

A Genetic Signal of Central European Celtic Ancestry: Preliminary Research Concerning Y-Chromosome Marker U152

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Introduction and Parameters of the Study

The goal of the present study is to use historical references (via the Greco – Roman Classical authors), plus linguistic and archaeological data, to link the Hallstatt and La Tene Celtic people of Central Europe to a Y-chromosome marker, S28 / U152 (the latter version will be used due to its acceptance by the [Y Chromosome Consortium](#)). The old style phylogenetic category was haplogroup R1b1c10 (ISOGG, 2007), however today both R1b1b2h (Karafet et al. 2008) and R1b1b2a1b4 (International Society of Genetic Genealogists, 2008) are in common usage. The hypothesis under consideration is that most who are U152 positive are living descendants of these ancient Celtic people who emerged from an Alpine European homeland; with the possible exception of distantly related folk who reside along the Mediterranean coast south to Sardinia. It is important to note that it is not proposed that all Central European Celts were U152, only that there is a strong correlation (which does not preclude a wide range of other haplotypes also being found among the Celts).

Who were the Celts? – In summary, from about 720 to 600 BC Celtic elite burials of the unromantically named Halstatt C people, rivaling those of the Egyptian pharaohs, sprung up in the region of the eastern Alps (where they became wealthy for example in the salt trade). Beginning about 600 BC the power base shifted west to the Hallstatt D areas of southern Germany, Switzerland and eastern France. By 480 BC elite burials reflect the establishment of the Early La Tene cultures along the Marne River (France), the Mosel River (Germany), and in Bohemia (Czech Republic). A population explosion circa 600 BC and perhaps internal strife led thousands of these Hallstatt D people, and from about 400 BC their La Tene successors, streaming across the Alps to the warm and inviting Italian lands. Others set their sights on territory in the east, ultimately settling in for example the Carpathian Mountains in former Yugoslavia, Hungary, Romania, Bulgaria. In addition contingents settled in pockets as far west as Spain, as far north as Scandinavia, and east to Ukraine. These restless perambulations led Celts to sack the Greek shrine at Delphi in 279 BC and settle in new territories in the southeast particularly Anatolia; only to see some of their group turn around and retrace their steps to reoccupy their old home territory and expand to new regions in the west close to the Mediterranean Sea, and north into the Belgic areas.

Except when harnessed in mercenary military service, all were considered to be barbarians and spelled trouble to the “civilized” southerners. These tall and sturdy warriors with light hair and blue eyes had captured Rome on July 18th 390 or 387 BC, a date etched into the psyche of all Romans. When the latter complained that the scales used to weigh the tribute in gold were rigged, the Celtic leader Brennus allegedly threw

his sword on the scales and uttered the now famous phrase, *woe to the vanquished*. Until subdued by the Roman legions in the closing years of the first millenium, and squeezed over the next 400 years by maurading Germanic tribes, the Celts were the prototypic “barbarian” people who, for a time, dominated the region between the Atlantic coast in Spain and Portugal, to the gates of Asia in Anatolia and modern Ukraine.

For the purposes of the present work, “Celt” will largely refer to the people known by this name (or variants) to the Greeks and Romans, and typically not include the Insular Celtic speaking peoples of Britain and Ireland prior to about 100 BC.

What is the Origin of the U152 Marker? - Whether from Northern Italy, Hungary or elsewhere, all males today who have the U152 marker are descendants of one man, who ultimately became the progenitor of a large percentage of the people who would be known as La Tene Celts (successors to the earlier Hallstatt peoples). U152 is a single nucleotide polymorphism (SNP) developed as S28 by EthnoAncestry in 2005 (yet published independently in 2007 by Simms et al. who called the marker U152) as a subclade of M269 or R1b1b2* (and more recently discovered to be below P310, P311 (R1b1b2a*), and then P312, or R1b1b1a2* (which serves to join a group of downstream haplogroups such as R-M167 and R-L21), and sister clade of U106 (R1b1b2a1a).

This U152 SNP (also called a Unique Event Polymorphism or UEP) involves a spot mutation at one of the 60 million nucleotide base pairs that comprise the DNA of the Y-chromosome. In this case, an Adenine replaced the ancestral Guanine nucleotide base at a single location on the Y-chromosome of one man born many generatons in the past. At this point it is unknown when this event occurred (estimates ranging from 25,000 to 2,500 years ago). This man’s ancestors carried the R-P312* motif (would test positive for the standard defining M269 and P312 markers but not U152) on the Y-chromosome. However, each of the direct male line descendants of this one individual will possess the same harmless but informative mutation and be assigned to the phylogenetic category of R1b1b2a2g* (YCC Update, 2008). Recently this haplogroup has been divided into an ancestral form (SNP L2 negative) and a more numerous derived form (L2 positive), and a smaller number derived at L2 (S139), and postive for the SNP L20 (S144).

The premise of the present work is that despite the vicissitudes of time and events in an interval of 2500-years, evidence can be found of the persistence and survival of Central European Celts via an examination of the present-day Y-chromosome population structure of Europe – with specific reference to the U152 marker. In essence it is postulated that U152 will frequently be found in geographical areas where where the historical, linguistic and / or archaeological data testifies to the presence of La Tene (and Hallstatt) Celts – but seldom in other locations, with the exception of Sardinia and the Ligurian coast and southern Italy (whether aboriginal population, or a result of the millions of Gallish slaves imported into Italy in the 1st Century BC is unknown). In other words, males possessing the U152 mutation (or their earlier ancestors) should be found to represent a large percentage of the population of Switzerland. However little, if any, should be observed in for example the northern Netherlands and northern Germany, a region not documented as having any link with the Celts of Central Europe.

Examination of the Link Between the Hallstatt and La Tene Celts and the Y-Chromosome Marker U152

- The present study will integrate the historical, linguistic and archaeological record concerning the Hallstatt and La Tene Celts with the available Y-DNA genetic information to provide a preliminary *story of U152* through the ages. The present – day distribution by country of those individuals who have tested positive for U152 will be compared to the evidence from other sources. Click [here](#) for the R-U152 database representing a genetic snapshot of this haplogroup. For a more detailed consideration of the historical, linguistic, archaeological and genetic (e.g., including S21-R-M2699) evidence, but focusing on only one Celtic tribe, the Cimbri of Jutland, Denmark click [here](#). The present study will adopt a wider focus, to include all the Hallstatt and La Tene Celts of Central Europe and the diaspora.

The Y-chromosome marker R-U152 appears to be associated with the people who today reside in what was once the ancient Central European Celtic homeland, particularly the area of the Hallstatt D elite burials circa 600-480 BC, and perhaps best reflected in the map of Hallstatt D wagon burials in the Koch (2007, p.115, map 81) atlas – showing a scattering from Central France to the Carpathian Mountains, with a tight concentration in southern Germany and the Swiss Lake country. It is in the latter two areas where we should see a high concentration of R-U152, as well as the highest diversity of haplotypes (reflecting a proposed origin in or near these areas). A key assumption of the present work is that the conclusions of Semino et al. (2000), and others since then also using Y-chromosome data, are still essentially correct. In other words, there is little evidence of more than a small (e.g., 10 to 20%) contribution of the Neolithic agriculturalists to the Y-DNA gene pool of Western and Central Europe. Hence those who fanned out to populate Europe after the Last Glacial Maximum became aboriginal to the lands in which they settled; and that despite some local intrusions and exceptions, in general the early arrivals tended to remain stubbornly in place although their ranks were augmented by later arrivals. This means that despite some displacement, total replacement of populations has been uncommon west of the Balkans. This view has received a serious challenge from a group of genetic genealogists who present statistical evidence-based on short tandem repeat (STR) mutation rates. They conclude that far from having a Paleolithic or Mesolithic origin, haplogroups such as R-U152 have their beginnings in late Neolithic or Bronze Age times, migrating from a Central Asian homeland. Until these views receive wider acceptance and are published in a peer reviewed journal, the present author will assume a conservative stance and assume a much more ancient autochthonous (local) origin.

This paper has been written for genetic genealogists, hence a knowledge of some of the terminology appropriate to this field of study is assumed. It is important to emphasize here that the information and conclusions included here are tentative. What follows is a preliminary effort, subject to amendment as the historical interpretations change, the linguistic data is re-evaluated, and the archaeological and genetic records expand.

The Earliest Celts – Origins Reflected in History, Linguistics and Archaeology

Historical Evidence - The earliest historical references to Central European Celts (Keltoi) are found in the 6th Century BC writings of the Greek Classical authors. Hecataeus mentioned a Celtic town, Nyrax (unidentified, but Noricum, Austria or nearby Magdalensberg being the usual choices; and Keltike inland from Massilia on the Mediterranean, as well as Narbon, *an emporium and city of Keltike*. Furthermore Herodotus noted that the source of the Danube River was in the land of the Keltoi (which is identified as Heuneburg on the Danube by some authors). He also noted that the Keltoi additionally resided beyond the Pillars of Hercules on the Atlantic Coast. About 466 BC Pindar described the journey of the Argonauts apparently (the description is far from clear) up the Po River from the Adriatic, through the Swiss lake country, and down the Rhone River – traveling through the territory of the Celts (e.g., Collis, 2003). These descriptions fit very well with the statements of the respected historian Poseidonius (reported via Diodorus Siculus) in the last century BC. Specifically, *It will now be useful to make a distinction which is unknown to most people. Those who live in the interior above Marseille, and those along the Alps, and those on this side of the Pyrenees are called Keltai, whereas those who settled above Celtica in the area stretching toward the north both in the region of the Ocean and in that of the Hercynian Mountain, and all people beyond them as far as Scythia are called Galatai: the Romans, however, include all these peoples together under one name and call them Galli* (Collis, 2003, p.101-2). The Keltoi / Keltai area includes what has been termed the Hallstatt C elite burial region c. 720-600 BC in the eastern Alps; and the Hallstatt D elite burial region c. 600-480 BC to the west as far as the French Jura Mountains. The Romans later termed these folk, Celtae. The Galatai / Galli fit better with the people residing in the three Early La Tene cultural locations of the Marne-Champagne, Mosel, and Bohemian areas to the north. A large body of historical references, spanning about 1000 years, will be included in the present work to expand upon these earlier historical references.

Linguistic Evidence - The debate over the origins of the Proto-Indo-European (PIE) language has been and continues to be a major bone of contention, with further disagreement as to when and how PIE arrived on the Atlantic coast. There are various viewpoints in relation to the spread of the Indo-European language, via their “proto” forms. A theory that has taken shape during the 1990s, is called the “Paleolithic continuity theory”. One of its most vocal advocates is Alinel (2004), a linguist who asserts that the Celtic languages spoken in Iberia, France, Britain and Ireland were those arriving as part of the Indo-European supergroup via the post – glacial re-colonization of western Europe in Magdalenian times prior to 8000 BC.

Similarly Adams and Otte (1999) propose an expansion of IE languages after a population reduction (or extinction) during the environmental “catastrophy” of the “Younger Dryas cold phase” (10,800 to 9,400 BC), where the “Little Ice Age” appeared very quickly. This offered the opportunity, around 9,400 BC, for survivors ensconced in refugia to expand at a rapid pace to fill the “open spaces” and those in the east bringing their IE languages.

Another viewpoint posits the “Anatolian hypothesis” (Renfrew, 1987) where about 6000 BC the PIE languages began to move from a homeland in Anatolia or the Fertile Crescent, and accompanied the spread of agriculture – with these languages reaching as far as Ireland by circa 4500 BC (hence arriving in eastern Central Europe by about 5500 BC). A variation on the Anatolian theme is that of D’iakonov (1985) who proposes that the PIE homeland is to be found in the Balkan Peninsula (including the Carpathian region).

Finally, some linguists tend to view the ancient IE homeland as southern Russia among the “Kurgan culture” of the steppes of Ukraine (with dependence on the horse, a copper technology, and a burial tradition involving mounds), and colonized large parts of Europe about 3500 BC or as late as 2500 BC (Gambutas, 1973; Mallory, 1989).

A more recent study using a painstaking analysis of linguistic and archaeological evidence appears to favor the general conclusions of Gambutas. Anthony (2007) has pinpointed an origin in the Pontic Steppes – Caspian Sea region prior to 5000 BC. Then *The Yamnaya horizon exploded across the Pontic-Caspian steppes about 3300 BCE* (p.461), the Yamnaya group being the primary vector through which PIE spread westward. This brought these people to the Carpathian Mountains and the Danube River near what is today Budapest, where the wave of advance (folk migration) appears to have halted. The split between the Italic and closely allied Celtic language groups appears to have occurred between 3100 and 2600 BC. Then, *Bell Beaker decorated cup styles, domestic pot types, and grave and dagger types from the middle Danube were adopted about 2600 BCE in Moravia and Southern Germany. This material network could have been the bridge through which pre-Celtic dialects spread into Germany* (p.500). Anthony does not, however, discuss a timetable by which Celtic dispersed from Austria and Bavaria, places noted by Anthony as the location where proto-Celtic developed, in other words “the homeland” of the language, to reach the farthest reaches of the Atlantic Ocean (Ireland and Portugal) before 500 BC. He does note a process though. He sees the weight of evidence as favoring a spread via influential chiefs (through the patron – client system suggested by words in all IE languages), to develop a *lingua franca* by elite domination – something akin to the spread of English in recent times. According to Ellis (1998), *The large number of Celtic place-names still surviving in Switzerland and south-west Germany are therefore an indication that when the Celtic peoples appear in the historical record they were already well settled in this area*. He also echoed Hubert’s views that the survival to this day of so many Celtic names for important geographical features (e.g., Rhine and Danube Rivers) in now German-speaking regions points, *to the names being of indigenous form and of long usage* (p.22) in what other evidence sources indicates was the Celtic homeland. In general the earliest occupants of a territory tend to pass on these names to their successors irrespective of the language of the latter.

Understanding the genesis of the Celtic languages would appear to be critical to any exploration of Celtic origins. Over the years various proposals have been put forward to explain the presence of Celtic languages, reflected in place names such as those ending in –briga (hill), or –dunon (fort), in a swath across Europe extending 4000 kilometers from

Ireland to Anatolia. Much of this work has recently been summarized in *An Atlas for Celtic Studies* (Koch, 2007), where in each map the limit of the zone of Old Celtic place- and group names is represented with a heavy white line. Before the 1960s it was common to posit an expansionist east to west “Celticization by invasion”, a “wave of advance” during La Tene times, consistent with Irish migration stories recorded by Medieval scribes, despite a lack of archaeological support in for example Ireland and Spain.

What has always been a bone of contention is the complex interplay between culture and language, and the question here is about the spread of the Celtic language which still survives in the Atlantic margins of Scotland, Ireland, Wales, and Brittany in France but has died out entirely elsewhere in the former Celtic-speaking world such as Spain, Switzerland and Anatolia. Archaeologists of the 1980s tended to prefer the “cultural (and language) diffusion” model which only required a gradual transfer of technology and habits as a function of the preferences of the elite. The assumption was that the process mirrored the east to west movement bringing agriculture across the extent of Europe. So if Celtic evolved in Southern Germany, the process to move the language to the western-most margins of Europe would not likely involve a “leap frogging” from the “homeland” to the margins, but rather a patchy domino effect where proximal groups introduced the language and cultural package to neighbors.

Most recently (e.g., Cunliffe, 2008) the “Late Bronze Age exchange network” hypothesis has been gaining momentum. Here the direction of movement is seen as emanating from the “Atlantic Zone” and moving inland as a type of *lingua franca* was needed to maintain trade networks and cultural ties (e.g., the tin trade of Amorica and Cornwall to feed the need for this material in western Central Europe in order to smelt bronze). This west to east “Celticization” is reflected in the distribution of the Y-chromosome marker R-M269 which reaches a saturation point in parts of western Ireland and thins out in a cline into Eastern Europe where the percentages of men carrying this marker drops to below 10% (e.g., Semino et al., 2000). Map I.5 in Koch (2007) shows this theory graphically. It is also reflected in the dramatic specific and highly restricted distribution of Late Bronze Age Irish cauldrons (circa 12th to 7th Century BC) along the Atlantic fascade. These artifacts appear largely in Ireland, but also in Britain, Amorica and the Atlantic coast of France. Other locations include the western Cantabrian and Gallaecia areas of the Bay of Bisquay, the Iberian Atlantic coast, and the Meseta region of the interior of Iberia. What would make most sense is that in the interval between 2500 BC when the language was probably first spoken in Southern Germany, and about 1200 BC when the peoples of the farthest reaches of the Atlantic fascade appear to have accepted some major features of Celtic cultural traits, the language arrived and replaced whatever non Indo-European languages predeeded it. Some pockets kept their original language such as the Picts of Scotland (this being hotly debated), the Basques (speaking Vasconic), various other groups in Iberia (e.g., the Lusitanians – although their identity is a matter of controversy), and the Mediterranean coast as far as Italy (speaking Ligurian). Even close to the “homeland” the Rhaetian peoples of Alpine Switzerland and Austria did not speak Celtic when encountered by the Classical writers (nor later even as the Roman Empire was dissolving). It is entirely possible that they are of the same genetic Y-chromosome

groupings, but could have maintained a different lifestyle from Mesolithic times when the agriculturalists were largely replacing the hunter – gatherers in terms of way of life.

Further evidence supporting a strong role for a cultural-linguistic vector leading from the insular northwest (e.g., Britain), at least in the closing centuries BC, may be found in the distribution of the aristocratic priestly class known as the Druids. Caesar noted that Druidism began in Britain, and was known widely throughout Gaul where the Druids met once a year in a central location, situated in the territory of the Carnutes. It is possible that the center of gravity of Celtic culture may have shifted over time from the eastern Alpine region (in Hallstatt times) to Central Gaul (at the time of Caesar).

The premier sacred site appears to have been the Island of Mona (Anglesey), off the northwest coast of Wales, where in 60 AD the Romans took great pains to destroy the power of the Druids and their sanctuaries. Continental Druids had long been coming to Britain for instruction. Although individuals with this role are alluded to across the Celtic world, the evidence is indirect. For example the Viereckschanzen, rectangular enclosures (noted later), which appear to have been used for ritual (including sacrificial) purposes, are seen from the Atlantic coast to Bohemia and one might suppose that the ceremonies were presided over by the Druid class. Also the name Drunemeton, or oak sanctuary site, is known as far east as Galatia (Anatolia) and is thought to be associated with the activities of the Druids. According to Timagenes of Alexandria (fl. 55-30 BC), *The Druids recount that part of the population of Gaul was indigenous, but that some of the people immigrated there from outlying islands and the lands beyond the Rhine* (Koch, 2007, p.17). Map I.6 depicts Timagenes statement (e.g., migration from Britain and Ireland) and the implications for the theory of the Celtic language, which could apparently be understood from Ireland to Anatolia. Even as late as the 5th Century the language in the latter place was noted as being much the same as that spoken around Triers in the Mosel Region of Germany near Luxembourg. The theory posits a spread via migration from the Atlantic Zone inland to Gaul, and perhaps from there via cultural diffusion and the historically attested expansions beginning circa 600 BC from the central region of Gaul, that would take Celts into Italy, the Balkans and as far east as Anatolia and Ukraine. Hence, the Druids, as a living archive of Celtic learning and traditions, would likely have been a primary mode by which the Celtic language (at least the dialect which was to become a virtual *lingua franca*) was spread.

Koch (2007) suggests that another western location may have been pivotal in the expansion of the Celtic language. He noted that, *Celtic evolving in Spain from an early Indo-European dialect awaits rigorous examination* (p.22). Certainly there are regions of Spain where there are Celtic place names in abundance (e.g., those with –briga). As will be noted later, Spain appears to be the area where the “Beaker culture” arose then expanded widely across the Atlantic facade and Central Europe which would ultimately become Celtic-speaking.

What would be difficult to dispute, however, is that the homeland for all Celtic languages after their split from Italic (prior to 2500 BC) is in the region of what is today Bavaria. It

is interesting to note that this is the region where the ancestral version of R-U152 (without the L2 mutation) is concentrated.

An issue addressed by Koch (2007), but more fully by for example Collis (2003), is the Celtoskepticism emerging from within various fields. It is now recognized that the link between the term “Celtic” and the peoples of Ireland, Scotland, Wales, Isle of Mann, Cornwall and Brittany who still spoke ancient languages known as, for example, Gaelic and Breton is very recent. The publications of Buchanan (of Scotland), Pezron (of Brittany), and Lhuyd (of Wales) in the 16th to 18th Centuries changed this perspective. There is nothing found in the writings of the Classical authors linking the term Celtic with the populations of Britain, Ireland, or any location where the “Celtic” language is presently spoken. Those residing in Britain were Pretanni or other appellations – never Celts. There is no evidence that an Irishman and a Welshman ever saw themselves as belonging to the same ethno-cultural-linguistic grouping until modern times. Hence it may be of some importance to recognize that while people from Anatolia to Ireland may have spoken a language that was born of the same rootstock, it is hotly debated as to whether any Galatian in Anatolia felt any particular kinship to anyone from the Rhine Valley let alone Ireland, despite evidence that they spoke a very similar language. Collis (2003) and others maintain that despite a shared language, cultural background, and probably genetic heritage, there was no evident sense of belonging to a “Celtic people” or being a part of a “Celtic empire”. These are constructs applied to the marginalized peoples of the Atlantic facade only recently. It is, however, a matter of record that peoples of the Celtic-speaking world were highly skilled in modes of transportation (wagons, chariots, roadbuilding, shipbuilding and sailing), and there may have been constant communication from the Atlantic Ocean across Europe to the Black Sea. As an example, during the time of Hannibal’s crossing of the Alps (circa 220 BC), the Greek Senate of Masilia (Marseilles) asked the local Celts to communicate with the Celts of Anatolia and request their non-hostility toward Lampsacos. Hubert concluded, *this solidarity of the Celtic peoples, even when distant from one another, is sufficiently explained by a sense of kinship, of common origin acting in a fairly restricted world, all the parts of which were in communication* (in Ellis, 2003, p.139). One wonders if this “solidarity” extended to places such as Amorica (Brittany), Ireland and Britain.

Archaeological Evidence – In considering the years before about the 7th Century BC, it is to archeology that we must turn for knowledge of the ancestors of the early Celts. Powell (1980) stated that, *Most archaeologists if asked what appeared to be the cultural setting for the historically known Celts, from Herodotus to Caesar, would have little difficulty in answering, especially if trained in the Continental schools, that the widespread iron-using material cultures, known by the names of Hallstatt and La Tene, substantiated geographically and chronologically, the historical records* (p.24). Ellis (1990) has offered a fairly standard interpretation of the available evidence relating to the years prior to the 1st Century AD. He stated that, *For a millennium they had spread themselves throughout Europe, originating, it is thought, from homelands at the headwaters of the Rhine and Danube* (p.7). While it would not be difficult to obtain a consensus that the immediate predecessors of the Hallstatt people can be found among the Urnfield culture in Bronze Age times, few have searched for a more remote

archaeological starting-point (p.24). However Maier (2000) makes one of the clearest statements on the matter. He states that, *the early Celts of central Europe belong in a tradition that can be traced, using archaeological deposits, from the Neolithic, through the Bronze and Iron Ages, and into the Middle Ages* (p.11). Here, *Celtic pottery belongs to a tradition which in central Europe reaches back as far as the fifth millennium BC* (p.12).

Much of the first section of the present study will attempt to add specificity to this quote by naming and describing the archaeological cultures that appear to bear a direct ancestral relationship to the Celts of Central Europe prior to the Hallstatt era circa 720 BC, which is the first archaeological culture generally recognized as proto-Celtic. To the best of this author's knowledge, no one to date has attempted to enumerate each archaeological culture, horizon or group in a continuous chronological sequence.

The first requirement is to establish where the ancestors of the Central European Celts likely retreated during the Last Glacial Maximum, and posit a trajectory for them as they migrated from that refugium to emerge, over 10,000 years later, as people belonging to the Urnfield then Hallstatt then La Tene cultures.

Archaeological Cultures and the Celtic People of Central Europe

Events in the Paleolithic (36,000 – 10,000 BC)

The Aurignacian and its Purported Association with Y-Chromosome Haplogroup R1b - Modern humans have resided in the western most reaches of Europe (e.g., Portugal) for at least 45,000 years, as reflected in the archaeological assemblages found like a trail of breadcrumbs extending westward from the West Asian homeland. It is this Aurignacian culture, lasting from about 34,000 to 17,000 years BC, which is commonly associated with R-M269 or predecessor R1b group (e.g., Semino et al., 2000; Cinnioglu et al., 2004). This assumption has been made based on present – day population genetics, assuming that it was these Paleolithic hunter – gatherers who are the ancestors of a large percentage of the Western European population to this day. However, this assumption can be challenged depending on which of the many date estimates for the origin and expansion of R1b one chooses to use. Hence, despite the huge inconsistencies in all of the datasources (gaps in the archaeological record; the fact that no one to date has established a molecular clock that does not depend on many questionable assumptions), virtually all population geneticists have accepted the hypothesis that some variation of R1b was the haplogroup of the first modern humans to enter Western Europe – largely because there does not seem to be any other viable candidate. Some specific possibilities for Aurignacian Y-haplogroups include M173-R1*, M343-R1b*, and P25-R1b1* which, although rare in European males today, may have been predominant in Ice Age times. The fact is that until these markers are tested in firmly dated ancient DNA samples, there will always be an element of uncertainty and guesswork in relation to this matter. The most recent evidence is that of Karafet et al. (2008) using a different method of dating based on the prevalence of SNPs. They estimate that R1 at 18,500 years to the most recent common ancestor (MRCA). Studies using the Zhivotovsky, Underhill and

Feldman (2006) approach would obtain earlier dates (ironically Underhill is one of the authors of the Karafet study but still uses dating procedures from his earlier work – see for example Henn et al., 2008).



Aurignacian culture



Gravettian culture



Solutrean culture

Cultures that emerge about 22,000 BC, with the approach of the last Ice Age, were the Gravettian (with Venus figurines as one characteristic feature); and the Solutrean (characterized by finely made microliths). The former appears to “rapidly” contract to spotty areas of Iberian, and pockets in Central Europe to the Zagros Mountains (in the vicinity of Iran). The latter disappears abruptly about 15,000 BC.

The Last Glacial Maximum and Glacial Refugia - A major disruptive force loomed large in the genetic “landscape” of Europe. The Ice Ages intruded during the Paleolithic where most of Scandinavia, along with Scotland and parts of England, and the entire Alps (for example), were covered by a mile thick mantle of glacial ice.

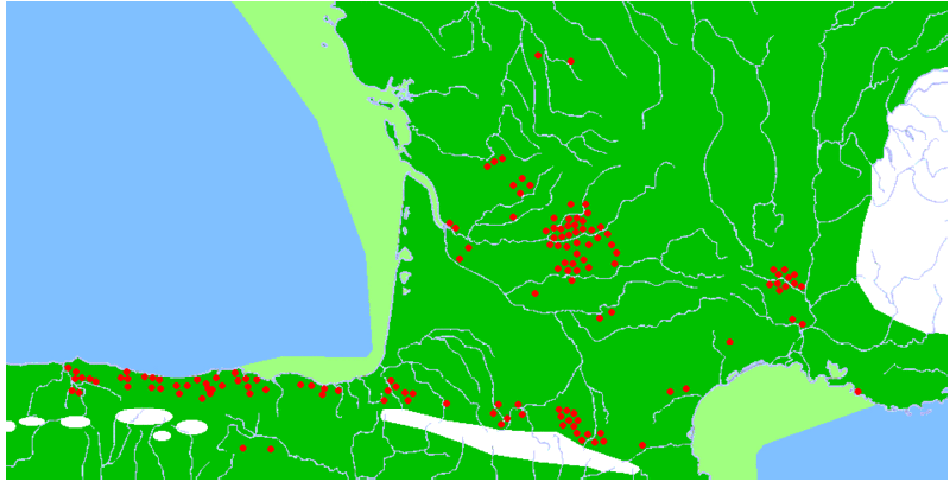
There is a large body of literature relating to the plight of an array of species during the Last Glacial Maximum; including species as diverse as brown bears, birds, mice, voles, salamanders, fish, shellfish, and a wider assortment of plants (e.g., oak). An excellent review of this data is Taberlet et al. (1998) who describe, *three main potential refugia in Portugal – Spain, in Italy, and in the Balkans* (p.454). One publication on the subject, focusing on the human population, and meant for a general readership, is “After the Ice” by Mithen (2004).

The Taberlet et al. study may or may not apply to the human population (see Figure 6 in their study). Clearly for the majority of species, it was the Balkan refugium which furnished the gene pools which served to re-populate Europe as the Ice Ages loosened their grip. For example the study by Brito (2005) showed that the Tawny Owl spread from the Balkan area to re-populate not only Northern and Central Europe, but most of Western Europe including Iberia (where only a small percentage of these owls trace their lineage). According to Brito, *the expansion out of Iberia and Italy had only regional effects* (p.3077). Gamble et al. (2005), studying human groups, noted no such configuration, and instead reported only a Cantabrian refugium which served to repopulate Iberia and the Atlantic fringe as far north as Scandinavia. It is difficult to reconcile the findings of each of these studies, although Gamble et al. looked at human populations, the subject of our study, but only in Western Europe. It is debatable as to whether human groups are affected in the same way by the same processes as other species.

Furthermore an examination of the number of archaeological sites dated to the LGM shows only a very thin scattering anywhere in Eastern Europe (e.g., Balkans), but a very large clustering in southwestern France and along the Cantabrian coast of Iberia (Bocquet-Appel, 2005). However the region of interest here is Alpine Central Europe which could as easily have been populated from any of the three refugia.

The Franco Cantabrian Refugium Hypothesis and Post – Glacial Expansion - A widely accepted view is that the ancestors of R-M269 “over wintered” in the Franco – Cantabrian Refugium. In support of the theory of a refugium in northern Spain and southern France, and that the descendants of the earliest Paleolithic hunter – gatherers retreated there, is the strong west to east negative cline for this haplogroup seen today. The percentage figures reach saturation in the west of Ireland (where the majority of

males are R-M269), diminishing in numbers to east (e.g., Poland) where percentages of R-M269 in the general population begin to drop below 10% (e.g., Semino et al., 2000). This cline, however, does not come with a timetable and the infusion of R-M269 could have occurred much more recently than is commonly assumed.



Franco – Cantabrian region with main caves and rock shelters with mural art

In speaking about the Franco – Cantabrian refugium, Achilli et al. (2004) noted, *the major climatic changes that have occurred since the arrival of the first modern humans. In particular, the early Paleolithic populations of Northern and Central Europe either became extinct or retreated to the south during the Last Glacial Maximum (LGM) ~20 kya, and there was a gradual repopling from southern refuge areas only when climatic conditions improved, from ~15 kya.* This group used mtDNA (mitochondrial, direct line female lineage) evidence relating to haplogroup H, as did Pereira et al. (2005) in relation to the, *late-glacial expansions from a south-west European refugium* (p.22) of haplotypes H1 and H3, spreading northward along the Atlantic coastline. In exploring the available data, the authors noted that it appears that H1 and H3, as well as haplogroup V (Torroni et al., 2001) entered Europe from the east 20,000 to 25,000 years ago (during the Gravettian epoch) and expanded toward northeastern Europe 12,000 to 14,000 years ago (during Magdalenian times). When looking at the Y-chromosome data, one influential viewpoint (e.g., Semino, 2000; Rootsi et al., 2004) is that after about 15,000 years ago (during the Magdalenian phase), there was a major radiation of haplogroup R-M269 from this refugium to Northern and Central Europe (in a sense backtracking along the pathways of their ancient Asian forebearers). It should be noted that there is a lack of agreement on what assumptions and models to use in dating this haplogroup, with dates of 35,000 years to an improbable 4000 years before present. The latter estimate arises from the work of genetic genealogists (e.g., see discussions of this on various lists, forums and blogs. The academic literature, focusing on the need to use germ line (e.g., father – son rate) Y-STR microsatellite marker rate only to about a time to most recent ancestor circa 1000 years before present. After this time, the concept is that one must use evolutionary effective mutation rates calibrated to archaeological events and correlated to factors such as bottlenecks. Zhivotovsky et al. (2006) recommend a 3.6 constant multiplier. The work of Klopstein et al. (2006) using SPLATCHE program modeling

provides a distribution of population via Paleolithic migrations that almost exactly mimic the distribution of haplogroup(s) R1b – R-M269 (e.g., Perisic et al., 2006). Hence, again, for the purposes of the present work it is accepted that R-M269 entered Europe in Paleolithic times.

The above genetic data suggests that the Western Europeans may trace their descent not to the Aurignacian but the Gravettian or Magdalenian peoples – although Neolithic cannot at present be ruled out.

The Magdalenian culture of circa 17,000 to 8,000 years BC includes the well – known Lescaux (France) and Altamira (Spain) cave art. The earliest dated sites are in France. These people were the classic “reindeer hunters”, although roe deer and horse among other animals were also hunted. However, just to add further elements of complexity, it is unclear what relationship the Badegoulian culture (between 20,000 and 16,000 years ago) has to any of the other contemporaneous cultural assemblages of Western Europe. The direction of folk movements is not clear (Terberger and Street, 2001). However, it would seem that until more convincing evidence is brought forward, that the link between the Magdalenian and R-M269 be accepted.

Gamble et al. (2005) have ascertained a rather similar pattern for the post-glacial expansion of humans based on a radiocarbon analysis of securely dated activity (e.g., settlement) sites. They identified two linked refugia, one in Cantabria (northern Spain) and a second in Aquitaine (southern France) with two corridors opening up, one on each side of the Massif Central, from which humans expanded and dispersed (see Figure 1, p.196). Their work supports a demic expansion from these two locations which played a critical role in the post – glacial population events of all Western Europe. The authors estimate that about 17,000 humans resided in the Franco – Cantabrian refugium with an increase to 64,000, *in the initial stages of northward expansion* (p.201). In a subsequent paper (Gamble et al., 2006) evidence is provided that the Cantabrian component supported a larger group of humans in the earlier years of the LGM. However, with the approach of the Magdalenian, *the main population focus now included southwest France as well as Iberia* (p.5), in both open and naturally sheltered sites (caves and rock shelters). What is often not emphasized is that there were three probable refugia in Europe. In addition to the above, the Balkans and the Italian Peninsula harbored substantial populations during this time (although much of the evidence was probably erased due to inundations of the sea).

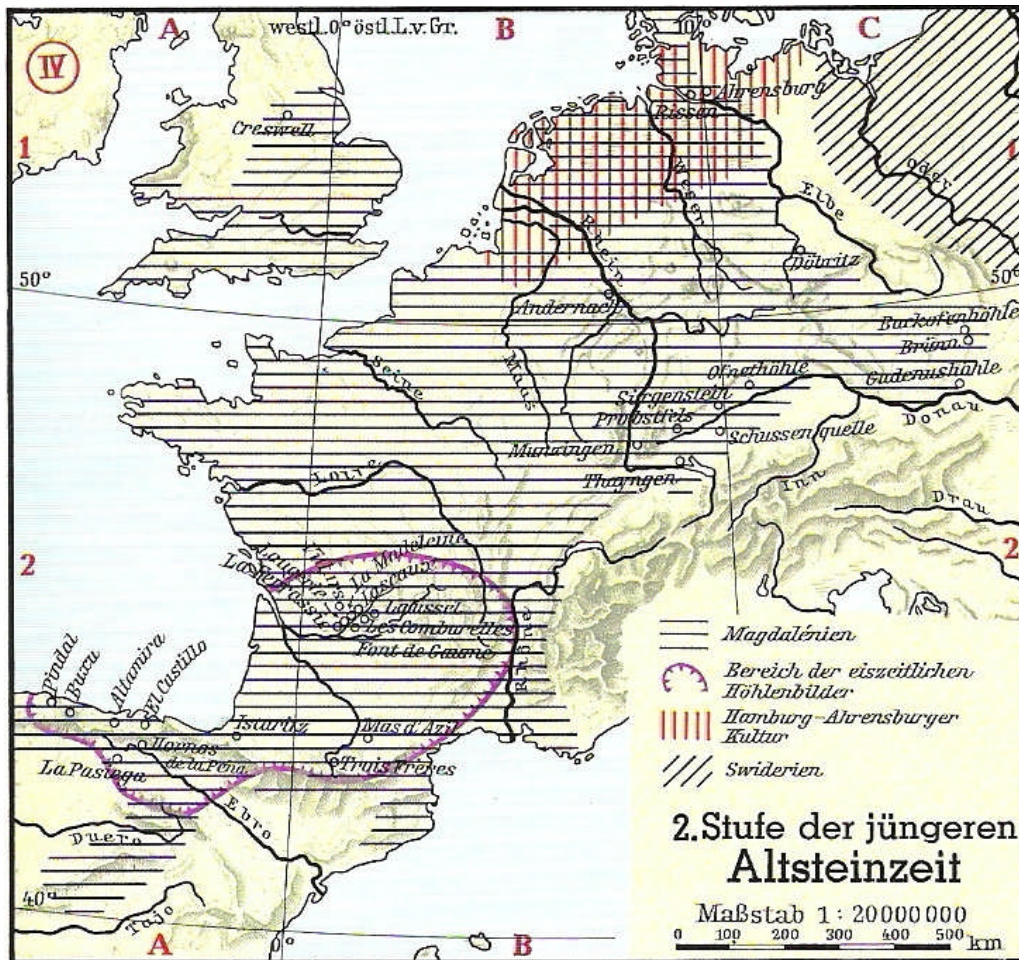
There are apparently three major varieties of R-M269, based on a recently discovered Y-SNP known as S116 or P312. Those who have the ancestral version include those with an “Eastern” R-M269* type p49a,f haplotype 35 (later to be found primarily from Italy east to Kazakhstan). Those who test derived or positive on P312 include other known clades of R-M269, including R-M269* “Western” haplotype 15 (as are all the downstream clades) thereby uniting all those who were later Celtic speaking. However, it has been recently discovered that R-U106 is a sister clade to R-P312. Despite considerable overlap, in general R-P312 is found from Central Europe to the farthest western reaches of the Continent whereas R-U106 is found from Central Europe

northward into Scandinavia. It is generally assumed that all of these groups with the exception of R-M269* “Eastern” Taq p49a,f haplotype 35 took refuge in the Franco-Cantabrian area. This belief is now called into question. Although, considering the distribution patterns today, it would not be surprising if much of the R-P312 remained in the Iberian Peninsula during and after the LGM, whereas R-U106 may have been associated with the Balkan Refugium. However, ultimately some R-P312* (whether subclades such as R-M167 existed then is unknown) made their way, perhaps along the coastal margin from northern Spain or west of the Massif Central from the French Mediterranean coast to northern France. Perhaps R-U152 (or their R-P312* ancestors), again referring to the distribution seen today, followed a path east of the Massif Central, along the Rhone-Saone corridor, then eastward following the Alpine glacial margin to the headwaters of the Rhine and Danube Rivers in Switzerland and southern Germany. It is unknown, however, whether they originated in the Franco-Cantabrian refugium or to the east in Italy, traveling along the coastal route west to Marseilles or traversing the Alps (which was entirely possible for those well prepared for the journey).

The Rhine – Danube headwaters region experiences a significant increase in the number of sites here between 16 and 14.7 years before present. Hence during later Magdalenian times, residential settlements are found where, *Large-size, open-air campsites are known from Lake Neuchatel and the Neuweid and Paris basins and these are matched by substantial rock shelter occupations in the Rhine-Danube watershed, the uplands of Southern Germany, Thuringia and Belgium* (p.5). These areas are destined to become the future home territories of the Celts. This pattern would be consistent with what is known of the Magdalenian culture, with an artifact distribution pattern that mirrors what might be proposed in relation to the radiation of U152 from the Aquitanian (or possibly Italian) refugium.

Maps of archaeological sites dated to the Late Magdalenian (Bocquet-Appel, 2005) show strong clustering in the areas inhabited during LGM times (e.g., Southern France), but now also in a swath extending from southwest to northeast with little activity in southerly areas, except around the Black Sea. Significant numbers of sites are seen along the Rhone corridor with the two largest peripheral groupings / clusters in the area that is today the Netherlands and northern Germany, which corresponding to the Hamburg-Aherensberg group in the map below (R-U106?); and the Swiss Lake District plus southwest Germany (R-U152).

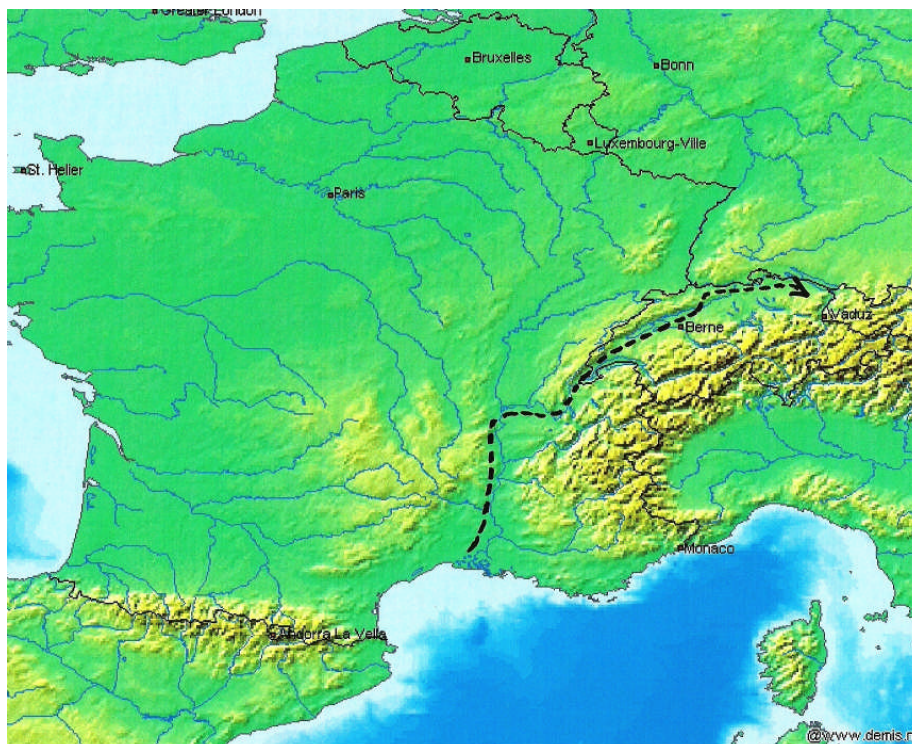
The Magdalenian, as shown in the map below, encompassed a vast area at its apogee, and is entirely consistent with the known distribution of R-M269 and clades today (with a precipitous drop in numbers from modern Poland eastward).



The Magdalenian culture, with Franco – Cantabrian refugium

The above map shows the location of the Franco – Cantabrian refugium within the area surrounded by the purple line, and illustrates how the Magdalenian (represented by horizontal lines) ultimately included virtually all of western Europe north of the Alps but ended between the Elbe and Danube Rivers.

The folk migration from the eastern component of the Franco – Cantabrian refugium could have included the ancestors of R-U152 following the Rhone corridor northeast, as shown in the map below. There are two clades of R-U152, one with the stable short tandem repeat (STR) marker DYS492=12 (modal for R-M269*), and a smaller percentage with 14 repeats. While only ancient DNA testing is going to provide an unequivocal answer, a tentative hypothesis is that this first wave of U152, during Magdalenian times, was primarily or exclusively of the less common DYS492=14 (which is the ancestral form, L2 negative) variety, and that those whose haplotype includes DYS492=14 would follow the same path northward as their distant cousins, or perhaps via a two pronged migration from the Mediterranean coast north through the Alps and a more circuitous route in a semi circle west then north to avoid the Alps. This proposed movement is not likely to have occurred until the early years of the Neolithic. Another proposal will, however, be noted below.



Proposed route taken by R-U152 from Aquitanian part of the Franco – Cantabrian refugium, along the Rhone corridor, to the area of the present-day “hotspot” for this haplogroup

Point of Origin and Age of R-U152 and Related Clades - It is perhaps noteworthy that a Balkan or Asia Minor refugium is strongly suspected in relation to the “Eastern variety” (p49a,f Taq Haplotype 35 with DYS393 = 12) of R-M269 in Anatolia (to be discussed later) as per Cinnioglu et al., 2004. The genetic differences between this group and the “Western” (Haplotype 15) are very small, and hence each variant may be of comparable age. However some calculations based on haplotype diversity indicate that the “Eastern” type (also characterized by DYS461=11, and DYS385b=10) may be older (V. Vizachero, 2007, personal communication). It is not known when the split between these two major varieties of R-M269 occurred, however there does appear to be a very clear geographical separation where most or all of the “Eastern” (P312 ancestral) type remained in the Balkans or moved east to Anatolia and as far as the Tarim Basin (China), Kazakhstan, Armenia and surrounds (where this type is found today), and some to the west in Italy.

Age estimates in relation to R-U152 vary widely, depending on the mutation model (e.g., least squares), the mutation rate chosen per marker, whether back mutations are taken into consideration, the underlying assumptions such as whether mutation rates for individuals today can be used to apply to populations which lived thousands of years ago, and the assumption as to the generational age (e.g., 20, 25, 30 years). Using the methods advocated by Chandler and Nordtvedt, and the present author’s database, the age of U152 is about 2,500 years before present (BP); Jensen’s estimates are 5120 BP; that for McEwan is 6,541 BP (although stating that a date closer to the end of the Ice Ages seems more realistic); and for McGee is 8,300 years before present. The most recent estimate by McGregor is 11,400 years before present (using the Zhivotovsky et al. approach). It is

likely that the earliest estimates are for the origin of U152, and the more recent ones reflect the expansion of U152. This whole area is very controversial and there does not seem to be a way to obtain agreement at this point. It is telling that no one can say with any degree of certainty whether U152 first appeared in the Paleolithic, Mesolithic, or Neolithic (or even Bronze Age for that matter). A definitive answer will have to await the use of ancient DNA analyses.

Population estimates for the Paleolithic and Mesolithic in Central Europe – It is essential to demonstrate that there is continuity, with humans residing in the area of the proposed R-U152 homeland (eastern France, western Switzerland, and southwestern Germany particularly Baden-Wurttemberg), from the Upper Paleolithic or Mesolithic to modern times. There are scattered references in the archaeological literature that would shed light on this matter. Some sites have been extensively studied. For example, the Petersfels site in Baden-Wurttemberg demonstrates an, *Upper Paleolithic occupation with rich Magdalenian occupation with jet artifacts, harpoon heads, burins, awls, backed bracelets, and batons – de – commandement* (Kipfer, 2000, p.433). Eriksen (2002) has provided an overview of Paleolithic and Mesolithic sites in the area of interest. She notes that the settlement appears to have emerged from the Jura east of the Rhone corridor and appears in the surrounding river and lake regions beginning in the Late Allerod about **9500 BC**. Clearly there was fairly extensive settlement, with migratory sites following reindeer herds, although with a diminution in observed sites attributed to the Mesolithic. The sites investigated in this study extend from a cluster in eastern France near the large bend in the Rhine River (near Basel, Switzerland) and immediately north of the Danube River, with a significant cluster of sites (at Aichbühl) spanning a long time period, and situated east of Lake Constance (Bodensee) in Switzerland.

Jochim (1998) describes the large Magdalenian zone extending from Spain to Moravia, but noted that, *Within this zone, south Germany and north Switzerland were set apart* (p.219), even from adjacent regions. This is reflected in hunting (reindeer not horse), art materials (jet as opposed to ivory) and motifs (e.g., insects rather than mammoth)

Mesolithic Age: 10,000 - 5500 BC:

During the Mesolithic, a severe climatological event known as the Younger – Dryas threw Europe back into the Ice Ages - with a vengeance, between circa 8,800 to 8,300 BC. It is the rapid onset, and a virtual tidal wave of cold and dry conditions, that may have challenged many of the human groups then extant. The effect on human populations has not been adequately documented, but there is some evidence of a severe depopulation again in Europe (see Gamble, 2006). The end of the Younger Dryas came abruptly, within a short interval of 40 to 50 years.

Adams and Otte (1999) have concluded that, *In northern and central Europe, the record is perhaps detailed enough to suggest a complete or almost complete depopulation during the Younger Dryas. Furthermore, the much colder, arid Younger Dryas could well have eliminated much of the previous late Palaeolithic population of northern and central Europe* and provided an opportunity for eastern groups to expand rapidly to

repopulate this area. These authors tie this event with the spread of Indo-European languages – prior to the appearance of agriculture in the area. They propose that a viable refugium for Europe and West Asia during the Younger Dryas was the Jordan Valley with relatively warm moist conditions. They posit an expansion from here as the weather moderated. However, there is as yet insufficient evidence to challenge the view that the populations of western and central Europe are descendants of those who emerged from the Last Glacial Maximum from the Franco – Cantabrian refugium.

The climate permanently moderated in Central Europe about 8300 BC (10,300 BP) during the Holocene. The dry open and cold environments gave way to warmer, moister conditions. At this time there occurred a northward spread of most species of trees (e.g., hazel which was extensively exploited for the nutritious nuts) and animals to repopulate Europe such that by 5500 BC deciduous trees covered most of the Continent. Fundamental socio-economic and technological changes characterize this period. Semi – sedentism and cemeteries with grave goods appear. The bow for hunting, mattocks, and tree-felling axes now emerge, as well as domestication of the dog. Gone are the reindeer herds as well as cave paintings and figurines, and now local economies came to depend on the boar and roe deer (Shaw and Jameson, 1999).

The Azilian industry succeeded the Magdalenian culture, emerging about 8,000 years BC in Spain and southern France with a typologically similar industry seen in southern Germany; and the Sauveterrian - Tardenois culture also in southern France, as well as Central Europe including Switzerland. Both are characterized by microliths and lack of figurines. The culture is known by its lithic package, flat bone harpoons, and pebbles adorned with abstract designs. Among the most copious finds of the latter is at the Birmatten-Eremitage site in Switzerland. Similarities in lithic assemblages place southern Germany in a broader “Beuron-Coincy” region which encompassed adjacent areas of France, Switzerland and Austria, but little evidence of territoriality except evidence of violence seen in the skull burials at Hohlenstein (Jochim, 1998). Jochim (1998) noted that based on archaeological burial assemblages, it may be that, *women’s status was higher in southern Germany than it was in the societies of northern Europe* (p.221). An interesting question is whether this has any connection to later observations of the relatively high status accorded women of the Celtic culture in later times.

Evidence of a cultural continuity in Late Mesolithic is seen in the “*hypomicroolithization*” (reduced microlith sizes) seen in assemblages in southern Central Europe, Italy, France, the western Alps, and as far east as Hungary (but not the northern European lowlands). Furthermore, in looking at maps of the exchange systems involving snails at this time (Gronenborn, 1999), it is apparent that the primary route is via the Rhone River delta northwards to the Swiss Lakes and later Celtic heartland (headwaters of the Rhine and Danube Rivers) to be mirrored in Hallstatt times trade networks via the Greek colony at Massalia (Marseille) near the Rhone delta.

One particularly interesting area relating to this expansion, with continuity possibly to present times, is the region of Valcamonica in the Camonica Valley between the Italian Lakes and Switzerland. Here are an amazing 350,000 carved figures on rock (e.g.,

extinct animals, Neolithic farming scenes, Bronze Age weapons, what appears to be the Celtic god Cerunnos, chariots) that date from circa 8000 BC until 16 AD. This unique site is comparable to da Vinci's fresco, "The Last Supper"; or the Bayeux Tapestry showing the details of the Norman invasion of England. It also suggests a continuity of population here, hence humans had permanently established themselves in the Southern Alpine region before the time of the Mesolithic – Neolithic transition. This region was named after the Camunni tribe. It was the home of the Lepontic (proto-Celtic) speaking Golesecca culture which merged with the incoming Celts from north of the Alps circa 400 BC to form the Insubres tribe.

The relatively few archaeological sites dating to the centuries between 6700 and 6000 BC have shown evidence of extreme violence (before the arrival of the Neolithic agriculturalists). Two rockshelter sites in southern Germany (Grobe Ofnet and Hohlestein) have clusters of skulls ("nests") set in pits, and each showing trauma via vertical blows to the top of the head with polished adzes then decapitation, clearly suggesting, *intensive intergroup and possibly intragroup conflict* (Gronenborn, 1999, p.135).

Could the Paleolithic and Mesolithic Origins of R-U152 lie in an Italian Refugium?

Barbujani and Bertorelle (2001), in their work on genetics and the population history of Europe, show three refugia, with the migration from the Italian refugium pointing directly north.

The classic text on Stone Age Italy is that of Margherita Mussi, "Earliest Italy: An Overview of the Italian Paleolithic and Mesolithic" (2001). She provides ample evidence for a peninsula that has been continuously occupied since about 14,000 BC, but with few sites evident until about 12,000 BC, at which time there was an, *exponential growth in the number of sites* (p.366). Cave art reminiscent of that found in France and Spain is seen in the Apennines and coastal regions such as Liguria from the Paleolithic onward. At this time the lithic industries link the regions of Southern France with Central and Northwestern Italy. The western Alps were reoccupied by circa 11,000 BC. Among the Mesolithic sites include those that are multi-layered, suggesting long occupation. In Mesolithic times, *The circulation of the tiny Mediterranean shells also extended beyond the Alps and to modern Switzerland, apparently via the Rhone Valley* (p.356). A similar pattern of distribution of the mysterious Azilian painted pebbles can also be seen circa 9000 to 7000 BC, spanning the Sauveterrian time. It is possible that people also funneled north with the goods they carried from the Ligurian coast. Clearly some of the re-population of Europe, including Italy, derived from peoples who emerged from the Italian refugium. Mussi notes that by 5000 BC farmers not rooted in the local Mesolithic had reached Apulia from the east, although it is believed that in the northern areas such as the Alps, and many other regions, the old hunter-gatherer aboriginal population persisted, although their way of life had entirely vanished between 5,500 and 4,500 BC.

Further to the discussion above in relation to the R-U152 with DYS492 = 12 versus those who have 14 repeats at this location, it appears that the latter are found primarily north

of the Alps through Southern Germany to the Rhine and clustering in the area of Luxembourg and surrounding areas of Belgium, France and Germany. The modal 12 group includes most to date from Switzerland and Eastern Europe (likely settled from Bohemia, Switzerland and Central France). This distribution might reflect a bifurcation of R-U152 in Mesolithic or Neolithic times where the larger group with 12 repeats (generally L2 positive) heads directly north through the Alps or west along the coast to Marseilles, and north along the Rhone corridor to France and Switzerland. The group with 14 repeats perhaps headed through or around the eastern side of the Alps to the headwaters of the Danube and north to the Koblenz area. Clearly at this point little else can be said until more data is collected which includes the measurement of DYS492 (which to date has not been included in any academic studies).

Hence it is proposed that the “home” of R-U152 (after the ancestor left Central Asia before the LGM) is either the Marseilles – Rhone area of France, the Ligurian coast, or the northern Italian Peninsula – however these “spots” are not far removed geographically.

The “Lake – Dwelling Phenomenon” (6000 BC to 600 BC), the Celts, and R-U152

The thesis of the present work is that the people who emerged as the Hallstatt and La Tene Celts after in the 8th Century BC originated from peoples who had occupied the “homeland” (the Alpine region from western Austria to the eastern Jura in France) from the earliest Neolithic times. All belonged to the “lake-dweller” groups who merged seamlessly into the Hallstatt peoples of the same area. Hence there was (and is to this day) continuity from about 6000 BC forward, although there were periodic abandonments and movement to dry land locations largely tied to climatic events.

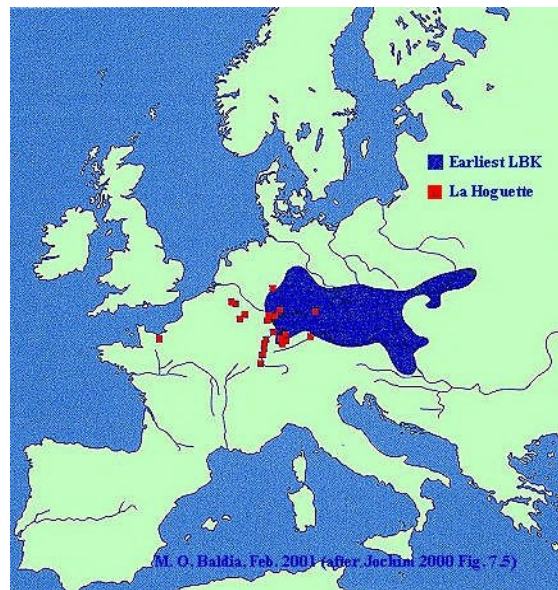
Among the most important sources for the pre – Hallstatt times is, “Living on the Lake in Prehistoric Europe: 150 Years of Lake-Dwelling Research”, edited by Francesco Menotti (2004). The “lake-dwelling Phenomenon” in Alpine Europe can be traced to the Mediterranean via an unlikely source – wheat. Menotti writes, *A number of theories have been formulated regarding the origin and spread of the lake-dwelling phenomenon in the Alpine region, but the most plausible one seems to argue for a southern provenance. The hypothesis is based on paleobotanical analyses of a specific kind of wheat also called the ‘lake-dwelling wheat’ (Triticum durum/trigidum), which is commonly found on the wetland sites around the Alps. Surprisingly enough, the origins of this wheat are to be located in the Mediterranean area which are dated to the sixth millennium BC. The northward expansion around the fifth millennium BC took two directions. One started in eastern France, cut through the Swiss Plateau, and finally reached southern Germany; and the other cut across the Slovenian marshlands on the eastern part of the Alps, eventually reaching Austria and the Bavarian region. The spread of the ‘lake-dwelling wheat’ around the Alpine region was completed at the beginning of the second half of the fifth millennium BC. Furthermore, The lake-dwelling phenomenon started in the fifth millennium BC and ended around the seventh century BC (p.2).* The overlapping cultural groups extant from the Mesolithic - Neolithic transition to the Bronze Age, radiated out of southwestern Germany (south of the Danube River) to include large regions of Central

Europe, including northern Italy, which are noted by Schlichtherle (2004). He also commented that, *The strange habit of living on wetlands may be due not to population expansion but to cultural traditions which spread from northern Italian wetlands and along the Rhone valley across Switzerland to southern Germany* (p.30). Petrequin and Bailly (2004) have asserted that these dwelling preferences, *were a variant of the fortified habitat and enclosures on dry land* (p.40), typical of the later period (e.g., Hallstatt) where hillforts and other defensible locations were widely employed. The studies of dendochronology, animal bones, archaeobotany, and underwater archaeological techniques have contributed to a robust understanding of this phenomenon.

The “lake-dwelling phenomenon” had its roots in the Cardial / Impressed pottery groups of the Mediterranean Coast of Italy, France, eastern Spain, and north along the Rhone Valley, and is dated to between **6000 and 5600 BC**. The possibility that this group has an association with the historically identified Central European Celts and genetic Y-chromosome haplogroup R-U152 will be explored below.

In approximately the same era, in this case **5500 to 4500 BC**, the archaeological horizon to the north in the Alpine area is known in very general terms as the Western Linear Pottery culture. The complex and shifting timeframes and geographical locations of many of these cultures (especially mega cultures) can be a challenge to follow since the information frequently varies as a function of the source. A fascinating phenomenon relating to this time and place are the burials from places such as Grobe Ofnet (dated to **5500 BC**), and other sites in the Rhone, Rhine, Danube headwater regions where heads (men, women and children) are placed in pits and lavishly decorated with ornamental mollusks or perforated red deer teeth (Eriksen, 2002).

Terminal Mesolithic – Early Neolithic Age in Central Europe: 5800 – 5500 BC



While it is very difficult to “pin down” the dating of the Neolithic since there was an aceramic period, often gradual transition, and widely differing times of the “Neolithic package” depending on the specific location in Europe.

The Neolithic traditionally began circa 9000 BC in the Fertile Crescent with the domestication of sheep and goats, and plant management in the same areas even earlier (10,000 BC). Mesolithic cave deposits have been interpreted as showing in France and Spain possible local domestication of wild plants and animals. However, the attempts pale in comparison with the “Neolithic package” arriving from the east via a series of settlements, reaching the eastern Italian coast by 6100 BC, the Ligurian coast circa 5500 BC and as far as Galicia in Portugal a mere 200 years later. The hinterland was however occupied by hunter – gatherers, who were the prime vector carrying the innovations northward (Zeder, 2008). This work in archaeology merges with autosomal genetic data (using Affymetrix gene – chip 500 k genotype data) showing a clear south to north cline in diversity but no such effect attributable to east to west movement (Lao et al., 2008).

An apparent offshoot or close relative of the western Mediterranean Cardial / Impressed group is the La Hoguette culture (ceramic tradition) which lasted from about 5800 to sometime after 5300 BC, and co-existed with the LBK culture to be noted later (and perhaps can be considered an early version of the latter, but in the western regions). Southern Germany lay at the boundary of these two groups. This is probably linked to the widening of exchange networks at this time where for example southern Germany saw materials brought from the Rhone River delta on the Mediterranean (e.g., 4000 shells from this area found with the above Grosse Ofnet burial site), from the Mosel River area to the north, and an expansion to the east further along the Danube (Jochim, 1998). The point of origin appears to be from the nucleated settlement in the Rhone – Ligurian area.

Jochim (1998) includes a map of the distribution of LBK and LaHoguette sites in Southern Germany. It is apparent that the LBK predominates everywhere, and the LaHoguette finds are thinly scattered on the west side of the Upper Rhine, but heavily intermixed with the LBK sites along the Neckar River Valley (see Figure 86). The percentage of these two groups appear to mirror what is seen with haplogroup R-U152 where DYS492=12 predominates with DYS492=14 making up around one in 10 of the total (one in three in some parts of southern Germany) – the same general ratio seen in LBK to LaHoguette sites. It may be a coincidence, or hint at the different origins of each Y subgroup.

Sheep and goat but not cattle and pigs are characteristic (as well as continued reliance on roe deer and boars), and early horticulture prior to the arrival of the Neolithic LBK assemblages originating in the eastern Danubian areas. The distribution includes the key areas of Switzerland and Southwest Germany, as well as the Rhine Valley in the Trier area. Since these will later become R-U152 “hotspots” and Celtic occupied regions this pattern is noteworthy and may be significant.

It is at this juncture, between about 5,500 and 5,400 when evidence emerges that strongly points to the development of territoriality as competition for resources with an expanding

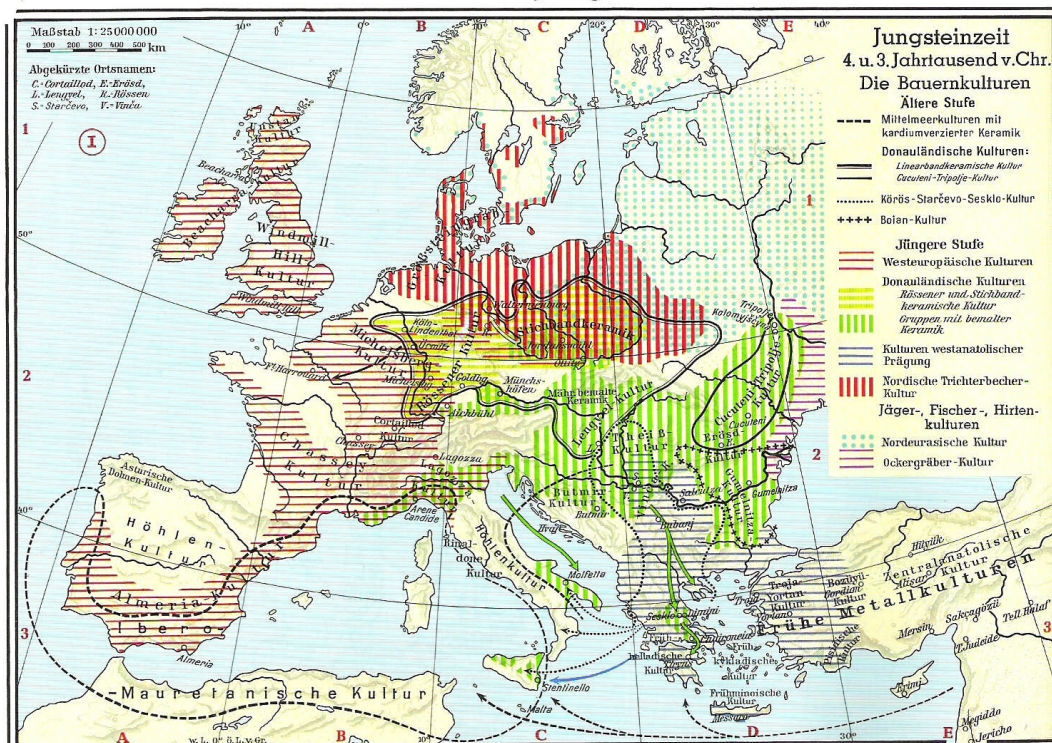
population may have caused serious friction. At Grosse Ofnet there is a ritualized burial of 33 skulls including men, women and children. Jochim (1998) reports that, *All skulls were placed in depressions facing west and many showed signs of blows to the head and decapitation* (p.212).

Neolithic Age: 5500 – 2200 BC

By **5500 BC**, immediately north of the Alps, the Linearbandkeramik, abbreviated to **LBK** culture is established. The LBK is suggested to develop from Late Starčevo -Körös-Criș roots and /or Serbian Vinča influences in Transdanubia (across the Danube in Hungary) (Sherratt, 1997). Carbon 14 dating points to the earliest LBK occurring in Transdanubia, and traveling 650 kilometers in the first 200 years to arrive in Franconia about 5500 BC. Carbon 14 dating also suggests that the **LBK may have reached the Rhine about 5400 BC** at the interface with the La Hoguette culture (Gronenborn, 1999). A local component is the Grossgartach culture, whose pottery style (incised linear decoration) extends from the western Czech Republic and Salzburg, Austria across central Germany to eastern France and south to Switzerland (the primary distribution center being in the Rhine Valley). This horizon is dated circa **5000 to 4600 BC**. The heaviest concentration of sites appears to be in the Baden-Württemberg and Bavarian areas of Germany. The configuration encompasses the heartland of the later Hallstatt – La Tène culture, and is the proposed homeland of R-U152, one of the most common haplogroups in the region today. However, the Swiss Lake country extending northeast into Germany may have contained pockets of “Mesolithic holdouts”, hunter – gathers who had not adopted the bulk of the agricultural package (Gronenborn, 1999 – see map p.166). Gronenborn (1999) has concluded that even late in the LBK, *it remains possible that an economy based on the Terminal Mesolithic pattern of hunting, gathering and small-scale horticulture survived in remote areas, such as along the Alpine ridge* (p.190). Jochim (1998) noted that with the dawn of the agricultural age the Mesolithic hunter-gathers in Southern Germany appear to have retreated to the upland regions which were not favored by those practicing an agricultural economy. He says further that, *Switzerland as a whole constituted a similar kind of Late Mesolithic refuge and thus was not settled by farming groups until later* (p.223).

Martin Balluf (personal communication, 2008) located a series of 8 maps showing the archaeological cultures of the “homeland” between circa 5500 to 2200 BC. To see this in pdf format, [click here](#). Change the settings to view each area in closer detail. These pages also give his considered opinion on the early archaeological cultures that have a connection to R-U152. While the information is written in German, it is quite intuitive for English speakers to interpret.

Kulturen der Jungsteinzeit



Certainly it was via the east where, within 500 years, an agricultural economy spread at a rapid pace from the Hungarian plain east to Ukraine, and west to Eastern France. In addition to their characteristic pottery with bands of narrow lines, the LBK folk also had timber – built longhouses about 12 meters in length, and relied on cattle (50-80% of faunal assemblages) and free ranging pigs, as well as sheep, goat and dog (Gronenborn, 1999). Although over the years opinions have varied, today the consensus seems to be that, *the LBK Neolithic farmers of Europe were the direct descendants of indigenous Mesolithic hunter-gatherers rather than of immigrants who had originally arrived in Greece*. The cultural continuity was so strong that, *A house from the village of Cuiry-les-Chaudardes in the Paris basin will appear near-identical to one from Miskovice in the Czech Republic, constructed almost 1000 kilometres away and several hundred years before* (Mithen, 1994, pp.180-181). Cemeteries were adjacent to the villages. Mithen provides a sense of what life was like for the people of the LBK.

The map above shows the LBK (depicted within the double line), where, with the associated Rössen and Michelsberg cultures, the Hallstatt and La Tène cultures would later flourish. The yellow includes the Rössen and Michelsberg cultures, and the green represents the Lengyl culture **5500-3500 BC**. Also shown is the movement of the agriculturalists of the Vinča and Lengyl cultures of the east which moved up the Danube River to interface with the aboriginal cultures of the area.

The agricultural package included rectangular post-built houses up to 30 meters long made of mud-plastered branches semi-organized in settlement clusters. Typical pottery includes round bowls decorated with incised linear lines. Cultivars include emmer and

einkorn wheat and various legumes (lentils and peas). Stock was primarily cattle with some sheep, goat and pigs. Inhumation cemeteries with some grave furnishing (but no evidence of social stratification) were close to the settlements (Shaw and Jameson, 1999).

The usual differences of opinion in relation to demic diffusion (folk migration) versus cultural diffusion (acculturation with little genetic change) occur in relation to the LBK and the introduction of agriculture. Haak et al. (2005) used ancient DNA, specifically mtDNA (mitochondrial, maternal lineage) analysis of 24 skeletons largely from Germany and all dated to the LBK to explore this matter. The fact that 6 of these individuals were typed as haplogroup N1a, which is exceedingly rare in Central Europe today (being more common in the Near East), was interpreted as evidence for a mixed pattern of adoption of agriculture, with the indigenous population predominating. The other 18 samples (four H, two HV, five T, four K, one each of V, J*, U3) are common and widespread across Europe in Iron-Age times (Melchior et al., 2007) and today (e.g., Helgason et al., 2001). The authors conclude that, *Quantitatively, modern Europeans therefore do not appear to be maternally descended from the first farmers* (p.1017); and that *our data lend weight to the arguments for a Paleolithic origin of Europeans* (p.1018).

Population Replacement or Gradual Assimilation - However, for a number of excellent reasons, the Haak data can be interpreted to reflect the opposite of their conclusions, in other words that there was a significant reduction, possibly even extinction, of Paleolithic lineages during the time of agricultural expansion. The same principle, and cautions, can be applied to the Y-DNA evidence which assumes, without the support of ancient DNA evidence, that certain populations such as the Basques (who speak a non Indo-European language), are representatives of archaic autochthonous populations who have resided in the same area since Paleolithic times. The lack of supporting ancient DNA evidence of any sort, and the very low diversity levels, could well argue for a population replacement in Neolithic or later times via a migration from the east. See the work of Cavalli-Sforza (1995) who, after examining a host of genetic factors, has concluded that there has been a stubborn adherence to cultural diffusion models when demic diffusion better explains the totality of the data. Similarly, Levy-Coffman (2006) has examined the mtDNA data in relation to archaeological and other data sources and concluded that the genetic landscape of today may bear little resemblance to that of Paleolithic times and that the assumed genetic continuity cannot be supported based on the available evidence. This opens up a Pandora's box of issues, so until there is further agreement one way or the other the present work will adhere to the perspective generally accepted by the population genetics community, that is to say, only about 20% of Western European genes derive from Neolithic agriculturalists, with the bulk of the population tracing its Y-line ancestry to Paleolithic hunter - gatherers autochthonous to the region. Sampietro et al. (2007) studied the ancient DNA of a Neolithic sample from northeastern Spain and found that it did not differ from present - day samples. The authors contrasted their data to that of Haak et al. (2005) and propose a dual model of Neolithic spread with acculturation in Central Europe (during the LBK) and demic diffusion (wave or advance) in southern Europe (via the Cardial / Impressed Ware culture).

It is clear that as the LBK was drawing to a close there is evidence of a dramatic increase in fortified villages and extreme violence. One of the most noteworthy finds here is the cemetery at Talheim where 34 individuals, apparently all closely related, *were dumped into a large daub pit. Many of them show traces of blows with shoe-last adzes and club-like weapons* (Gronenborn, 1999), p.188). Furthermore, *The evidence from these sites and others all demonstrate one pattern: Late LBK war parties set out to eradicate whole villages and annihilate most of their inhabitants. During these viscious and competitive struggles, LBK society collapsed* (Gronenborn, 1999, p.189). The Swiss “lake-dwelling” communities, being somewhat peripheral (in the Alpine margins) may have largely escaped this unpleasantness.





While the Rössen circled the region of the headwaters of the Danube and both the west and east banks of the Rhine River, the linked Egolwil group from circa **4800 BC to circa 3800 BC**, focused on a settlement on Lake Wauwil in Lucerne, Switzerland. This horizon is located south of the Rhine where it has made a loop to travel from east to west. Both have strong trading links (e.g., axe blades) to the “Vasi a Vocca Quadratta culture” of northwest Italy, and “Pre-Chasseen” of the Mediterranean Coast (Thirault, 2004). The earliest Carbon 14 dates for the Egolwil from archaeobotanical specimens are between **4380** and **4280 BC**, and, according to Jacomet (2004), *This is the oldest known lake-dwelling ‘culture’ and sites are known from Lake Zurich, the Wauwiler Moos and now from Lake Zug* (p.165), and for reasons unknown the opium poppy was grown in profusion. Were Neolithic opium dens part of the cultural landscape, or did our early ancestors recognize the pain relieving properties of the derivative morphine?

The successor to the Egolwil culture is the Cortaillo culture of the same region of western Switzerland (e.g., Lake Neuchatel), and is contemporary with the Michelsberg and Chasseren cultures (see later). *Typical features of the Cortaillo pottery assemblages are lugs, cordons, and high ‘S-profile’ jars, the presence of lamps, large numbers of antler beakers and the use of birchbark appliqué decoration* (Shaw and Jameson, 1999, p.179). It is also contemporary with, and the western equivalent of, the eastern Pfyn culture (more later). There also appears to be a strong continuity with similar trade patterns from the Chassey culture of both sides of the Rhone Valley as well as the Mediterranean Coast to the regions that slowly morphed from earlier cultures in the Upper Rhine, including the area from Lake Neuchatel to Lake Bodensee (Constance), the Swiss plateau of Haute-Savoie, and the Valais Valley; but also includes the Italian Alpine fringes which are within the orbit of the lakeside village cultures (e.g., Sherratt, 1994). The Chassey and Cortaillo have strong cultural links, as do the adjacent Cortaillo and Pfyn cultures. All appear to have ties to the cultures of Eastern Languedoc and Eastern Burgundy (Thibault, 2004). Each is a successor to the LBK (north) and Cardial Ware cultures (south).

The Michelsberg culture (circa **4400 to 3500 BC**) evolves out of the Rossen in the Rhine area, and is observed at sites from Bohemia to the Paris Basin. The component in the eastern France (Chassey), southern Germany and Switzerland region flourished **3500 to 3000 BC** and is seen in the LBK map above. More specifically, the Bischhen culture is dated to circa **4600 to 4200 BC** along the Saale River in Central Germany.

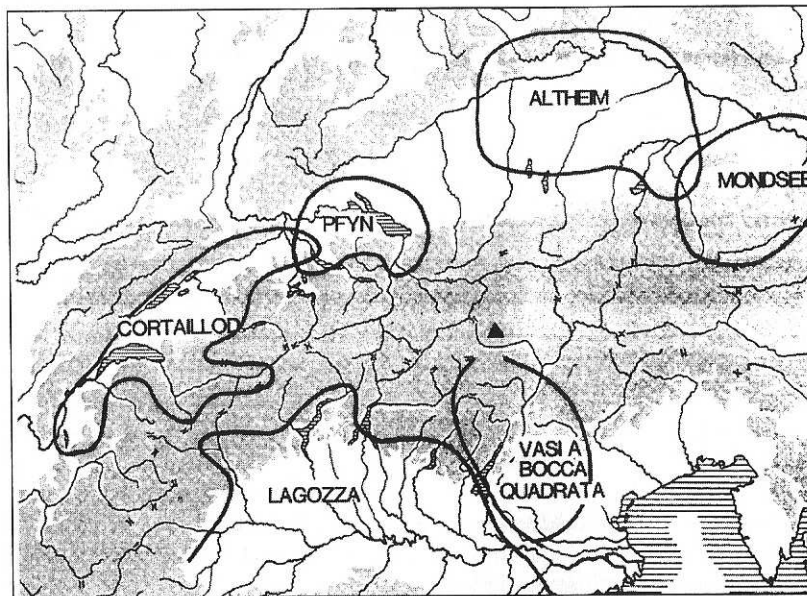
It is interesting to note that Oetsi, the “Iceman” warrior – shepherd mummy was found with a complete Neolithic – Copper Age hunting kit in the glaciers of the Tyrolean Alps on the border between Italy and Austria (Italy won out and his remains are housed in Bolzano). He died about **3500 BC**. Considering his wounds, and those seen on other skeletons of the time, there was considerable violence – although whether inter or intra-tribal is unknown. His home has been placed at Val Venosta (near Valcamonica noted above) among the Ladin peoples who possess the same mitochondrial (maternal line) DNA as the “Iceman” – haplogroup K (K1* in the case of Oetsi – see Rollo et al., 2006) - at a very high rate to this day (Thomas et al., 2007). Perhaps one day the ancient DNA techniques will have progressed so that we can determine whether Oetsi was Y-DNA R-U152.

Chalcolithic (Copper) Age: 3500 to 2500 BC

The first securely dated copper mining in western Europe began 3500 BC nearby in Liguria, northwest Italy (Maggi and Pearce, 2004). It is also at this time (**3500 BC**) that the Balkan – Danubian Complex, which has developed the use of copper technology, has moved from the Thracian area of the Black Sea to what would become Austria and merged almost seamlessly into the Corded Ware horizon (culture) (or becomes same) overlapping in the eastern tier around the Danube River directly above the Adriatic Sea by **3200 BC**. It is interesting that Cruciani et al. (2007) determined a date of 3300 BC for an expansion of two genetic Y-chromosome haplogroups from the Balkan Region. Both E3b (M78 – V13) and J2 (M12), originating in the Balkans, apparently diffused into Northwest Europe at this time. It is unknown at present whether other haplogroups accompanied them; although the relative scarcity of E3b and J2 in Northern Europe today may indicate that they were minority groups. They are candidates for those who introduced agriculture to the northern and central regions. A more numerically significant group in Europe, haplogroup I in the form of M253, P37.2 and M223, is believed to have originated in the Balkan – Thracian area (Vinchha or Lengyl culture?) and perhaps the latter three groups migrated with E-M78 and J-M172 to the Northwest, their ranks being thinned with distance from the homeland.

More specifically in terms of local expression, emerging out of the Michelsberg culture (or to some degree parallel with it), the Pfyn cultural assemblages are found in South Germany and North Switzerland (particularly lakeside villages around Lakes Zurich and Constance), and date to circa **3900 to 3400 BC** and are contemporary with the Cortaloid cultural complex to the immediate west (sharing lithic assemblage features with this group and Michelsberg). The finding of crucibles suggests local metalworking. Here one finds pole built lake dwellings, and wetland villages with rows of small rectangular houses surrounded by palisades (including the first recorded cattle stable in the region).

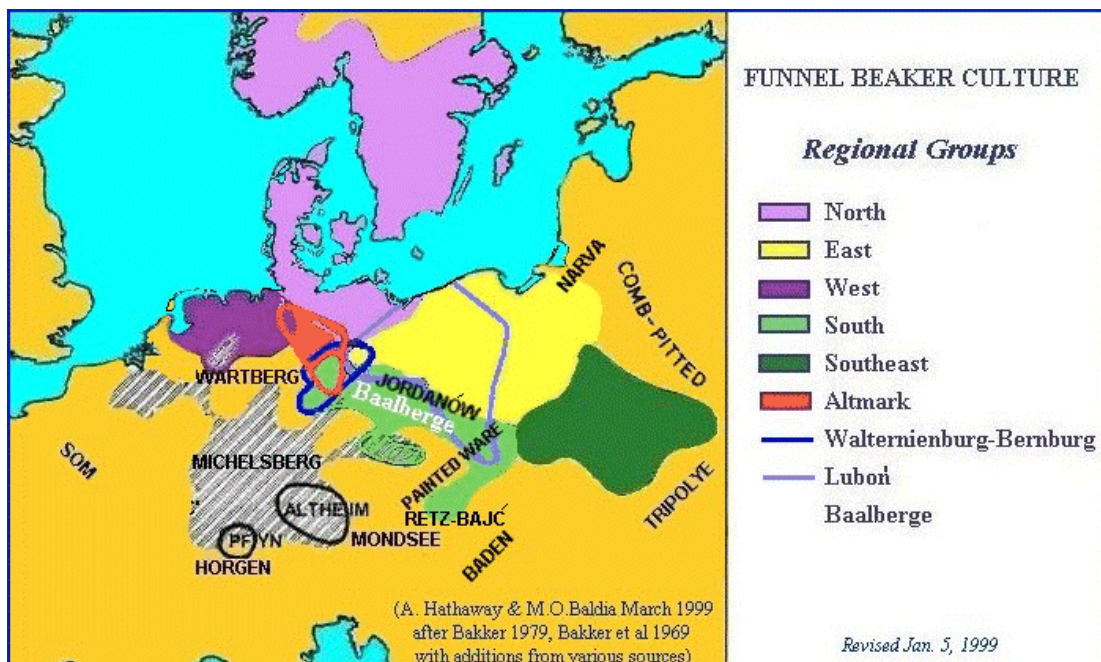
The pottery includes flat-bottomed vessels with Rossen-type features (Shaw and Jameson, 1999). Due to the wetland conditions dendochronological dating has given a degree of precision – with settlements securely dated to between **3867 and 3507 BC**. At this time a range of agricultural practices were introduced, probably via the Lengyl culture. While hunting of the chamois and red deer were still important, concerning animal husbandry, the raising of pigs and cattle assumed a high degree of importance, particularly in the Mondsee group. The latter were a breed smaller in size and with sharply curved horns; while the pigs had much larger height at the withers relative to the animals being raised in the adjacent Danubian area or in northern Central Europe. These “farm animals”, however, were similar to those found as far east as the Slovenia region (which also had lakeside dwelling traditions), in the French Chassey, Swiss Cortailloid and Italian Lagozza site regions as well as the Pfyn groupings, thus suggesting a distinct Alpine cultural community (Ruttkey et al., 2004). It is here that the present author posits that R-U152 was the dominant haplogroup, and remains strong in numbers to this day.



Bodenseegebiet um 4000 v.u.Z.: jungsteinzeitliche Pfynkultur mit benachbarten Kulturen im Alpenraum. (nach L. Barfield)

There also appear to be cultural affiliations with the Mondsee and Altheim groups. The latter is found in Eastern and Western Bavaria and Western Bohemia (Czech Republic) with dates 3700 to 3400 BC (overlapping the Late Michelsberg, Altheim, and Baalberge). A culture between the Pfyn and Altheim is the Pfyn-Altheim, **3738** (dendochronologically dated) to **3600 BC**, located between Lake Bodensee (Constance) and Altheim in Eastern Bavaria. Copper smelting was introduced at this time with the eastern-residing Mondsee group of the Salzkammergut lakes (Austria) being the leaders in this industry, with evidence that they were the first to introduce processing with arsenic copper (between **3947 and 3871 BC**) (Ruttkey et al., 2004). The Cham culture **3200 to 2600 BC** succeeds the above.

The Pfyn seems to give rise to the Horgen culture (circa **3250 to 2850 BC**), with sites stratified over top of the former, and has been called “the flax culture” by Jacomet (2004). This culture has been identified in northern Switzerland and southwest Germany, and (despite the distance) linked to the Seine–Oise–Marne complex in France (which succeeds the Chassen complex), and comes to an end as the Luscherz and Saone–Rhône assemblages of western Switzerland make an appearance. Continuity is shown in findings such as an assemblage of dog bones and pendants made from dog metapodials (unusual in the area), observed from Cortailloud to Horgen times, and suggesting a close connection between humans and dogs at this time and this place. More locally there appears to have been a great deal of movement between the Horgen group and the more southerly Ferrières - Clairvaux villages in the French Jura and reflecting a longstanding “tradition” of moving between lakeside locations and dry land sites during the period under consideration (Petrequin and Bailly, 2004).

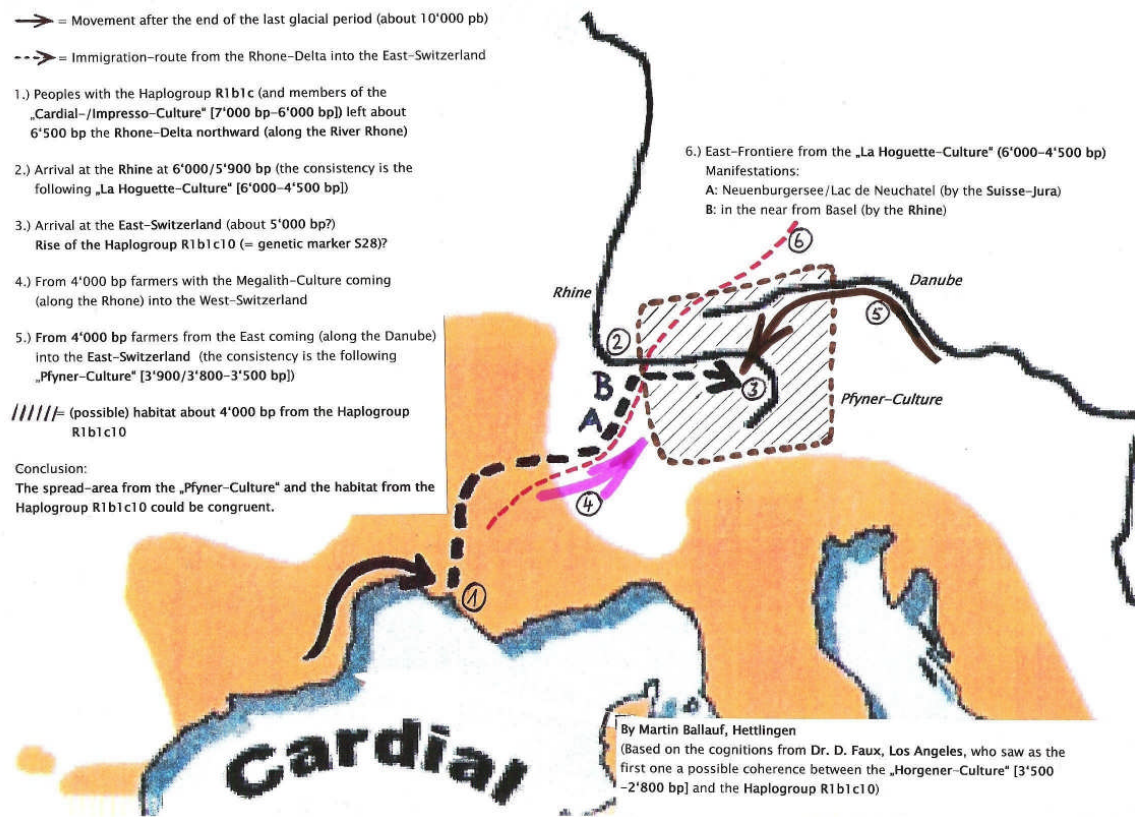


There are many cultures on the periphery of what would become the La Tene area, and which may or may not have contributed to Hallstatt and or La Tene. For example the Baalberge culture (see map above) has been dated to **3800 to 3350 BC**, and part overlaps with the Michelsberg culture (see map below) in the southwest. It is part of what is known as the Funnelbeaker group.

Another noteworthy group is the Wartberg culture (seen in the map above), with sites dated to **3600 to 2700 BC**. Here the grave architecture is very distinctive (galley graves), not similar to the nearby regions of the Netherlands and Northern Germany, but instead distant regions such as the Paris Basin (Raetzl-Fabian, 2002). There is a gradual change to the Single Grave culture. There are clear pottery links to Horgen – Pfyn areas during the period between **3500 and 3000 BC**.

Any one site may span 1000 or more years. For example at Zurich – Mozartstrasse dendochronological dates show occupation from **3661 BC** in the Early Neolithic to **2599 BC** in the Corded Ware Period.

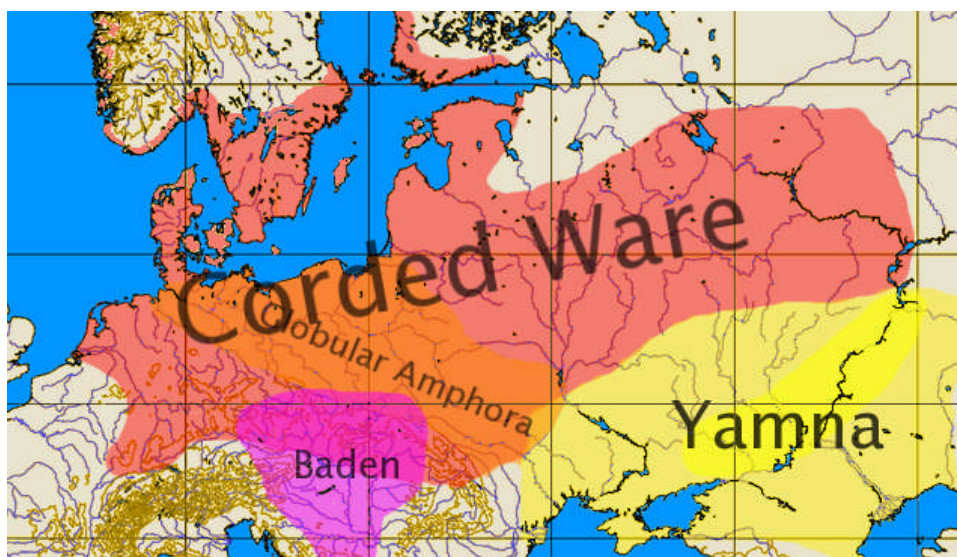
It may or may not be noteworthy that these horizons (particularly the Pfyn – Horgen) are situated in the present “hotspot” of R-U152.



Martin Ballauf has proposed a connection between the Cardial / Impressed Ware, La Hogue, Horgen and Pfyn cultures as they relate to R-U152, as shown above. As noted previously, it is possible that there were two migrations to the region – one during late Magdalenian times (Mesolithic), and a second following more or less the same path from the Mediterranean up the Rhone Valley to the region of the headwaters of the Danube and Rhine Rivers (Neolithic) to become the people of the La Hogue culture. This may explain the bifurcation of R-U152 into two clearly defined groups with either 12 or 14 repeats on the Y-chromosome short tandem repeat (STR) marker DYS492. While it appears that there may be more R-U152 with the value of 12 (except in southern Germany), eventually with a larger database the regional distribution of each may display a pattern which can hint at their respective ancient origins. However, what will ultimately provide the evidence as to the time and place of origin of each variety of this haplogroup will be ancient Y-DNA data from securely dated archaeological contexts.

Between **2850** and **2300 BC** the Corded Ware / Single Grave / Battle Axe cultures were ubiquitous over Northern Europe to Belgium and across the Northern tier of the Alps, and introduced metals to these regions. The Central European Corded Ware / Single Grave cultures encompassed the region of Northern Switzerland east to the Czech Republic and Southern Poland. Specific traditions included the Schonfeld in central Germany, the Auvernier in Switzerland, and the Saone–Rhône in France. The agrarian economy appears to be expansive, with increased use of the plough, and a secondary focus on stock – breeding. The artifact assemblages are characterized by handle-less beakers decorated on the upper half by impressions of cords (likely used as part of an alcohol consuming ritual), as well as by stone axes, highly polished, with a hole bored in the center, and a curved “battle axe” blade. Also typical are male burials covered by a circular mound. Previous interpretations included the appearance of an intrusive people from the Russian steppes (bringing the Proto Indo-European languages to the west), but today most archaeologists see the evidence as reflecting the adoption of a cultural package by locals, and the emergence of an aggressive male warrior culture (Sherratt, 1994; Shaw and Jameson, 1999).

To the east is the second grouping, the Eastern Corded Ware cultures, extending to Ukraine and Russia. The territorial pattern of the Eastern Corded Ware cultures and Single Grave cultures appears to closely match the present – day distribution of R-U106, with the Myres et al. (2007) data showing a strong representation in Russia westward to Holland (with the highest percentage of S21), but fading out to the west in France and south to Italy (with the lowest percentages in the European sample). The EthnoAncestry Database (2007) shows a high percentage of S21 in Scandinavia (e.g., Norway). It is interesting that one of the highest percentages of R-M269 is in the far - east among the Bashkir of Russia (Lobov et al., 2007) where up to 77% of these people of the Volga – Ural region are R-M269 (and with further testing, may be found largely U106, P312, or U152 or “Eastern” M269). The data, however, await publication in a peer – reviewed journal and should be considered tentative for the moment.



Map of Corded Ware cultures 3500 – 2800 BC.

Furthermore in the east, among the Yamna and successor cultures, would likely be R-M17 people originally from the Eurasian steppes who may have added more R-M17 to the mix. Hence, R-U106, R-P312*, and R1a1; plus (old style) E3b, J2, I1a, I1b1 and I1b2 were likely neighbors of R-U152 and some would probably merge into the core La Tene ethnic mix. For further reading about the archaeological data pertaining to the above and subsequent cultures (discussed below), click [here](#) for a single source website on pre-historic Europe, and for the Neolithic and Copper Age onward, click [here](#).

As the Neolithic was about to give way to the Chalcolithic, there is evidence of a cultural continuity extending from the rock engravings at Val Camonica in Alpine Italy, the statue menhirs constructed on top of soil with plough marks at Val d'Acosta, the Petit-Chasseur site at Sion, Switzerland to the north, and sites in the Paris Basin and the Midi. What is interesting is that it appears in the context of these sites over but a few generations that, *there is a shift of image, from the female, 'mother goddess' representations of old Europe and the far west, to the new male qualities associated with warrior values. In the world that would follow, it was the latter values that would prevail* (Sherratt, 1994, p.200). Specifically the stelae typically have daggers, or a bow slung over the shoulder on them. Sherratt attributes this change to the intrusion from the Rhine and Rhone of small groups of an elite warrior class during Bell – Beaker times which would have permanent social implications that would extend into subsequent cultures. It might even be possible to trace the Celtic “cult of the warrior” to these times.

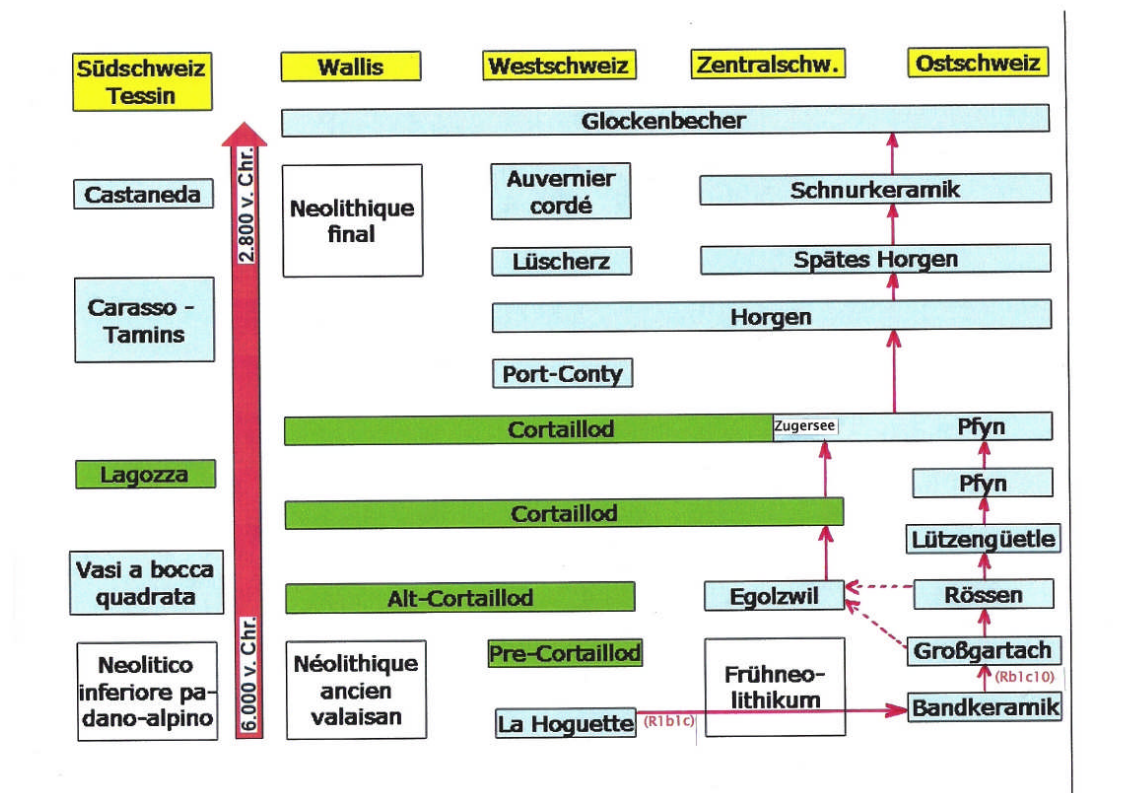


Chart showing early archaeological cultures in Switzerland to arrival of the Beaker culture

A Summary to This Point - The red arrows shown in the above chart represents the perspective of Martin Balluf of Switzerland on the Y-chromosome haplogroup(s) associated with each archaeologically recognized culture in the region. The present author sees the likely scenario as the ancestors of the Bankeramik (LBK) having arrived in Mesolithic times via the Rhone Valley corridor to the headwaters of the Rhine and Danube (and largely R-U152 with DYS492=14). Then in Neolithic times another movement from the Mediterranean via the Rhone route brought the La Hoguette people north to the more western reaches of the Alpine country (being largely R-U152 with DYS492=12) – both groups merging to form a more or less homogeneous culture in the Horgen phase. It is well understood that this matter will not be resolved until ancient DNA testing technology can assess the Y-chromosome haplogroup structure of samples from each of the above contexts.

The Bell Beaker culture now arrives on the scene about **2800** to **1900 BC** and includes (or is embedded in) the area occupied by the above Corded Ware cultures, but extending well to the west to include Iberia and the British Isles, replacing the megalithic (builders of the great stone “temples”) peoples. Here the culture appears to have begun in Iberia in search of copper, but ultimately in the movement to the east they came into contact with the Battle – Axe culture. This “Beaker tradition”, which came to dominate much of Europe, likely spread north and eastward largely by cultural diffusion, with the adoption of the technological knowledge (e.g., bronze working) and artifacts (e.g., stone wrist-guards) by local people. However what some have termed a “mercantile” group may have emerged as an incoming elite in the regions where they resided (Raftery, 2001). Some see this culture as a possible vector for the spread of R-P312 and subclades. VanderLinden (2006) emphasizes that the weight of evidence strongly points to local developments emerging not out of trade, nor migration, but rather from the movements of marriage partners. VanderLinden’s map (Figure 1 in his study) shows a more precise distribution of Bell Beaker sites. There are very few in the Central European area, with a cluster along the middle Rhine, around the big bend in the Rhine, and to the east a cluster downriver along the Danube. However it was during this era (particularly 2410 to 1800 BC) that saw a virtual disappearance in the “lake-dwelling phenomenon” where cultural, not climatological, factors are apparently linked to this hiatus (Magny, 2004) – although this interpretation is not accepted by others, who see evidence of continuity.



General areas (there are many blanks) where Beaker culture 2800 – 1900 BC is observed.

Bronze Age: 2500 - 900 BC in Central Europe

2500 BC (flourished circa 1700 BC) marks the approximate beginning of the Unetice culture (emerging out of the Beaker folk group) found on both sides of the Elbe River to the Baltic Sea in what is today the Czech Republic, Western Poland and Germany. It represents a fusion of the Corded Ware and Beaker traditions and is considered by many to be proto – Celtic. It is this Unetice group that introduced bronze objects to the region and made prestigious objects mainly for the elite of the area and mainly as status symbols. Many of these bronze objects ended up as votive offerings in bogs. It is not clear whether these people are ancestors of the eastern Hallstatt – La Tene Celts and included any R-U152.

One of the better documented sites of this time period is Auvernier on Lake Neuchatel, Switzerland. Radiocarbon and dendochronological dates suggest two occupations, **2350** and **1950 BC** (Suess and Strahm, 1970). There are remarkable similarities between sites in France, Switzerland, Germany, Austria, Slovenia, and Italy (particularly around Lake Garda) at this time that shows, *extensive contact between the trans-Alpine and southern Alpine areas* at this time (Marzatico, 2004, p.89). Some authors go so far as to suggest that the Garda settlements of the Early Bronze Age, are *probably associated with the arrival of new settlers from the mid-Danube region* (p.92) to Northern Italy.

Between **1600 and 1200 BC** the Tumulus culture dominated Central Europe, extending to Alsace (Haguenau culture) and emerged from the Unetice Culture. This group was named after practice of burying their dead under a mound. Early in this stage there is no evidence of immigration or disruptions in trade. Soon, however, a significant disruption occurred via a migration of “higher civilizations” from the southeast. They were likely an elite group who lived side by side with the previous occupants who may have been serfs to these war – like peoples for the first few generations. The incomers buried their dead in hollowed out oak tree trunks in full costume and replaced the megalith tombs with simple mounds as was done in southerly Danubian areas.

Some idea of the human dimension of daily life can be seen via the excavations at Toszeg, Hungary, *with its family houses and range of ceramic products: saucers, fish plates, portable fireplaces, miniature altars, idols, model chariots, baby bottles, rattles, animal statuettes, and so on. Small objects made from bone or antler that might belong to elements of a horse harness carry incised spiral motifs that recall certain Mycenaean motifs. In particular those figuring on metallic sword handles* (Mohen and Eluere, 1999, p.78).

These people may have brought their Indo – European language that was likely proto – Celtic. Kristiansen (1998) asserts that, *Although the overall tendency today is to stress continuity in settlement and culture between the Tumulus and Urnfield culture I find it difficult to maintain such a peaceful picture.* Furthermore, she believes that the evidence would support, as it does with the Hallstatt – La Tene cultural change, *a major reorganization of settlement and economy, leading to the rise of strong, pioneer farming communities expanding into new habitats both locally and over longer distances,*

supported by warrior chiefs (p. 385). At this point it is impossible to resolve the differing opinions relative to demic (folk movement) or cultural (gradual adoption of cultural package by locals) diffusion.

As the Bronze Age progressed through Early, Middle, and Late phases, there was a progression westward from Unetice to ultimately encompass the area that would become both the Hallstatt and La Tene regions, forming a “Northern Alpine” zone. It was largely independent of the surrounding zones such as the “Atlantic zone” which included the British Isles, northern and western France, plus all of Portugal and western Spain. Other zones included the Nordic, Lusatian, Carpathian, Italic and Iberian (Mohen and Elvere, 1999).

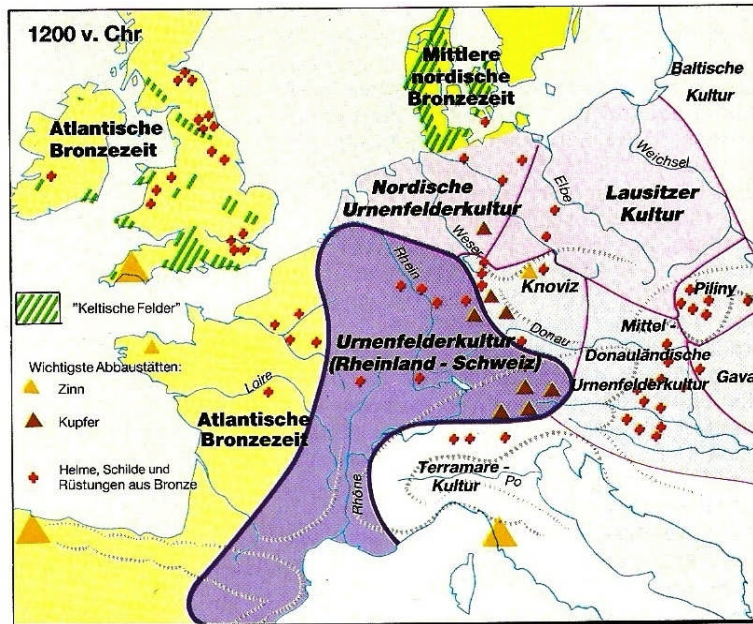
An interesting approach to understanding the environmental factors impacting the lives of those living in Switzerland and adjacent regions since **1500 BC** is that found in Holzhauser et al. (2004). They explored, *a comparison between high-resolution palaeohydrological and palaeoglaciological data in west-central Europe over the past 3500 years. A data set of tree-ring width, radiocarbon and archaeological data, in addition to historical sources, were used to reconstruct fluctuations of the Great Aletsch, the Gorner and the Lower Grindelwald glaciers in the Swiss Alps* (p.789).

The Urnfield Cultures (Ha A and B): 1300 to 750 BC

Powell (1980) stated that, *The evidence in surviving material culture and burial ritual indicates a general absorption of populations within the pastoralist tradition, and before the end of the thirteenth century BC, in that region north of the Alps, from Bohemia to the Rhine, crucial for the origin of the Celts, the stage became set for a final series of interrelated events within prehistory* (p.34). The events of which Powell was speaking included the appearance of a new cultural complex along the Upper Danube regions of Austria and Bavaria, rapidly spreading to the Swiss Lakes, the Upper and Middle Rhine valleys, and ultimately further north and west. The people of their culture resided in palisaded villages, led a settled agricultural life, and buried the cremated remains of their dead in urns. Powell (1980) stated, *It is this total population of the so-called ‘North Alpine Urnfield provenance’, centred in Southern Germany and Switzerland, that demands special scrutiny in relation to the coming into existence of the Celts* (p.34). Furthermore he noted that, *the pattern in rural settlement and economy, in material culture, and partly in burial ritual, established in the North Alpine Urnfield province, is found to be continuous, however variously enriched, into and throughout the span of the historical Celts* (p.40).

The “Urnfield culture” is a Late Bronze Age tradition which develops gradually, in what was to become the Celtic regions, from Western Hungary to Spain – in Reinecke’s classification this period is known as Hallstatt A and B. The origin of the cremation tradition appears to be the Balkans. This cultural grouping replaces the Tumulus culture. This appears to be a time of collapse of many civilizations and subsequent migrations (e.g., exodus of Israelites from Egypt ca. 1250 BC; collapse of Anatolian Hittite empire ca. 1180 BC).

It is contended by many scholars that the peoples of the Urnfield culture were Celts or proto - Celts. Germain to our discussion, by circa 1200 BC the Urnfield culture included component groups including the Central Urnfield (Hallstatt) culture, and the more eastern Lusatian culture in locations depicted in the map below.



What Powell has termed the “North Alpine Urnfield province” has been subdivided in recent work such that there was a “South – German Urnfield culture”, in the proposed homeland of R-U152, comprised of two components. First there was the “Lower – Main – Swabian” group situated in southern Hesse and Baden – Württemberg. Secondly, the “Rhenish–Swiss group” encompassed the Rhineland – Palatinate, Switzerland, and eastern France. Sharp borders with other groups are suggestive of “political structures like tribes” (Wikipedia entry for “Urnfield culture”). There was the “Knoviz culture” in western and northern Bohemia which may have been the nucleus that evolved into the eastern component of the La Tene Celts (see later).

Another map which seems to encompass the regions that would later be recognized as Celtic shows the distribution of the “Late Bronze Age wagon burials, 12th – 8th century BC” (koch, 2007, p. 114). It shows very clearly what would become the “heartland” of the Hallstatt C, and to a lesser degree D as well as a hint of the La Tene areas, and a scattering along the route to the Rhone River, with outliers in the Carpathians, as well as the area south of the Baltic Sea where the (presumed Celtic) Toutones would later reside and the Island of Fyn opposite Jutland in Denmark the home of the Celtic Cimbri in later times. Could this, along with the Urnfield map above, be highlighting the regions where R-U152 was located at that time?

The “Thraco – Cimmerian Hypothesis” - Perhaps it is time to pause and examine what can only be termed controversial historical evidence to the effect that an Eastern Celtic

group, part of the Cimmerian – Scythian people, blasted onto the world stage in the 7th and 8th Centuries BC initiating dramatic cultural changes.

There has been a great deal written about this matter since the Cimmerians are associated with the Biblical Gomer or Gomerians. The Cimmerians are first noted in 850 BC by Homer, and by many Classical writers in subsequent years – including historians of the stature of Herodotus (circa 450 BC). The latter provided a very clear perspective on the peoples who he said lived to the north of the Black Sea, indicating information that the Cimmerians became associated with the Thracians and merged with them, devastated a good part of the Middle East and Asia Minor only to be chased off the worlds stage by the Scythians and ultimately to disappear to the east and west.

It is believed by some authors that in the 8th Century a “Thraco – Cimmerian” migration triggered cultural changes that contributed to the transformation of the Urnfield culture into the Hallstatt C culture, ushering in the European Iron Age. Archaeological evidence in relation to the “Thraco – Cimmerian” hypothesis is carefully considered by Kristiansen (1998). She argues that *it has become commonplace in Anglo – American archaeology to dismiss migrations in a rather high – handed manner* (p. 185), and that a more careful analysis of cultural change is needed. Kristiansen speaks of the shift in production centers from Hungary to Italy and the Alpine region. The weight of evidence shows that there was a warrior culture of the horse / wagon complex that, from a Central European perspective, followed the Danube to the Hallstatt regions of the east (e.g., Austria) and in successive waves from the 9th to the 6th Centuries pushed further to the west. Ultimately one branch followed the Elbe River directly and a second migration backtracked west from the headwaters of the Rhine River northeast to the Elbe and north into Jutland. The entire Hallstatt complex was altered with new male prestige weapons and specialized horse tack and wagons that are new to the region, and are associated with new ruling elites especially in east Central Europe. She considers the influences to be not only Cimmerian but also Scythian (more recent nomadic “intruders”, originally from Central Asia, with a long and rich history). Rankin (1996) continues this theme, speaking of the evidence, *that Celtic peoples owe their origin to a specifically eastern warrior culture imposing itself upon an Eastern European culture of the Urnfield, Lausatian type, and introducing the lordly habit of tumulus burial* (p. 33).

Specific Thraco – Cimmerian archaeological finds with the earliest known iron goods (along with bronze items), such as horse bridles have been documented from the Balkans along the Danube corridor to Lake Zurich in Switzerland and north to Denmark dated from the 10th to 8th Centuries BC (Koch, 2007, map 157). It is now recognized that some of the Thracian tribes may have been Celtic. These incomers likely brought typical Balkan haplogroups to the western Celtic areas, probably decreasing in numbers as a function of distance from their home base.

The Bronze Age shift to the Iron Age was not altogether smooth and had regional features that delayed its introduction. Iron was in use in Greece by 1000 BC, but not until 750 BC did Central Europe see its introduction – and not until 500 BC did its use emerge in the Nordic zone. Changes were gradual rather than reflecting any sort of “revolution”.

The Fate of the Lake-Dwellers - The end of the Bronze Age saw the disappearance of the Alpine lake-dwelling phenomenon. The logical question is, “where did the people go?” There is no evidence that there was a catastrophic event which wiped out the lakeside populations. It is another matter, however, to find evidence to show, specifically, the new dwelling locations of the people. Menotti (2004) studied the fate of the population formerly residing in the Kreuzlingen settlement situated where the Rhine River joins Lake Constance. He showed that during the Middle Bronze Age the lakeshore sites were abandoned, and through a typological analysis of material culture (e.g., pottery styles), determined that the people simply moved to a succession of inland locations as lake levels rose. In other words there appears to be a simple displacement process at work which caused the people to set up new dwelling sites in upland areas, often joining other local cultural groups. In adapting to the drier environment, the results included economic and cultural changes, and acculturation to inland traditions. Ultimately the Hallstatt traditions emerged among the peoples of the region.

The Likelihood of Obtaining Data from Ancient Y-DNA Studies – In order to conclusively demonstrate the proposed lineal descendancy, extending from today back to the Neolithic or earlier times, perhaps the best source of data would be ancient DNA. The mitochondrial (mtDNA) study of Rollo et al. (2006) was noted earlier in reference to the 3500 year old “iceman mummy” (Oetsi), of the Italian Tyrol, who was determined to be haplogroup K1*. More salient for the purposes of the present work would be an analysis of Y-DNA. This task has proved to be very challenging, since mtDNA is more robust and resists post-mortem changes better than nuclear DNA (including the Y-chromosome). A study examining bone material from the extinct Beothuk people of Newfoundland, Canada (Kuch et al., 2007) has shown that it is possible to successfully amplify Y-SNPs (e.g., Q-M3). An analysis of the skeletal material from the Egyin Gol necropolis in Mongolia, dated from circa 300 BC to the 2nd Century AD (Keyser-Tracqui (2003), showed that Y-STRs can be amplified and genotyped. The haplotypes are similar to those found in the region to this date. The Y-STRs are predicted to be, for example, R-M17, and Q-M242) using the [Haplogroup Predictor](#) of Whit Athey. Closer to the Celtic region is the Lichtenstein Cave in the Harz Mountains of Lower Saxony where an apparent family cemetery dated to the years between 1000 and 700 BC (Bronze Age, Urnfield, Unstrut gruppe) yielded bone in an excellent state of preservation due to the gypsum (alkaloid conditions) and cold environment. Thirteen of the 19 males studied (Schilz, 2006) had Y-STR haplotypes (4 varieties) clearly indicating haplogroup I-M223 (although uncommon in Europe, that region is a “hotspot” to this day). Two were probable R-M17, and one was likely R-U106. Clearly such a find in the Celtic heartland of Central Europe would provide very strong evidence in relation to the continuity of the population structure from today (where we know R-U152 is common) through the Bronze Age, Neolithic times and earlier.

Hallstatt, La Tene and Celt: Major Source Material

There does not appear to be any serious disagreement with the assertion that the Hallstatt and subsequent La Tene cultural groupings were the people known to the Greeks and

Romans as the Keltoi, Galatai and similar names. Historians appear in profusion, commenting on the Celts / Gauls, and at times providing very specific and detailed information (e.g., Livy and Poseidonus). Most of these sources are freely available to researchers online and have been translated from the original Greek or Latin to English.

There are a number of useful atlases pertaining to the Celts, for example, *Atlas of the Celtic World* (Haywood, 2001) and *Historical Atlas of the Celtic World* (Konstam, 2003). Both use a blending of historical, linguistic and archaeological data to provide visual guides to chronological events. However, the single most useful source relating to the ancient Celts and their predecessors is, *An Atlas for Celtic Studies: Archaeology and Names in Ancient Europe and Early Medieval Ireland, Britain, and Brittany* by John T. Koch (2007). The latter (although purposefully avoiding a compilation of historical source material) provides an extraordinarily detailed visual compilation of single and multiple archaeological finds (e.g., burials, finds of swords of a particular type, horse trappings, stone monuments), and Celtic linguistic data (e.g., tribal names, settlement names). The presentation is in the form of a large road map atlas of Europe (and smaller more focused black and white maps) but without the inclusion of modern features. The timeframe covered in this resource in Central Europe extends from the Late Bronze Age (c. 1200 BC) through Hallstatt and La Tene times to the point when the Celtic language and culture vanishes into the mists (before 500 AD).

What can immediately be discerned is the valuable information that can be gleaned from, for example, just an examination of the geographical range of swords. The late Bronze Age (10th to 8th Century BC) carp's tongue sword (as well as the Amorican socketed axe) radiates from a saturation in Amorica (Brittany) to thin out north (Britain) and south (Iberia) and inland to central Gaul. These items are, however, represented to a lesser degree in the regions that would become the epicenters of the Hallstatt and La Tene traditions. A mirror image from about 700 BC occurs where the future Hallstatt and La Tene regions are replete with finds of iron Gundlingen swords, which are absent in the areas (especially the Atlantic fascade) where most of the carp's tongue swords were found. This observation highlights the interaction of exchange networks and cultural groupings.

There is also clear data upon which to draw conclusions about cultural continuity and change. For example a very specific mask-decorated fibulae (type of safety pin), is found in the Swiss Lake Region and also in the lands around Triers in the north-central range of the Celts, as well as Bohemia to the east in the 5th Century BC (map 182). This distribution pattern points to cultural continuity (although a gift exchange network or other interpretations are possible). Also illustrative is the geographical range of Late La Tene jugs of the Kelheim type where those known as "Gaulish handled cups" show continuity from the Le Pontic area of the Italian Alps, to the Swiss Lake District, to southern Germany, and north to Triers and the Rhone corridor (map 208). Other artifact assemblages, such as beaked flagons, are rare in the Swiss Lake zone, but relatively common among the Italian Insubres, and the area around Triers near the confluence of the Rhine and Mosel Rivers (map 204). This was the time (circa 480 BC) when the southern Hallstatt elite had lost their domination to the newest centers of power emerging

in the north - encompassing the Marne–Champagne area of France, the Mosel area of Germany, and the eastern grouping in Bohemia.

The prototypic early La Tene Celtic warrior aristocrat is always visualized as being adorned with the ubiquitous torc (decorative metal neck ring). Apparently the reality is that this image depends on time and place. Torc finds are frequent but spotty, and most clearly associated with chariot burials with Etruscan beaked flagons. The primary area of distribution of buffer end torcs, irrespective of elite burials, is focused on the Upper and Middle Rhine, Switzerland, and a very dense clustering in the Marne-Champagne zone, thus bridging territory usually considered “Hallstatt” as well as the La Tene Marne region (p.136).

A similar phenomenon can be observed with Late La Tene decorated scabbards (prototypic of the artistic style that captivates art historians) where the range is from the region of Paris to central Gaul, across the Swiss Lake zone, southern Germany, Bohemia, and southern Poland to the Carpathians (map 142). In the west the area of concentration is in the Hallstatt C and D zones rather than the three commonly depicted La Tene clusters.

Furthermore, from Hallstatt times there are indications of a cultural or even tribal link between the people of the Lake District in Italy (Golasecca culture) and those of the Swiss Lake District and southern Germany – which is proposed as far back as Neolithic times. For example, characteristic grooming items (e.g., ear spoons, nail clippers) may also highlight a common ethnic identity. In late Hallstatt these artifacts are commonly found in burials clustered in southern Germany, Switzerland, eastern and central France (the region of ‘late Hallstatt chiefdoms’), but also includes the Golasecca cultural region of Italy around Lake Como (p.151). This pattern is entirely consistent with Livy’s description of the first wave of migration from the region of Central France, circa 600 BC – led north by Segovesus and south by his brother Bellvesus of the Bituriges tribe. Later, among the Early La Tene (480 to 400 BC) burials, belt hooks with decorations depicting the ‘lord of the animals’ motif are found in a swath from the lower end of Lake Maggiore north to the junction of the Rhine River and Lake Constance (map 221). According to Koch, the *limited distribution might indicate use as an ethnic identifier* (p.143). Outliers in southern Poland, Austria, and the Rhone delta may hint at a wider spread of this tradition from the central nucleus. Again, referring to Livy, this assemblage fits well with the second wave of migration via the northern passes circa 400 BC.

The above data alone is enough to question the standard perspectives (as reflected in the maps found in for example, Haywood, 2001 and Konstam, 2003) that in the year 480 BC the Hallstatt D peoples had had their heyday, and faded away as the more vigorous northerners in three neat oval clusters subdued or overpowered their now defunct neighbors in for example southern Germany (Bavaria and Baden-Wurttemberg) - who generally do not even warrant a passing reference as the 5th Century BC draws to a close. What is different with the Koch work is that it is not a historical atlas as such. Instead the reader is given the data which permits them to draw their own conclusions – which will

often lead the reader to challenge long accepted and cherished assumptions – or add support to others.

Continued: Click [here](#) for Part 2.

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