HUMAN OCCUPATION SOUTH OF THE PYRENEES IN THE TARDIGLACIAL: THE CASE OF ZATOYA

ABSTRACT — According to this platitude, it has been claimed (Obermaier 1924: 207) that the Upper Paleolithic cultures coming from France should have reached the north of the Iberian Peninsula (Cantabrian littoral and Osiatonia) through the passes at the ends of the Pyrenean barrier. Likewise it was argued that another influx of African origins settled along the Spanish Mediterranean coast (in the Levant and in the south). This went a long way towards explaining the supposed differentiation of the peninsular Upper Paleolithic into two facies: of European (Franco-ostionian) and of African (Caspian) style.

The simplicity of that cultural process is no longer an accepted truth today. Carefully studied stratigraphic, palaeoecological analyses, typological identifications and C14 dates suggest quite a complex pattern of relations between zones, acceleration and acceleration. The dispersal of raw materials, environmental needs, and cultural similarities in graphic expression (mobiliary or parietal art) can only be accounted for by postulating ideas and population movements between sites and for removed territories. Inside the Iberian Peninsula, these must have taken place within its main territories (such as the Cantabrian coastal area, the Levant or the Andalusian littoral), or towards zones inland (such as the Ebro basin, the Cantabrian pirates — Montes —, Extremadura or the Guadalquivir basin), and even including vast areas abroad (Aquitaine, French Midi, other Mediterranean countries).

KEY WORDS: Upper Paleolithic culture — The Pyrenean barrier — Human expansion — The case of Zatoya

INTRODUCTION

The Pyrenees long have been a formidable land barrier between Spain and Portugal on the Iberian Peninsula and the rest of Europe, helping in some way to tie these two countries more closely to Africa than the rest of Europe, and to the sea.' (The New Encyclopedia Britannica 1983, XV, 315).

THE PYRENEAN REGION

The Pyrenees extend east-west for 440 km and are linked in the west to the Cantabrian Mountains by the Basque Mountains. Quite a number of peaks are above 2,500 m in altitude (the Aneto peak is 3,405 m high). A height of no less than 1,600 m is maintained all along the 300 central km in the axial line of the chain. The frontier between France and Spain roughly coincides with this longitudinal axis, but the slopes on either side descend asymmetrically: two thirds of the total 59,000 sq km of the Pyrenean area lie in the Spanish territory. The northern slope is shorter and descends abruptly; on the Spanish side the descent is more prolonged and less abrupt, terraced in various planes and parallel interior ridges. Most rainwater is collected in the watersheds of the rivers Garonne (Aquitaine) and Ebro, respectively.

Quite a number of climatic regionalities can be distinguished in the current climatology of this vast
The Atlantic ocean makes its influence felt right across the plain of Aquitaine on the northern side of the Pyrenees, bringing rain and warmth to the climate; but it hardly affects the Ebro basin, cut off as it is from the coast by the Bassque Pyrenees and the adjoining Cantabrian Mountains. On the southern slope of the Pyrenees, has climatically been described as a 'continent in miniature' (Sorrell 1949: 37). It has a peculiarly continental climate, with a high temperature in summer and a rather cold one in the winter; in Huesca, for instance, the fluctuation of average temperature is about 19° C. This, then, is a dry and extreme climate of a continental character.

It is a long time now since A. Vincen (1885) and H. Obermaier (1906, 1924) established the first catalogues of glacial formations in several valleys in the Spanish Central Pyrenees: west to east, in Gállego (at an altitude of 500 m), Arg (900 m), Cines (700 m), Esca (1000 m), Noguera Ribagorzana (1000 to 1100 m), Ffumetti (1060 m) and Valles (1900 m). It is accepted that the limits of permafrost lay at an altitude of about 1200-1300 m in glacial Spain, as opposed to the current limit c. 2500 m (on the northern slope).

Human expansion into the Pyrenees at the end of the Pleistocene

Years ago some texts, which are now standard, defined clearly the process by which prehistoric man occupied such mountain regions in Europe as the Alps (Debret 1922, 1933) or the Pyrenees (Mé roc 1923).

We know of no sites above 500 m in altitude in the Cantabrian coast area during the Upper Palaeolithic. Towards the end of the Magdalenian and in the immediate Epipalaeolithic, Albarrazín, again new routes were being opened for seasonal migration towards zones lying higher than the ones so far inhabited, relatively wellwooded and more suited to the hunting of certain animals.

In the Veneto-Trentino, Italy, (Broglio 1975) the sites described as the "Epipalaeolithic" (of the Lower Palaeolithic) are never situated above 600 m, while those of the Final Epigravettian are already located on the prealpine uplands between 1000 and 1500 m. In the Dolomites one open-air site, like the seasonal camps of the Sauvenirian and Tarde- niosian Epipalaeolithic, attain the exceptional altitude of 2000 m.

Those who have studied this process of expansion on the northern slope of the Pyrenees (Mé roc 1903, Clottes 1974: 83-84) have noted that the Magdalenians were dynamic groups who gradually settled the uplands (never above 1000 m) in the middle watersheds of the rivers, then extended their territories, owing to the adverse weather conditions, progressively colonised towards the end of the Tar devian, and as a result the Magdalenians can be recognized today (Clottes 1974: at the maximum concentration point in the central section of the Pyrenees (Hautes Pyrénées, Haute Garonne, Ariège).

The Magdalenian had a variety of different kinds of habits (Clottes 1974: 82-83); the permanent or semipermanent habitat, and the seasonal or temporary one. Permanent occupation sites (like Les Eglises, L'Obel or Caves de Bélesta) are furnished adequately and are richly equipped with tools and mobility art. Those for temporary use (like Les Eglises, L'Obel or Caves de Bélesta) are furnished with tools and equipment limited to the essential tools and weapons. A number of such sites (Brocal 1976, Bahn 1984, Clottes 1982, 1987) have outlined the seasonal occupation system at various sites and their integration into larger territio.es. (Caza de Belvés (Audo), occupied in the Upper Magdalenian, is the highest inhabited place in the French Pyrenees, at 969 m (Sacchi 1986: 35-38).

When in 1975 we began the excavation of the site at Zato ya (Navarre), investigators were practically unaware of the existence of remains from the Tardiglacial (Evolved Magdalenian, Terminal Palaeolithic sensu latu) in the large inland territory of the Iberian Peninsula south of the Pyrenees, which corresponds to the Ebro basin. It was commonplace in the bibliography to consider this zone to have been uninhabited in the cold oscillations of the final Wurz, contrasting with the rich occupation density detected in neighbouring areas along the Cantabrian and Mediterranean coasts and on the northern slopes of the Pyrenees.

The first explicit references to human occupation south of the Pyrenees during the Tardiglacial era have been published only very recently. In the early 80's works of palatial art were identified in the caves of Fuente del Truch and Forcón (Huesca) by V. Ballell, and B. Beltrán, and P. Utirain's excavations in the caves of Absant (Navarre), with levels of the Early or Middle Magdalenian and of the Azilian, were published in 1989; in 1992 V. Ballell and P. Utirain published the site of Suelbio, and in 1987 of the Upper Magdalenian or of the Azilian — in the caves of Chaves (Huesca); in 1986/1987 A. Cava excavated at the Termes Epipalaeolithic (Dryns III, probably) in the rock-shelter of Portugain (Navarre); in Cova del Parco (Lérida), J. M. Conpel and D. Montes and J. M. Furló have been excavating a cave of the Evolved Magdalenian; in 1988 M. A. Beguristain and C. Jusue published identifications of Magdalenian lithic industries in the township of Olmo (Navarre), and I. Barandiaran in the cave of Aiza (Navarre).

It is customary to distinguish different ecological altitudes in the Pyrenees: the "Forest" level, lower than 600 m; the "Evolved" level, at an altitude of 600 to 1000 m; the "Middle" level, at an altitude of 1000 to 1500 m; and the "High" level, above 1500 m. According to this, the sites identified were inhabited by the Upper Magdalenian and were part of the "Forest" level (Bastar 630 m, Fuente del Truch 760 m, and Zato yas 900 m), or the "Evolved" level (Cava de Altura 900 m, Toros a 920 m); the situation of the site

Figure 1

The archaeological layers at Zato yas accumulate to a thickness of 2.5 m. On a Pleistocene basal deposit (level III), archaeologically barren, with remains of Ursus spelaeus there are five archaeological layers, intercalated with a number of stratigraphical discordances (level IV): Ib (Upper Magdalenian); II (Final Magdalenian or Azilian) with BC C14 dates in 9700 ± 240 (Ly-1400), 9670 ± 240 (Ly-1500), 9530 ± 270 (Ly-1531), = = 9860 (Ly-1458); I (Middle Epipalaeolithic/Mesolithic) in 6310 ± 550 (Ly-1457) and 6200 ± 230 (Ly-1385); I (Early Neo- lithic) in 4470 ± 260 (Ly-1527); (Chalcolithic or Early-Middle Bronze Age, with funerary deposits), (Figure 2).

The human occupation of the cave of Zato yas began in the Dryns II (level Ib for the most part), and continued in Aleró (end of Ib, level II), probably in the Rovad (IIb) and in the Atlantic I.

Climate characteristics of the Tardiglacial and the Holocene

There are available general climatological descriptions of the Tardiglacial in the Cantabrian littoral and on the northern slope of the Pyrenees (western Spain) based on a series of palaeontological and sedimentological analyses. A. Boyer-Klein (1987) starts off from an analysis of sponges and pollen samples made by A. Boyer-Klein and A. Rat. Locle-Gourhan and written reports, relatively close to the Cantabrian coastline (Riera and Tito Bastillo in Asturies, Juyo and Rascado

102
in Cantabria, Erillas in Guipúzcoa), the foothills of the western Pyrenees (Daruthy in Llodra, Berroberia in Navarre) and the central French Pyrenees (Le Vache, Enfame and Les Églises in Ariège). The Dryas I appears slightly wooded, very cold and dry. The Dryas II is also extreme and cold — less rigorous in Berroberia, which lies at an altitude of 130 m and 18 km away from the present Atlantic coast, of short duration in Aquitaine — barely two centuries, according to Laville. The scanty data available for the Dryas III indicate, after the temperate and humid improvement of the Allèrød, a brutal degradation characterized by a strong regression of woodland — even though the cold does not lead to the total disappearance of thermophilous species (like Quercus and Corylus) and the regression of ferns is limited; in Aquitaine (Puguenot 1976) the Dryas III seems to be cold and relatively humid.

Well into the Holocene, the Boréal brings a generalised mildness of the climate: there is a notable extension of pine (in countries of Mediterranean environment or inland) and of hazel (in the Atlantic regions); steppe formations with patches of woodland (hedge, elm, lime and hand) can be seen in Aquitaine. During the Atlantic period the western temperate forest with its diverse combinations of deciduous species becomes finally dominant, while in the Pyrenean middle mountain fire increases. It is in the Atlantic period that the postglacial climatic optimum has been defined for these regions.

A comparative sedimentological study (Hoyos 1988) of six important Cantabrian sites (Chasna, Cañas and La Vila in Asturias; Juyo and Rascado in Cantabria; Erillas in Guipúzcoa) sets a geochronological framework for the regional Tardiglacial: Dryas I (M. Hoyos' Cantabrian III phase) between 14,300 and 12,300 BC; episode of Angiles (Cantabrian IV) between 13,350 and 12,700; Cantabrian V (Middle Dryas I, Prelöbling and 'Final' Dryas I) between 12,700 and 11,350; Bölling (Cantabrian VI) between 11,350 and 10,350; Dryas II or Middle Dryas (Cantabrian VII) between 10,350 and 9,650; Allèrød (Cantabrian VIII) between 9,650 and 9,100; and Dryas III or Upper Dryas (Cantabrian IX) between 9,100 and 7,800. In the Holocene we have Preboreal (7,800 to 6,800 BC), Boreal (6,800 to 5,500 BC) and Atlantic (5,500 to 3,000 BC, BC), etc. For the site of Rascado we get the following: Dryas II, of short duration, is cold, with evident signs of gelivation, more humid on the lower Magdalenian (the second half); Allèrød, of cool and humid to very humid climate, shows phenomena of karstic reactivation; Dryas III, of non-continuous cycle, begins in the beginning of the middle Magdalenian, the dominance of red deer, the decrease of wild goat, chamois and hare, and the subsequent increase of roe deer and wild boar (above all towards the end of the Azilian and in the subsequent development of the Middle Epipaleolithic).

**FIGURE 2.**

ZATOTOAY (Navarra)

---

1. The occupation of the site of Zatótay: The location of the cave (i.e., altitude, distance from the Atlantic coast and meteorological profile) makes it difficult even today to occupy it in winter, but must have had frequent human presence in colder periods at the beginning of the Holocene and, of course, of the Tardiglacial.

2. The archaeological record of our excavation points to Zatótay as a model of a temporary hunting site. The portal of the cave could easily have taken in a party of 12 to 18 people for the most benign spells of the year. In zones close by landscape is varied — rocky places, forest, grassland — and teems with a diverse population of ungulates. In the Tardiglacial (levels Ib and II), a relatively open forest is dominant, with patches of oak and alder in mind periods, and of pine in the most rigorous. The faunal list points to the dominance of red deer, the relative abundance of horse and the scanty presence of reindeer. In the Holocene (levels Ib and II) the forest becomes quite thick, with mixed oak forest, elm and lime. Hazel dominates in the Neolithic and juniper and box increase considerably, with the subsequent spread of wild boar.

3. As for the remains of reindeer from level Ib, we must bear in mind their climatic significance for particular prehistory. The species, scarce in the Cantabrian sites, is abundant in those of the French Pyrenees from the Upper Magdalenian (Clovis 1987: tab. II), from Dryas II (when it is found in Belvilla, for instance, with BC C14 date in 10,520 ± 260), is still present in Allèrød (even in those like Daruthy and Dafeun, in London), and is directly replaced by deer almost everywhere.

4. The hunting of ungulates provided the prehistoric occupants of Zatótay with sufficient meat supplies. According to the non-archaeologists K. Marielekurrena and J. Auras, elkings were repeatedly captured (either newly-born or a few months old) in every cultural layer, represented by bones that were not even skinned or quartered when caught, but were carried whole into the cave. Immerable traces of burning and broken bones visible on the bones of adult ungulates from the Upper and Terminal Magdalenian, probably as a result of attempts to cut ligaments off the extremities (plaxgames, ulnae, tarsi, metatarsals) and break the main bones (humeri, tubere, radii, metapodii) for marrow.

5. The first hunters at Zatótay, like those of so many other sites in the Cantabrian Magdalenian as well, took up large-scale deer hunting. Deer remains amount to 65.2% out of the total of the macromammals found in level Ib. By no means were there any hunters at Zatótay in the cold season; level Ib remains — newly-born deer captured in June, a young colt captured in May or June — point to short occupation, from the end of the spring to early summer; the site is abandoned in late summer. The hunting time extended to almost half a year — the winter season and immediate months excluded — in level II; wild boar, roe deer and wild goat were captured between May and September. Hunters in level Ib stay in Zatótay from late spring to late autumn. There is no evidence to support the claim that Zatótay was inhabited during the winter in the Neolithic (level I).

6. The hunters who met in the entrance to the cave each year brought along with them a certain number of implements made out of fine flint, and some cores of the same material. They replenished their stock or completed their equipment with mediocre, a suitable and rare 1 km away from Zatótay.

7. The archaeological analysis of A. Cava, lithic tools of foreign origin were always more abundant than those made of local stone. In level Ib, they made 86.7% of the artifacts in level Ib, 86.8% of those in level II, 67.8% of those in Ib and 76.5% of those of level I. There is, however, a differential use of the two categories of flint according to tool-type. Arrowheads (hacked points in the Final Palaeolithic and in the Epipaleolithic — levels Ib, II and Ib; and microlithic geometries in the Neo- lithic — level I) were systematically made in good imported flint, whereas artifacts put to other uses — handcraft or domestic — such as burins, perfora-
toes, scrapers and notches, were made of local inferior flint and other stones. We can imagine that as the annual stay became longer, hunters must have used up their imported tool and raw materials supplies, and would have to exploit the site resources more regularly.

Personal ornaments and mobilarty, abundant in contemporary permanent occupation sites, cannot be found in Zatoya (as is to be expected of a model of temporary occupants specialized in hunting). There are not any umbilical bone tools specialised in functions other than hunting, such as harpoons, pierced sticks or needles. The low ratio of burins in levels Ib and II — they are a mere 10.99 % and 8.96 % of the total numbers for the lithic industries, respectively — can be explained by looking at their functional relation to other bone-work, so scarcely represented in the Magdalenian levels of this temporary occupation site.

We have not been able to locate the sites that joined Zatoya to form a common territorial occupation/exploitation structure. People who arrived at the site in the Dryas II must have come from lower regions. The only two sites for short occupation, located the rock-shelter of Aipea, in the course of excavation; and the open-air site of Artxilondo — are in the high Irati, between Zatoya and the neighboring forest of Arbailla in Zuberia (Sinhilhole, Xaxixibrea, Haregy, Etcheberri) and the valley of Osoa in Bearte (Pouya, Bilgula, St Michel d’Arudy, Begalungue, ...), to the north and east. The more open zones of the middle and lower Adour in Labardi (group of Gastelu/Isturitz, ...), and of Landes (Dourthy, ...), to the north and west, may also have been related to Zatoya (Figure 3).

The distance between Zatoya and the other contemporary sites south of the Pyrenees — such as the Ebro basin or the Cantabrian coast — is bigger. It is probable that with time we shall discover intermediate archaeological sites which make up different exploitation territories, but for the time being we are just starting. In the Ebro basin, to the south and east of Zatoya, some sites have been located in Navarre (Abalcuria, Alas, Oliba, ...), and in Huesca (Chaves, Forcón, Fuente del Truchillo). To the north-west and west the closest sites in the Cantabrian coast area (Berberría, Aller and others in Navarre; Altaitarte, Torre and Albarri in Guipúzcoa) are more than four days’ journey away from Zatoya.

BIBLIOGRAPHIC REFERENCES


HOYOS M., 1989 : Bases socio-territoriales para la econo-