

New Vistas on the Distant Past

The Story of I



Y-DNA Haplogroup I is confusing. On the one hand it seems ancient in Europe. It rarely appears outside the boundaries of Europe and European colonies. So it is not a good candidate for arrival with farmers from the Near East. Nor does it seem the prime candidate for spread with the Indo-Europeans, since they travelled both west into Europe and east into the Indian Subcontinent. So the natural conclusion is that haplogroup I has been stalking around Europe since the Stone Age. It may not have been born in Europe, but it was a fairly early arrival.

On the other hand the pattern of subclades looks relatively recent. If I-men had been moving around Europe from the earliest division of the I lineages, then we would expect to see a much greater mixture of the subclades, thinly and fairly evenly spread across Europe, just as we do with some of the mtDNA haplogroups known to have been carried by Mesolithic Europeans. Instead we see regional bunching, typical of relatively recent arrivals. What are we to make of these contradictions?

The haplogroup may date deep into the distant European past, but it seems that most of the hunters and foragers who carried it have no direct descendants in the male line today. That doesn't mean that none of their genes survive in Europeans. It just means that the direct son to son to son line died out or "daughters out" at some point. So the subclades that remain lead back to just a handful of Mesolithic men.

Where were those Mesolithic handful? One clue noted in several scholarly papers is that Haplogroup I appears most diverse in south-eastern Europe. So my instinct was to place Haplogroup I among hunter-gatherers in the Carpathian Basin, some of whom later turned to farming. As farmers, they lived on the fringes of the European steppe, the presumed home of Proto-Indo-European. So they would be unlikely to travel east with steppe nomads. But they could form mixed farming-herding groups on the rivers north and west from the steppe and the lush lands west of the Black Sea, and so be associated with Indo-European movements in those directions.

Rather to my surprise, this picture is still holding up quite well. That doesn't mean that alternative scenarios can be ruled out. We have too little ancient Y-DNA to make firm pronouncements. Yet most of the existing Haplogroup I subclades can be explained as the result of known or suspected migrations from South-Eastern Europe, mostly long after farming had taken over from fishing and hunting.

Population patterns

In a hunter-gatherer economy, the population is usually maintained at replacement level, where that community remains within a particular territory. Women space births by weaning late. Population levels need to be low, as each hunting band needs to roam a large territory. The human population dropped dramatically world-wide during the last glacial maximum. Within Europe it fell to the point where we would today classify it as an endangered species.

Then it expanded during the Mesolithic as people gradually reclaimed the territory that had been lost to the climate downturn. So the Mesolithic is the period in which we would expect to see in mtDNA and Y-DNA the first "star-bursts" of new branch-lines popping out at around the same time, and indeed we do see them in some old European mtDNA clades. Ken Nordvedt's tree of Y-DNA haplogroup I shows a bit of a burst of new lineages at about 12,000 years ago = 10,000 BC (the Mesolithic expansion).

Once the population had expanded enough to fill the territory at the low hunter-gatherer level, we would expect the population to be stable until farming made higher levels possible. Haplogroup I1 does not show any star-burst at that time, so we can presume that people carrying it were in no hurry to take up farming. However we do see bursts of new lineages in I2 at c. 8,000 years ago = 6000 BC, as farming reached the Balkans. It appears that some I2 men were willing and able to adopt agriculture.

So my inclination is to look for the ancestors of today's I-men in successful hunter-gatherer cultures, which had a good chance of leaving descendants. In the days when all mankind lived by hunting and gathering, all could be considered equally successful if they managed to survive in competition with other predators. This might include other human hunting bands, but fellow humans were not initially the main competition. Man had to be clever enough to out-do lions and bears and not end up at the wrong end of the food chain. Once farming entered the picture, hunters were in direct competition with people who could outbreed them and inexorably take over the territory. Successful hunting cultures at that point were few and far between. Characteristically they occupied a highly fruitful hunting or fishing niche, that could scarcely be bettered at that stage by turning it over to farming. People in such a niche could hold off any incoming farmers who thought otherwise, and choose to adopt whatever seemed useful from farming neighbours at their own pace.

Subclades

The distribution maps used here are from Jacques Chiaroni et al., Y chromosome diversity, human expansion, drift, and cultural evolution, *PNAS* (2009), corrected supplementary information. The subclades here follow the current ISOGG nomenclature. Cutting edge research placing newly-discovered SNPS on the tree can be seen on Ken Nordvedt's I1 M253 Tree.

I1 (M253)



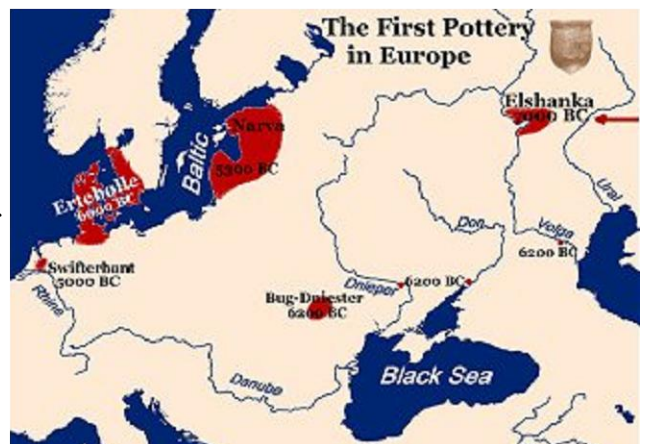
Despite its young *TMRC*A, this clade could have its origin in a Mesolithic migration of Haplogroup I* from South-Eastern Europe about 5,000 BC. This is by no means certain. Although we have found no-one alive today carrying just one or two of the many markers that define I1, each one of these markers



may define a lineage that has died out in the male line. So all that is left is the healthy lineage I1, which appears to pop up out of nowhere in southern Jutland about 2,200 BC and is found today in Scandinavia and among descendants of the Vikings. There is no trail of earlier clades from South-Eastern Europe. So in theory Haplogroup I could have arrived from any

southern Ice Age refuge as soon as Scandinavia was left habitable by the shrinking glaciers. It is only the fact that the spread of Haplogroup I overall leans towards Eastern Europe that has inclined researchers to look south-east for its Ice Age refuge.

Yet such an origin does fit the hunter-gatherers of the Ertebølle Culture of Denmark (c.6000-3500 BC), who seem to have arrived along river routes from south-eastern Europe. Their pottery is of the earliest type in Europe, first made in the Samara region of south-eastern Russia about 7000 BC.¹ This is a spillover into Europe of the East Asian tradition of ceramic-making foragers.² From Samara a distinctive type of pottery with pointed bases and flared rims spread up the Volga to the Baltic and appears in the Ertebølle and as far west as the Low Countries, where it is called Swifterbant, about 5000 BC.³ These hunters of the far north had territory that was not attractive to farmers until after about 4000 BC.



Then much of Scandinavia was abandoned by farmers during a climate downturn in the decades around 700 BC. Much agricultural land was abandoned and bog and forest built up. Hunters and fishermen could survive where farming failed. Around 650 BC Kjelmøy ceramics spread west into Scandinavia, probably marking the arrival of the Saami-speakers. Perhaps the Saami melded with hardy, hunting descendants of the Ertebølle who had never relinquished that way of life. That might explain why the Y-DNA haplogroup I1 is the second most common among the Saami.

An alternative explanation proffered by some geneticists is that I1 is the male companion to the Mesolithic movement northwards from the south-western Ice Age refuge that can be detected in mtDNA U5b1b1a in the

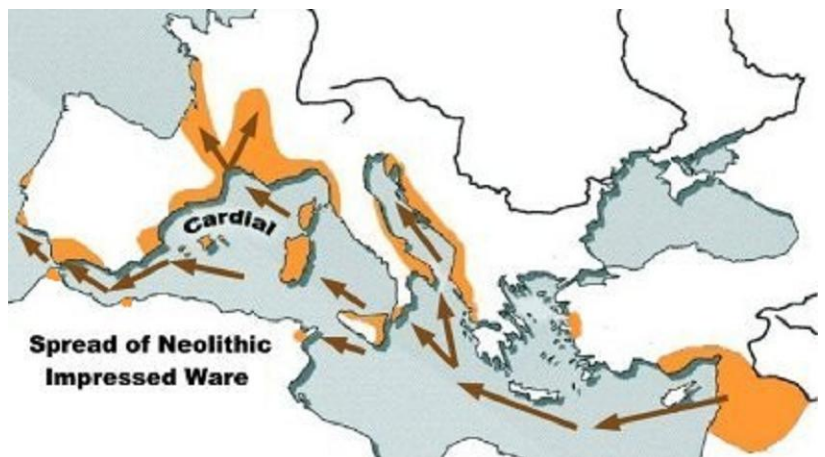
Saami.

Haplogroup I1 haplotypes with their geographical distribution, based on those who have tested via FTDNA, are online in pdf from Terry Robb.

- **I1a1** (M227) is found in Eastern Europe and the Balkans. It appears to have arisen in the last one thousand to five thousand years. It has been reported at modest levels (0.5-2.0%) in Germany, Czech Republic, Poland, Estonia, Ukraine, Switzerland, Slovenia, Bosnia, Macedonia and Croatia. So it could mark the movements of the Goths. We would expect to find its parent I1* among the Goths as well, along with other haplogroups found in Scandinavia, and indeed some haplotypes of I1* appear in Eastern Europe, but M227 is particularly interesting, as it is not found to any great degree in Scandinavia itself. It therefore may have arisen among the Goths around the Vistula.
- **I1a2** (L22) has been found so far at its highest level in Fenno-Scandia, or in those with origins there, as can be seen on the maps created by Terry Robb. It probably spread with the Vikings.
 - **I1a2c1** (L258) dominates the I1 in Finland. Ken Nordtvedt calculated a TMRCA of 250 AD for the haplotype he christened I1d-Bothnia, roughly the equivalent of this subclade.
- **I1a3** (Z58) includes I1a3a1a1 (L338), which was discovered first and appears the equivalent of the large subgroup recognised by Ken Nordtvedt in 2005 by haplotype, and named by him AS1, since he feels it "represents Saxons who expanded into Netherlands in late Roman times and into British Isles in post-Roman migrational events", plus the cluster that he designated AS8, which "has members with origins somewhat more to the east - perhaps Pomerania would be a fair description of its center of gravity. Given the 2000 year age for both these clades, coupled with the geography, my guess is that the expansion of these clades is associated with what came to be known as the Saxon peoples." See his post 1 March 2011.

I2 (M438)

I2* has been reported in various published papers. However several markers new to the ISOGG tree in 2011 defined subclades which appear to account for all the samples in the Family Tree DNA I2* Haplogroup Project results. Most authors have assumed that I2 and its subclades spread from South-east Europe during the Mesolithic. Yet we see bursts of new lineages in I2 at c. 8,000 years ago = 6000 BC, as farming reached the Danube Basin. So it seems more likely that I2 was carried by local foragers who adopted farming from incoming farmers. If so we would expect to find I2 or a subclade thereof migrating with farmers, and/or later on with the western branch of the Indo-Europeans, who absorbed some elements from their farming neighbours of the Cucuteni-Tripolye culture in the Copper Age.



I2a1 (P37.2)

Two examples of I2a1 have been found in the DNA of Neolithic farmers. They were among the burials in the

Cave of Treilles in Aveyron, in the South of France. The Treilles culture of c. 3000 BC is the very last phase of the Neolithic in the region before the arrival of the Bell Beaker culture. ⁴ Ken Nordtvedt considers their haplotypes consistent with I2a1a (M26).

- **I2a1a** (M26) represents about 37% of the Y-DNA in Sardinia. ⁵ That suggests a founder effect. There is scant evidence of human life on Sardinia before farming arrived. Sardinian obsidian found outside Sardinia has been taken as proof of its trade by hunter-gatherers, yet little of it can be dated before the Neolithic. The permanent settlement of the island seems to start with farmers making Cardial pottery - a type of Impressed Ware. ⁶ I2a1a (M26) is also found in other places where Cardial Ware turns up in the archaeological record, such as eastern Spain. It runs at between 3% and 9% in Pyrennean Basques and their French neighbours in Béarn and Chalosse. ⁷ I2a1a looks like a clade that sprang from I2a assimilated by farmers, and which moved westward with Impressed Ware. The makers of this pottery seem to have moved by sea along the coast from the Levant around the northern Mediterranean to Iberia and then up the Garonne. If so, then the most likely place for Impressed Ware makers from the Near East to take on board a man carrying I2a would be Western Anatolia. Impressed Ware has been found on the Anatolian coast. ⁸ Geneticist James Wilson assumes an earlier date for the clade, arriving in Britain in the Mesolithic. He tells us that 0.5% of Scottish men carry I2a1a. ⁹



Chiaroni 2009

- **I2a1b** (M423) is rare, though it sired flourishing subclades. We can only guess that it arose somewhere in South-Eastern Europe.
 - **I2a1b2** (L161.1) has several sub-groups detected from haplotypes by Ken Nordtvedt:
 - **B** has the earliest TMRCA at 3,370 BC and possibly arose in Germany. It also appears in Poland. So its ancestor may have been among farmers carrying dairy farming from the Danube Basin - the Lengyel Culture (5000–4000 BC). From there it spread into Britain and Ireland, where it appears at low frequency. It therefore need not have arrived in the British Isles with a major migration, but could be the legacy of individual traders and travellers at any time. However post-Neolithic migrations into the British Isles from the Rhineland include those of Celts, Belgae and Anglo-Saxons.
 - **A** branches from B. It appears in the British Isles with a TMRCA of c. 500 AD, meaning that it represents the descendants of a single man living at that time, who could have been an Anglo-Saxon, or descended from an earlier arrival.
 - **C** and **D** appear in the British Isles. They have a common ancestor who branched off the main L161 line c. 4000 BC, according to the calculations of Ken Nordtvedt. Thus their ancestor could have entered the British Isles with the earliest farmers to arrive there c. 4000 BC, who sprang partly from the Rössen Culture, linked to Lengyel.
 - **I2a1b3*** (L621) appears today in Scotland and Ireland. Ken Nordtvedt calculated that it split off about 4000 BC, so its ancestor probably moved north with an Indo-European band and arrived in Britain with the Celts.
 - **I2a1b3a** (L147) is strongly correlated with the distribution of the Slavic languages, particularly Serbian. Its TMRCA of 500 BC would give it time to burgeon among the Proto-

Slavic farmers on the Dniester, before the spread of Slavic.

- **I2a2a** (M223) has a peak in Germany and another in eastern Sweden (according to Chiaroni 2009), but also appears in Russia, Greece, Italy and around the Black Sea. (There is a little among Armenians.¹⁰) An earlier, but more detailed, distribution map shows a little in the Near East, North Africa and along the Western seaboard of Iberia.¹¹ Ken Nordvedt has calculated a TMRCA for the oldest branch of 6000 BC. A number of SNPs within this subclade have been discovered in 2012, which distinguish between the various Continental groups. See Ken Nordvedt's M223+ Sector Tree.
 - **I2a2a1** (M284) seems to have arisen in Britain, where it is most common. It is very rare in Continental Europe, where the highest frequency is found in Portugal, Britain's oldest ally. James Wilson argues that this points to an Iberian origin in the Mesolithic,¹² but the calculated TMRCA is far too late for such a scenario, and the parent clade is not found there. Instead the flow was most probably in the other direction - to Portugal over the centuries with British merchants, diplomats, sailors and soldiers. M284 is comparatively rare in Ireland. Where it is found in those of Irish descent with Gaelic surnames, and particularly in baronial families with a credible pedigree back to a Cruithin (British) origin, this suggests an ancestor who arrived in Ireland from Celtic Britain. For example it is found in McGuinness and McCartan men descended from the Uí Echach Cobha, a lineage considered Cruithin in the 6th century AD.¹³ See Celtic Tribes of Ireland for more on the Cruithin and their time of arrival in Ireland.
 - **I2a2a1a** (L126/S165) is most common in Scotland and those of Scots ancestry.¹⁴
- **I2a2b** (L38/S154) appears alongside R1a1a in Bronze Age skeletons found in Lichtenstein cave, in Lower Saxony,¹⁵ and so could have migrated up the river Dniester and around the Carpathians into present-day Germany with Indo-Europeans. The present-day distributions of I2a2b and R1b-L21 both flow along the Rhine and into the British Isles, and so probably reflect the movements of the Celts.¹⁶
- **I2b** - L415, L416, L417 is a relatively recent discovery for those previously labelled I2*.
- **I2c** - L596, L597 is a relatively recent discovery for those previously labelled I2*. The group within it labelled (A) in Family Tree DNA I2* Haplogroup Project results is particularly interesting for its distribution around the Black Sea, including Armenia. It seems likely that the I2* in Armenians reported in a recent paper¹⁷ is actually I2c. Several Indo-European languages seem to have arisen on the western shores of the Black Sea, but eventually spread into Anatolia. Armenian made a further move from central Anatolia to Armenia.

Acknowledgement and disclaimer

This page has been made possible by the remarkable work of Kenneth Nordtvedt, so generously made available to us all, but he is not responsible for any errors. Nor does my interpretation of his data reflect his opinion, which may indeed differ considerably from mine. In June/July 2011 he produced his own map indicating lines of dispersal within haplogroup I, which is coordinated with his timeline and tree of I, and has updated it periodically since. It is available online in pdf.

Notes

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