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## Fifty thousand years of prehistory at the cave of Abauntz (Arraitz, Navarre): A nexus point between the Ebro Valley, Aquitaine and the Cantabrian Corridor

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### ABSTRACT

The cave of Abauntz is, since the beginning of fieldwork in the 1970s, one of the major milestones of the Iberian prehistory. It has yielded thousands of first-level remains that belong to at least nine cultural periods from the Mousterian to the Late Roman period. This paper presents to the international scientific community the state of the art of our knowledge about the stratigraphy, the materials, and their interpretation in its regional context. Situated in a strategic place, the cave was used as a camp by Neanderthal groups; Solutrean, Magdalenian and Azilian hunters; Neolithic shepherds; employed for funerary purposes by Chalcolithic people; and as a hiding place by Roman citizens who feared the first Germanic invaders. Many of the remains (Vasconian cleavers, saiga bones and decorative motifs from the Middle Magdalenian, an engraved horse in a block from the Late Magdalenian) suggest strong links with the Aquitaine area, easily reachable through the passes that communicate this zone with the northern territories. In some moments (such as the Solutrean), the cave clearly acted as a nexus point between the Mediterranean-related sites of the Ebro basin and the Cantabria-Aquitania zone.

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### 1. Introduction

The cave of Abauntz is located near the village of Arraitz (Navarre, Spain), along the Abauntz gorge (Fig. 1). Its mouth opens on a crag, approximately 30 m above the left side of the river. Well known locally, it was cited by Barandiarán (1956). Geographically, the area belongs to the Ebro Basin, although it is very near the Cantabrian region, acting as a climatic nexus between the two basins.

Abauntz is found in a very favourable location. It controls the pass between the southern plains and the more abrupt environs at the head of the Zaldazaín creek, covered by a dense deciduous forest. It opens next to the traditional mountain pass of Velate, which connects the Mediterranean and Atlantic basins, allowing free access to the north of the Pyrenees. It is a mid-range mountain area with weathered peaks. The elevation of the cave entrance is 650 m above sea level. Intense rainfall (approximately 1800 mm/year) is spread uniformly throughout the seasons.

Excavation work was divided in two phases: firstly, four campaigns directed by Pilar Utrilla (from 1976 to 1979; Utrilla, 1982),

which were later continued with Carlos Mazo as co-director (1988, 1991, 1993–1996). Rafael Domingo first assisted in 1993 and 1994 as a student and a few years later became a member of the research team. Since 1996, work has continued from the lab, producing interesting results, some of which were widely reproduced in the media. The stratigraphic sequence is among the most complete and complex examples known for the Ebro Valley (Fig. 2).

Human occupation spreads throughout ten stratigraphic levels, covering 50,000 years of seasonal visits by two groups of species (Neanderthals and Sapiens) with different cultural traditions. Hence, the cave was used as a hunting shelter during the Solutrean; as a domestic camp in the Mousterian, Middle Magdalenian and Neolithic; sporadic settlement during the Upper Magdalenian and the Azilian; burial place in the Chalcolithic; and a hiding place during the invasions of the Late Roman Empire. This paper will discuss these human occupations, especially the ones corresponding to prehistoric times.

### 2. Bears and cleavers

The earliest recorded human presence belongs to level h, located in the interior of the cave. It was discovered (no structures or hearths, but presence of burnt bones) in a test-pit excavated by C.

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Fig. 1. Location of the cave of Abauntz in the Ulzama valley. Scale varies in this perspective.

Mazo in 1994, two metres below the last archaeological stratus (Solutrean). Ultimately, the excavated area measured 8 m<sup>2</sup> and contained an archaeological layer 50 cm deep (Mazo et al., 2011–2012).

Bear teeth were dated using amino acid racemization. In the report submitted by T. Torres and E. Ortiz, results showed a chronology of 47 ± 7 ka, coinciding with that obtained by AMS in Groningen (>45,000; GrA-16960), and congruent with the

LEVELS	MATERIAL REMAINS	DATES	CULTURE
a		408 AD	LOW EMPIRE
b1 2 <sup>a</sup> sala		3900±35 GrA-37323 AMS B 3975±35 GrA-37322 AMS B 4025±35 GrA-37325 AMS B	CHALCOLITHIC
b2		4240±140 Ly-1963 Conv C	
b1 1 <sup>a</sup> sala		4370±70 CSIC-785 AMS B	NEOLITHIC
b3 b4/1r		5390±120 I-11.309 C 5820±40 GrN-21.010 Conv C 6910±450 I-11.537 B	
c		9530±300 Ly-1.964 B	AZILIAN / MICROLAMINAR EPIPAL.
d		11760±90 OxA-5116 AMS C 12220±60 GrA-39336 AMS Harpoon 12340±60 CAMS-9918 AMS C	MAGDALENIAN
e1/2r		13500±160 OxA-5983 AMS B	
e			SOLUTREAN
f			
g			ACHEULEAN TRAD. MOUSTERIAN
h		27460±4050 ESR Tooth >45000 GrA-16960 Tooth 47000±7000 Aminochronology Tooth	
i			

Fig. 2. Scheme of the stratigraphic sequence recorded at the cave of Abauntz showing archaeological levels, most relevant materials, dates and cultural adscription.

Mousterian of Acheulean Tradition (MTA) industry, explaining the relative abundance of cleavers.

Regarding fauna, [Altuna et al. \(2001–2002\)](#) studied the small assemblage recovered in 1994, less than two hundred fragments. The remainder was classified by F. Blasco ([Mazo et al., 2011–2012](#)). In total, almost 2000 identifiable remains have been recorded in an excellent state of conservation. The great majority belong to *Ursus spelaeus* (81.4%), found in what appears to be an accumulation linked to the hibernation of these animals and their subsequent natural death. There are no traces of human handling of the bones. Of the remaining bone fragments, 10% belong to a variety of carnivores (*Panthera pardus*, *Canis lupus*, *Vulpes vulpes*, Hyaenidae) and only 7% to ungulates, some of which were eaten by prehistoric peoples, as indicated by the cut marks present on the remains of *Cervus*. Some bones of *Rupicapra* bear marks of having been gnawed by carnivores. During the Mousterian, in the cave of Los Moros de Gabasa (Huesca), animals and humans showed similar behaviour: Neanderthals ate deer and Equidae, while carnivores consumed goats and chamois ([Blasco et al., 1996](#)). In Abauntz, lower percentages have been recorded for bovines, reindeer, goats, horses, and rhinoceros. Practically 90% of animal remains from level h were deposited during the natural use of the cave by bears and other carnivores.

Forty-two lithic remains were found in this level. Eleven cleavers were recovered, representing 26% of the lithic assemblage ([Fig. 3](#)). There were also two handaxes, two sidescrapers, two endscrapers, three truncations, and four retouched flakes. As customary, cleavers were not made from flint. Here, they used limestone, basalt and other volcanic rocks. This site confirmed C. Mazo's hypothesis (based on a use-wear analysis) proposed for quartzite cleavers of the Najerilla River (La Rioja). The choice of material was determined by mechanics, the use it was going to be given as a precursor, either on wood (three examples in Najerilla) or on bone or meat (four cases) ([Utrilla and Mazo, 1996d](#)).

Recently we proposed ([Mazo et al., 2011–2012](#)) that Abauntz could be included as part of a group of sites linked to the Gulf of Biscay (Castillo, Morín, Pendo, Abauntz, Olha, and even the Najerilla River group in La Rioja). The association is based on the use of identical technology in the fabrication of cleavers: rims are deviated from the axis; the piece is knapped preferably “southwards” (in a relative sense, if we consider the technological axis); there is a predominance of types 0 and II; and an average L/I between 1.3 (Morín) and 1.4 (Castillo, Abauntz), as defined by [Benito Del Rey \(1972–1973\)](#) for 85 cleavers from Castillo. F. Bordes explained the five Mousterian facies as belonging to groups that developed their own technology and lithic typologies, occupying each cave successively. If correct, the Vasconian would be the clearest of these five facies. Therefore, we propose that this facies of cleavers should recover the identity assigned to it by [Bordes \(1953\)](#), a position renewed by French authors, such as [Mourre \(2003\)](#) and [Deschamps \(2009–2010\)](#).

### 3. Seasonal solutreans and possible remains of a Gravettian occupation

Several materials have been recovered from the disturbed level: a Gravette (or Vachons?) point, a clear Chatelperron point; and a bone from level f dated to  $21600 \pm 200$  (GrN-21011;  $25809 \pm 524$  cal BP; all the dates in this paper have been calibrated with *CalPal online v.1.5*), all of which leads to the assumption that there could have been a Gravettian level in the cave, which was later eroded by running water ([Fig. 4](#)).

Level f was very altered by post-depositional activity and only preserves residual evidence, retained by rocks, which nonetheless characterizes the level as belonging to the Upper Solutrean,

although occupation was neither dense or particularly fertile. Only a few artefacts have been recorded, among them a flat-retouched thick perforator ([Fig. 4](#), no. 10) and beautiful Cantabrian-type notched points (*pointes à cran*), which were mostly broken. The evidence suggests that the site was used as a temporary hunting shelter, where discarded tools were substituted for new ones.

The outstanding characteristic of the assemblage is the co-existence of tools with flat retouch (Cantabrian and Aquitaine types) and two notched points with abrupt retouch that remind of Spanish Levantine or Salpétrian types. This illustrates the way in which Abauntz works as a nexus site, strategically located between the Mediterranean and Atlantic basins. Mediterranean notched points are also found in the Pre-Pyrenees (Chaves, Fuente del Trucho), but Abauntz remains the westernmost location. Furthermore, tools from the inland Pre-Pyrenees are more ‘Salpétrian-like’ than those from the coast (such as the curved peduncle points from Ambrosio or Parpalló). When considered jointly with other evidence, it is possible to suggest communication north from the Pyrenees by using central mountain passes (e.g. Cerdaña pass) and not only through the more evident coastal route ([Boccaccio and Utrilla, 2013](#); [Domingo et al., 2012](#)). The co-existence of two different technologies may be explained by contact between peoples of Salpétrian tradition that occupied the central Ebro Valley (level c1 from Chaves, dated to 19,000 BP –non calibrated) and groups that travelled the Cantabrian Corridor between Aquitaine and Asturias. Abauntz follows the trend identified in this area, where Solutrean people inhabited in caves that had been occupied during the Gravettian. Our site is located in an area that can be described as one of these “marginal” territories ([Straus et al., 2013](#)) that could have been occasionally frequented by Solutrean hunters during their displacements between core regions.

### 4. Trans-pyrenaic hunters during the Middle Magdalenian

There is only one documented level in the Ebro Valley with demonstrated human occupation during the Middle Magdalenian, layer e in Abauntz cave. It is closely linked to the Cantabrian and Aquitaine regions, a connection that further reinforces the cave's excellent geographical location. It is the best preserved stratigraphic level at the site, dated by bone (AMS) to  $13500 \pm 160$  (OxA-5983;  $16413 \pm 423$  cal BP). Furthermore, it has hardly been altered by post-depositional phenomena, allowing for numerous studies. [Utrilla \(1982\)](#) identified the level during the first excavation campaigns, and it served as a basis for the thesis of [Mazo \(1989\)](#) on the functionality of Magdalenian lithic tools, which led to some surprising conclusions. For example, burins had never been used to make grooves. Hence, on truncated types the used part was the truncation itself, displaying identical skin-scraping marks than endscrapers, which were located on the same zones of the tools. The negative of the burin was used to improve the handling by allowing the finger to rest there. Dihedral burins were associated with drills in the same area, both with identical traces for skin perforation. Finally, there were also double tools (burin + endscraper), the active part being the endscraper, while the burin part was only used to facilitate the hafting ([Mazo, 1989](#)).

Special attention was placed to spatial distribution studies applied to archaeological remains. The peculiar shape of the cave (two main chambers united by corridors along an L-shaped floor) allowed for the separation of activities in distinct areas. Micro-spatial studies, palynology, and functional analyses have made it possible to propose a reconstruction of the Magdalenian cave, which has been presented at various international meetings ([Utrilla and Mazo, 1992](#); [Utrilla et al., 2003](#)). There were very significant tool concentrations in this level: dihedral burins and drills were mainly found in the entrance area, before the hearth; endscrapers

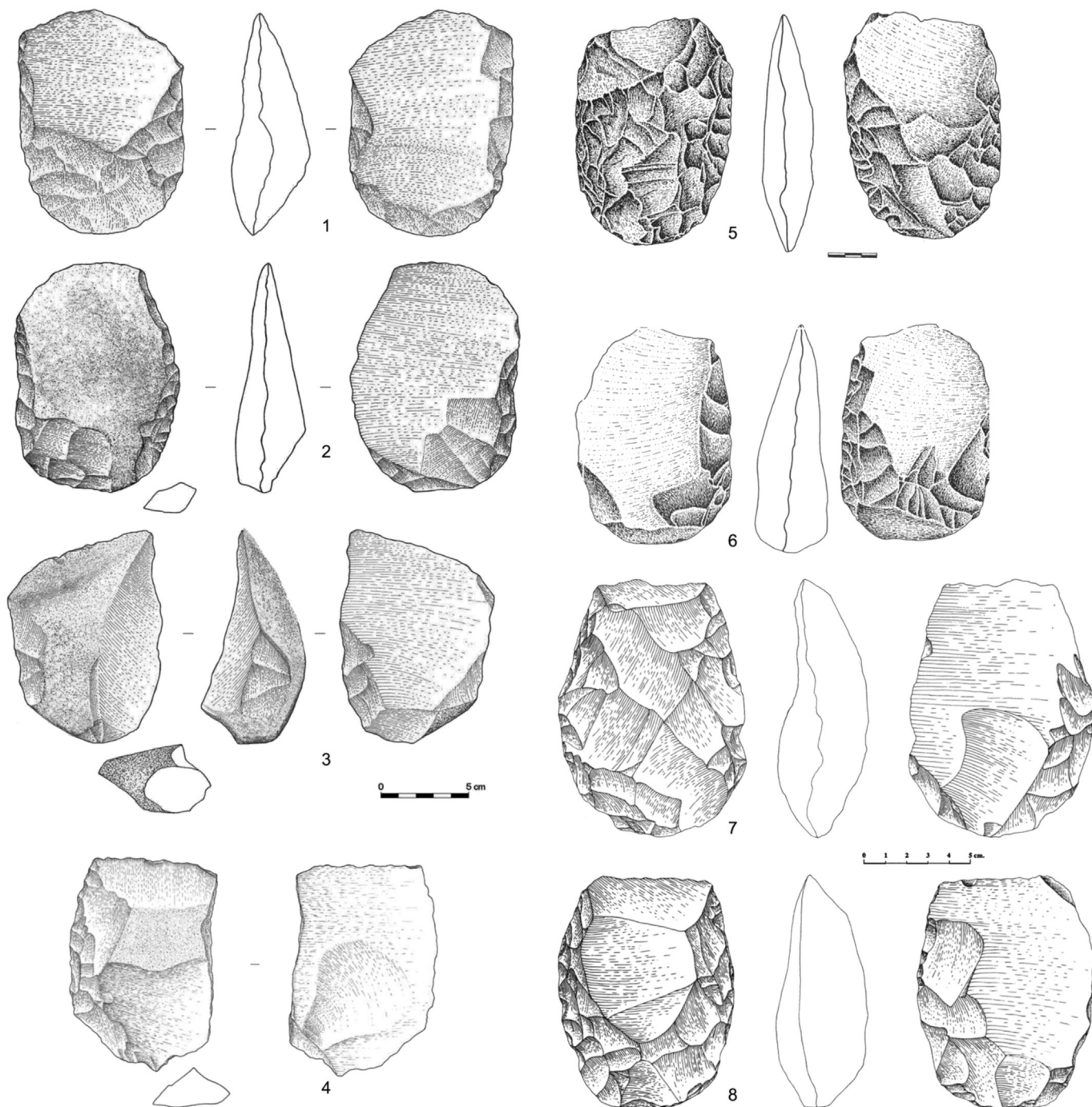


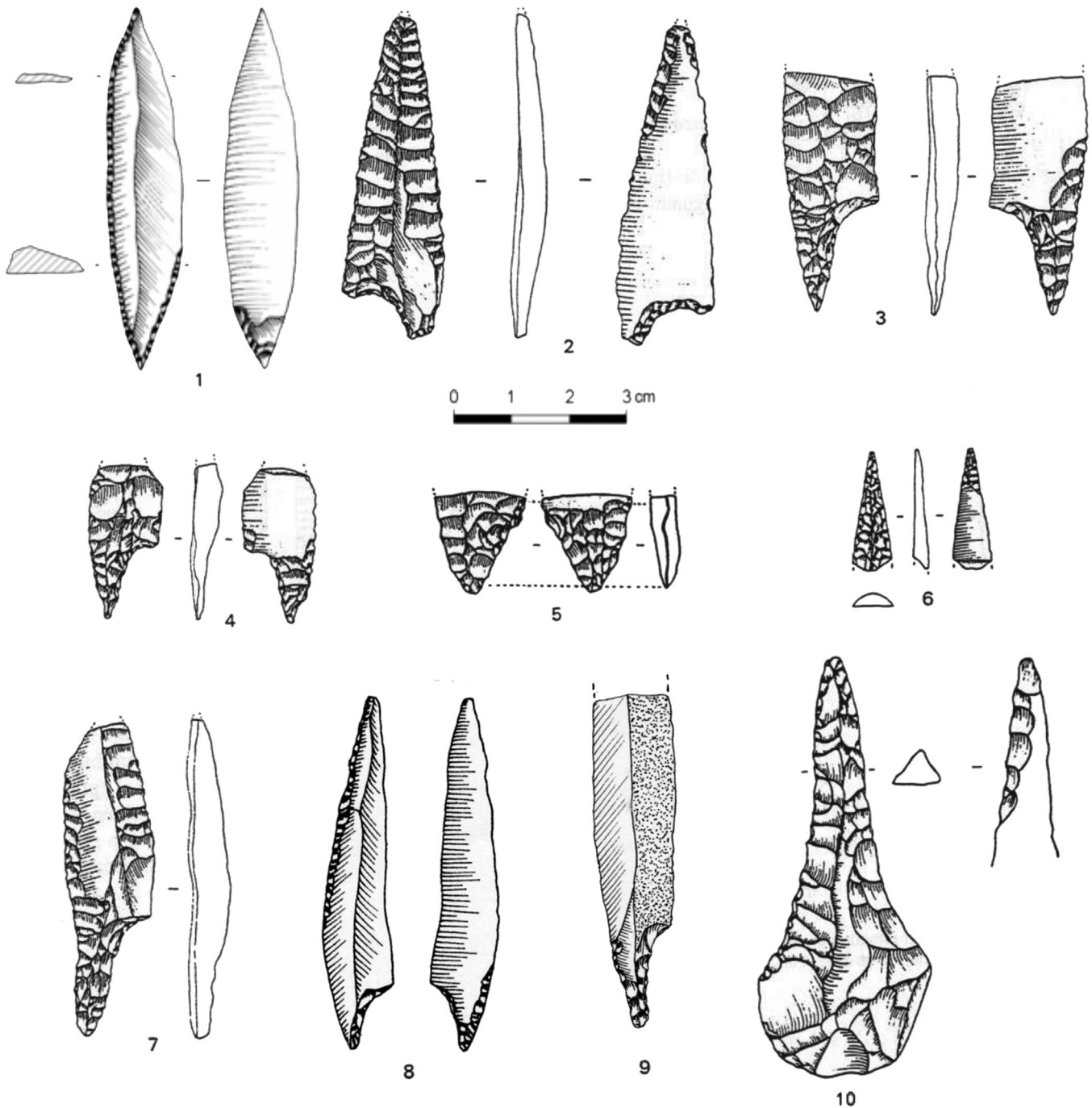
Fig. 3. Cleavers from level h in Abautz (1–4) compared with others from the Najerilla River (La Rioja) (5–8).

and truncated burins were more frequent on the right side of Hall 1, surrounding the hearth; *sagaies* and other pointed bone tools were concentrated in the intermediate corridor and Hall 2; and finally, towards the northern angle of the cave, there were barely any lithic tools but pollen was abundant, belonging to plants such as ferns and reeds, likely to have been used to create resting places.

Activities taking place at the mouth of the cave, Hall 1, and intermediate corridor appear to be well defined: flint was knapped in the entrance, where there was more light; followed by places where skins were perforated and scraped; while the far end was used (by part of the group?) for resting. The function of Hall 2, further inside the cave, is not as clear. We currently are considering

two possibilities. It could be another resting place (used by other part of the group?), where weapons were set aside by the wall, or another work area dedicated to skin processing (shearing and/or smoking). The great height of the roof in this part of the cave and a back gallery allowed for the partial evacuation of the smoke. A series of cylindrical holes found on the floor along the corridor and Hall 2 has led us to imagine the existence of a structure framed by posts that would rest on these holes. The structure would be covered by skins, isolating both areas and improving living conditions.

We have already mentioned the strong relationship existing during the Middle Magdalenian with nearby locations, indicated by



**Fig. 4.** Projectiles points from Abauntz: 1, Vachons point from the disturbed level. 2–7, flat-retouch points; 8–9, abrupt-retouch shouldered points; 10, perforator. 2–10 were found in the Solutrean level.

animal remains and osseous industry. [Altuna and Mariezkurrena \(1996\)](#) recorded the only find of *Saiga tatarica* in the Iberian Peninsula. These are only six bone fragments, barely 1% of the total animal bone assemblage from level e, dominated by *Rupicapra* and, to a lesser degree, by *Cervus* and *Capra*. The authors estimate the maximum extent of the species throughout Western Europe to have occurred during the Middle Magdalenian, when it was recorded in relative proximity to Abauntz, on the other side of the Pyrenees, in sites such as Isturitz and Dufaure. The identification of the remains (five phalanges and one middle tarsal) leads to the supposition that the animal was not hunted in the vicinity: the species lived on plains, such as the Landes, rather than on

mountainous regions, such as the Basque Country and Navarre. The bones must have been part of a skin garment worn by peoples reaching Abauntz from Aquitaine.

The rich bone industry assemblage from Abauntz allows us to establish that the site must have depended on the great site of Isturitz (which would also be congruent with the conclusions for the saiga bones), although there are also some similarities that link Abauntz with places further west in the Cantabrian region. Complex decorative motifs that were carved onto *baguettes* of deer antler from Abauntz were repeated almost identically in distant places, such as Caldas and La Viña in Asturias, Isturitz in the Pyrénées-Atlantiques or La Madeleine in Dordogne, creating a kind

of Magdalenian cultural community that stretched for hundreds of kilometers across the Cantabrian coast and south-western France. Abautz is located in a strategic place, close to large sites, such as Isturitz, which may be accessed easily by crossing the weathered passes of the western Pyrenees. Straus and González-Morales (2012) stress the importance of this site as the link point between the Cantabrian and Aquitanian communities. The identification of this period, based mainly in the appearance of “iconic” decorations or even more unusual objects such as proto-harpoons, is very difficult. In the Cantabrian coast we can cite well-known sites like Las Caldas, Juyo, La Garma, El Mirón or Ermitia. Outside this region the task is even harder. Abautz stands as the only Middle Magdalenian site in the Ebro Valley. This elusive period is not well represented in other areas of the Iberian Peninsula, such as the Mediterranean corridor, where Villaverde et al. (2012) define it by its microlaminar assemblages lacking harpoons, or the northeast, where Fullola et al. (2012) only quote a level (Episode J, Level XI) in Cova del Parco.

Among various decorative motifs, two stand out, which are repeated in different locations: triangle series framed by parallel lines (*chevrons emboîtés*) and reverse parentheses (Fig. 5) (Utrilla and Mazo, 1996a; Duarte et al., 2012; Utrilla et al., 2013). Another comparison between decorative motifs was published recently in a tribute to Prof. Fortea (Utrilla et al., 2013). The lateral view of a bison's head was engraved into a polisher found at Abautz, very similar to the famous bison motif found on 43 Middle Magdalenian polishers in France (27 of them in Isturitz) (Utrilla and Martínez Bea, 2008). Finally, there also exists a study on a particular kind of worked bones from this prolific archaeological level, with engraved marks in multiples of seven, which have been interpreted as some sort of system keeping track of lunar phases. It would have been very simple to follow and only required a minimum observation of the sky. Examples on hyoid bones have been published by Utrilla (2004) and Utrilla and Martínez Bea (2008), to which we must now also add an ivory pendant from a mammoth (Mazo et al., 2008; Utrilla et al., 2013) (Fig. 6).

## 5. A brief yet productive visit: the Upper Magdalenian of level 2r

Dated by  $^{14}\text{C}$  to  $11760 \pm 90$  (OxA-5116;  $13643 \pm 151$  cal BP), level 2r shows a very limited stratigraphic and superficial development, with barely a few dozen lithic remains. The intense red of the sediment stands out as its most remarkable feature, which strongly contrasts with the greyish-green tone of the underlying level e.

The most relevant finds of this occupation horizon and no doubt also from the entire Abautz sequence are three stone blocks engraved with different motifs. These examples of portable art have been the object of different studies throughout the last fifteen years (Utrilla and Mazo, 1996b, 1996c; Utrilla et al., 2004, 2007–2008). In 2009, we suggested they could represent the most ancient map of Western Europe (Utrilla et al., 2009), an interpretation that attracted notable attention from the media and the scientific community.

The so-called block 1 shows on one of its sides what we have interpreted as the most ancient form of a map, depicting the surroundings of the prehistoric settlement, using schematic drawings to represent the landscape viewed from the cave. It features a mountain in front of the cave, creeks and riverbanks running from the rugged highlands towards the plains, as well as some of the fauna, including very schematic goats grazing on the mountains, what appear to be two young bovines on the plains, and finally, a series of marks that have been interpreted as paths and fords. This ‘guide’ to the surroundings of the cave would have been used by the

group that made it or even by other groups of hunters visiting the cave, as the block was abandoned there (Fig. 7).

After the 2009 publication, some of the figures have been reinterpreted and others have been the subjects of new hypotheses (Utrilla and Mazo, 2011). For example, new representations have been suggested: double-roof tents, similar to tepees or yurts, in the lower section of side A of the object (Fig. 7, green lines inverted at the bottom); an animal head has been suggested for the shape of block 1; and six ogive spirals over the deer's head could either be interpreted as marks in the landscape with no relation to the deer, or as rutting sounds coming out from its mouth. The spirals were added after depicting the deer (they are superimposed over the antlers), but before carving the river in the landscape. The rutting sounds would be directed to the two does on side B. Crescent symbols were depicted over the head of the more complete of the two does, which could be representing the reception of the rut. Furthermore, the deer emitting rutting sounds is very similar to another one found on a plaquette from Fontalès (Darasse collection), which also emits irregular symbols (chevrons) and is associated with a river, as in Abautz.

Block 2 was different from the other two, because it seems to have had an actual functional use. It was used as a lamp, fuelled by animal fat or bone marrow placed on a natural cavity on the stone. The most outstanding representation on block 2 is a horse accompanied by several schematic goats, which repeat the model in block 1, body profiles with head turned front towards the observer and V-shaped horns and ears (the only facial features not omitted). It also bears marks that were interpreted in block 1 as elements in the landscape: a possible flow of water, a path and similar crescents to those appearing above the doe's head in block 1. In this case, it is the female goats that turn their heads towards the symbols.

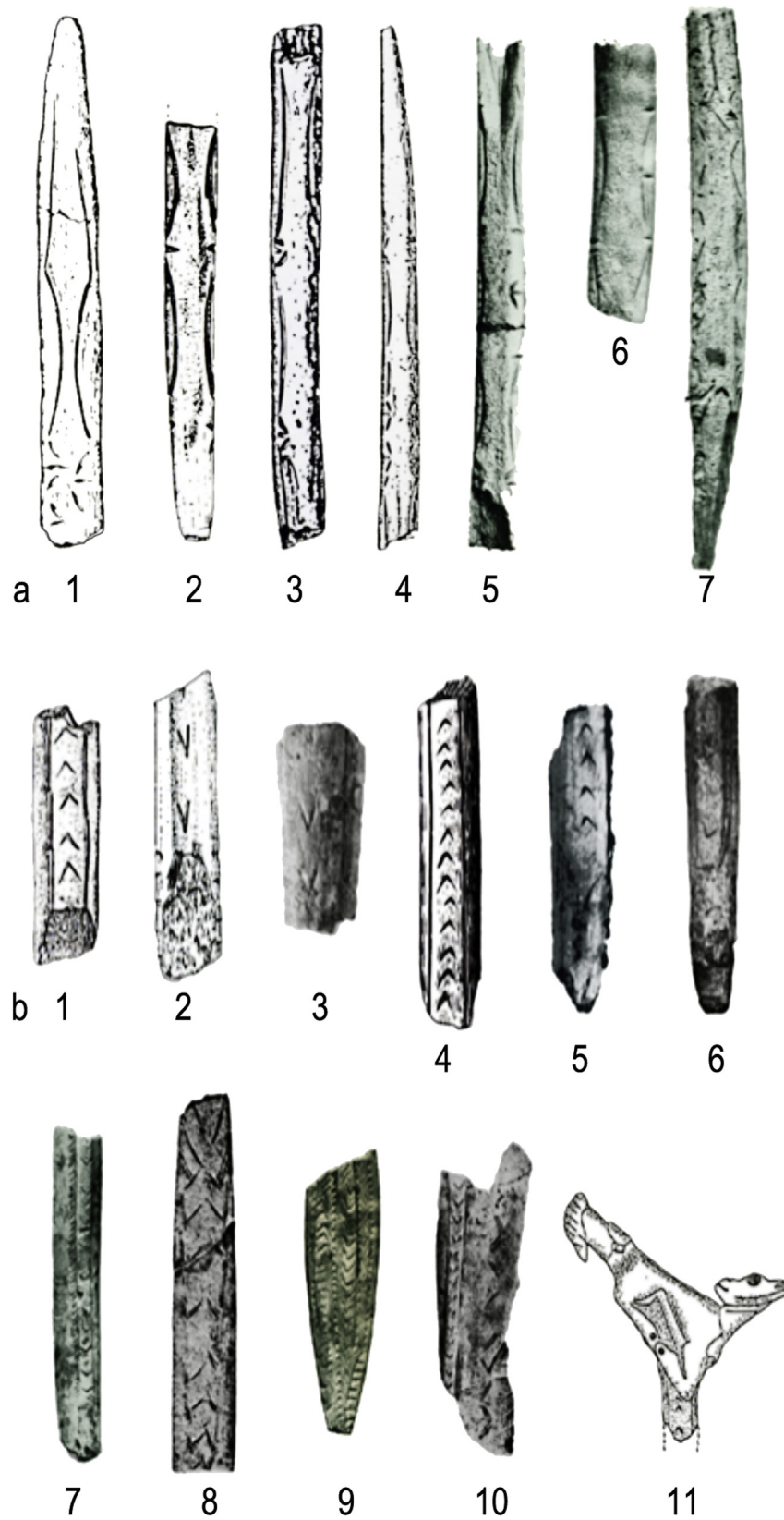
The representation on block 3 is the most sophisticated and beautiful of the three, from an artistic point of view. The stone is subtriangular in shape and the only engraved figure is a finely worked protome of horse, a very characteristic animal found on parietal and portable art during the Magdalenian, especially in the western Pyrenees. This representation could be interpreted as a clan mark, belonging to a human group with strong links to Aquitaine sites, such as Isturitz, where Mons (1996) identified 180 horse figures, and Duruthy (Cleyet-Merle, 1996), where the symbolic value of the horse becomes evident.

## 6. The last hunters: the Azilian in level d

Level d is limited to Hall 1 of the cave, formed by abundant remains of *Helix* shells and three levels of gravel showing evidence for flow of water that incorporated lithic material from the Magdalenian levels. Archaeological remains are scant, some 70 cores and retouched artefacts. Backed bladelets compose almost 41% of the sample, although unguiform endscrapers and Azilian points were also recorded in the level, which was dated by conventional  $^{14}\text{C}$  to  $9530 \pm 300$  (Ly-1964;  $10858 \pm 405$  cal BP). The brief human occupation of Azilian hunters is framed into an extremely volatile panorama, as may be observed throughout the Ebro Valley (for further details, see Soto et al., 2015).

## 7. The first producers: level b4

Level b4 indicates a significant human occupation, evidenced by the remains of abundant structures (wells and large hearths). A sterile level of sharp stones (b3) isolates level b4 from overlying occupations. There were abrupt-retouched blades that showed use-wear on their edges, as well as smooth coarse pottery, black fine ware with burnished and spatulated surfaces, a polished little axe



**Fig. 5.** (Top) Reverse parentheses. 1: Abauntz; 2: Caldas (after Corchón); 3 and 4: Isturitz (after Saint Perier); 5: Gourdan; 6 and 7: Lortet (5, 6 and 7 after Chollot). (Bottom). V-shaped series framed by two vertical lines (chevrons emboîtés) from the Middle Magdalenian in the Pyrenees and Asturias. 1: Abauntz; 2: Caldas (after Corchón); 3: la Viña (after Duarte); 4: Isturitz (after Saint Perier); 5, 6, 7 and 8: Gourdan; 9: Lortet (after Chollot); 10: Mas d'Azil (5–10 after Chollot); 11: Bedeilhac (drawing by Bürki).

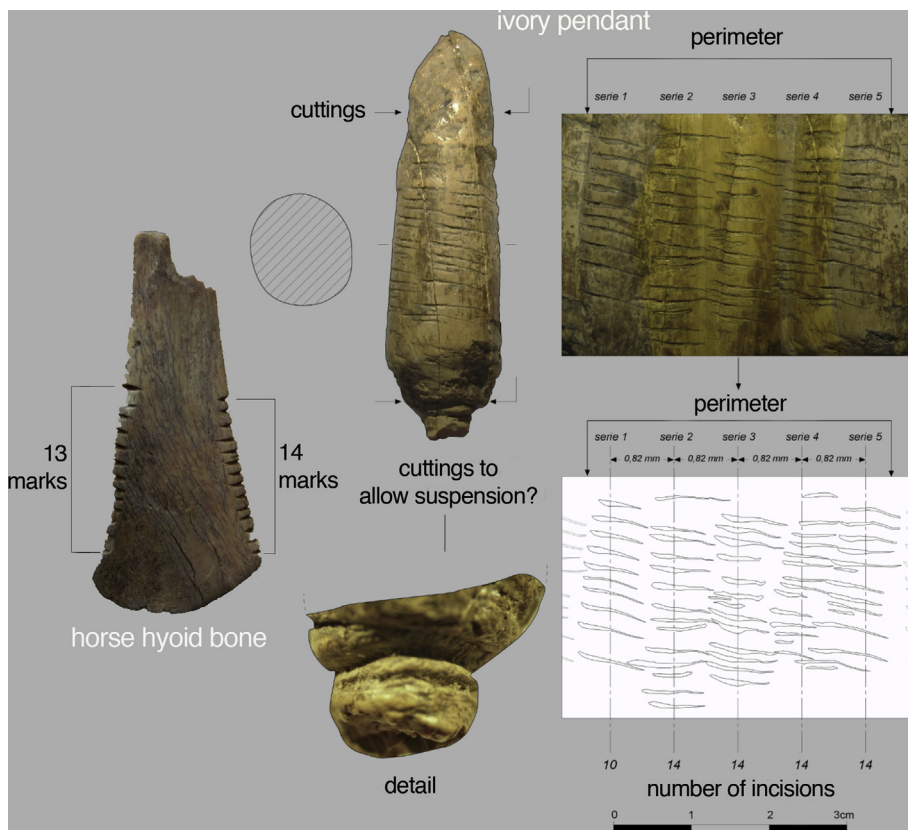


Fig. 6. Hyoid bone and ivory pendant, both with marks in multiples of seven, from Aabauntz.

and two geometric microliths worked by abrupt retouch and double bevel. Five wells were identified in the central area of Hall 1. One could be identified as an ash deposit extracted from the adjacent hearth. Another contained varied, yet related

archaeological material: a stone precursor/pounder/polisher, a small polished axe (less than 3 cm long), a retouched flake and varied potsherds, belonging to at least two vases (one coarse ware and the other spatulated).

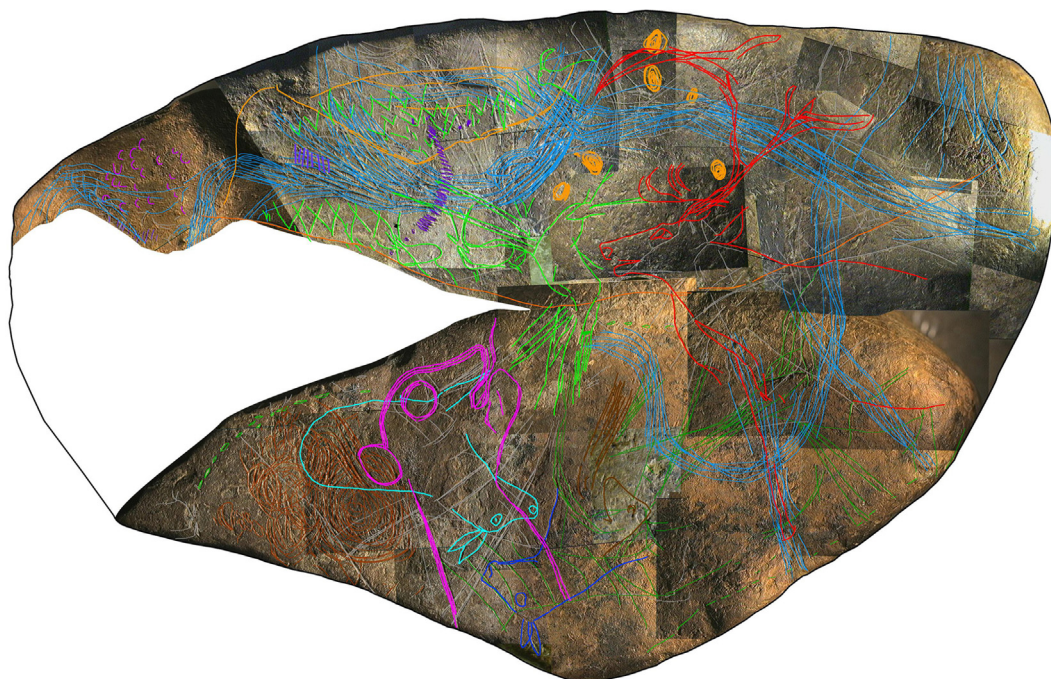


Fig. 7. Block 1, side A, with the engraved figures remarked in colours. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

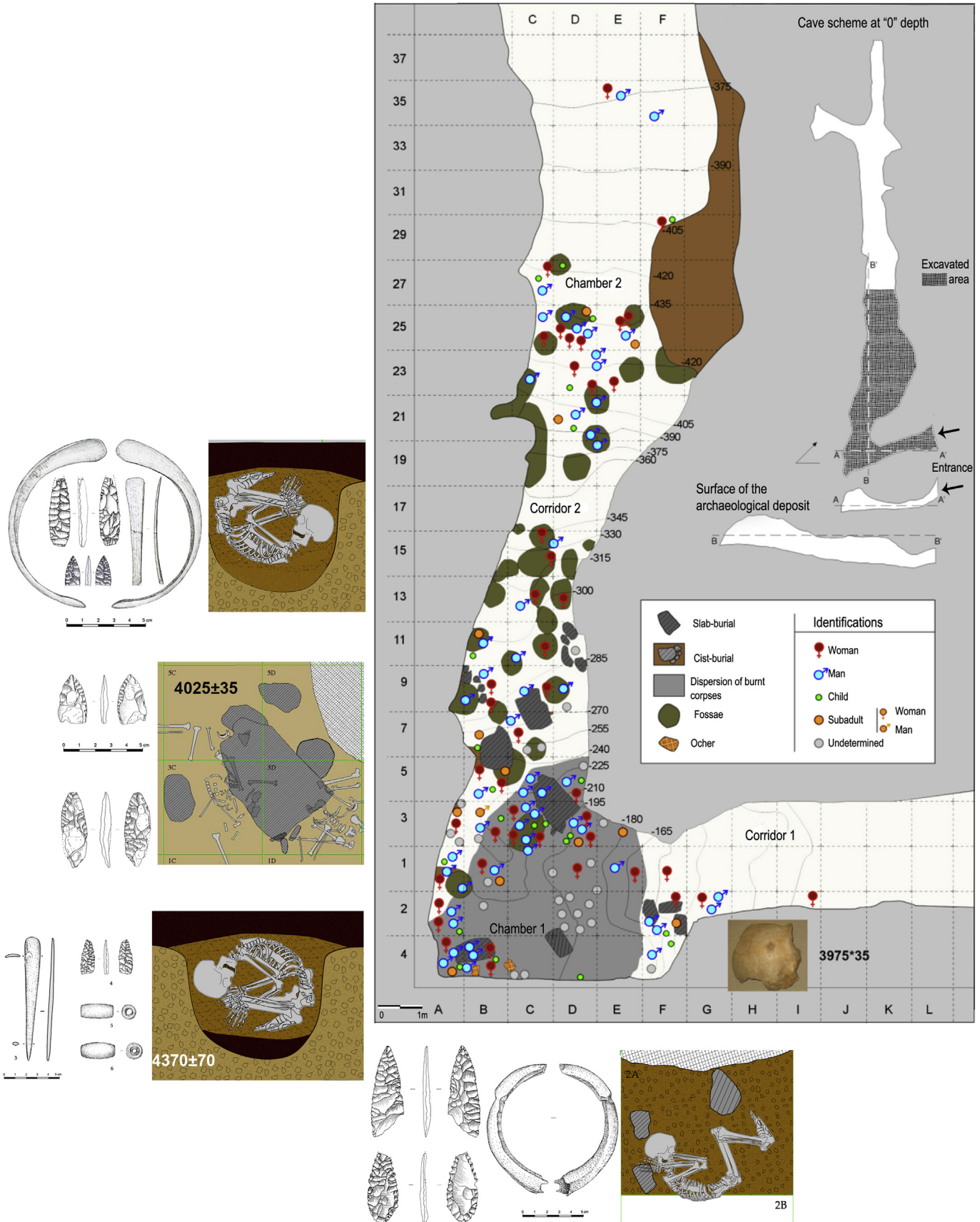


Fig. 8. Distribution of burials in the Chalcolithic levels.

A carbon sample from this level was dated by conventional  $^{14}\text{C}$  to  $5390 \pm 120$  (I-11309;  $6158 \pm 129$  cal BP), placing the human occupation at an advanced period of the Neolithic. Given the geographical location of the cave, discussed above, it would be interesting to propose it as a seasonal settlement, linked to herders, rather than to farmers. This employment is better documented in the central Pre-Pyrenees, where there is a systematic occupation of middle-altitude caves since the Ancient Neolithic linked to pastoralism activities. The groups of herders possibly dwelled in the southern, flatter areas, where incipient Neolithic villages have been actually found, and migrated during the summer with their herds to profit the pastures (Alday et al., 2012).

## 8. A great collective tomb: Chalcolithic burials

It is impossible to count the number of burials in the cave, as they were already disturbed, mixed and burned intentionally since prehistory, creating a deep deposit of burnt bones that covered a good part of the cave's surface (Fig. 8). Between 1976 and 1979, the remains of 30 individuals were uncovered. The total number surpasses a hundred. Remains from the later campaigns have been studied by J. I. Lorenzo (campaigns of 1988, 1991 and 1993; Lorenzo, 1994) and by D. Turbón and D. Campillo (campaigns 1994–1996). Lorenzo highlighted marked sexual dimorphism, dental infections and sealed bone fractures. Turbón and Campillo extracted samples for genetic analyses, which were finally undertaken by Fernández (2005). Near-Eastern and north-African lineages were detected, along with an absence of haplogroup V, assumed to originate from the Pyrenees-Cantabrian region.

As for burial types (Utrilla et al., 2007, in press), Chalcolithic peoples adopted four models in Abauntz. The oldest were pit burials, occupied by individuals or pairs, normally accompanied by bone spatulas placed near the femur. An excellent example is the so-called 'Alberto' tomb, excavated in 1991, where a 50-year-old individual, measuring 1.69 m appeared in a bent position. Grave goods included bone spatulas, flat-retouched points and two stone beads. The pits were more frequent in the corridor and Hall 2. One of the bones from these pits was dated to  $4370 \pm 70$  (CSIC 785;  $5012 \pm 124$  cal BP).

Human remains were also burnt at Abauntz, homogeneously covering  $16 \text{ m}^2$  of Hall 1. The combustion does not seem to have been part of any ritual, but took place some time later, perhaps for hygienic reasons. Some of the burial pits were placed surrounding this area, seemingly avoiding the same space. The most outstanding archaeological materials included leaf-shaped points (many showing thermal cracking) and necklace beads. The level was dated by  $^{14}\text{C}$  to  $4240 \pm 140$  BP (Ly-1963;  $4798 \pm 205$  cal BP), practically coinciding with the chronology recorded from the pit burials.

The third kind of burial is a stone cist grave, composed by blocks placed up-right and a large sandstone slab, which covered the structure. Sandstone is not found near the cave and must have been brought from elsewhere. Human remains were deposited with folded legs. Two adult men, two young women and two children were recorded. Other human remains, which may be linked to these burials, were found nearby: two adult men, a woman older than 30, an infant, a subjuvenile and a young woman. One of the adult men suffered bone fractures in the right humerus and cubitus, which had healed. These remains were dated to  $4025 \pm 35$  BP (GrA-37325;  $4494 \pm 42$  cal BP).

The last burial type found in the cave is simple inhumation with no visible structure associated with it. Inhumations are distributed throughout the entire cave and are of more recent dates. One of the test pits in the far end of the cave contained well-preserved human remains. Near the mouth of the cave, inhumations overlie the burnt dead. Grave goods included pedunculated points and leaf-shaped

points, differentiating these burials from previous ones in terms of material culture. Pendants made from the teeth of wild boar were also found next to decorations of various types. There is a remarkable lack of ornamental objects in Hall 2, particularly when contrasted with their abundance at the mouth of the cave. The entrance was dated to  $3975 \pm 35$  (GrA-32322;  $4464 \pm 41$  cal BP) and Hall 2 to  $3900 \pm 35$  (GrA-37323;  $4341 \pm 57$  cal BP), i. e., there may be a chronological sequence going from the front to the back of the cave.

## 9. Conclusion

The cave of Abauntz is geographically located in the Ebro basin, although its environs link it more closely to the Cantabrian and Aquitaine territories. Neanderthals in level h left behind their "Vasconian" cleavers, occupying the cave in the periods when the bears abandoned their hibernation dens. Solutrean people also visited Abauntz (and perhaps also Gravettian hunters), and left behind them Mediterranean type projectiles (abrupt notched points) and Cantabrian type flat-retouched projectiles.

The most significant human occupation occurred during the Middle Magdalenian. The settlement lasted long enough for us to be able to discern areas dedicated to different activities: flint knapping by the entrance of the cave, resting places in the deeper areas, skin working in the two halls, and bone work only in Hall 2. It constituted a complete campsite that took advantage of the excellent hunting possibilities in the area with access to different ecological niches, profited by peoples originating north of the Pyrenees, probably from the supersite of Isturitz, judging by the decorated objects found at Abauntz with motifs strongly resembling those from the great French site (also found in other nearby or satellite sites) and by the rare saiga antelope bones, an animal that was frequently found north of the Pyrenees.

During the Upper-Late Magdalenian, a brief occupation was recorded that left very little material culture, although of incredible value. This phase is known for the three engraved stone blocks left behind in the cave. The so-called block 1 depicts what we consider to be the most ancient representation of a map in Western Europe, showing the surrounding landscape of the cave: the mountain in front of the cave, paths, wetlands, and fauna. Jointly, the various engraved elements create a sketch of the area, perhaps left for later use by the same group or by different groups of peoples. Block 2 was used as a lamp and decorated with engravings of a horse, schematic goats and other marks that seem to represent elements in the landscape. A beautiful protome of a horse occupies almost the entire surface of block 3, evidence of links with Aquitaine, where the frequency of the motif has led it to be interpreted as a 'clan mark'.

At the beginning of the Holocene, a brief human presence was recorded around 9500 BP. Almost 40% of the material were backed pieces, although the lack of characteristic bone work makes it difficult to ascribe the archaeological level to the Azilian.

The Neolithic is represented by level b4, dated to the mid sixth millennium BP. Post holes and pits speak of a considerable sized settlement, which could have been used by mid-mountain herders rather than by farmers, considering the surrounding landscape.

During the Chalcolithic (second half of the fifth millennium BP), the cave was used as a burial place for more than a hundred individuals. These burials adopted different typologies, from very simple deposits with no grave goods or apparent structure to furnished pits (mainly bone spatulas, ivory horns worked into pendants and diverse flat-retouched flint points) and rare examples of stone cist tombs. At some point, the cave was 'sanitized' by burning the human remains, an action that was not linked to any kind of funerary ritual, because the cremation took place after the bones had already become defleshed.

The last human presence registered at the cave of Abauntz is related to a period of instability and social violence, which characterized the last phases of the Roman rule in Iberia. Uncontrolled groups (bagaudae) or armed bands fighting over imperial power sowed fear among the population with the intention of collecting food or generating political uncertainty. During this harsh period, a group of people excavated a series of pits (one of the hoes used for digging has been preserved), where they hid valuable objects, including silver rings and more than 300 coins. Numismatic evidence has allowed us to frame this activity between the reigns of Constantine and Arcadius, with a minimum *post quem* date of 408, the last recorded year for these coin issues. A hiding place during the Barbarian invasions is a very plausible interpretation for the last human use of Abauntz (Utrilla and Redondo, 1979).

The cave of Abauntz reveals itself as one of the most complete sites of Iberian prehistory. It has been the object of extended research, both in the field and in the lab. The material from the first four campaigns was published in a monograph (Utrilla, 1982) and later research was disseminated through conferences and papers published in Spanish, French and English.

Abauntz has also been the subject of four doctoral theses. Two of them studied Middle Magdalenian lithic material: a use-wear analysis (Mazo, 1989; Universidad de Zaragoza) and a technology study (Cazals, 2000; Université de Paris I-Pantheon-Sorbonne). Two other theses addressed the Chalcolithic human remains: Lorenzo (1994, Universidad de Zaragoza) and the genetic study of Fernández (2005, Universidad Complutense de Madrid).

Human occupation during the Middle Magdalenian has received the most attention by researchers, in particular the spatial distribution of the cave (already sketched in Utrilla, 1982), defended at the international colloquiums of Chancelade and Liège (Utrilla and Mazo, 1992; Utrilla et al., 2003). Other publications have addressed research on portable art, in general for the Upper Magdalenian (Utrilla and Mazo, 1996a,b, 2011; Utrilla et al., 2004, 2007, 2009), but also for specific aspects of the Middle Magdalenian, such as the recurrence of Isturitz decorative motifs and the marks in multiples of seven (Utrilla, 2004; Mazo et al., 2008; Utrilla et al., 2013). Finally, transregional contact during the Solutrean (Utrilla and Mazo, 1994; Domingo et al., 2012) and the Magdalenian has also attracted the interest of researchers (Utrilla and Mazo, 1996c; Utrilla, 2004; Utrilla et al., 2010). The aim of this paper has been to increase international knowledge of one of the most interesting prehistoric sites of south-western Europe.

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