

SHELL MIDDEN PEOPLE IN NORTHERN IBERIA. NEW DATA FROM THE MESOLITHIC ROCK SHELTER OF J3 (BASQUE COUNTRY, SPAIN)

Una ocupación con conchero en el norte de la Península Ibérica. Nuevos datos acerca del abrigo mesolítico de J3 (País Vasco, España)

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ABSTRACT: In the course of a sondage dug in the rock shelter of J3, in the Jaizkibel mountains (at the north-western tip of Guipúzcoa), the body of an adult man was located buried inside a shell midden. This shell midden had not been disturbed and presented internal stratigraphy features. In any case, the outer edge of the shell midden does show some interesting interdigitation with the adjacent habitational layers, with evidence of different stages of occupation. Within the shell midden itself, under the individual buried there, it was possible to observe layers without any ceramics, whereas the layers covering said individual included ceramic fragments. This individual has been dated to 8300 BP and therefore corresponds to a Mesolithic context.

Key words: Burial. Anthropology. Prehistory. Mesolithic.

RESUMEN: Durante la apertura de un sondeo en el abrigo rocoso de J3, en la sierra de Jaizkibel (extremo nororiental de Gipúzcoa), fue localizado el cuerpo de un individuo masculino adulto, inhumado en el interior de un conchero. Este conchero aparece en condiciones de conservación muy buenas, incluyendo indicios de estratificación interna. El perímetro exterior del conchero muestra una interesante interdigitación con los niveles habitacionales adyacentes, poniendo en evidencia diferentes estadios de ocupación. Todavía dentro del conchero, en la base de esta acumulación de conchas, la cultura material comprendía sólo industria lítica, mientras que por encima de la inhumación fueron descubiertos diferentes fragmentos cerámicos. Contamos con una datación directa de los restos humanos correspondiente al 8300 BP, que lo adscribe por tanto a un momento pleno del Mesolítico.

Palabras clave: Enterramiento. Antropología. Prehistoria. Mesolítico.

1. General framework

The J3 rock shelter was discovered by a local prospector in 1985. The news of his findings and some archaeological remains were deposited in the Aranzadi Science Society in San Sebastián. Prior to our intervention in J3, throughout 2001, several of us (M. J. Iriarte and A. Arrizabalaga) had the opportunity to review those materials, which included a significant amount of shells from *Patella* and different remains of flint stonework. In the volume devoted to caves in the second edition of the Archaeological Map of Guipúzcoa (Altuna *et al.*, 1995), the finding was listed under the name of Txotxipi and its cultural sequence is shown as indeterminate. Finally, at the end of 2001, two members of our group (M. J. Iriarte and A. Arrizabalaga) drafted a project to assess the main archaeological sites on Jaizkibel from a heritage standpoint, a task that began in 2002 and is still under way.

The interest of the Jaizkibel project lies both in the relatively unknown nature of the district from an archaeological standpoint, and in its strategic geographical position, dominating the Basque coastal corridor, precisely at the passage to the Pyrenees. The presence of archaeological materials in open-air

stations, well-known in the French Basque Country, seems to be disrupted across the Bidasoa River and they do not return to normal until the centre of what is now approximately Cantabria. This project was undertaken in an attempt to resolve this apparent inconsistency in the dispersion of material. Over the coming years these items will be assessed and studied individually, as has been done for J3. Thus, between November, 2002, and June, 2003, we performed the sondage with the results set out in this text.

J3 is a rock shelter on sandstone, *taffoni* type, formed by the large-scale alveolization of the rock close to the sea. The shelter dominates a privileged location, on the last stretch of a small valley that has an active water course all year round to provide the local inhabitants with fresh water. Despite its proximity to the current inter-tidal line (about 200 metres) and the dominant north-western orientation of the seaward façade, Jaizkibel faces south-west, making it exceptionally inhabitable. To conclude this brief contextualization of the site, it can be said that the presence of various dolmens and cromlechs in the Jaizkibel mountains bear witness to the establishment of productive populations at this site since Prehistory.

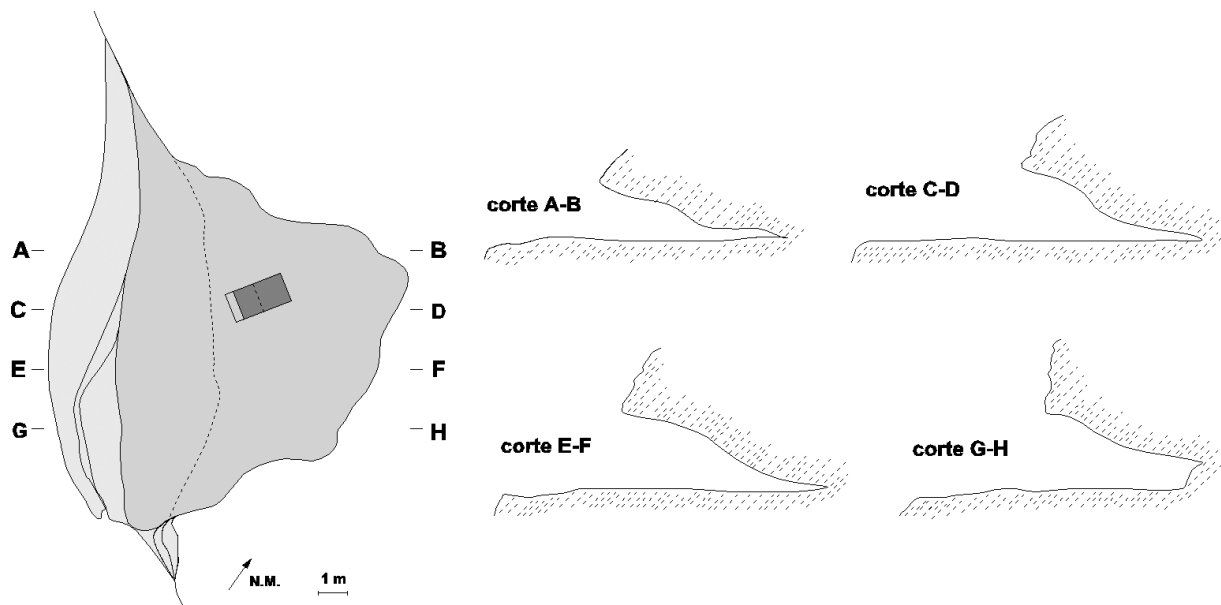


FIG. 1. Sketch of the J3 rock shelter.

2. Material and methods.

Description of the sequence

From the configuration of the shelter, an area was selected with a foreseeably large stratigraphic height (Fig. 1). We initially opened there an exploratory square metre, which would later be extended southwards (after the burial appeared). Both units would respectively be referenced as K12 and K10. From a methodological standpoint, the main constraint for the progress of the excavation was that posed by the sedimentological characteristics of the infill, with a very sandy matrix in which it is difficult to advance downward without risking a general cave-in of the sides. Generally speaking, the excavation procedure has been that proposed by G. Laplace and L. Méroc (1954a and 1954b) in his well-known formulation of the Cartesian co-ordinates method. Each square was divided into nine sectors measuring 33 x 33 cm (in K10, we have only excavated the six sectors to the north of the cut, from number 4 to 9).

The excavation procedure has attempted to reproduce the floors as they were observed, arranged according to natural stratification parameters. Whenever this was not possible, due to the lack of stratigraphic differentiation, we have advanced in conventional semi-cuts, generally around five centimetres thick. The massive presence of malacological and anthracological remains, as well as occasional appearances of fish and crustacean remains, fragments of lithic and ceramic production, etc., hindered the standardized collection of coordinates. The distance and slope with respect to the fresh water also made it impossible to install a flotation mechanism on-site. In order to resolve this, we opted to use dry sieving, with very fine sieves (mesh of 0.5 mm), of the contents of each sector and layer, proceeding to bag all of the waste remaining after

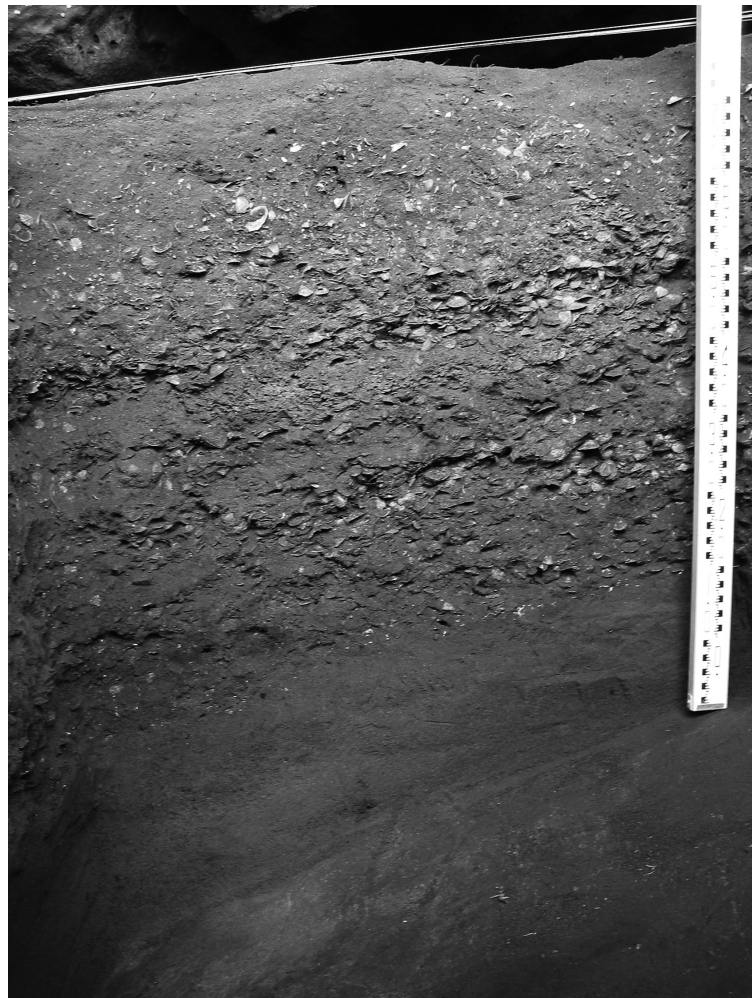


PLATE I. Northern profile of the sondage.

this sieving. Subsequently, in the laboratory, we proceeded to float the bags of archaeological and sedimentary material from each sector and simultaneously clean it. After drying and separating the final residue into sediment, production, charcoal and archaeozoological or archaeobotanical remains, we found an almost absolute representativity of items in each of these categories. Archaeofaunal remains with a marine origin are also documented. *Patella* sp. are the most abundant shell remains. *P. intermedia* is the most commonly gathered species, but *P. vulgata* and *P. uhyssiponensis* are also exploited. *Osilinus lineatus* is not very abundant. These species have been gathered in wave-beaten zones, like the goose barnacles

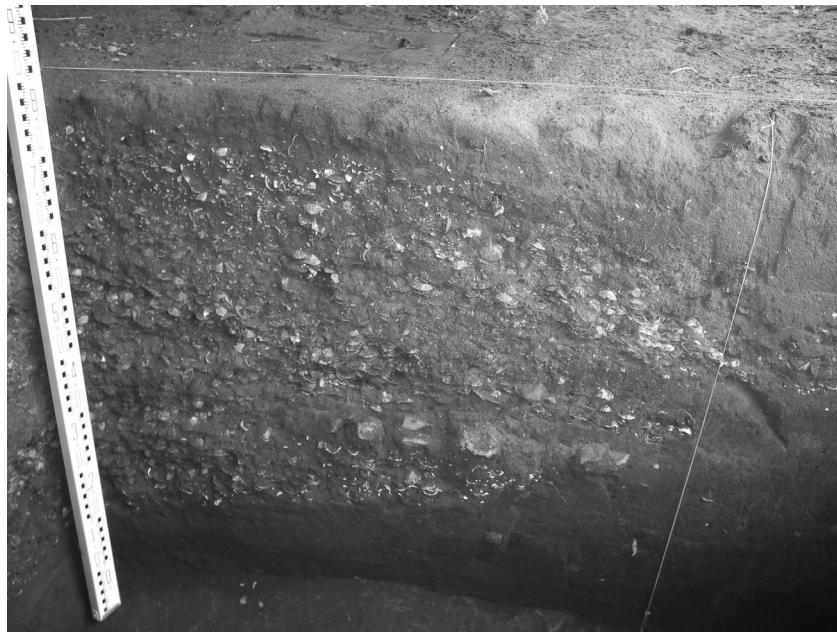


PLATE II. Eastern profile of the sondage.

(*Pollicipes pollicipes*), that are abundant too. The presence of sessile barnacles (*Balanus perforatus*, *Chthamalus montagui* and *Chthamalus stellatus*), lacking any nutritional value, indicates that the shells were gathered in more or less exposed areas too. The list of marine fauna is completed with fish, crab and echinoderm remains.

Once we had proceeded to extend the excavation surface in order to be able to recover all the bones of the buried individual, we managed to detect a new stratigraphic situation to the south of the area: when we reached the external perimeter of the shell midden, we encountered a

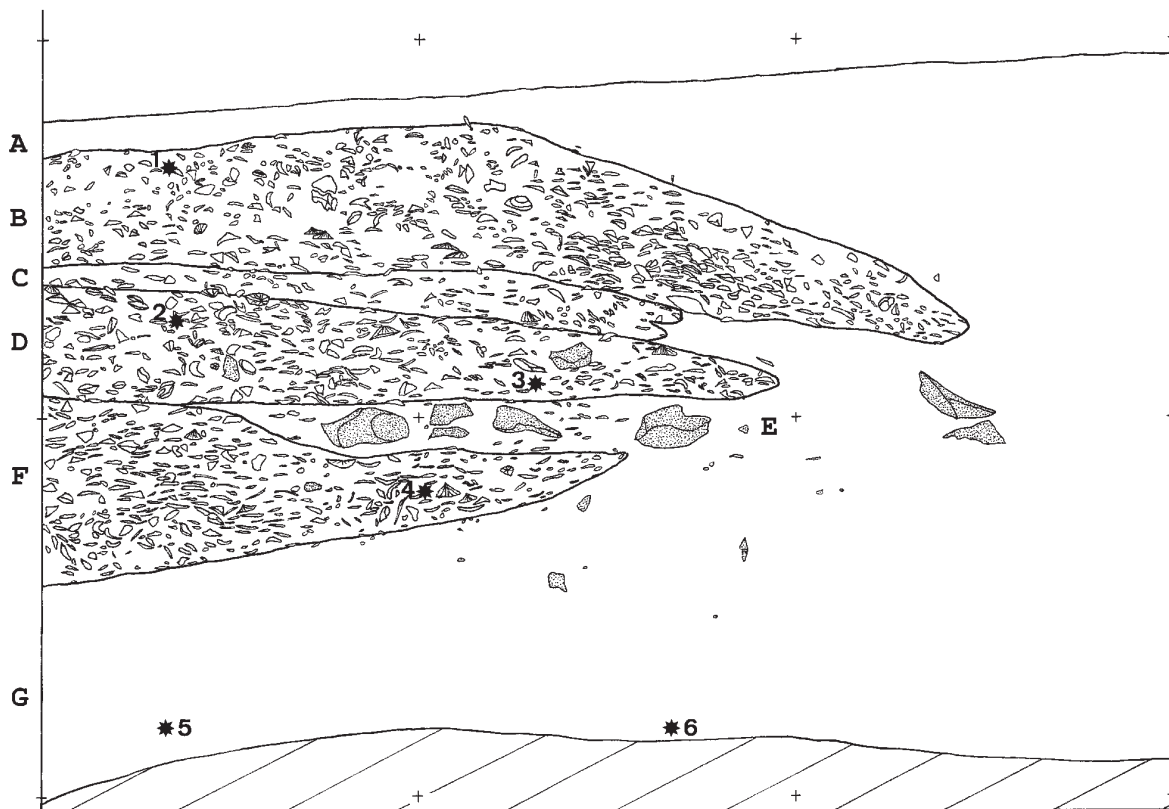


FIG. 2. Stratigraphic sequence on the eastern profile.

surface with archaeological materials characterized by the total absence of seashells. In a space of very few millimetres, the site changed from a very high density shell midden, to a sediment in which there was not one shell remnant. For several semi-cuts we proceeded to excavate first of all the sediment around the shell midden, where we confirmed that the human remains were arranged entirely within the structure of the shell midden and the sides of the latter apparently had no post-depositional niche or trench type alterations. We then proceeded to the removal of the human remains, as described in the corresponding section. Finally, we continued with the excavation of the open surface as a whole, discriminating at all times whether we were inside the sediment of the shell midden or the periphery. We proceeded in this way until the bedrock (sandstone) was located, lying on an angled plane with a strong dip from east to west.

One of the most relevant items of information provided by the J3 sondage refers to the conditions in which we determined the presence of the shell midden on all its levels. The shell midden (towards the inside of the shelter) and the shell-free layers (towards the outside) were stratigraphically interrelated differently throughout the sequence (the stratigraphic sequence on the northern profile can be seen in Plate 1, and more clearly, on the eastern profile, in Plate 2). Both at the base of the sequence and on the top, the shell midden is absent on the entire surface of the sondage and the sediment is sandy. But while the accumulation of shells was taking place, it is also possible to see an evolution (advances and withdrawals from one unit to another), allowing us to establish different moments in the occupation and the accumulation of shells. In fact, from this interdigitation followed in detail on the eastern profile of the sondage, we can detect a minimum of seven different establishments on the site (Fig. 2), five of which contribute to the expansion of the shell midden. We have designated these in order with letters, from the top to the bedrock, as A (after the last

use of the shell midden), B, C, D, E, F (all of them in the shell midden, with B, D and F representing accumulative phases while C and E represent regressive phases) and finally G (prior to the accumulation of molluscs). The presence of prehistoric ceramics within the shell midden (although it has not yet been possible to date this occupation, it is apparently Neolithic or posterior) allows us to consider J3 as occupying, a similar framework of operating conditions as its surroundings, for at least two and a half millennia (approximately between 8500 and 6000 BP).

The recent circumstances of the deposit of archaeological materials in Guipúzcoa, closed to researchers during almost three years, made it impossible to conduct a detailed study of the materials in J3. The ceramics present in J3, far from constituting an isolated finding, are very consistent from the standpoint of the type and size of the vases present on the site and with a significant representation (over 50 fragments, including some rims and bottoms of small vases). With regards to stone production, to judge by the dating, they must belong mostly to the middle phases of the post-Azilian Mesolithic and are not excessively characteristic.

In 2003, a brief advance of the study of this deposit was presented on the occasion of the “3rd Peninsular Congress on the Neolithic” (Iriarte *et al.*, 2005). Similarly, the site and its wider Cantabrian context was presented at the “7th International Conference on the Mesolithic in Europe” (Arias *et al.*, 2009).

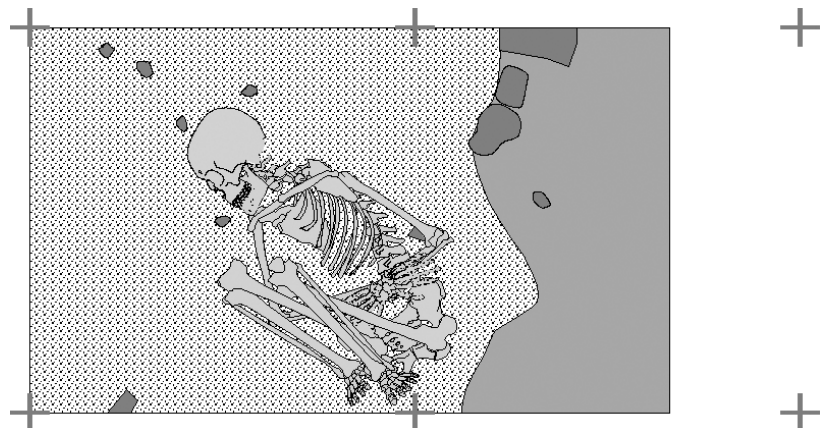


FIG. 3. Reconstruction of the burial.

3. Human burial

The age of human remains recovered is estimated between 20 and 40 years old, according to the determination made by F. Etxeberria and L. Herrasti. Notwithstanding the foregoing, bearing in mind the considerable degree of dental wear present on the occlusal surface of a tooth, the fusion of the cranial synostosis on the inner face and the fact that there is a widening of the joint surface on the odontoid apophysis as a result of an incipient degenerative process in the joint, it is possible to precise that the individual was between 30 and 40 years of age. However, despite the fragmentation of the body as a whole, it is possible to consider that all these remains are those of a male, in fact of the robustness suggested by the mastoid apophysis retained. The individual in question was leaned on its body and head right sides, with a forced flexion of the limbs. The arms were floded over the abdomen with direct contact between the crossed forearms. Above these were the legs. In this way, the body can be imagined to have been tied or wrapped and was buried in the shell midden in which it was found in this primary position, without any significant disturbance except by post-depositional processes of putrefaction and pressure of the sediment (please refer to the reconstruction in Fig. 3).

The conservation of the remains is very poor, due to an intensive corrosion by rainwater filtering into

the sediment. The low-pH rainwater has gradually destroyed many of the parts of the skeleton. In fact, all of the bones preserved were corroded, leading to a deterioration of the cortex, triggering the great fragility of its structures. Then, one of the reasons of some fragments preservation is the surrounding shell midden in which the individual was buried. This makes possible to interpret the burial as a primary location. The same processes have affected the scant remains of fauna, completely absent from the areas outside the accumulation of shells.

Apart from the classic anthropological analysis of the remains, its funerary apparatus and the dates presented in the next section, Professors M. Jackes and D. Lubell (University of Alberta, in Canada) proceeded in 2005 to an analysis of the skeleton isotopic composition. A preliminary report on these results was recently published (Arias, 2005-2006) with other samples of the same type. The values of stable carbon ($\delta^{13}\text{C}$) and nitrogen ($\delta^{15}\text{N}$) isotopes in the sample from J3 associate the diet of this individual with the Cantabrian cases of Colomba and La Poza l'Egua, as well as with Portuguese shell middens (such as Muge). The high values for $\delta^{13}\text{C}$ allow the diet of the man in J3 to be associated with the consumption of abundant marine proteins, while the discreet importance of the $\delta^{15}\text{N}$ values suggests that a substantial part of those proteins comes from fish consumption, rather from molluscs from the shoreline (consumption evident in the context of a shell midden).

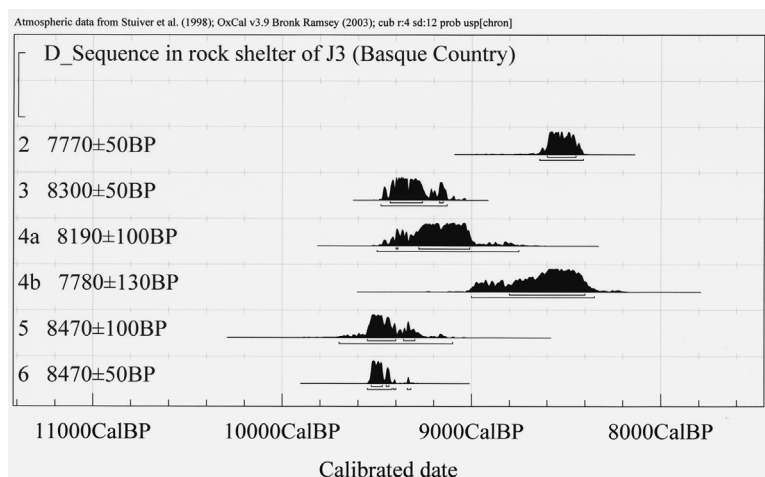


FIG. 4. Sequence of radiocarbon datations.

4. Chronometric sequence of the J3 shelter

So far we have seven absolute datings for the determination of J3, referring to layers B, D, F and G. We have renumbered the samples in order according to their arrangement on the stratigraphy. All of the samples sustained an analysis at the isotope analysis laboratory at the University of Groningen (Table 1, Fig. 4).

Some clarifications need to be added in connection with the available datings. Number 1 was performed in order to try to obtain

<i>Number</i>	<i>Reference</i>	<i>Layer</i>	<i>Material</i>	<i>Result</i>	<i>2 sigma Calibration</i>
1	GrN-28385	B (top)	Charcoal	10 ± 70 BP	Cal 1670-1950 AD
2	GrA-25774	D (top)	Charcoal	7770 ± 50 BP	Cal 6690-6460 BC
3	GrA-23733	D (bottom)	Human bone	8300 ± 50 BP	Cal 7530-7180 BC
4a	GrN-27984	F	Charcoal	8190 ± 100 BP	Cal 7550-6800 BC
4b	GrN-28008	F	Shells	7780 ± 130 BP	Cal 7050-6400 BC
5	GrN-28387	G	Charcoal	8470 ± 100 BP	Cal 7750-7150 BC
6	GrA-25776	G (top)	Charcoal	8470 ± 50 BP	Cal 7600-7370 BC

TABLE 1. Radiocarbon datings available for J3, calibrated with the OxCal v.3.9 software.

a date for the ceramic layer of the shell midden (layer B), although the sample selected seems to be contaminated by a subactual charcoal. Sample 3 dates the buried individual himself, deposited on the base of layer D of the shell midden, but also invading volumetrically layers B and C. A sample of charcoal (sample 4) was collected from underneath this individual, and this gave rise to two different results (4a and 4b) when sent to the laboratory: the laboratory separated the shell remains also included in the sample and dated them, noting the reservoir effect. It is precisely this sample 4b, on remains of molluscs, that poses the most serious distortion in the series (undoubtedly attributable to the different material dated), despite which we have considered its publication necessary.

The presence of a considerable sample of prehistoric ceramics, with a relatively old appearance, in the J3 series, raises questions that are difficult to resolve with the current information about the site. It is evident that we have not been successful in choosing a sample to date this phase of occupation of the shelter, as the most recent prehistoric date is even incompatible with the presence of ceramics in our regional setting. The appearance of the ceramics indicates links with the Neolithic or Copper Age periods.

Discounting samples 1 and 4b for the reasons given, the chronometric sequence of J3 is notably consistent and well sequenced. The occupation of the shelter began around 8470 BP, at a level on which the coastal shellfish were still not being exploited intensively (layer G). The rest of the J3 occupation layers accumulate remains of molluscs at the bottom of the shelter, giving rise to a relatively well preserved shell midden, which in turn preserves

indications of stratigraphy between approximately 8300 (sample 3) and 7770 (sample 2) BP. The oldest sample corresponds to the analysis of the human bone and this burial is the only structure that seems to upset somewhat the chronometric sequence (the apparent inversion of samples 3 and 4a is greatly attenuated on the calibrated dates). As a result of the contamination of sample 1, it remains to date the occupation of the top of the shell midden by part of the groups of ceramics that, in view of the regional framework, should not be earlier than 6000 BP. In fact, a few kilometres from the J3 shelter, also at the time a few metres from the current coastline, there was a site named as Herriko Barra (Iriarte *et al.*, 2005) that, with dates around 6000 BP and archaeobotanical indications of agricultural practices, constitutes the oldest milestone known today for the Neolithic period on the Cantabrian coast.

5. Discussion. J3 in the context of Mesolithic shell middens with human burials in the Cantabrian area

The finding of a Mesolithic human burial in the context of a relatively well preserved shell midden in which there are remains of prehistoric ceramics, even though all the datings obtained so far place the occupations of the sites in the Mesolithic period, pose interesting questions in at least four areas of discussion. Firstly, regarding the emergence of burial practices among the Mesolithic groups close to the shore; further, in connection with the diet of these individuals, a subject dealt with extensively in a recent article (Arias, 2005-2006); also the presence of ceramics in shell midden contexts, without radiometric

support (Arias, 1996), poses a third provisional approximation to the case of J3; finally, the appearance in the regional setting of the first groups with a productive economy allows a certain approximation in the light of the J3 finding (Fano, 2007). For these preliminary results of the excavation, we would like to focus basically on the first matter indicated, leaving until the final report on the excavation some of the other reflections motivated by the J3 finding.

The presence of human remains in archaeological contexts poses a difficult problem for the interpretation of the process whereby those remains have reached the deposit (natural or anthropic), the circumstances of the findings as a whole (primary or derived position) and the existence or otherwise of funerary apparatus associated with the bones. We have several relatively recent compilations for the oldest cases known in the Iberian Peninsula of the appearance of human remains in contexts of the Upper Palaeolithic and Mesolithic periods, in different peninsular media (Blas, 1997; Villaverde, 2001; Arias and Álvarez-Fernández, 2004;

Balbín and Alcolea, 2005; Garralda, 2006; Pérez-Iglesias, 2007). In summary, the presence of human remains in all of the sites found for the Upper and Middle Palaeolithic and almost all those in the Upper Palaeolithic period (with the possible exceptions of El Sidrón –Fortea *et al.*, 2003–, Lagar Velho and the Aura, González Tablas and Jiménez work seasons at Nerja) seems to correspond to derived and/or accidental contexts, in which it is not easy to identify any funerary apparatus. In any case, over and above the nuances required by each of these cases, it seems reasonable to indicate that funerary apparatus was beginning to be applied in a relatively widespread way in the Iberian Peninsula only in the Epipalaeolithic-Mesolithic periods.

In fact, the presence of human remains in pre-historic contexts, even older than the one described, is not unprecedented in caves and rock shelters in the Basque Country. Just to cite a few references, we can include in this category the famous humerus from Lezetxiki, various dental pieces attributed to

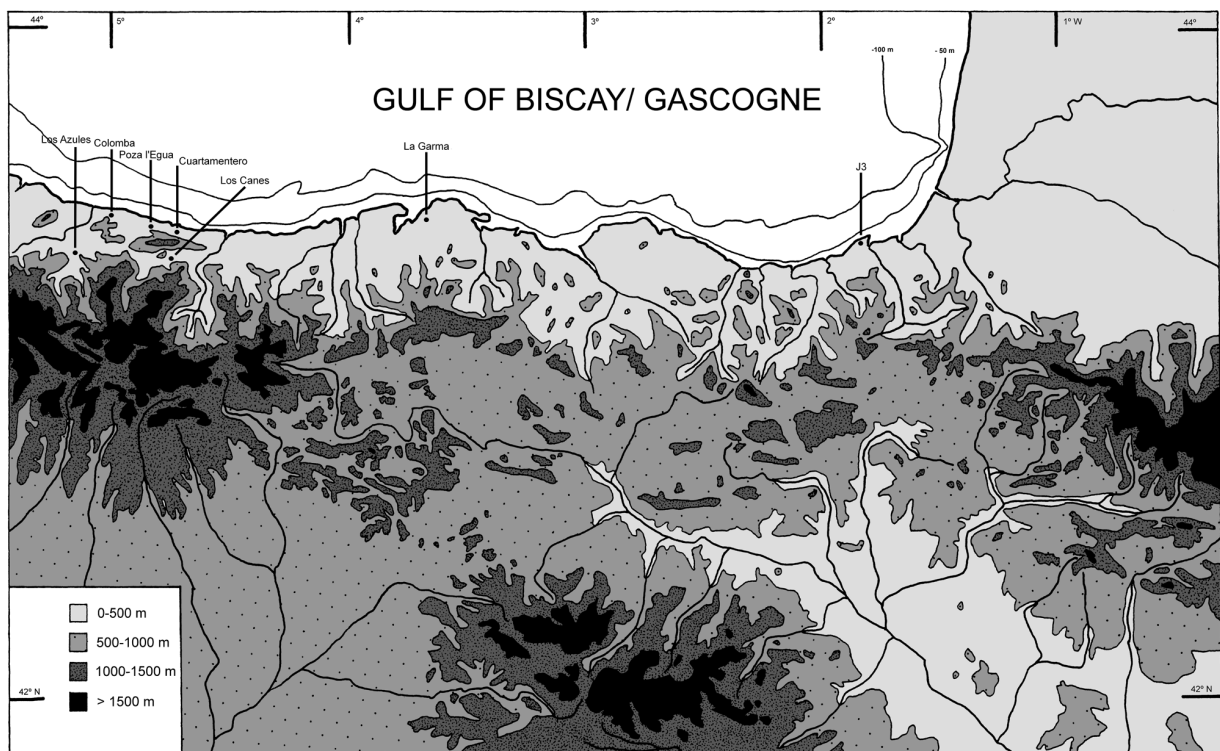


FIG. 5. Cantabrian region, with the location of main sites cited at text.

Neanderthal human types (also in Lezetxiki, Arrillor or Axlor) and a variety of remains of Cro-Magnons in Upper Palaeolithic contexts, such as Erralla and the important series of over a hundred bone fragments at Isturitz (Barandiarán, 1987). None of these elements has for the time being been attributed to a ritual or funerary context, and their appearance in habitation layers is assumed to be a sub-product of daily life, and does not presuppose any symbolic or spiritual behaviour. In our regional setting, it is not able before the Mesolithic (and in a much more widespread way, from the Late Neolithic) to identify such behaviour systematically, first in caves and shelters and in the form of individual burials, before later going on to the collective model dominant from the Late Neolithic period on, either in cave tombs or in a variety of megalithic monuments.

Human burials in archaeological contexts in the Iberian Peninsula take on a new dimension, after the start of the Epipalaeolithic-Mesolithic period, particularly in areas close to the shoreline on the Atlantic coast, and with a certain frequency, in shell midden contexts. In fact, environmental and economic changes affecting the human groups entering the Holocene gave rise to the systematic exploitation of the coast in search of molluscs, shells and food remains in which members of the groups were occasionally buried. From ancient times, there have been well-known cases of human burials in the shell midden at Muge (Portugal), similar to other cases in France, Germany or Denmark, to which other examples have been added, first as isolated cases and more recently with a certain profusion. The dating of the human skeletons in Muge (Lubell and Jackes, 1988) frames these burials between 7300 and 6300 BP, approximately. Another well-known case for the Atlantic face of Europe includes the Breton sites of Hoëdic and Téviec, with radiocarbon dates directly obtained from human remains of between 7165 and 5080 BP (Schulting, 2005; Schulting and Ri-chards, 2001). In Asturias, we have several deposits (Los Azules, Cueva Colomba, La Poza l'Egua, Cueva de los Canes –Fig. 5– or the Molino de Gasparín, among others) where there are references to human burials attributed to the Mesolithic. Nonetheless, we do not have accurate information on the case of Molino de Gasparín apart from its association with the Asturiense culture. The oldest known dates in the Cantabrian region corresponds to the burial at Los Azules, where it has

not been possible to date human remains, although they are well contextualized in an Azilian layer. We have recently (Arias, 2005-2006) become aware of an approximation to the individual's age by radiocarbon dating at *circa* 9485 BP.

Poza l'Egua is a small cavity excavated as part of a salvage operation, where an isolated human jaw was located in 2000 due to a risk of plundering (Arias *et al.*, 2007b). In the same context, numerous remains of mammals, fish and malacofauna were found along with some elements of stone production, which did not allow an interpretation of any ritual either. These remains probably correspond to a male who died at around 40 years of age. The direct dating of jaw produced an AMS date of 8550 ± 80 BP.

The deposit at Cueva Colomba represents one of the classic sites explored by the Conde de la Vega del Sella and Obermaier at the beginning of the 20th century. Between 2000 and 2002, P. Arias and M. Fano conducted a programme of sondages into Asturiense culture shell middens, in the course of which they located several remains from a human leg, possibly male, that may have come from a dismantled tomb dating from 7090 ± 60 (Arias *et al.*, 2007a). The circumstances of the finding do not allow us to obtain reliable considerations about the possible presence of any funerary practice associated with the burial.

The human burials of Los Canes provide multiple datings (6930 ± 95, 6860 ± 65, 6770 ± 65 y 6265 ± 75 BP) attributed to the Mesolithic (Arias and Pérez, 1990 and 1992; Arias and Álvarez-Fernández, 2004; Arias *et al.*, 2009). In this cave, five bodies were found (apart from other isolated human remains from the Magdalenian and post-Palaeolithic periods) in individual graves, among which the three best conserved were in the shape of a long or oval ditch. Two of the deceased were lying face-up in supine position with their legs strongly folded up towards their bodies. The other was slightly tilted on one side with the arms along the sides of the body and the bented legs. The associated material included abundant snails, animal remains (a deer's shoulder, goats' heads), a perforated rod and elements of a seashell necklace and perforated deer teeth.

The excavations carried out in the karstic complex of La Garma have allowed the recovery of a variety of post-Palaeolithic human remains (La Garma A, La Garma B, La Garma C, La Garma D,

El Truchiro and Peredo), including those of El Truchiro (Arias *et al.*, 2003; Arias, 2005-2006). Unfortunately, most of these remains correspond to intrusions from the Chalcolithic, the Bronze Age, and even in mediaeval times, with an impact on the oldest layers.

In the cave of Linatzeta (Deba, Gipúzcoa), it has been recovered an infantile skull in connection with some vertebras, belonging to an individual younger than 6 months of age which has been dated in 7315 ± 35 BP. No grave structure has been detected in the level, the human remains do not appear linked to other archaeological objects and the scarce recovered fauna is not of anthropic contribution (Tapia *et al.*, 2008).

Finally, within the Cantabrian area, there are several shell midden-like deposits with Mesolithic establishments in which, as in Poza l'Egua, isolated human remains have been recovered albeit of difficult contextualization. These are basically Cuartermenero (Garralda, 1982), Balmorí and Mazaculos II (Garralda, 1981; Garralda, 1989). At these sites it has not been possible to describe, or even to guess at the formalization of funeral arrangements.

It can be concluded that funerary behaviour, erratic throughout the Palaeolithic period, acquired a clear orientation in the Cantabrian area of the Iberian Peninsula from the Epipaleolithic-Mesolithic period on, especially in its post-Azilian phases (the exception is the Azilian burial at Los Azules). In the form of individual burials, very frequently in coastal areas and in shell middens, funerary manifestations become more and more numerous, although it is sometimes difficult to associate elements of the tangible culture present in the same context as the human bodies to any funerary arrangement or burial items. There are also abundant cases in which the human bodies appear without articulation or as isolated remains in shell midden contexts, probably both because of the complicated conservation of the remains of the skeletons in the small caves used as shell middens, and also due precisely to the continuing absence of elaborate rituals or funerary apparatus associated with the burial. In this context, the burial at J3, with the intentional arrangement of a body (most probably tied) inside the shell midden, 8300 years ago, together with the good fortune of its conservation, allows us to view one of the oldest examples of human burial in the Cantabrian region and the first known in the Basque area.

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References

- ALTUNA, J.; ARMENDÁRIZ, A.; ETXEBERRIA, F.; MARIEZKURRENA, K. and ZUMALABE, F. (1995): *Carta Arqueológica de Gipuzkoa. II. Cuevas. Munibe (Antropología-Arkeología)*. Suplemento 10. San Sebastián: Sociedad de Ciencias Aranzadi.
- ARIAS, P. (1996): "Los concheros con cerámica de la costa cantábrica y la neolitización del norte de la Península Ibérica". In MOURE, A. (ed.): *El Hombre Fósil, ochenta años después: volumen conmemorativo del 50 aniversario de la muerte de Hugo Obermaier*. Santander: Universidad de Cantabria, pp. 391-415.
- (2005-2006): "Determinaciones de isótopos estables en restos humanos de la región cantábrica. Aportación al estudio de la dieta de las poblaciones del Mesolítico y el Neolítico", *Munibe (Antropología-Arkeología)*, 57-3, pp. 359-374.
- ARIAS, P. and ÁLVAREZ-FERNÁNDEZ, E. (2004): "Iberian Foragers and Funerary Ritual. A Review of Palaeolithic and Mesolithic Evidence on the Peninsula". In GONZÁLEZ MORALES, M. and CLARK, G. A. (eds.): *The Mesolithic of the Atlantic Façade: Proceedings of the Santander Symposium*. Arizona State University Anthropological Research Papers, 55, pp. 225-249.
- ARIAS, P.; ARMENDÁRIZ, A.; BALBÍN, R. de; FANO, M. A.; FERNÁNDEZ-TRESGUERRES, J.; GONZÁLEZ MORALES, M.; IRIARTE, M. J.; ONTAÑÓN, R.; ALCOLEA, J.; ÁLVAREZ-FERNÁNDEZ, E.; ETXEBERRIA, F.; GARRALDA, M. D.; JACKES, M. and ARRIZABALAGA, A. (2009): "Burials in the cave: New evidence on mortuary practices during the Mesolithic of Cantabrian Spain". In MCCARTAN, S.; SCHULTING, R.; WARREN, G. and WOODMAN, P. (eds.): *Mesolithic Horizons: Papers presented at the Seventh International Conference on the Mesolithic in Europe* (Belfast, 2005). Oxford: Oxbow Books, vol. II, pp. 650-656.
- ARIAS, P.; FANO, M. A.; ARMENDÁRIZ, A.; ÁLVAREZ-FERNÁNDEZ, E.; CUETO, M.; FERNÁNDEZ-GARCÍA, R.; GARRALDA, M. D.; MENSUA, C. and TEYRA, L. C. (2007a): "Programa de sondeos en concheros holocenos del oriente de Asturias". In *Excavaciones Arqueológicas en Asturias 1999-2002*. Oviedo, pp. 107-116.
- ARIAS, P.; FERNÁNDEZ-TRESGUERRES, J. A.; ÁLVAREZ-FERNÁNDEZ, E.; ARMENDÁRIZ, A.; CUETO, M.; FANO,

- M. A.; FERNÁNDEZ-GARCÍA, R.; GARRALDA, M. D.; MENSUA, C. and TEYRA, L. C. (2007b): "Excavación de urgencia en la cueva de Poza l'Eguia (Lledías, Llanes)". In *Excavaciones Arqueológicas en Asturias 1999-2002*. Oviedo, pp. 227-237.
- ARIAS, P.; ONTAÑÓN, R.; ARMENDÁRIZ, A. y PEREDA, E. (2003): "Zona arqueológica de La Garma (Ribamontán al Monte): La Garma A, cuevas sepulcrales y castro del Alto de La Garma". In ARIAS, P.; ONTAÑÓN, R.; GARCÍA-MONCÓ, C. and TEYRA, L. (eds.): *IIIer Congreso del Neolítico en la Península Ibérica* (Santander, 2003). Libro-guía de la excursión. Santander: Universidad de Cantabria, pp. 42-57.
- ARIAS, P. and PÉREZ, J. (1990): "Las sepulturas de la cueva de los Canes (Asturias) y la neolitización de la región cantábrica", *Trabajos de Prehistoria*, 47, pp. 39-62.
- (1992): "Las excavaciones arqueológicas de la cueva de Los Canes (Arangas, Cabrales). Campañas de 1987 a 1990". In *Excavaciones Arqueológicas en Asturias 1987-90*. Oviedo, pp. 95-101.
- BALBÍN, R. de and ALCOLEA, J. J. (2005): "Espace d'habitation, espace d'enterrement, espace graphique. Les coïncidences et les divergences dans l'art paléolithique de la corniche cantabrique". In VIALOU, D.; RENAULT-MISKOVSKY, J. and PATHOU-MATHIS, M. (eds.): *Comportements des hommes du Paléolithique moyen et supérieur en Europe: territoires et milieux*. ERAUL, 111, pp. 193-206.
- BARANDIARÁN, I. (1987): "Los estudios sobre Antropología prehistórica en el País Vasco", *Velesia*, 4, pp. 7-50.
- BLAS, M. A. de (1997): "En torno a los restos esqueléticos humanos del Paleolítico superior-Epipleolítico cantábrico". In *Homenaje a Juan Uriá Rúa*, 1. Oviedo: Universidad de Oviedo, pp. 147-170.
- FANO, M. A. (2007): "The use of marine resources by the Mesolithic and Early Neolithic societies of Cantabrian Spain: the current evidence". In MILNER, N.; CRAIG, O. E. and BAILEY, G. N. (eds.): *Shell Middens in Atlantic Europe*, pp. 136-149.
- FORTEA, J.; RASILLA, M. de la; MARTÍNEZ, E.; SÁNCHEZ-MORAL, S.; CAÑAVERAS, J. C.; CUEZVA, S.; ROSAS, A.; SOLER, V.; JULIÀ, R.; TORRES, T. de; ORTIZ, J. E.; CASTRO, J.; BADAL, E.; ALTUNA, J. and ALONSO, J. (2003): "La cueva de El Sidrón (Borines, Piloña, Asturias): Primeros resultados", *Estudios Geológicos*, 59, pp. 159-179.
- GARRALDA, M. D. (1981): "Las mandíbulas de Balmorí y Mazaculos II (Asturias). Estudio antropológico", *Boletín del Instituto de Estudios Asturianos*, 103, pp. 595-603.
- (1982): "El cráneo asturiano de Cuartamentero (Llanes, Oviedo)", *Kobie*, 12, pp. 7-29.
- (1989): "Les populations Post-Paléolithiques de l'Espagne: Morphologie, Culture et Écologie". In HERSKOVITZ, I. (ed.): *People and Culture in Change*. B.A.R. (IS 508). Oxford, pp. 505-516.
- (2006): "Las gentes del Paleolítico superior antiguo de Europa Occidental". In MAÍLLO, J. M. and BAQUEDANO, E. (eds.): *Miscelánea en Homenaje a Victoria Cabrera. Zona Arqueológica*, 7.1, pp. 320-335. Madrid.
- IRIARTE, M. J.; ARRIZABALAGA, A.; ETXEBERRIA, F. and HERRASTI, L. (2005): "La inhumación humana en conchero de J3 (Hondarribia, Gipuzkoa)". In ARIAS, P.; ONTAÑÓN, R. and GARCÍA-MONCÓ, C. (eds.): *IIIer Congreso Peninsular de Neolítico* (Santander, 2003). Santander: Universidad de Cantabria, pp. 607-613.
- IRIARTE, M. J.; MUJICA, J. and TARRIÑO, A. (2005): "Herriko Barra (Zarautz-Gipuzkoa): caractérisation industrielle et économique des premiers groupes de producteurs sur le littoral basque", *Bulletin de la Société Préhistorique Française*. Sup. XXXVI, pp. 127-136.
- LAPLACE, G. and MERO, L. (1954a): "Application des cordons cartésiennes à la fouille d'un gisement", *Bulletin de la Société Préhistorique Française*, 51, pp. 291-293.
- (1954b): "Complément à notre note sur l'application des cordons cartésiennes à la fouille d'un gisement", *Bulletin de la Société Préhistorique Française*, 51, pp. 291-293.
- LUBELL, D. and JACKES, M. (1988): "Portuguese Mesolithic-Neolithic subsistence and settlements", *Rivista di Antropologia*, 66, pp. 231-248.
- PÉREZ IGLESIAS, J. M. (2007): "Restos fósiles humanos en el Paleolítico superior de la Península Ibérica", *ArqueoWeb*, 8 (2). January.
- SCHULTING, R. J. (2005): "Comme la mer qui se retire: Les changements dans l'exploitation des ressources marines du Mésolithique au Néolithique en Bretagne". In MARCHAND, G. and TRESSET, A. (eds.): *Unité et diversité des processus de néolithisation sur la façade atlantique de l'Europe (6^e-4^e millénaires avant J.-C.)*. Table ronde de Nantes 26-27 avril 2002 (*Mémoire de la Société Préhistorique Française*, 36). Paris, pp. 163-171.
- SCHULTING, R. J. and RICHARDS, M. P. (2001): "Dating women becoming farmers: new paleodietary and AMS dating evidence from the Breton mesolithic cemeteries of Téviec and Höedic", *Journal of Anthropological Archaeology*, 20, pp. 314-344.
- TAPIA, J.; ÁLVAREZ-FERNÁNDEZ, E.; CUBAS, M.; CUETO, M.; ETXEBERRIA, F.; GUTIÉRREZ, I.; HERRASTI, L. and RUIZ, M. (2008): "La cueva de Linatzeta (Lastur, Deba, Gipuzkoa). Un nuevo contexto para el estudio del Mesolítico en Gipuzkoa", *Munibe (Antropología Arkeologia)*, 59, pp. 119-131.
- VILLAVARDE, V. (ed.) (2001): *De Neandertales a cro-mañones. El inicio del poblamiento humano en las tierras valencianas*. Valencia: Universidad de Valencia.