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Human occupation of Euskalerrria during the Last Glacial Maximum: the Basque Solutrean

Ocupación humana de Euskalerrria durante el Ultimo Máximo Glaciar: El Solutrense vasco

PALABRAS CLAVE: Ultimo Máximo Glaciar, Solutrense, País Vasco.

KEY WORDS: Last Glacial Maximum, Solutrean, Basque Country.

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RESUMEN

En este capítulo se pasa revista a la evidencia de la ocupación humana del País Vasco durante el Ultimo Máximo Glaciar (ca. 21-16 kyr) y de los materiales culturales solutrenses hallados en la región. Se examina la tipología arqueológica y los indicios de las estrategias humanas de adaptación. Se presenta un resumen de cada yacimiento conocido, junto con datos cronológicos y paleo-ambientales y unas conclusiones generales.

SUMMARY

This chapter is a review of the evidence for human occupation of the Basque Country during the Last Glacial Maximum (ca.21-16 kyr) and of the Solutrean cultural materials found in the region. Archeological systematics and the indications of human adaptive strategies are discussed: A summary of each known site is presented, together with chronological and paleoenvironmental data and general conclusions.

RESUME

Dans ce chapitre nous passons en revue l'evidence de l'occupation humaine du Pays Basque pendant le Dernier Maximum Glaciaire (ca.21-16 kyr) et des matériaux culturels solutréens trouvés dans la région. Nous examinons la typologie archéologique et les indices des stratégies adaptatives humaines. Nous présentons un résumé de chaque gisement connu, ainsi que des données chronologiques et paléoenvironnementales et des conclusions générales.

INTRODUCTION

I am pleased and honored to offer this modest contribution in homage to Father JOSE MIGUEL DE BARRANDIARAN, the founder of modern Basque prehistory and ethnography, whose excavations are the basis of much of what we know of the Solutrean in the region and who provided me with important help during my doctoral research on the subject. Eskerrikasko! This chapter briefly summarizes what we know of Last Glacial Maximum human occupation of the region corresponding to the French Basque provinces of Labourd, Basse-Navarre and Soule (Pyrénées-Atlantiques Department) and the Spanish Basque provinces of Vizcaya and Guipúzcoa (Euskadi Region) and Navarra (Fig. 1). (There is as yet no such evidence from Alava).

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ENVIRONMENT AND CHRONOLOGY

The period between about 21-16 kyr corresponds to the core of the Wurm Upper Pleniglacial, with the Last Glacial Maximum centered on a date of about 18 kyr. Although tempered in SW Europe by two relatively milder oscillations («Laugerie» at ca. 20 kyr and «Lascaux» at ca.17 kyr), this was a period of extreme cold, with very low arboreal pollen, percentages indicating the existence of open, herbaceous vegetation, dotted by pine thickets in sheltered microhabitats of the complex relief of the Basque Country. Humidity, due to the coastal location, was generally high (indicated by the frequency of heathers and the occasional presence of oaks and other deciduous trees), but there were also very dry episodes during the Pleniglacial (LEROI-GOURHAN 1959; BOYER-KLEIN 1985; SANCHEZ, M.F. & ISTURIZ, M.J. 1987; DUPRE 1988). This picture is confirmed by pollen

analyses from Cantabria and Asturias. There is evidence of cryoclastic geomorphological activity in deposits of this period in Lezetxiki and Ekain (KORNPROBST & RAT 1967; ARESO 1984). CLIMAP (1976) reconstructs an extremely stormy, cold Bay of Biscay for the Last Glacial Maximum, with icebergs. Glaciers descended to very low elevations in the western Pyrenees and massifs of the eastern Cantabrian Cordillera (e.g., Sierra de Aralar KOPP 1965). Maximum sea level regression exposed 5-12 km. of the present continental shelf.

Deposits containing Solutrean points in the Basque Country have been dated by only a few radiocarbon determinations, although the number is growing rapidly. However, there are several other archeological levels that lack Solutrean points (possibly as a result of sampling accidents or because such artifacts had simply not been lost or discarded at these sites as a function of their particular roles as places in prehistoric settlement systems), but that date, by radiocarbon to the period of the Last Glacial Maximum. Solutrean levels with few or no Solutrean points are, after all, not uncommon. They occur in the midst of sequences of levels with Solutrean points, as at La Riera and Las Caldas in Asturias (STRAUS & CLARK 1986; CORCHON 1981). The Last Glacial Maximum dates of levels with and without Solutrean points from Basque sites are listed in Table 1. The levels lacking Solutrean points also lack, in my opinion, other temporally diagnostic artifacts that would override the radiocarbon dates (see STRAUS 1986). The question of Noailles burins, so common in the Basque Country, will be dealt with below.

THE SITES

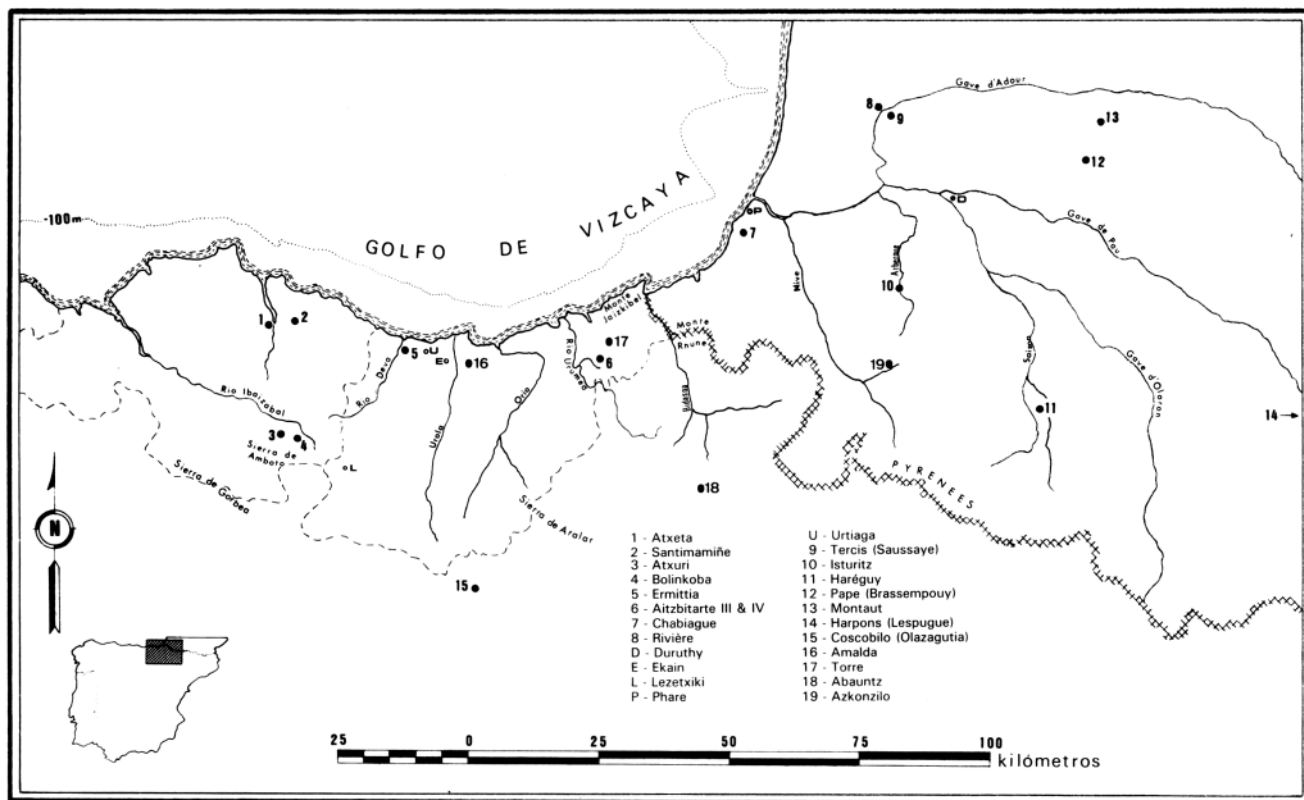
Due to space limitations, the reader is referred to my earlier publications (STRAUS 1974, 1975, 1977a, 1979, 1983), as well as to the original reports, for details on the sites. Perhaps the striking aspect of human settlement in the Basque Country during the Last Glacial Maximum is the scarcity of truly major sites, there being only one: Isturitz. This is true also for the adjacent areas of Les Landes, Béarn and eastern Cantabria, but is in sharp contrast with northern Aquitaine, western Cantabria and Asturias, where there are many long, rich Solutrean sequences in major sites (as well as many small, «poor» sites, more like the majority of the Basque loci). The mountainous Basque region seems to have been inhabited in only limited fashion, not only in the Solutrean, but also in the Early Upper Paleolithic-Isturitz again being a major exception. Unless the large, residential base camps were concentrated on the now-

inundated coastal plain (which is conceivable), the extant Basque region may well have been an exploitation area, much as may have been the mountainous interior of Cantabria and Asturias-exploited logistically by parties from base camps usually located on the coastal plain and in broad lower river valleys (generally lacking in the southern coastal Basque Country). The density of human settlement and the intensity of occupation increased markedly in the Basque Country during the subsequent Magdalenian (Tardiglacial), as they did in the Pyrenees, testimony perhaps to the increased exploitation of mountain habitats, as well as to the retreat of the glaciers. A brief review of the Basque Last Glacial Maximum sites follows.

SANTIMAMIÑE (Cortezubi, Vizcaya): This great cave site, far richer in Tardiglacial and Postglacial materials, is situated on the side of Monte San Miguel above a lateral valley, east of the Río Oca not far from the Guernica plain. Level VII yielded a single Solutrean point (rhomboidal, foliate, probably unifacial), published by ARANZADI & BARANDIARAN (1935: 16, Fig. 42f & Plate 24), but now lost. It was associated with 173 other retouched tools and a large collection of flint knapping debris studied by me in the Museo Histórico de Bilbao. The Perigordian Index (IP) is 15.4% and IB>IG. There are also a number of bone/antler implements. The preserved fauna is dominated by red deer, with small quantities of roe, ibex, chamois, bovine, fox and possibly reindeer.

ATXETA (Forua, Vizcaya): This small cave is located in the Guernica plain on the western edge of the present estuary, near the Pedernales flint source. Among the 14 flint tools found by J.M. DE BARANDIARAN (1960, 1961b) in the basal level (F) is a rhomboidal unifacial Solutrean point. Most of the rest of the tools are burins, and the debris includes a flake with invasive retouch. This scanty artifact assemblage was associated with some red deer remains. Atxeta may have been a logistical site for hunting and flint collecting, linked to Santimamiñe.

BOLINKOBA (Abadiano, Vizcaya): This is a specialized ibex-hunting site located on the steep side of a strategic gorge in the Sierra de Amboto, inland of Santimamiñe and Atxeta. The two levels with Solutrean points are bracketted by Gravettian and Magdalenian levels (BARANDIARAN 1950). The lower level (E) has one Solutrean laurel leaf point among its 195 tools, but the point's provenience is not entirely clear. Level D (with 527 stone tools and a large debris assemblage, as well as many sagaies and other bone/antler artifacts), however, yielded 5 bifacial laurel leaves, 2 unifacial points, 4 points reworked into other tool types, and other pieces with invasive re-



LAST GLACIAL MAXIMUM SITES OF THE BASQUE COUNTRY.

touch. Both levels have high Perigordian Indices (14.4 and 14.8% respectively) and many Noailles burins (8.7 and 4.9%). The faunas of both levels are heavily dominated by ibex (MNI=11 & 16), together with chamois, fox and a few other animals.

ATXURI (Mañaria, Vizcaya): Now destroyed, this site was located on the next gorge to the west of Bolinkoba in the same mountain chain. Already disturbed when salvaged by J.M. DE BARANDIARAN (1964c, d), Atxuri produced 2 certain and 1 possible Solutrean points (a concave base, a shouldered and a rhomboidal bifacial) made of flints like those found at Santimamiñe and Bolinkoba. This may have been another specialized ibex-hunting site.

ERMITTIA (Sasiola, Guipúzcoa): This cave (now partly destroyed by the highway) dominates the deep Río Deva gorge, not far from its mouth, in extremely rugged country. Ermitia was dug in 1924-26 by ARANZADI & BARANDIARAN (1928), who found a Solutrean level at the base, below the Magdalenian. I reconstructed the level contents at the Museo de San Telmo based on the stratigraphy and provenience data made on the artifacts. Of the 134 stone tools, 2 are Solutrean points (1 shouldered and 1 unifacial fragment). $IP=17.9$; $IB>IG$. Three possible Noailles burins and an eyed needle (found in the Solutrean, but not in the Gravettian) are illustrated by the ex-

cavators, but I could not find them. The lithic debris and bone artifact assemblages are very large, testifying to the carefulness of both excavation and curation. The fauna is dominated by ibex and chamois (MNI=8 & 4), together with many fur-bearing animals and a few red, roe and rein-deer, etc., according to ALTUNA (1972).

URTIAGA (Itziar, Guipúzcoa): Located near the head of a small stream in the very rugged coastal area between the Deva and Urola rivers, Urtiaga cave was dug in the 1930's and 50s by J.M. DE BARANDIARAN (ALTUNA 1972: 166-177, with references). No Solutrean points were found. LAPLACE and MERINO (1979) claim that there were 130 stone tools in Level F, as opposed to the 49 claimed by BARANDIARAN and DE SONNEVILLE-BORDES (1965), who attribute the level to the Final Magdalenian. That assignment is unlikely on the basis of the 17,050 B.P. date, which is contemporary with several late Solutrean dates at nearby Amalda, as well as throughout Spain. There are no Magdalenian harpoons (present in Level D), although there are backed bladelets and small, so-called Azilian points. The associated fauna is fairly large and diverse, with many red deer and other cervids (including reindeer), bovines, caprids and a horse, plus several fur-bearing species (ALTUNA 1972). Urtiaga may well have been a base camp near the

resources of the now-flooded coastal plain & the hills.

EKAIN (Cestona, Guipúzcoa): This cave is similarly located on the edge of the mountains, but a bit further inland (8 km.) than Urriaga, on a western tributary of the Rio Urola. It is a major art sanctuary and Magdalo-Azilian site. But Level VIII is dated to 20.900 B.P. It contained a few stone Upper Paleolithic tools (burins, truncations, backed bladelets), as well as sidescrapers and a chopper (MERINO 1984). The faunal assemblage is dominated by red deer and chamois (MNI=5 each), with smaller numbers of ibex, roe, boar and bovine (ALTUNA & MARIEZKURENA 1984). At the time of the Last Glacial Maximum, Ekain may have served as a minor site, hence its banal and ephemeral cultural residues.

AMALDA (Cestona, Guipúzcoa): Located on an eastern tributary of the Urola at the same distance from the coast as Ekain, Amalda has a Middle and Early Upper Paleolithic sequence capped by a level (IV) with two shouldered Solutrean points. The deposit began to form under cold conditions and ended under more temperate ones; it is dated between 17.580 and 16.090 B.P.

Despite the Solutrean diagnostics and the dates, the artifact assemblage includes Noailles burins, a Chatelperron knife and many backed bladelets and micropoints (cf. «Azilian» points). Evidence of *in situ* flint debitage is abundant, as are antler sagaies, needles and shell and tooth ornaments. The fauna is dominated by chamois and there is some reindeer, as in other Last Glacial sites of the region. Radiocarbon dates from underlying Level V and from its contact with VI would also place it in the Solutrean timeframe, but no Solutrean points have been found. Its fairly temperate climatic conditions might pertain to Laugerie. The tool assemblage is dominated by burins and backed bladelets, with numerous «micro-gravette» points. The fauna is similar, but lacks reindeer. A lower level (VI=27.400 B.P.) has many Noailles burins; it is a bonafide «Perigordian V» (ALTUNA et al. 1988).

LEZETXIKI (Mondragón, Guipúzcoa): A cave best known for its Mousterian materials and Neanderthal humerus, Lezetxiki is, with Bolinkoba, the most montane of the Basque sites at 375 m. above present sea level in mountains east of the Sierra de Amboto. The stratigraphy, chronology and cultural attributions are somewhat controversial (see resume in ALTUNA 1972: 133-148). Level IIIa is dated to 19.340 B.P. (MARIEZKURENA 1979), which would place it in the Solutrean timeframe, although usually attributed to the «Aurignacian». This level contains no

Solutrean points (or other temporal diagnostics). The fauna is dominated by chamois and red deer (MNI=12 & 8), followed by bovines, ibex, roe and reindeer, boar, horse and 3 remains from 2 genera of rhinoceros, plus many fur-bearers. The «point with uniface invasive retouch» from Level II (BARANDIARAN 1964b: 57, Fig. 3g), suggested to be a Solutrean indicator (I. BARANDIARAN 1967: 153), is not a Solutrean point, and at any rate that level also has a Magdalenian harpoon.

AITZBITARTE IV (Rentería, Guipúzcoa): This cave is the chief site in a cluster of three Solutrean loci in eastern Guipúzcoa. It is on a narrow, steep-sided tributary of the Rio Urumea, within sight of the coast at Donostia. The most recent excavations in this important Upper Paleolithic site were those of J.M. DE BARANDIARAN (1961a, 1962, 1963a, b, 1964a, 1965). The base of the fairly thick, complex Solutrean deposit in Aitzbitarte IV dates to 17.950 B.P. My reconstruction of the Solutrean assemblage contents yielded 335 stone tools and large numbers of cores and debitage. There are 17 unifaces, 3 bifacial laurel leaves, 1 willow leaf and 11 shouldered points - the latter found all the way to the base of the deposit. GP=15.1; IB>IG. There is one Noailles burin and 11% backed bladelets. The fauna is fairly large and diverse, dominated by red deer and chamois (MNI=9 & 6), followed by horse, bovines, reindeer, roe deer, ibex & furbearers (ALTUNA 1972). The bone industry is exceptionally rich for the Solutrean: sagaies, wands, needles, perforated teeth, shells, a baton de commandement fragment, etc. (I. BARANDIARAN 1967: 94).

AITZBITARTE III (Rentería, Guipúzcoa): Located below Aitzbitarte IV, this cave is currently being excavated by J. ALTUNA, A. BALDEON & K. MARIEZKURENA. Level V has produced a Solutrean laurel leaf point together with some Noailles burins and sidescrapers. It is underlain by a very rich cultural layer (VI) with many Noailles burins, but no Solutrean points (J. ALTUNA 1987: 24 & in litteris).

TORRE (Oiartzun, Guipúzcoa): This is a tiny cave which seems to have served as a very temporary shelter (perhaps for small parties or individual hunters or gatherers) in Gravettian, Solutrean and Magdalenian times. It is located 4 km. from Aitzbitarte in hilly country, not far from the major flint source on Monte Jaizkibel (ALTUNA et al. 1982). A fragment of Solutrean leaf point was found; faunal remains are of red deer, reindeer, chamois and bovine (J. ALTUNA 1984, 1985 & in litteris).

ABAUNTZ (Arraiz, Navarra): This is the only definite Solutrean site on the southern slope of the Cantabrian Cordillera in the headwaters of the Ebro

drainage. (Further east, in Huesca, is the isolated site of Chaves, and further east still there is a cluster of Solutrean sites in Gerona). Abautz is on the side of a narrow gorge in high, hilly meseta country at about 700 m. It is best known for its Magdalenian (15.800 B.P.), Azilian and more recent levels, but the basal level (g) yielded a basal fragment of a bifacial rhomboidal Solutrean point (UTRILLA 1982), resembling some of the points from Bolinkoba and other Basque sites. Four other Upper Paleolithic tools have been published, but P. UTRILLA (in litteris) confirms the Solutrean attribution (albeit still with only a few artifacts) on the basis of more recent excavations in this layer of silt. Paleoenvironmental and paleontological data are not available for the Solutrean level, but the early Magdalenian one has evidence of specialized hunting of chamois in summer-fall. Reindeer is present, along with more common ungulates (ALTUNA & MARIEZKURRENA 1982). Solutrean use may have been as an ephemeral camp of people based in the nearby coastal zone of Guipúzcoa, which was not difficult to reach via the 847 m. Velate Pass between the Ulzama and Bidasoa rivers.

COSCOBILO (Olazagutia, Navarra): The proven existence of a Solutrean occupation at Abautz may lend credence to the possibility that this northern Navarra site may have had a Solutrean deposit. Coscobillo is a quarry on the north side of the broad valley of the Araquil, an Ebro tributary. Access to the Oria valley of Guipúzcoa could have been via the nearby 640 m. Etxegarate Pass. Stratigraphic data are lacking, but among the artifacts are Lower, Middle and Upper Paleolithic pieces (including Noailles burins). Of the numerous bifaces, some could be Solutrean laurel leaves (VALLESPI & RUIZ 1970 with references).

ISTURITZ (Isturitz & Saint Martin, Basse-Navarre): A vast, complex karstic system with archeological remains and/or rock art preserved in three cave levels, Isturitz is the richest Mousterian, Aurignacian, Gravettian, Solutrean and Magdalenian site in the region. The Solutrean was found in excavations of both main chambers («Isturitz» =«Grande» and «Saint-Martin») of the upper cave level by PASSE-MARD (1944) and R. & S. DE SAINT-PÉRIER (1950). The caves were formed by the Arberoue, a small tributary of the Adour, which winds through the foothills of the Basque Pyrenees, making a wide valley at Isturitz at ca.200 m.a.s.l. The Solutrean is thick and extensive, consisting of several levels not very well distinguished in the publications or extant collections, and unfortunately not dated. The many uppermost laurel leaf points were found in both halls at the base of the early Magdalenian level (E=Ist.

II=S.I), in association with a slab pavement and hearths. The bulk of the Solutrean was found mostly in the Salle d'Isturitz (Level F2=Ist. IIIa+b); the large assemblages from this horizon are summarized in STRAUS (1977a). Three points worth stressing are that: 1.) this large, sheltered cave was repeatedly occupied during the Last Glacial Maximum by groups that built numerous fire hearths and possibly other structures; 2.) there are no shouldered points even in the upper level but there is a concave base point in the lower level (as at Aitzbitarte, where its solitary concave base point is associated with shouldered points and a 17.950 B.P. date); 3.) the de Saint-Périer IIIa collection contains 26 Noailles burins (5.5%). The Solutrean fauna, summarized by BAHN (1984), includes bovines, reindeer, horse and some caiga. The Isturitz Magdalenian layers are far richer in artifacts, works of art and faunal remains.

AZKONZILLO (Irissary, Basse-Navarre): This cave is located about 11 km. south of Isturitz at the confluence of six Nive tributary streams, that form a broad valley surrounded by low Pyrenean peaks. Tested by CHAUCHAT et al. (1985; RIGAUD 1986: 256), it has produced a level with Solutrean uni- & bifacial points and pièces esquillées, atop level with a Noailles burin and other tools.

HAREGUY (Aussurucq, Soule): A small cave with a Middle and Upper Paleolithic sequence, Hareguy is little known; it is located near a cluster of cave art sites on a tributary of the Saison, at the edge of the mountains. It yielded a small Solutrean assemblage with asymmetrical points of Montaut type (SMITH 1966: 334).

CHABIAGUE (Biarritz, Labourd): An open air locality on the present shore otherwise known for its «Aurignacian» (CHAUCHAT & THIBAUT 1978), it was the find spot of a large laurel leaf fragment of vague provenience (SMITH 1966: 334; CHAUCHAT 1968: 107).

GROTTE DU PHARE (Biarritz, Labourd): Three km. up the coast on what would have been a ridge on the then-now flooded continental shelf, this Bronze Age site has recently produced in a 2 m² pit a level with a banal flint, 4 bones and a date of 19,900 B.P., that place the ephemeral occupation in the Solutrean (RIGAUD 1986: 255).

Just north of the Adour-Gave d'Oloron, in Les Landes, there are 4 sites with Solutrean points: 2 open-air (MONTAUT & TERCIS) and 2 caves (RIVIÈRE & BRASSEPOUY/PAPE) SMITH 1966). In addition, there are deposits of Last Glacial Maximum/Solutrean age with a few non-diagnostic artifacts found in a test pit at the foot of the talus slope at Duruthy (ARAMBOUROU 1976: 1249).

TABLE 1: BASQUE LAST GLACIAL MAXIMUM RADIOCARBON DATES

SITE	LEVEL	LAB.NO.	DATE (B.P.)	SOLUTREAN	"STAGE"
Grotte du Phare	L*	Gif -6777	19,900±350		?
Amalda	IV	1-11435	16,090±240	Upper	
Amalda	IV	1-11429	16,200±380	Upper	
Amalda	IV	1-11355	17,580±440	Upper	
Amalda	VS	1-11372	17,880±390		?
Amalda	V/VI*	1-11663	19,000±340		?
Urtiaga	F*	GrN-5817	17,050±140		?
Lezetxiki	IIIa	1-6144	19,340±780		?
Aitzbitarte	IV	GrN-5993	17,950±100	Upper	
Ekain	VIII*	1-13005	20,900±450		?

TABLE 1. BASQUE LAST GLACIAL MAXIMUM RADIOCARBON DATES.

CONCLUSIONS

Lack of space prevents elaboration, but I interpret the Solutrean data from Euskalerra to derive some tentative conclusions:

1) Last Glacial Maximum occupation residues are generally limited, suggestive of ephemeral encampments (logistical locations). Many of the sites have only one or a few (or no) Solutrean points each. The only exceptions are Isturitz and Aitzbitarte IV, which may be the only preserved major residential sites in the region. The many small sites indicate penetration of mountain valleys and even the southern flank of the Cordillera by groups possibly based at sites on the now-flooded continental shelf or in lowland areas such as those around Isturitz and Aitzbitarte (each of which seems, to have «satellite sites»).

2) Evidence of cold climate, referred to above, is supported by frequent findings of reindeer in sites of this age, as well as saiga at Isturitz (albeit small numbers of remains per site). Because of the steep, rocky, montane terrain of Euskalerra, many sites show evidence of specialized ibex hunting (a late Upper Paleolithic development also witnessed in Ariege, Asturias, and Cantabria (STRAUS 1987a)). Other sites have indications of specialized chamois hunting. Seasonality data are much needed to establish the patterns of mobility and resource exploitation.

3) The Solutrean represents technological developments in weaponry, presumably for increased efficiency and effectiveness in hunting in the face of worsening environmental conditions and increased regional human population density. In the Basque Country, Solutrean points were added onto an extant lithic technology usually characterizable as Gravettian with Noailles burins. The Co-existence of Solutrean points and Noailles burins is now incontrovertible because of the meticulous new excavations at Amalda and Aitzbitarte III and the sheer number of finds now documented. Normative scenarios involving competing ethnic groups identifying themselves with these fossil directors (e.g., McCOLLOUGH 1971) are highly unlikely and unnecessary. The Noai-

lles burin type clearly survived in this region throughout the Upper Pleniglacial; Solutrean points also seem to have lasted a long time (though their date of appearance here is unknown).

4) Rhomboidal laurel leaf points with a central, unnotched basal tang are relatively frequent and may be a regional hallmark, perhaps suggestive of a socially/territorially bounded macroband. The presence of 4 concave base points and of a few asymmetrical Montaut points in Basque sites suggests the existence of contacts with other groups based in Cantabria-Asturias and Les Landes, respectively (STRAUS 1977b). The presence of so-called «Upper» Solutrean fossil directors at the base of the Aitzbitarte sequence and the lack of shouldered points in both the upper and lower parts of the Isturitz sequence (as well as the presence of a concave base point in the lower part thereof) all suggest that there is no artifactual basis for subdividing the Basque Solutrean into stages or temporal subdivisions, a conclusion reached on stronger grounds at La Riera Cave (STRAUS 1983).

5) Human population seems to have increased in the Solutrean vis a vis the Early Upper Paleolithic here as in Cantabria/Asturias, perhaps due to a gradual influx of people forced to abandon territories in northwest Europe by maximum glacial conditions (STRAUS 1977c, n.d.; JOCHIM 1983). However in the Magdalenian, population density and the extent to which upland areas was used, increased even further under Tardiglacial conditions. The Last Glacial Maximum was a time of both stress and opportunity for hunting peoples. The Solutrean technology represents part of the adaptation to those conditions; changes in settlement and probably in social organization (as hinted by the further development of art beginning in this period (STRAUS 1987b)) were other parts thereof. Preliminary justifications for some of these conclusions can be found in the publications of mine that are cited in this chapter. Much work remains to be done to clarify the nature of the Last Glacial Maximum occupation of Euskalerra, but

recent investigations have already added many valuable data to the record of this critical period in the prehistory of the region. It is part of the legacy of Father Barandiarán that his disciples have been in the forefront of this and other research.

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