

Seasonality in Spain

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Every generation believes in the originality of its contribution to science, though this may be determined by the intellectual vogues of the day. Recent years have seen developments in Archaeology which some describe as the «New Archaeology», whilst others protest that it is but the Old in new clothes. The expansion of isotopic dating techniques and of the use of the computer have focussed attention on aspects of archaeological materials beyond imagination even 20 years ago. They are now a source of information on many forms of human variability often of importance for our understanding of modern behaviour.

The removal from the study of archaeological data of much of the emphasis on chronology, and the new levels of sophistication provided by the computer in the search for variability and regularities has not directly altered archaeological interpretation. The quantification of data necessitates refinement in the definition not only of entities quantified but also of the concepts used to interpret them. *Analytical Archaeology* (Clarke 1968) was one investigation of the logical implication of the first problem, taken from the most fundamental entity of archaeological description, the artefact attribute.

But this «New Archaeology» was in danger of affecting its new clothes as New Wine does Old

Bottles. For despite all care with definition, measurement and manipulation, most interpretation has been sadly traditional, using ideas of culture increasingly under attack. The underlying concepts must be challenged to investigate exactly what is sought from Archaeology and what it is capable of studying.

Recent questioning of the accepted concepts in the study of the Early History of Agriculture (Higgs & Jarman 1968; Binford 1968; Higgs [ed.] 1972) has shown how insubstantial well established hypotheses may be. What is needed is an approach to the problems of Man's relationships with his environment. Emphasis on the role of Man means that neither past environment nor even past ecology is the object of study, but past economy (Higgs & Jarman 1974). Subsistence economy is no longer to be inferred by a few simple rules of thumb related to general models of cultural evolution more in keeping with intellectual attitudes at the end of the last century than of this.

Archaeology is unique in being able to study the evolution of the relationships between Population, Resources and Technology over a time-scale, long compared to the life of an individual. There are, of course, difficulties in defining ways of studying directly the variables of Population and Re-

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de de última hora no pudo incluirse en nuestro volumen jubilar. Por aquel entonces Mr. Iain Davidson era Anthony Wilkin scholar of the Department of Archaeology of the university of Cambridge.

sources, and in judging the extent of Technological influence on these, or indeed in which direction these influences run. But in an Archaeology where the broad outlines of cultural succession have long been established, new problems, which are not merely struggles for more detail, are surely to be welcomed.

The purpose of the present paper is to indicate that such studies are possible in Spain and that some data are already published which can be interpreted in this light. The implications for the study of Spanish prehistory are tentative, but are presented in the form of a hypothesis which can be tested. It is hoped that this will stimulate new attempts to consider the prehistoric record in this way.

Davidson (1972) suggested that if prehistoric seasonal movements, analogous to those known from recent and historical times, could be established, then Spanish prehistory would be transformed. This paper is concerned only with evidence for the exploitation by Man of animals and considers evidence in support of this postulate. It is not the primary purpose, here, to test the implications of, or reasons for, this, though something of their nature will arise.

The idea of seasonal movement in prehistoric Spain is not a new one: «Las condiciones geográficas del Pirineo imponían un régimen de transhumancia a quienes iniciaban aquí la explotación ganadera». (Barandiarán 1953).

«El carácter mixto agrícola-ganadero... y la geografía de los hallazgos... hace pensar que los dólmenes de la alta montaña responden tan sólo a parte de la población, que no sería en todo caso nómada. El régimen de movimiento de ganado meramente transhumante no llevaría consigo el desplazamiento de todo el grupo...» (Maluquer 1955).

«... moviéndose al compás inestable de los milenarios cambios climáticos y al ritmo estacional periódico, detrás la caza mayor... Este ritmo estacional, movido por las migraciones de los animales, seguramente se hacía en primavera desde las regiones costeras hacia las mesetas y sierras y en otoño, desde éstas hacia las tierras bajas para invernar». (Ripoll 1956).

Barandiarán goes further.

«No se puede descartar la idea de que grupos de

pastores extra-pirenaicos llegaron aquí en sus flujos y reflujos de vida transhumanante, trayendo consigo los nuevos elementos de cultura» (op. cit.). But none of these ideas, suggestive as they are, has ever been demonstrated by archaeological evidence.

Much of the recent philosophical concern in Archaeology has been with the problems of scientific explanation. Archaeology has often claimed to be a science of Man, but too often has been merely descriptive or speculative. The current questioning of concepts requires that we test such statements about seasonal movement, by seeking archaeological evidence to test them.

Bailey (1973) was amongst the first in Spain to formulate and test a hypothesis of this type. He showed how the location of shell middens of the Asturian culture were located not in order best to exploit shellfish, but on routes of easy access to the mountains. These routes would be used by large mammals in their migrations to summer pastures and analysis of the food remains in the middens shows that it was these animals, not shellfish, which dominated the diet. This does not disprove the common hypothesis, most recently accepted by Clark (1971 & 1972), that static occupation was possible. Indeed these would be preferred sites for exploitation of large animals on their way down from the hinterland, and again on their way up. However, any contemporary site discovered in the summer pasture area would best be explained as part of an economic system with the lowland sites.

A similar problem of proof arises with the rare appearances of Reindeer in the Late Pleistocene of Northern Spain. Although it has been identified recently in most sites where particular attention has been focussed on the distinction from Red Deer (Altuna pers. comm.), it is still found only rarely.

Reindeer were present in large numbers in the Late Pleistocene in areas north of the Pyrenees. The fauna at Isturitz, in the French Basque provinces is dominated by Reindeer, second only to Horse in all layers containing Upper Palaeolithic industries (Altuna 1966 & 1972, 108).

Altuna has identified Reindeer bones at 9 Spanish sites, and artistic representation at 4, but at Aitzbitarte IV, near San Sebastián, Reindeer is found only rarely. Bones of this species in layers with Magdalenian and Solutrean industries comprise 0.6 % and 1.4 % of the large mammal sample. There are 60.8 % and 50.2 % of Red Deer bones. It

is difficult to explain why the modern political boundary should have been a barrier to prehistoric Reindeer.

After analysis of age at death of specimens from three sites, Altuna (1971) rejects the hypothesis

of Reindeer. Approximately 20 % of the avifauna is composed of migratory birds, including the Velvet Scoter *Melanitta fusca*, which corroborates the hypothesis of summer occupation of Isturitz. (Bouchud 1952).

SITE AND INDUSTRY	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	SOURCE
1. AITZ.: MAGD.													Altuna 1972
2. AITZ.: MAGD.						xxxx							Altuna 1972
1. AITZ.: AURIG.		xxxxxxxxxx											Altuna 1972
2. URT.: MAGD.	xxxxxxxxxxxxxxxx												Altuna 1972
2. URT.: MAGD.	xxxxxxxxxxxxxxxx												Altuna 1972
2. URT.: MAGD.													Altuna 1972
2. URT.: 17050 b. p.				xxxxxxxxxxxxxxxx									Altuna 1972
2. ERM.: SOL.		xxxxx											Altuna 1972
2. DURUTHY: MAGD. VI.	xxxxxxxxxx								xxxxxxxxxx	xxxxxxxxxx			Delpech 1970
2. ISTURITZ: AUR. fin.*				xxxxxxxxxx									Bouchud 1966
2. ISTURITZ: AUR. fin.*						xxxxxxxxxxxxxxxx							Bouchud 1966
2. ISTURITZ: AUR. sup./GRAV.●								xxxxxxxxxx					Bouchud 1966
2. ISTURITZ: AUR. sup./GRAV.●				xxxxxxxxxx									Bouchud 1966
2. ISTURITZ: AUR. sup./GRAV.●					xxxxxxxxxx								Bouchud 1966
2. ISTURITZ: AUR. sup./GRAV.●					xxxxxxxxxx								Bouchud 1966
2. ISTURITZ: AUR. sup./GRAV.●						xxxxxxxxxx							Bouchud 1966
2. ISTURITZ: AUR. sup./GRAV.●							xxxxxxxxxx						Bouchud 1966
2. ISTURITZ: M. AURIG.											xxxxxxxxxx		Bouchud 1966

- 1. Red Deer shed antlers.
- 2. Reindeer tooth eruption and wear.

- * Aurignacian final, otherwise Epigravettian.
- Aurignacian superior, otherwise Gravettian.

that Reindeer only reached Spain sporadically in extreme winters. There is, however, some evidence of seasonality supported by Altuna's identification.

The Table shows age at death as recorded for the North Spanish sites and two French sites. The Spring/Early Summer occupation of Isturitz, and the Autumn/Early Winter occupation of Duruthy admits the possibility of an association, or complementarity between these sites as part of a system of economic exploitation based on the seasonal mo-

The data from the North Spanish sites are consistent with an occupation of these in Winter/Spring. In today's warmer climate exploitation of the «puertos» in the Pyrenees is only advantageous after June. The cooler climate of late Würm, however slight the degree of glaciation of the Western Pyrenees, would restrict further the growing period of the vegetation in the upland to make summer exploitation of no advantage until after this time of year.

A system of related sites may be shown in the valley of the R. Deva, Guipúzcoa *. Here, the up-

* All data on sites in Guipúzcoa are based on Altuna (1972) unless otherwise stated.

per layers of Lezetxiki (I-IV) contain poor Upper Palaeolithic industries called Final Upper Magdalenian, Solutrean, Gravettian, and Aurignacian, though there is some disagreement about precise similarities to the French industries with these names. At Ermitia there are layers with Solutrean,

relatively short distance, over the steep terrain of Northern Spain, of animals which can live in such topography in small groups. Large herds, of Horse or of Reindeer, would not prosper. This pattern of exploitation explains the rarity of Reindeer in Northern Spain, where both its occasional presence,

URTIAGA

base	Layer F	GrN - 5817	17 050 ± 140 years B.P.
top	Layer D	CSIC - 64	10 280 ± 190 years B.P.
	Layer C	CSIC - 63	8 700 ± 170 years B.P.

Magdalenian and Azilian, and though the industries at Urtiaga are less well defined there are three Carbon - 14 dates (see below) which would confirm the broad contemporaneity of the three sites.

At Lezetxiki, in the lower levels, there are large numbers of marmots and of cave bear, both species which hibernate. Bear bones are often whole and in articulation. This suggests that these animals died in hibernation, and it is not likely that Man lived there while the bears, particularly, were hibernating. This feature continued until layer IIIa, with a late Aurignacian / early Gravettian industry. The sedimentology (Kornprobst & Rat 1967) indicates that the subsequent, Gravettian, layer was warmer, but more humid, which may indicate greater winter snowfall. In this layer, a fragment of Roe Deer antler supports the hypothesis of summer occupation of Lezetxiki. Altuna does not indicate whether it is a shed antler, but the lack of a measurement, taken at Aitzbitarte, on the pedicle below the burr, suggests that it might be. This would indicate an October / November occupation.

The coastal area complementary to Lezetxiki would be relatively more snowfree in winter and as such a preferred habitat, then, for Man and animals. The Reindeer ages (see Table) are evidence to support this proposition and the abundant Roe Deer antlers in Urtiaga D. could have been from May or June. They could equally well support a hypothesis of summer occupation of Urtiaga, but the Reindeer evidence contradicts it.

If the trend thus implied is correct, then we might postulate a series of seasonal movements, of

and the «cold» pollen diagrams (Leroi-Gourhan 1971), show that individuals could certainly survive.

Throughout the rest of the peninsula, the dominant cervid, at all periods, is the Red Deer. The study of Late Pleistocene economies in which this animal played a major role is the topic of the writer's thesis to be presented for the doctoral degree at the University of Cambridge.

At Gorham's Cave, Gibraltar (Waechter 1964; Zeuner & Sutcliffe 1964), the fauna was dominated by Ibex and Red Deer (see Tables). The importance of Ibex is doubtless due to the presence of steep cliffs around the cave. This, together with the large numbers at other lowland caves, especially Parpalló (Pericot 1942; Davidson 1972) and Ermitia (Altuna 1972) must cast serious doubt on the attribution of this species exclusively to alpine environments.

In support of the hypothesis that the cave was occupied seasonally are bird bones of Long-Tailed Duck, *Clangula hyemalis*, in layers G, K, M and Velvet Scoter, *Melanitta fusca*, in M, which Eastham (1967) suggests as an indication of Late Autumn / Winter, during southward migration. They could, presumably, also be Late Winter / Spring. Likewise, though Monk Seal (in layer D) have been found recently in the Mediterranean (Van den Brink 1967, 149), Grey Seal, found in the same layer, could only be a winter migrant to such southern waters. In layer D the writer identified an antler from Red Deer slaughtered in winter. Layer B lacks any indicators of season. Unfortunately the collection of bones preserved in the Gibraltar Mu-

GORHAM'S CAVE	B		D		G		K		M		P	
	a	b	a	b	a	b	a	b	a	b	a	b
Equus Caballus	—	—	1	0.2	2	1.2	—	—	8	2.1	—	—
Sus scrofa	2	0.9	2	0.4	—	—	—	—	—	—	1	1.1
Cervus elaphus	7	3.0	26	4.9	52	31.7	29	7.6	53	13.9	10	10.7
Capra ibex	49	21.1	54	10.2	11	6.7	162	42.3	132	34.5	29	31.2
Oryctolagus cuniculus	171	73.7	447	84.2	94	57.3	187	48.8	178	46.6	52	55.9
Bos sp.	3	1.3	1	0.2	5	3.0	5	1.3	11	2.9	1	1.1
TOTAL	232	100.0	531	100.1	164	99.9	383	100.0	382	100.0	93	100.0
Other identifiable bones.	13		35		15		41		44		4	
Approx. C14 Date: ears BP				28.000		49.000						?

- a. Number of Mammal bones.
 b. Percentage of Mammal bones.
 * Other Mammals include Grey Seal.
 + Avifauna includes migratory sea-birds.

GORHAM'S CAVE	B		D		G		K		M		P	
	a	b	a	b	a	b	a	b	a	b	a	b
Equus caballus	—	—	100	2.8	200	4.6	—	—	800	8.3	—	—
100 kg.												
Sus scrofa	144	5.5	144	4.1	—	—	—	—	—	—	72	4.5
72 kg.												
Cervus elaphus	350	13.5	1300	36.8	2600	59.6	1450	21.1	2650	27.7	500	31.6
50 kg.												
Capra ibex	1225	47.2	1350	38.2	275	6.3	4050	59.0	3330	34.8	725	45.8
25 kg.												
Oryctolagus cuniculus	154	5.9	402	11.4	85	1.9	168	2.4	160	1.7	47	3.0
0.9 kg.												
Bos sp.	720	27.8	240	6.8	1200	27.5	1200	17.5	2640	27.6	2400	15.1
240 kg.												
	2593	99.9	3536	100.1	4360	99.9	6868	99.9	9580	100.1	1584	100.0

- a) Meat weight calculated on bone numbers with given carcass weight.
 b) Meat weight percentage.

All figures based on Zeuner & Sutcliffe (1964) and observations in Gibraltar Museum.
 The numbers of Bird bones are not included in the counts.

seum is incomplete, and further data are not available.

The complementary area would be towards the adjacent, higher and wetter hills. Here there are paintings attributed to the Upper Palaeolithic; at La Paloma, a single horse's head (Breuil & Burkitt 1929) and at La Pileta, a numerous series (Breuil,

contour 600 metres above present sea-level. The Magdalenian sites, however, are consistently on these limits. This would be a consequence of improved economy in response to increased population pressure, involving a closer relationship with Red Deer, with human groups following the animal migrations.

	Jan. Winter	Feb.	Mar.	Apr.	May. Spring	Jun.	Jul.	Aug. Summer	Sep.	Oct. Autumn	Nov.	Dec.	NO SEASON
FRENCH BASQUE	ISTURITZ: GRAVETTIAN/EPI- GRAVETTIAN												
	DURUTHY: MAGDALENIAN						DURUTHY: MAGDALENIAN						
GUIPUZCOA	AITZBITARTE: MAGDALENIAN												
R. DEVA	ERMITTIA: SOLUTREAN URTIAGA: 17.050 bp. to MAGDALENIAN						LEZETXIKI: MOUSTERIAN to GRAVETTIAN						LEZETXIKI: SOL. MAGD.
ASTURIAS	ASTURIAN LOWLANDS												
GIBRALTAR	GORHAM'S CAVE: MOUSTERIAN to 27.060 bp.						GORHAM'S B LA PILETA.						

Obermaier & Verner 1915). Unless we accept that the great fish drawn at La Pileta are sea fish, there is little directly to connect the one with the other. Breuil & St.Périer (1927, 9) claimed that the drawings showed features of the *Pleuronectes* group of marine flat fish.

The situation here postulated is summarised in the Table. There is positive evidence for a season of occupation in layers at seven sites from various periods in North and South Spain, and a circumstantial case that other layers are the result of occupations of this type. This is in agreement with the *a priori* assumptions of Barandiarán, Maluquer and Ripoll and would provide an explanation for Freeman's observation in Cantabria (1973). He observed that the sites with Mousterian industries are mostly equidistant from the modern coast and the

We may, further, observe that the movements postulated are determined by features of the physical environment of Spain which are relatively little influenced by gross climatic changes. The complementarity of hills and lowlands, preserved in modern stock movements in the Pyrenees, Levante and the Sierra Nevada (unpublished field observations) arises from the existence of good pastures available at only limited season, whose extent, but not existence may be altered by increased snowfall, temperature lowering, reduced rainfall, etc. This pattern leaves a void in the plateaux of the Meseta, which the Mesta (Klein 1920) successfully exploited by changing latitude, not altitude, for better pasture. That this pattern still exists today, despite competition from overwintering schemes, and systems of feeding during summer droughts, argues against the Mesta being merely a political creation.

The existence of such a pattern in prehistory is unknown, though the lack of Upper Palaeolithic industries on the Meseta is well known, and could be explained by failure of Man and animals to ex-

plot the area in a way which conferred any advantage. Any occupation would have been sporadic and have a poor chance of survival in the archaeological record.

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