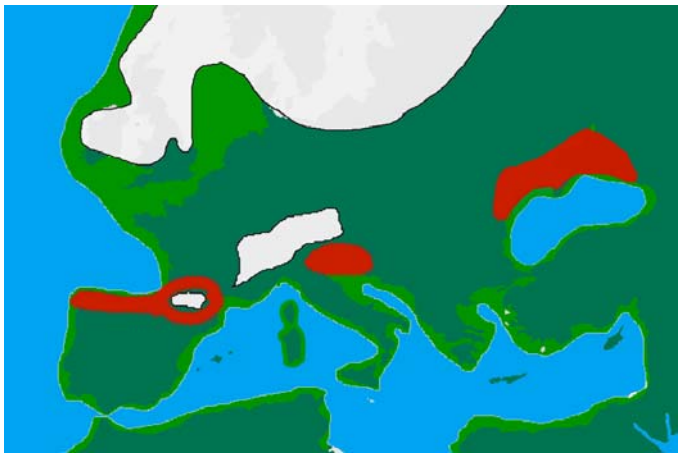
Summary 08: From Frigid to Freezing

There is a theory that about the time the Aurignacians first moved into Europe — that is, about 45-40 KYA — there was a genetic change in *Homo sapiens* which gave him the abilities to make the big cultural and technological changes he and his descendants demonstrated in Europe. The supreme vindication of this view, it was generally said, was the great flowering of creativity from about 30 KYA to the hight of the LGM. The magnificent paintings in the caves of Perigord and Cantabria, if nothing else, showed that *H. sapiens* had indeed made a great leap forward.

But, it was less of a leap forward than European researchers believed because comparable cave paintings were being produced in Australia ~30,000 years earlier, stone tools of equal sophistication were made in Africa long before *H. sapiens* came out of Africa…. If there was a great leap forward then it happened much further back in human history, back when a genetic mutation split *H. helmei* from *H. heidelbergensis* about 250 KYA. From then on, *helmei*'s descendents, *neanderthalensis* and *sapiens* had the brain power to paint bison, even "Guernica" or to put men on the moon. Such talents, present in both *H. neanderthalensis* and our own remote ancestors required the challenge of adaptation and the opportunity to exchange ideas and learned skills. The challenge for adaptation came with the LGM while the relatively greater population density in the refugia gave them greater opportunity for cultural exchange.

Genetic traces of Migrations into Europe in the Late Upper Pleistocene
As we have already seen, by ~28 KYA, Neanderthals had become extinct and modern humans had Europe to themselves. The Aurignacian culture which had brought mtHg U and yHg R1b into Europe was gradually replaced by the Gravettian carried by people of mtHaplogroup HV and y-Haplogroup I. HV eventually split into separate Haplogroups, H and V of which H became the more successful providing over half the maternal lines throughout western and northern Europe. Their male equivalent was y-Haplogroup I.

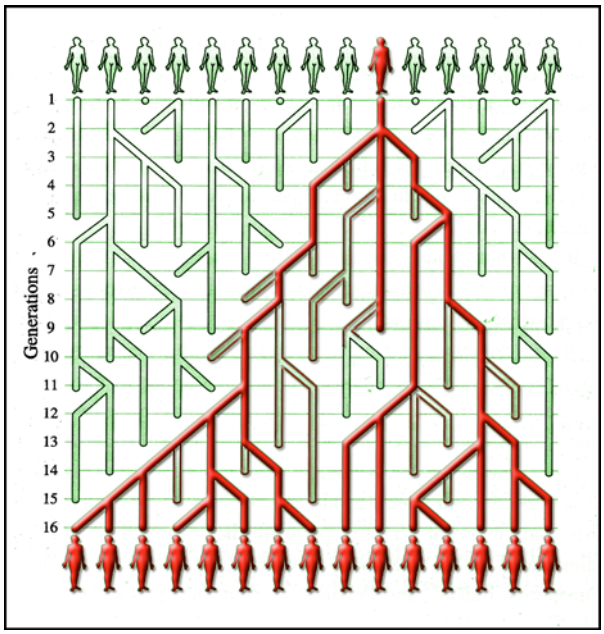
Two possible routes have been raised: (a) Oppenheimer says it starts with the super-haplogroup N which came out of Africa and whose descendents travelled up the Indus River into Kashmir and thence to the steppes of Central Asia. Westward migration then took them across the Urals into European Russia and from there down into the Czech Republic and Germany. The alternative view (b) is that the trans-Caucasus route is the one which took them into Europe given, as one of the most respected research teams led by Ornella Semino has shown, the highest frequencies of Hg I are in the Balkans and Ukraine.



The Ice cometh: From 25 KYA, the climate became colder and dryer until by 21 KYA most of Europe was uninhabitable. Refugees from the ice probably followed the dwindling food supplies down the major river valleys until either they found refuge or they could go no further. The Garonne/Dordogne river valley led to the Franco-Cantabrian Refugia; the Danube led to Refugia in the northern Balkans; the huge Dnieper/Don system led to refugia in the Ukraine north of the Black

Sea. People in Italy just stayed put.

The LGM reached its hight ~ about 18 KYA; there was a slight warming about 16,500 YA, then the cold resumed until ~13 KYA. The period 25 – 16 KYA corresponds to the **Solutrian** culture while a new one, the **Magdalenian**, developed about 18 KYA. Both were significantly more sophisticated than the Gravettian they replaced, the Magdalenian people painting the famous cave paintings. Generally speaking these people did not abandon their nomadic, hunting and foraging life-styles. They built small, temporary shelters from the biting cold, dust-laden winds which were almost a constant companion in their daily lives. Game of course would have been limited, but already they were proficient in trapping small animals while the hall-mark of the Solutrians was beachcombing and living off the sea, developing *curraghs* for the purpose.



Not only did the LGM produce a serious bottleneck because of the great loss of life and reduction in birth-rate, but it also resulted in ***genetic drift*** which, along with natural selection, is one of the important mechanisms of evolution. A perhaps overly simple way of understanding genetic drift is to think of it as "inbreeding". After the *bottleneck,* centuries of isolation in the refugia led to genetic drift which produced the great genetic diversity which we see today. One of the yHaplogroups which survived from the earliest occupation of Europe but which proliferated during the LGM in the Franco-Cantabrian and possibly Balkan refugia was R1b1c and its sub-clades — of which there are already 10 known to geneticists and more probably yet to be discovered. We will be looking at this lineage in particular because it is the one responsible for much of the population of the Atlantic seaboard of France, the western and northernmost parts of Britain, of Ireland, Portugal and the Basque country. And, most importantly, it is basic to the spread of the Celts, whoever they were……