

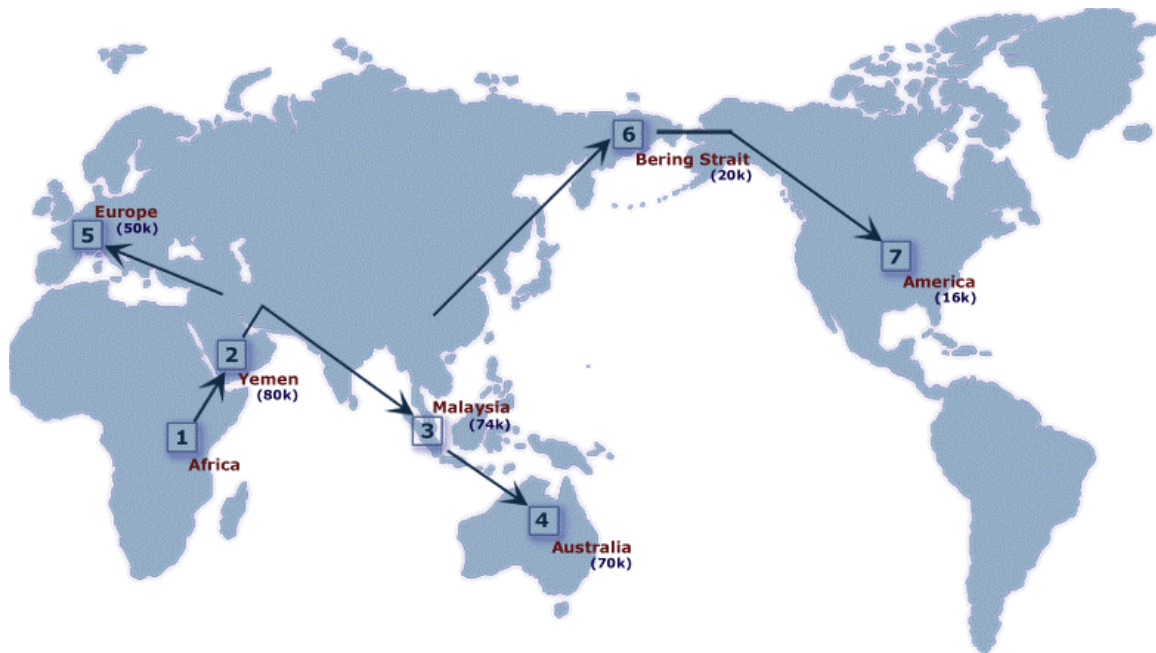
What are Haplogroups?

The topic of haplogroups is becoming an increasing source of interest with those that have received their Y-chromosome haplotypes. This is because your haplotype can give you hints to your ancient origins.

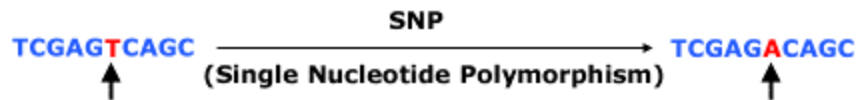
We've all seen illustrations that show the evolutionary branches of primates, and how millions of years ago, chimpanzees, gorillas, gibbons, and orang-utans diverged off from our primate family tree.

Man (hominids) went off in a different evolutionary direction, and there have been several different lines that have since died off, Neanderthals being a notable example. With his origins in Africa, modern man has spread himself around the globe. As he did so, he adapted to his surroundings. These adaptations can be seen in the lightened skin colour due to the lack of sun away from the equator, stockier build as observed in peoples in the Arctic regions to maintain body-heat, and better oxygen absorption capability as seen in inhabitants of mountainous, oxygen-poor regions.

Migration of humans over time (dates are in years before present)



Over time, many mutations in the DNA strand have occurred. The Y-chromosome, whose main job is just to turn on the male baby switch, has also picked up mutations of a particular type as time has passed. This type of mutation is called a SNP (or Single Nucleotide Polymorphism). This is quite a simply where one letter of the DNA strand is changed to another letter (e.g. T changes to a A).



These SNP's are so rare as to be considered unique and are passed down faithfully from father to son. Because of this, they have been used to define several broad groups into which every male in the world can be placed in. These broad groups are called '**haplogroups**'.

As man has migrated around the world over time, these haplogroups can be used to trace their paths. This is incredibly useful and is an extra tool used alongside archaeological and linguistic data.

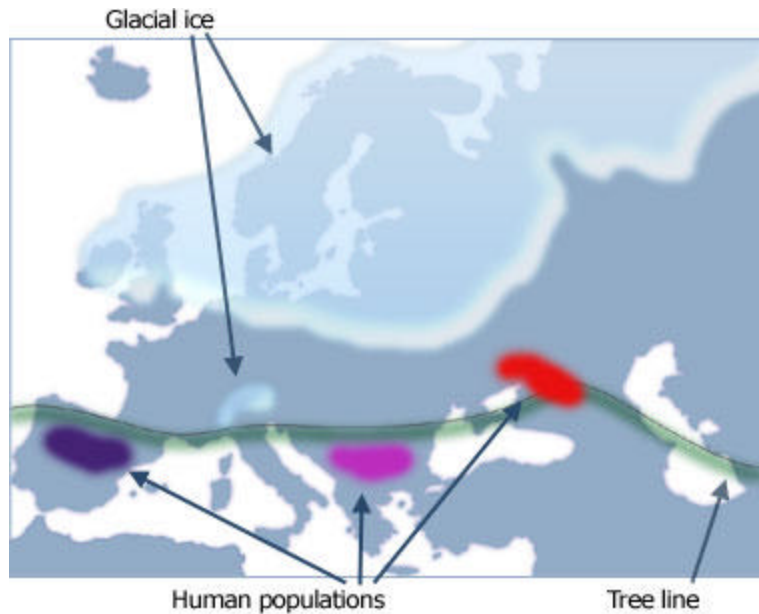
Because some haplotypes (from STR tests) are found to be common within particular haplogroups, it is very often possible to make a prediction of what your **haplogroup** is from your **haplotype**.

Where it becomes interesting for genealogists is that they can gain some insight into their very 'deep' ancestry – i.e. thousands of years ago – of their direct paternal ancestors.

For example, when it comes to Europe, the haplogroups observed can be broadly split into two groups, Palaeolithic and Neolithic.

The first image (Map 1) shows Palaeolithic Europe 18,000 years ago in the grip of the last ice age. Glacial ice 2km thick covers much of Northern Europe and the Alps. Sea levels are approx. 125m lower than today and the coastline differs slightly from the present day. For example, Britain and Ireland would have been connected to continental Europe (not shown on map).

Map 1 – Ice Age (18,000 year ago)



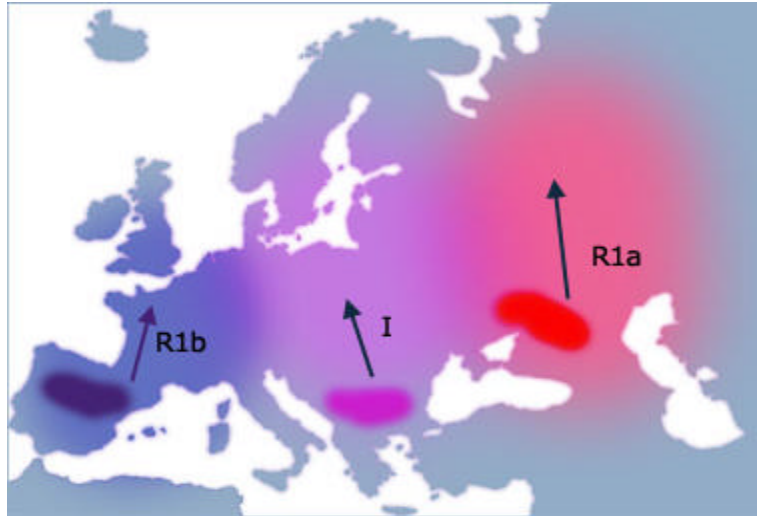
The air would have been on average 10-12 degrees cooler and much more arid. In between the ice and the tree line, drought-tolerant grasses and dunes would have dominated the landscape.

The Neanderthals would have died out around 14,000 years ago leaving the nomadic hunter-gatherer Cro-Magnon (modern man) to pursue the animals of the time. Due to the cold and the need for food, the populations of the day waited the ice age out in the three locations shown on the map. These were the Iberian Peninsula, the Balkans and the Ukraine.

These people were skilled in flint-knapping techniques and various tools such as end-scrapers for animal skins and burins for working wood and engraving were common. Cave painting using charcoal had been around for a couple of thousand years although at this time they were now more subtle than mere outline drawings. These artistic expressions are significant as it shows that people are able to obtain some leisure time. Whether this is 'art for art's sake' or objects of ritual is not known.

If we fast forward to 12,000 years ago (Map 2), the ice has retreated and the land has become much more supportive to life. Many animal species have returned to inhabit the land, although the snake, harvest mouse and mole never made it as far as Ireland before the land bridges re-flooded (ever wondered why there are no snakes in Ireland?).

Map 2 – Spread of Haplogroups R1b, I and R1a (12,000 year ago)



The three groups of humans had taken refuge for so long that their DNA had naturally picked up mutations, and consequently can be defined into different haplogroups. As they spread from these refuges, Haplogroups R1b, I and R1a propagated across Europe.

- Haplogroup R1b is common on the western Atlantic coast as far as Scotland.
- Haplogroup I is common across central Europe and up into Scandinavia.
- Haplogroup R1a is common in eastern Europe and has also spread across into central Asia and as far as India and Pakistan.

These three major haplogroups account for approx 80% of Europe's present-day population.

Around 8,000 years ago (Map 3), the Neolithic peoples of the Middle East that had developed the new technology of agriculture began moving into Europe. There were several haplogroups involved, mainly E3b, F, J2 and G2.

Map 3 – Spread of Neolithic Haplogroups (from 8,000 years ago)



These Neolithic haplogroups came in several waves over time and are found predominantly along the Mediterranean coast. Around 20% of the present-day population are from these Neolithic haplogroups. What is interesting to note is that the agricultural technology spread much further than the people who first 'invented' it.

A little later, around 4,500 years ago, Haplogroup N3 began moving across from west of the Ural mountains. Haplogroup N3 follows closely the spread of the Finno-Ugric languages.