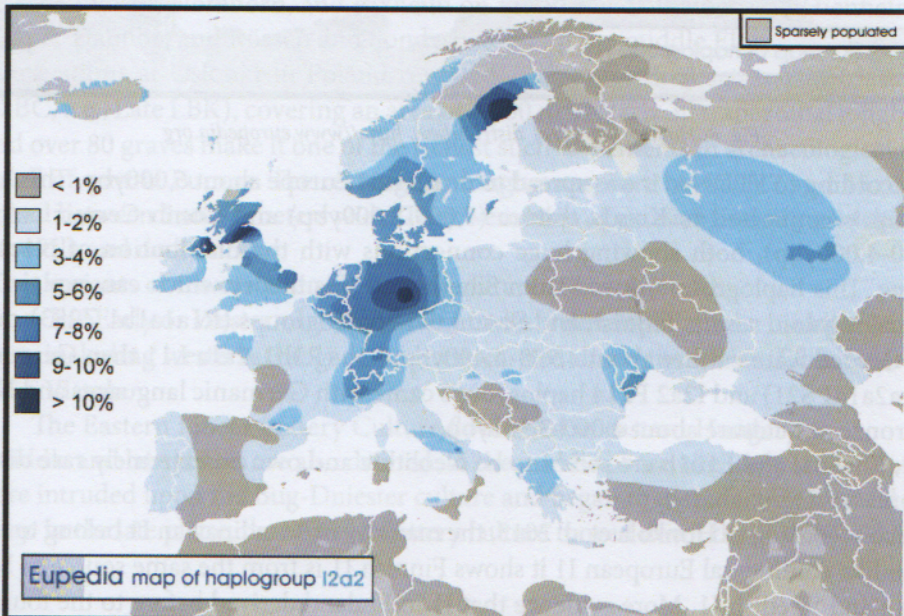


Fig. 7 - Haplogroup I2a2 distribution, <http://www.europedia.org>

The most popular Y DNA haplogroup I1 (I1a Df29) was identified 5,000ybp. The E1b1b, J1, J2, and G2a are extremely rare (J1 percentage: 1%; J2 and G2a percentage 1-5%) and located in small areas of southern Sweden and Norway. Another very rare haplogroup is represented by Uralic N1c1, more popular in Uralic Finland and Suomi.

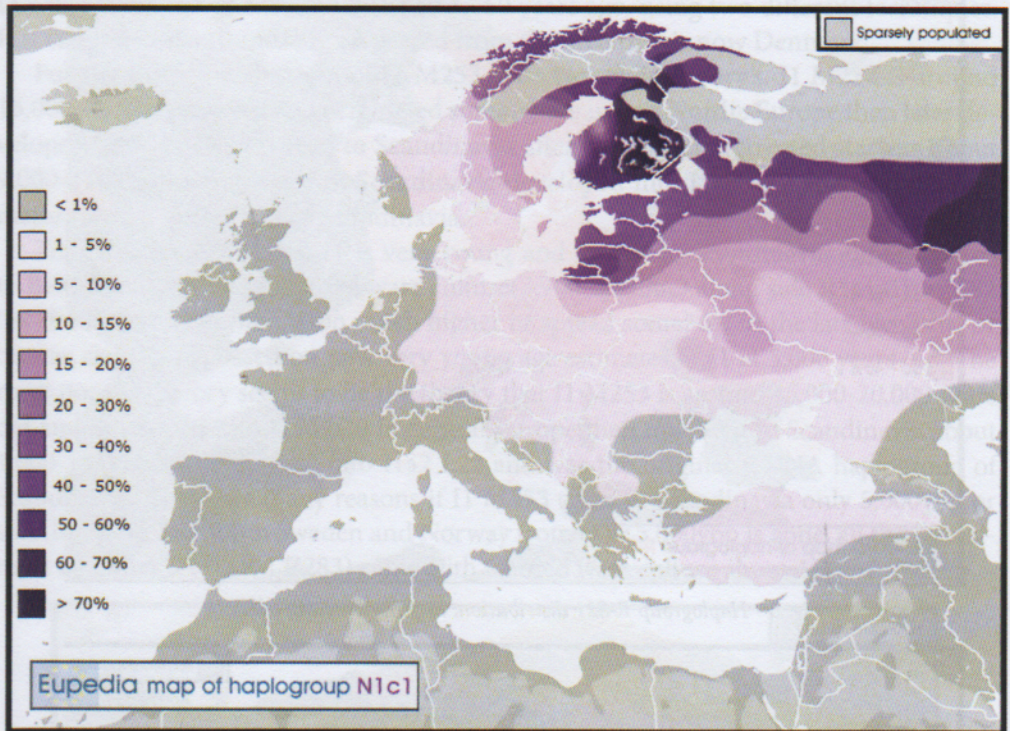


Fig. 8: Haplogroup N1c1 distribution, <http://www.europedia.org>

According to FTDNA, it was spread to north east Europe about 6,000ybp. This haplogroup is connected to Kunda culture (7,000-8,000ybp) and Comb Ceramic culture (6,200-4,000ybp), both showing huge connections with the distribution of N1c1 in Europe. This haplogroup derived from Siberia and this theory which can explain the extra Mongoloid results Finnish and Soumi. R1a haplogroups (R1a1a1b1 Z283) came with Corded ware culture about 4,900-4,400ybp, R1b (R1b1a2a1a L11 then Germanic R1b1a2a1a1 S21) and I2a2 P214 haplogroups came with Germanic languages and Nordic bronze age culture about 4,000-3,500ybp.

J1, J2, G2a, and E1b1b are seems to be Neolithic and own an extremely rare distribution.

Also according to Honkola et al. 2013, the majority of Scandinavian I1 belong to I1a2 L22 unlike continental European I1 it shows Finnish I1 is from the same source as Norwegian and Swedish I1. More evidence that I1 in Finland derived before to the foundation of Germanic speakers in Sweden and Norway, which started about 3,500-4,000ybp.

The areas were people showed red hair matches at 1% and Germanic R1b S21 at 1-5%. But it didn't explain the Finnish I1 subclades came before the bronze age over 4,000ybp. This also means Finnish I1 in Sweden and Norway were very old and pre bronze age and pre Germanic. Probably, also means Scandinavian I1 arrived before Corded ware culture because of another groups of I1 subclades in continental Europe.

This also means continental (mainly central) European I1a1 M227, I1a3 Z58, I1a4 Z63, and I1b Z131 own another origin and I1 M253 line that goes back over 11,000 years. I1 M253 is a very old haplogroup, datable 15,000-20,000ybp in central Europe.

A 2014 study in Hungary uncovered remains of nine individuals from the Linear Pottery culture, one of whom was found to have carried the M253 SNP which defines Haplogroup I1.

It is abbreviated as LBK (from German: Linearbandkeramik), and is also known as the Linear Band Ware, Linear Ware, Linear Ceramics or Incised Ware culture, and falls within the Danubian I culture of V. Gordon Childe. This culture is thought to have been present between 6,500 to 7,500 years ago.

The densest evidence for the culture is on the middle Danube, the upper and middle Elbe, and the upper and middle Rhine. It represents a major event in the initial spread of agriculture in Europe. The pottery after which it was named consists of simple cups, bowls, vases, and jugs, without handles, but in a later phase with lugs or pierced lugs, bases, and necks.

Important sites include Nitra in Slovakia; Bylany in the Czech Republic; Langweiler and Zwenkau in Germany; Brunn am Gebirge in Austria; Elsloo, Sittard, Köln-Lindenthal, Aldenhoven, Flomborn, and Rixheim on the Rhine; Lauterack and Hienheim on the upper Danube; and Rössen and Sonderhausen on the middle Elbe.

Excavations at Osłonki in Poland revealed a large, fortified settlement (dating to 4300 BC, i. e., Late LBK), covering an area of 4,000 m². Nearly 30 trapezoidal longhouses and over 80 graves make it one of the richest such settlements in archaeological finds from all of central Europe. The rectangular longhouses were between 7 and 45 meters long and between 5 and 7 meters wide. They were built of massive timber posts chinked with wattle and daub mortar.

Two variants of the early Linear Pottery culture are recognized:

- The Early or Western Linear Pottery Culture developed on the middle Danube, including western Hungary, and was carried down the Rhine, Elbe, Oder and Vistula.
- The Eastern Linear Pottery Culture flourished in eastern Hungary.

Middle and late phases are also defined. In the middle phase, the Early Linear Pottery culture intruded upon the Bug-Dniester culture and began to manufacture musical note pottery. In the late phase, the Stroked Pottery culture moved down the Vistula and Elbe.



Fig. 9 - Linear Pottery culture map, <http://www.europedia.org>

So how comes that modern Scandinavians belong essentially to three haplogroups (I1, R1a and R1b) that haven't been found in Mesolithic Scandinavian samples? I1 would have been the first to penetrate into Scandinavia during the farming transition that lasted roughly from 4,200 to 2,300 BCE. The most likely explanation for the replacement of Mesolithic paternal lineages (I* and I2) by

I1 throughout Nordic countries, including Lapland and Finland, is that the few farmers and stock breeders that did spread around Scandinavia were almost exclusively I1 men (through a founder effect).

In the vast majority of farming societies men are the ones who inherit the land and the livestock. As wild game became scarcer, especially during cold winters, farmers would have had a definite advantage for food and survival prospects. As surely happened in other parts of Europe, women from hunter-gathering families were married to wealthy farmers. After several millennia, with agricultural land and livestock always inherited by I1 lineages from father to son, I1 became the dominant lineage, even

though their maternal lines had become hybridized over time. Nowadays, according to the autosomal admixture tested performed by Lazaridis et al. (2014), Scandinavians have only a few percents more Mesolithic than Neolithic admixture.

The Saami of Lapland were the last hunter-gatherers of Europe. But even they turned to stock breeding by domesticating the indigenous reindeer, better suited to the harsh local climate than cattle, pigs, sheep and goats. Reindeer domestication appears to have originated with North Asian N1c1 people. And indeed modern Saami are primarily N1c1 people with only a minority of Scandinavian paternal lineages (I1, R1b, R1a). The presence of R1a and R1b, and its very modern proportion to I1 (using central Sweden as a reference) indicates that I1, R1a and R1b incorporated the Saami gene pool together relatively recently (probably in historical times, from or after the Viking age).

N1c1 lineages, however, may have not have arrived that early either. N1c1 is associated with the diffusion of the Uralic languages. According to a phylogenetic reconstruction of the Uralic languages by Honkola et al. 2013, the Proto-Finnic and Proto-Samic split from each others only 2,500 years ago, and Samic dialects started diversifying less than 1,000 years ago. In all likelihood all trace of the Mesolithic inhabitants of Lapland has been wiped out on the Y-chromosomal side, just as in most of Scandinavia.

HOW DID I1 BECOME GERMANIC?

From 2800 BCE, a large-scale cultural and genetic upheaval hit Scandinavia with the arrival of the Indo-Europeans from Eastern Europe, who introduced the Copper Age and Early Bronze Age practically without Neolithic transition. The first Indo-Europeans to reach Scandinavia were the Corded Ware people from modern Russia, Belarus and Poland, who are thought to have belonged predominantly to haplogroup R1a. These people shared some similar maternal lineages as Scandinavian I1 inhabitants, including mtDNA haplogroups U2e, U4 and U5, but also brought many new lineages such as H2a1, H6, W and various subclades of I, J, K and T.

The second major Indo-European migration to Scandinavia was that of haplogroup R1b, the branch that is thought to have introduced Proto-Germanic languages, as an offshoot of the Proto-Celto-Germanic speakers from Central Europe. R1b probably entered Scandinavia from present-day Germany as a northward expansion of the late Unetice culture (2300-1600 BCE).

According to the Germanic substrate hypothesis, first proposed by Sigmund Feist in 1932, Proto-Germanic was a hybrid language mixing Indo-European (R1b, and to a lower extent R1a) and pre-Indo-European (native Nordic I1) elements. This hybridisation would have taken place during the Bronze Age and given birth to the first truly Germanic civilization, the Nordic Bronze Age (1700-500 BCE).

The Germanic substrate hypothesis is an attempt to explain the distinctive nature of the Germanic languages within the context of the Indo-European language family. It postulates that the elements of the common Germanic vocabulary and syntactical forms, which do not seem to have cognates in other Indo-European languages, suggest that Proto-Germanic may have been either a creole or contact language that subsumed a non-Indo-European substrate language, or a hybrid of two quite different Indo-European languages, from the Centum and Satem types respectively.

Fiest in 1932, who estimated that roughly a third of Proto-Germanic lexical items came from a non-Indo-European substrate and that the supposed reduction of the Proto-Germanic inflectional system was the result of pidginization with that substrate. Which culture or cultures may have contributed the substrate material is an ongoing subject of academic debate and study. Notable candidates for possible substrate culture(s) are the Maglemosian and Funnelbeaker culture but also older cultures of northern Europe like the Hamburgian or even the LRJ (Lincombian-Ranisian-Jerzmanowician).

Against the theories regarding substrata, a profound sound change in the Germanic languages known as Grimm's law has been put forward as evidence for the Germanic languages being non-substratic and having mutated of their own accord, away from other branches of Indo-European. Grimm's law affected all of the stops that were inherited from Proto-Indo-European. The Germanic languages also share common innovations in grammar as well as in phonology. The Germanic verb has been extensively remodelled, showing fewer grammatical moods, and markedly fewer inflections for the passive voice

The non-Indo-European substrate hypothesis attempts to explain the anomalous features of proto-Germanic as a result of creolization between an Indo-European and a non-Indo-European language. Germanicist John A. Hawkins sets forth the arguments for a Germanic substrate. Hawkins argues that the proto-Germans encountered a non-Indo-European speaking people and borrowed many features from their language. He hypothesizes that the first sound shift of Grimm's Law was the result of non-native speakers attempting to pronounce Indo-European sounds, and that they resorted to the closest sounds in their own language in their attempt to pronounce them. The Battle-axe people are an ancient culture identified by archeology who have been proposed as candidates for the people who influenced Germanic with their non-Indo-European speech. However, this culture was spread through a wider range of regions across eastern and central Europe close or in contact already with areas inhabited by Indo-European speakers and the putative area of origin of these, and none of the proto-Indo-European languages produced so and their succeeding languages developed - whether Celto-Italic, Illyrian, Slavic, Baltic and others - along the much larger line of extension of the Boat-axe culture appear to have been affected by the same changes limited to the Proto-Germanic. Alternatively, in the framework of the Kurgan hypothesis, the Battle-axe people may be seen as an already «kurganized» culture built on the substrate of the earlier Funnelbeaker culture.

A number of root words for modern European words seem to limit the geographical origin of these Germanic influences, such as the root word for ash (the tree) and other environmental references suggest a limited root stream subset which can be localized to northern Europe.

Kalevi Wiik, a phonologist, has put forward a hypothesis – generally rejected by specialists in the field, however – that the pre-Germanic substrate was of a non-Indo-European Finnic origin. Wiik claimed that there are similarities between mistakes in English pronunciation typical of Finnish speakers and the historical sound changes from Proto-Indo-European to proto-Germanic. Wiik's argument is based on the assumption that only three language groups existed in pre-Indo-European Europe, namely Uralic, Indo-European, and Basque, corresponding to three ice age refugia. Then, Uralic speakers would have been the first to settle most of Europe, and the language of the Indo-European invaders was influenced by the native Uralic population, producing the Germanic proto-language.

Existing evidence of languages outside the three refugia that he proposes (e. g., the Tyrsenian language family) creates a complication for Wiik's theory, meaning it relies upon an undemonstrated link between each of these languages and one of the three proto-languages he proposes. Moreover, his thinking relies on an interpretation of Indo-European origins different from the mainstream, and most damningly, an extremely improbable picture of the linguistic landscape of Neolithic Europe.

Theo Vannemann has hypothesized a Basque substrate and a Semitic superstrate in Germanic;

Hawkins moreover asserts that more than one third of the native Germanic lexicon is of non-Indo-European origin, and again points to the hypothetical substrate language as the cause. Certain lexical fields are dominated by non-Indo-European words according to Hawkins. Seafaring terms, agricultural terms, engineering terms (construction/architecture), words about war and weapons, animal and fish names, and the names of communal and social institutions are centers of non-Indo-European words according to Hawkins.

HISTORICAL AND FAMOUS FIGURES SHARING HAPLOGROUP I-M253

Alexander Hamilton (January 11, 1755 or 1757 – July 12, 1804) was a founding father of the United States, chief staff aide to General George Washington, one of the most influential interpreters and promoters of the U.S. Constitution, the founder of the nation's financial system, and the founder of the Federalist Party, the world's first voter-based political party.

Through genealogy and the testing of his descendants (assuming actual paternity matching his genealogy), has been placed within Y-DNA haplogroup I-M253.

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