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HUNTING CAMPS IN PREHISTORY

Current Archaeological Approaches



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IN THE PYRENEAN GRAVETTIAN**

**Aurélien SIMONET**

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## THE DIVERSITY OF HUNTING CAMPS IN THE PYRENEAN GRAVETTIAN

Aurélien SIMONET

### Abstract

*In the Pyrenean Gravettian, several types of sites that vary in terms of their technical elements and/or the density of their assemblages can be interpreted as hunting camps. How can this archaeological diversity contribute to social and economic interpretations of the human groups that occupied these sites? It appears that in the context of a centralized organization of the Pyrenean territory, in which Brassempouy and Isturitz played key economic, social and spiritual roles, the concept of a hunting camp applies to several types of sites specialized in hunting related activities, and at which other activities sometimes also took place. "Simple hunting camps", which best correspond to the accepted definition, would thus have coexisted with "complex hunting camps", at which flint knapping activities were performed along with hunting and butchery activities. Finally, there are other potential hunting camps whose assemblages include artistic representations. The identification of hunting camps therefore contributes to our understanding of the occupation strategies of a territory. Their diversity, high degree of specialization and the significant difference that exists between the low density of their assemblages and the high density of those of certain large occupation sites, represents a socio-economic coherence that seems to traverse the European continent. In effect, this tendency of hunting camps toward diversification and ultra-specialization accompanies the appearance the first large habitat-sanctuaries with numerous female statuettes, associated with Modern Humans, such as Brassempouy, Laussel, Les Balzi Rossi and Willendorf in Western Europe. Hunting camps thus constitute an important element in reflections on the nature of cultural identity since they corroborate the idea of a phenomenon of double-polarization of human communities between 28000 and 22000 BP, which characterizes the Gravettian: relative to the Aurignacian tradition, Gravettian occupations appear to be more oriented toward the plains and large alluvial basins. In addition, within these more densely occupied zones, certain sites themselves are more densely occupied, and it is these that are generally associated the large assemblages of female statuettes: Brassempouy, Laussel, Les Balzi Rossi, Willendorf, Dolní Věstonice, Pavlov, Předmostí, Kostienki, Gagarino, Avdeevo and Zaraisk.*

### Keywords

*Hunting camp, Gravettian, Pyrenees, La Carane 3, Amalda, Mugarduia Sur.*

## 1 - Introduction

Until now, the main characteristic of the Pyrenean Gravettian has been the difficulty of defining clear diachronic subdivisions within this long techno-complex, in contrast to the Gravettian of the Perigord (France), Italy and Central and Eastern Europe. No significant variation is perceptible in this region and nearly all sites are attributable to a Gravettian with Noailles burins (Barandiarán,

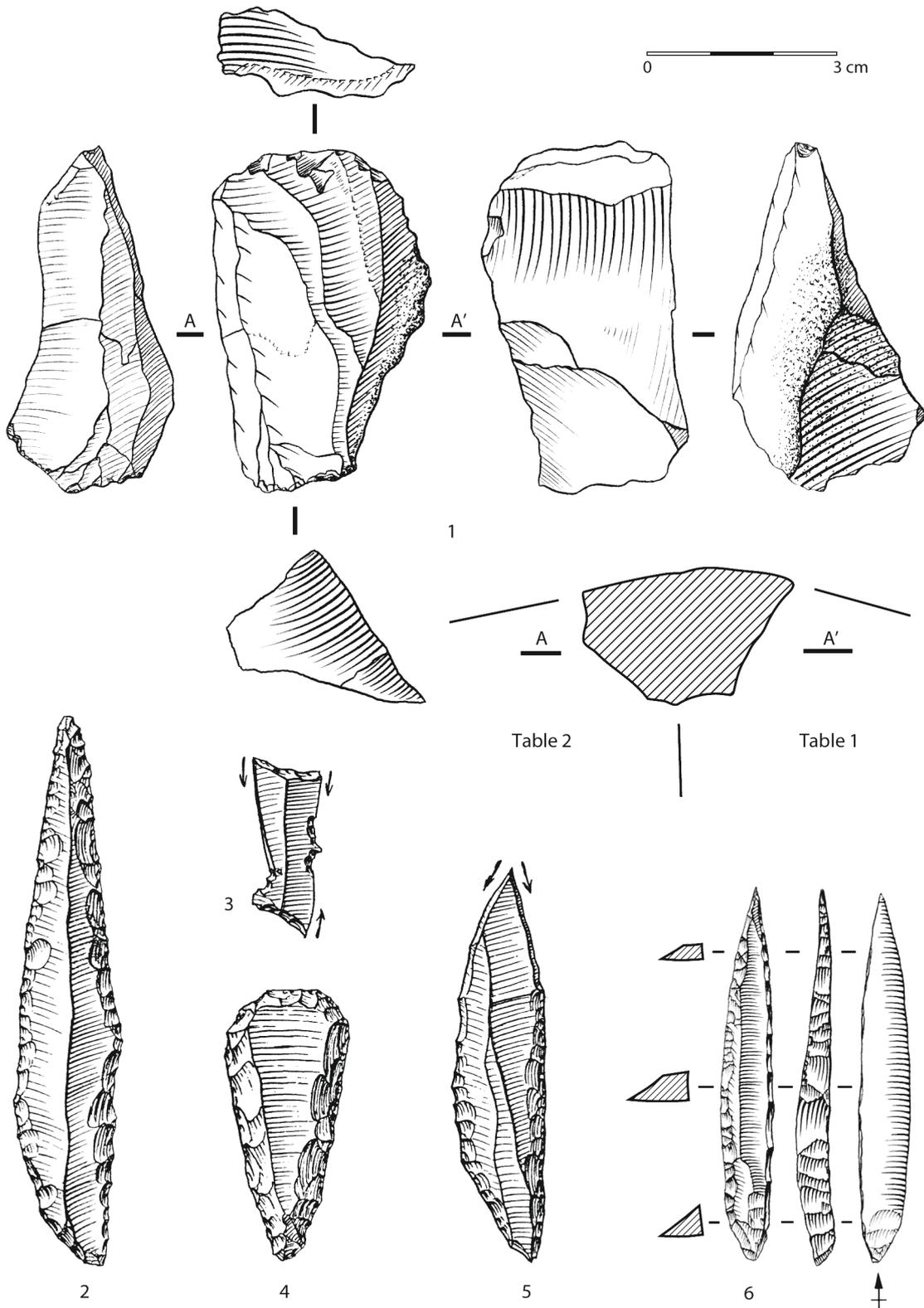
1967, 1980; David, 1985; Esparza San Juan and Mújika Alustiza, 1996; Ruiz Idarraga, 1990; Bernaldo de Quirós, 1982a-b; McCollough, 1971; Foucher, 2004; Simonet, 2009, 2010). In addition, the Pyrenean sites display great variability in terms of the nature of the preserved remains and their respective assemblages. Despite this variability, most of these sites correspond to the definition of a “hunting camp”. The clear distinction of this geographic zone relative to the rest of the European Gravettian based on the criteria of technical inertia thus fully justifies a reflection on the nature of the potential socio-economic relationships between the different sites. What can this archaeological diversity contribute to social and economic interpretations?

## 2 - The unity of the Pyrenean Gravettian

The Pyrenean Gravettian is characterized by a technical homogeneity symbolized by the duration of the Noailles burin throughout the Gravettian sequence. A Noailles burin is a small truncated burin, characterized by a tiny burin spall removal (less than 2 mm) whose progression is stopped by a notch (figure 1, no. 3). This highly characteristic burin is often multiple. The narrowness of the burin spall, which gives the tool its elegance, is the most diagnostic criteria since the truncation and/or stopping notch are not always present. It is the fossil director of the Perigordian Vc of C. Peyrony, or the Middle Gravettian (Bourlon, 1911; Tixier, 1958; Demars, Laurent, 1992). Other characteristics of the Pyrenean are the high number of splintered pieces, which does not exist in the Perigord region (Bernaldo de Quirós, 1982a, 1982b; McCollough, 1971; Bricker, 1995). In addition, the Noailan Gravettian of the Pyrenees is currently distinguished from that of the Perigord by a more carefully manufactured lithic assemblage. The blades are thinner and more regular. They are very often pointed and retouched on one or two edges, which seems to be unique to the Pyrenees (figure 1, no. 2). This intended symmetry in the morphology of the pieces is also observed among the scrapers and burins (figure 1, nos. 4 and 5) whose extremity opposite the active part is often pointed (Barandiarán, 1967, 1980; David, 1985; Esparza San Juan and Mújika Alustiza, 1996; Ruiz Idarraga, 1990; Bernaldo de Quirós, 1982a, 1982b; McCollough, 1971). In my dissertation thesis, I showed that Vachons Points (figure 1, no. 6) and laminar debitage with intersecting debitage surfaces and minimal preparation of the blank and the use of the principle of self-maintenance (figure 1, no. 1) represent two new fundamental technical elements that support the idea of a strong regional unity (Simonet, 2009, 2010). This technical unity of the Pyrenean Gravettian is a double-edged sword since, on one hand, it reinforces the legitimacy of this geographic delimitation and on the other, it limits the contribution of a paleosociological reflection since the chronological context concerns more than 4000 years. Though techno-economic variations could have existed, they remain to be demonstrated.

## 3 - The centralism of the Pyrenean Gravettian

At the heart of this strong Pyrenean technical unity, the sites of Brassempouy and Isturitz are by far the two largest Gravettian sites in the Pyrenean-Cantabrian axis (figure 2). No other site is comparable in terms of the quantity and diversity of artifacts found. It is estimated that the tool assemblages of these two caves contain hundreds of thousands of objects, while the assemblages of nearby sites contain only a few hundred artifacts. Brassempouy and Isturitz are also characterized by their complete range of artifact types (art, lithic industry, osseous industry and fauna) (figure 3). The conjunction of these two characteristics – qualitative and quantitative – constitutes the fundamental criteria for interpreting Brassempouy and Isturitz as “large complete occupation



**Figure 1** - The fundamental elements of the Pyrenean Gravettian; 1: laminar core with intersecting removal surfaces (drawing: A. Simonet); 2: retouched blade (after Saint-Périer, 1952, fig. 37, no. 3); 3: Noailles burin (after Saint-Périer, 1952, fig. 46), 4: fan-shaped endscraper (after Saint-Périer, 1952, fig. 45, no. 3); no. 5: burin on a pointed blade (after Saint-Périer, 1952, fig. 49, no. 4); 6: Vachons point (drawing: A. Simonet); 1-5: Isturitz, Saint-Périer collection, level IV, MAN; 6: Isturitz, Passemard collection, level C, MAN.

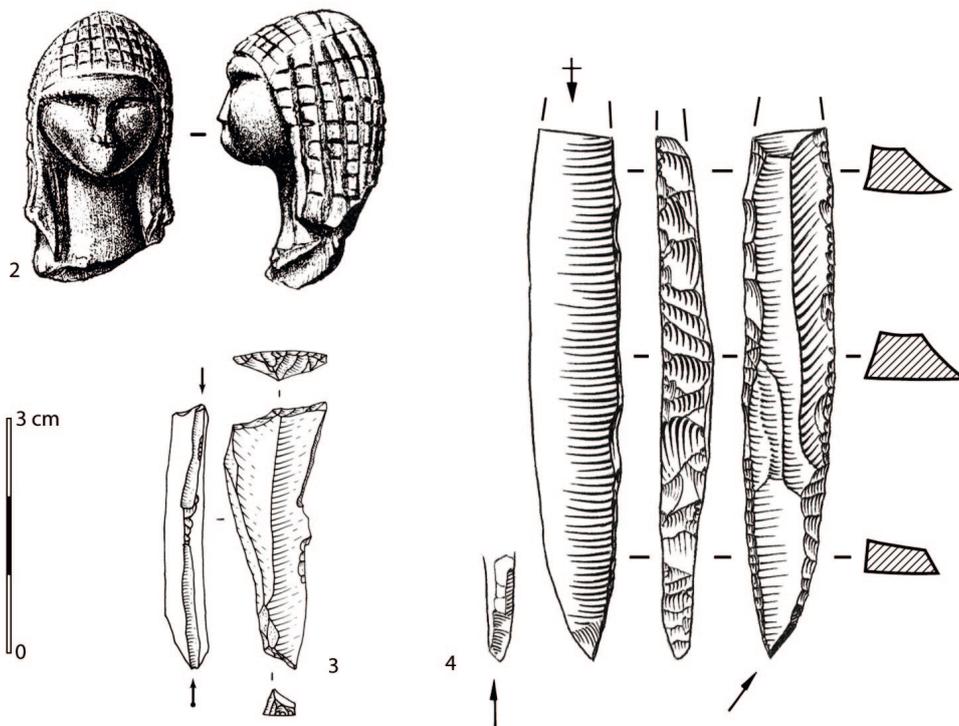


**Figure 2** - Location map of the Pyrenean Gravettian sites discussed in the text. The squares correspond to sites that are clearly distinct in terms of the large quantity and diversity of their artifacts and which thus cannot be defined as hunting camps. The circles correspond to all the potential hunting camps.

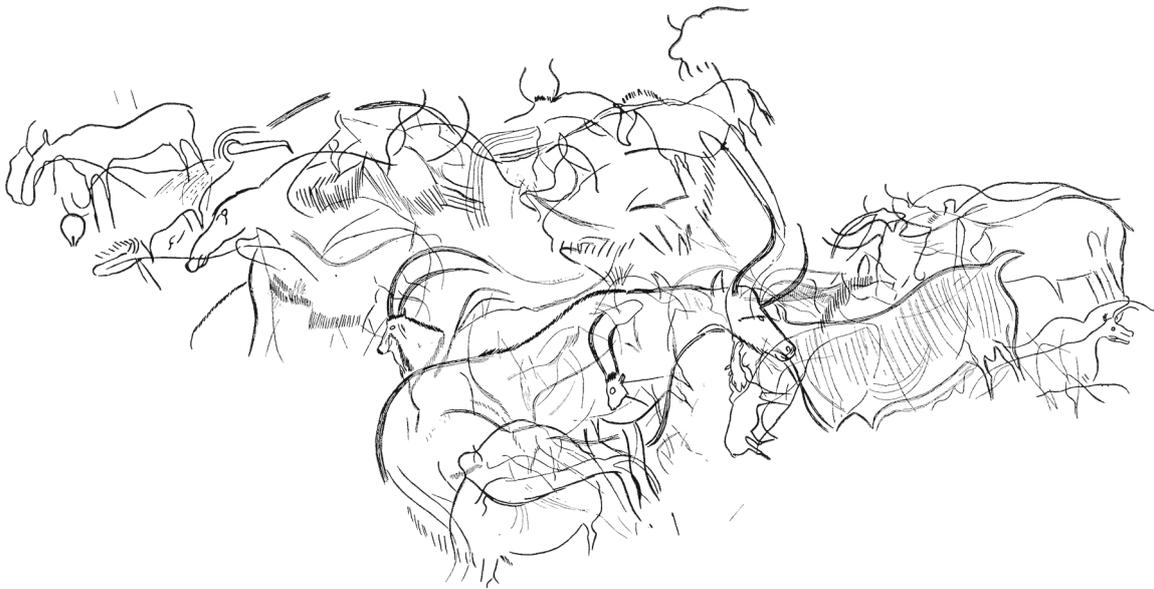
sites” (Simonet, 2009). This provisional terminology is neutral in terms of the duration of these occupations as there is still doubt concerning the interpretation of the density of the archaeological levels of a cave as vast as Isturitz (Lacarrière *et al.*, in press). Is this density the result of a semi-nomadic mobility strategy in which the sites were occupied temporarily and were associated with a relatively restricted spatial cycle? Or does it represent a semi-sedentary strategy with a much longer occupation duration? The identification of hunting camps must be accompanied by attempts to identify the longer term base camps with which they are associated and the chronological structuration of the Gravettian in the Pyrenees. These two sites, Isturitz and Brassempouy, can also be associated to a lesser degree with Gargas Cave, which is distinguished more by its rich parietal art than by its archaeological levels (Breuil and Cheynier, 1958; Foucher *et al.*, 2007; figure 4). The data resulting from a new excavation of this site will contribute additional information (Foucher *et al.*, 2008).

#### 4 - The archaeological diversity of small sites

In addition to these three major sites of the western Upper Paleolithic, there exist a diverse group of smaller Gravettian sites (figure 2). First, some sites, such as Bolinkoba (Barandiarán, 1950), Lezia (Chauchat, 1973), Tarté (Bouyssonie, 1939) and Lespugue (Saint-Périer, 1921, 1922, 1924) are distinguished by their complete, or nearly complete, range of artifact types. They contain diversified lithic and osseous industries including debitage products, domestic tools and weapon elements associated with portable art, personal ornaments and faunal remains. These sites could thus be seen as miniature replicas of larger sites, such as Isturitz. Second, Tercis has yielded occupations characterized by small assemblages dominated by flint debitage products (Normand, 1987, 1993; Simonet, 2008). Third, Mugarduia Sur contains an assemblage including numerous flint debitage products accompanied by a large quantity of weapon elements and endscrapers. Fourth, sites such as La Carane-3 (Foucher *et al.*, 1999), La Tuto de Camalhot (Vezián, 1966), Gatzarria (Laplace, 1966;



**Figure 3** - Brassempouy (Landes, France): an exceptional Gravettian occupation in terms of the diversity and quantity of artifacts represented; 1: view of the entrance of the Grotte du Pape (photograph: A. Simonet); 2: the “hooded woman” in mammoth ivory, Piette collection, MAN, (after Piette and de Laporterie, 1894, fig. 5); 3: Noailles burin, site I, level D (after Klaric, 2003, fig. 96, no. 1); 4: Vachons point, Piette collection, MAN (drawing: A. Simonet).



**Figure 4** - Gargas (Hautes-Pyrénées, France): a large decorated Gravettian cave. Part of the tracings realized by H. Breuil in the Sanctuary of Engravings. Five ibex, four bulls, four horses and one mammoth are represented. Length of the panel: 3,60 m (after Breuil, 1958, fig. 13).

Sáenz de Buruaga, 1991) and Atxurra (McCollough, 1971) have yielded particularly small assemblages with only a few to a few dozen artifacts including both tools and weapon elements. Fifth, some sites, such as Amalda (Altuna *et al.*, 1990) and Aitzbitarte III (Altuna, 2002) contain a greater number of tools than debitage by-products. Finally, the site of La Fuente del Salín (Moure *et al.*, 1985) contains mostly parietal art and a very poor assemblage of artifacts. We thus observe a significant diversity of artifact types depending on the site. This diversity can be interpreted in terms of four main factors of variability, which may or may not be combined: excavation amplitude, excavation methods, site function and chronological differences.

## **5 - The archaeological diversity of Gravettian sites in the Pyrenees that may correspond to the concept of a hunting camp**

Before detailing their particular characteristics, we can ask which Pyrenean Gravettian sites that potentially correspond to the concept of a hunting camp should be retained? We have seen that at the caves of Brassempouy, Isturitz and Gargas, activities that clearly do not correspond to those strictly associated with hunting camps are represented and that these activities probably correspond to more intensive occupations. If we eliminate these three sites from the discussion, which Pyrenean Gravettian sites potentially correspond to the concept of a hunting camp? The answer is nearly all of them..., and is the crux of the problem: the definition of a hunting camp is still not entirely clear. Let us look at some examples.

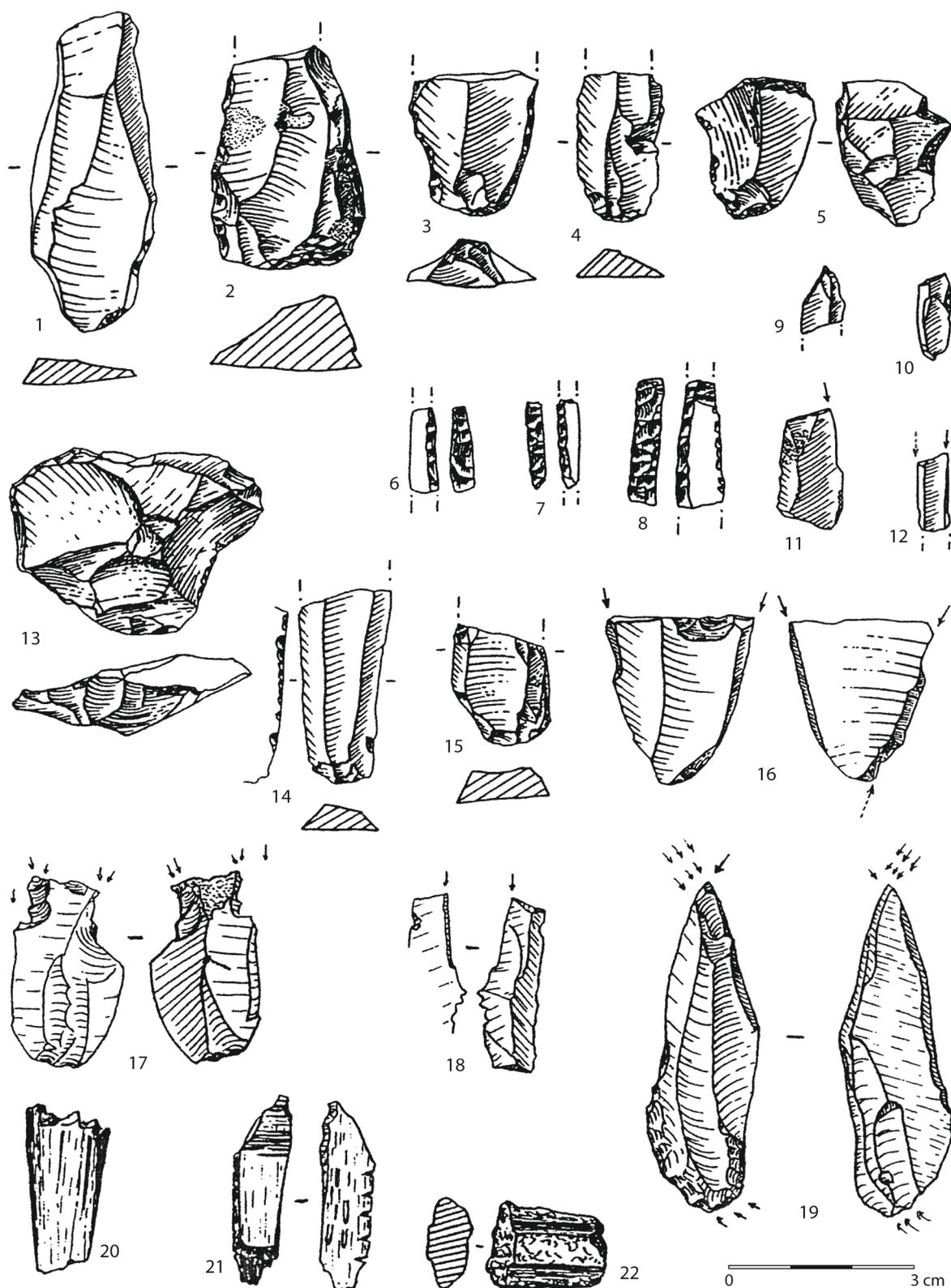
### **5.1 - La Carane-3 (Ariège, France)**

La Carane-3 is a small cave in the Ariège region, approximately 25 m long. It opens onto the south/southwest slope of the Saint-Sauveur massif and overlooks the confluence of the Ariège and Arget valleys (Foucher, 2004). The site is situated at the intersection of two biotopes, one

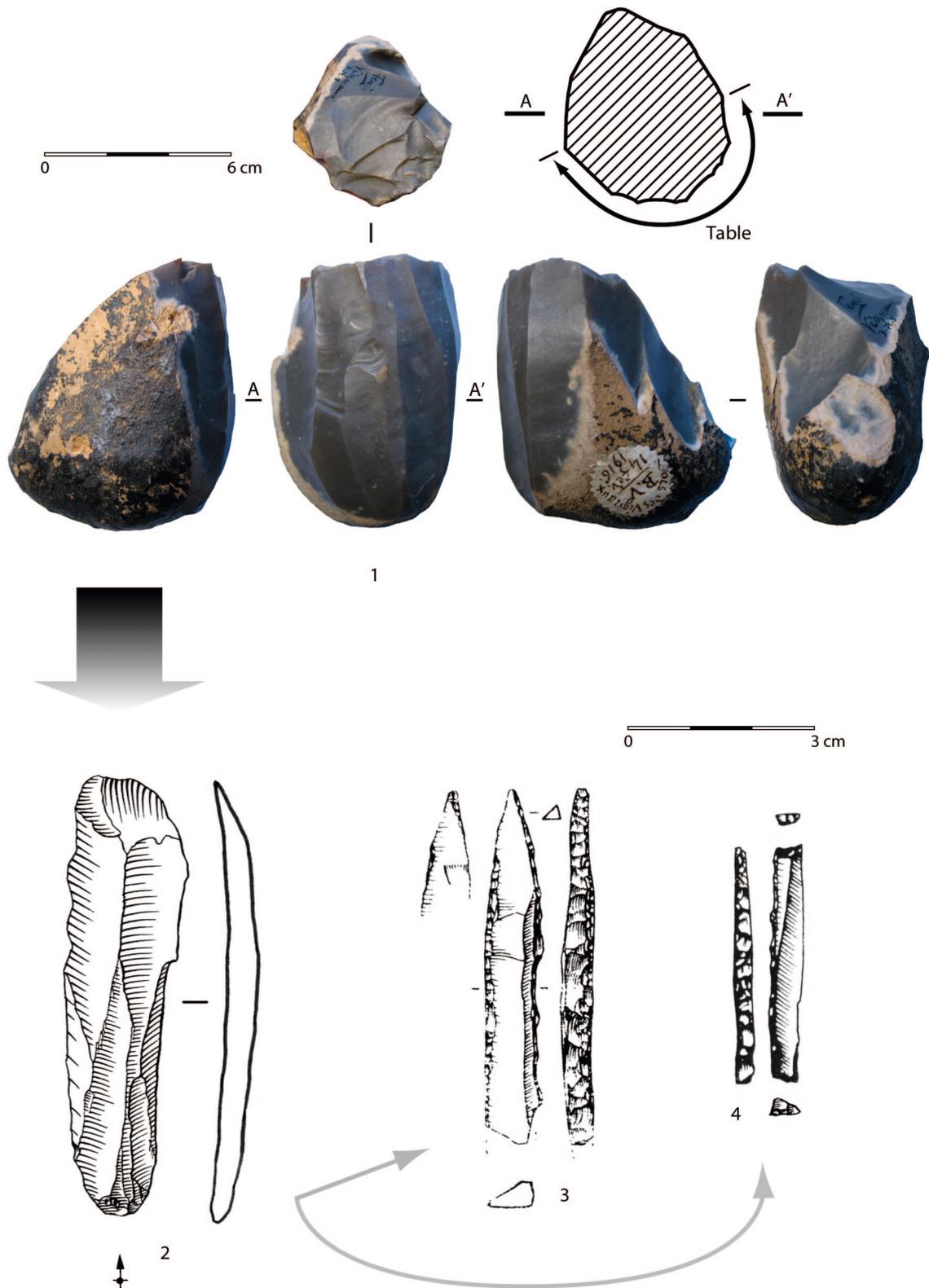
mountainous and the other of the valley type, which are particularly favorable to hunting. A 1.5 m<sup>2</sup> sondage was made by P. Foucher *et al.* (1999) in the one small gallery of the cavity. Due to the karstic activity of the cave network and recent anthropogenic disturbances, the site is not well preserved. Nonetheless, the small dimensions of the cave forcibly limit the estimation of the amplitude of the archaeological levels. The archaeological content of the ensemble of archaeological levels is poor (figure 5). The two main levels, c 1.1 and 1.2, were attributed to a Gravettian with Noailles burins. These two levels combined contain 38 tools, including 3 Noailles burins (figure 5, nos. 11, 12 and 18), 1 possible Vachons point (figure 5, no. 8) and 3 backed bladelets (figure 5, nos. 6 and 7). The assemblage is dominated by retouched flakes (16 specimens) and retouched blades (11 specimens). P. Foucher observes that the retouch of these tools is mostly marginal and incomplete, suggesting that it is in fact use retouch. No flint cores were found and the debitage by-products are not more numerous than the tools (Foucher, 2004). The flint most often employed is “blue” Pyrenean flint (52%), whose closest known exploitable sources are located a few kilometers away. It is followed by flint of a marine origin, probably found in the western part of the Pyrenees (31%). There is one Noailles burin made on flint from the Dordogne region (figure 5, no. 12). Finally, a flat-faced truncated burin was made from a Chalosse type flint (Foucher, 2004; figure 5, no. 19). In addition to flint, quartz and quartzite were also abundantly used to manufacture tools. The nature of these materials demonstrates that the territory covered corresponds to the greater southwest zone and that groups circulated in both east-west and north-south directions. The scarce faunal remains are highly varied, including carnivores such as wolf and fox, mountain species such as ibex and chamois and valley species such as roe deer, red deer, horse and large bovids. The presence of burned bones supports the hypothesis of an anthropogenic origin for the few determined herbivore remains (Foucher *et al.*, 1999). Several C14 dates were realized on single bones by Tandétron (AMS). Level c 1.2 thus yielded an AMS date of 23,710 ± 270 BP (Gif A 99245), which corresponds well to the absolute chronological framework of the Gravettian with Noailles burins.

## 5.2 - Tercis (Landes, France)

The site of Tercis consists of several small concentrations of flint collected on the surface since the 19th century. It is located on the southern flank of an anticline, on a hill around 60 m above the Adour. Numerous flint outcrops were exposed following this geological resurgence. The Daguin assemblage, currently housed at the Musée d'Aquitaine in Bordeaux, composes one of these concentrations. It remains largely unpublished since only its backed points have been studied (Thibault, 1970; Kozłowski, Lenoir, 1988; figure 6, nos. 3 and 4). Its artifacts were probably selectively collected during several sessions between 1911 and 1920, near the Vignaux farm. E. Daguin notes that the objects were found at a depth of 25 and 50 cm, but he never mentions the initial dimensions of the concentration. No organic materials are preserved due to the acidity of the sediments. The lithic industry does not appear to have been significantly sorted since 47 unretouched flakes and chips were collected. It is thus feasible that the proportion of domestic tools relative to weapon armatures is relatively representative. Though the tools are slightly more numerous than the weapon elements (36 tools versus approximately 20 weapon elements), these latter do not permit a determination of a technocomplex since they are largely dominated by retouched laminar products (17 specimens) and retouched flakes (6 specimens). There are no Noailles burins and the other domestic tools are highly varied (dihedral burin, truncated burin, truncated element, notched element). The weapon elements are mostly composed of narrow, straight backed blades with broken and/or truncated extremities (figure 6, no. 4). They could thus just as well be fragments of truncated backed elements as mesial or basal fragments of backed points with a truncated base. Only four pointed backed pieces clearly attest to the manufacturing of



**Figure 5** - La Carane-3 (Ariège, France); 1-4, 14-15: retouched blades; 5: splintered piece; 6-7: backed bladelets; 8: backed piece with flat inverse retouch; 9-10: truncations; 11-12, 18: Noailles burins; 13: retouched flake; 16: multiple burin; 17: lateral burin; 19: flat-faced burin plan on a truncation; 20: fragment of an ivory rod; 21: engraved bone; 22: fragment of an engraved calcite object. Level c 1.1: 1-4, 7-8; Level c 1.2: 5, 9-10, 15; Level c 1.3: 13-14, 16. Disturbed: 6, 11, 17-22. Raw materials: Chalosse: 16, 19. Dordogne: 12; Maritime Corbières: 14 (drawings 1-16: P. Foucher; drawings 17-22: R. Simonnet [after Foucher *et al.*, 1999, fig. 9]).

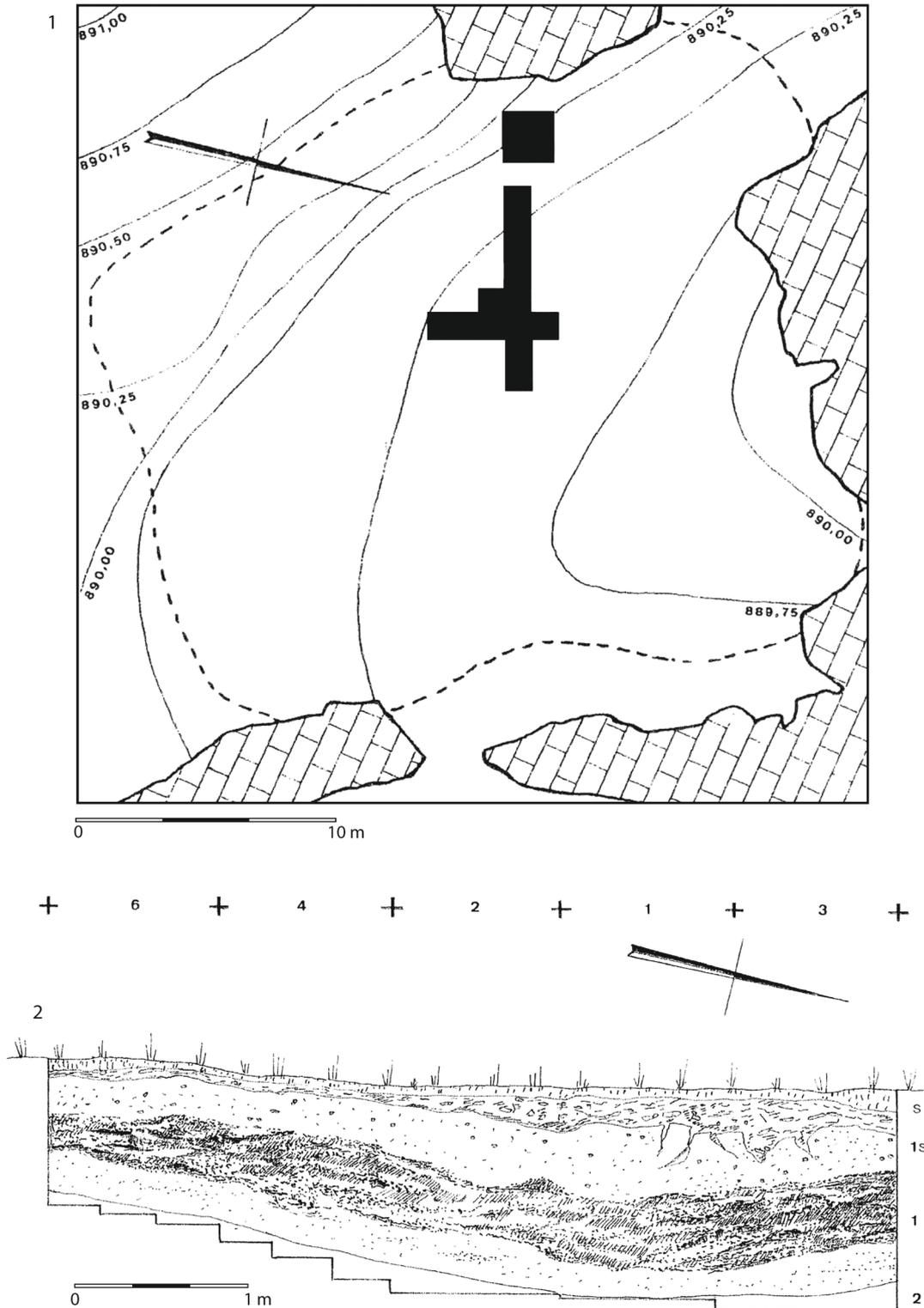


**Figure 6** - Tercis (Landes, France): Daguin assemblage, Musée d'Aquitaine, Bordeaux. Gravettian lithic industry; 1: unipolar blade core in a Tercis-variety A flint "black flint"; 2: laminar blanks detached with a soft stone hammer and transformed into straight backed points (3) and (bi) truncated backed weapon elements (4); 1-2: photograph and drawing: A. Simonet; 3-4: after Thibault, 1970, plate LXII, nos. 1 and 4.

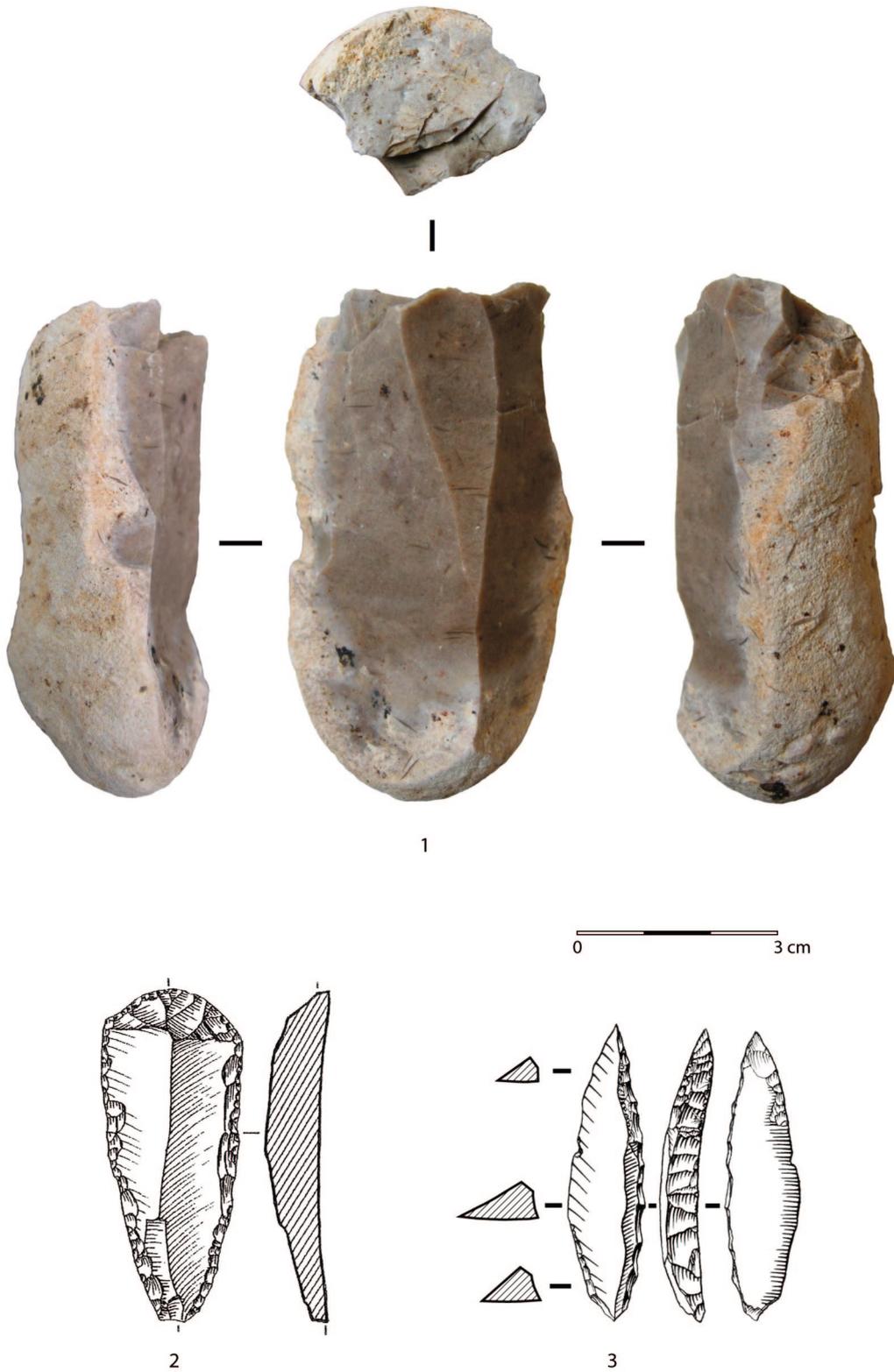
backed points (figure 6, no. 3). Finally, 5 pieces are roughouts of backed pieces whose intended function cannot be determined. One hundred and eighty-nine unretouched blade-bladelet blanks and 29 laminar cores complete this assemblage (figure 6, nos. 1 and 2). The morphology of the laminar products corresponds to that of the negative laminar removal scars observed on the discarded cores, indicating that a single *chaîne opératoire* was employed to manufacture small, straight laminar blanks, which are relatively thick, wide and highly standardized. These were detached using a soft stone hammer (figure 6). These blanks were transformed into two broad categories of weapon elements: backed points to be axially hafted and backed blades, truncated or not, which seem to have been intended for lateral hafting. The blanks transformed for these two types of backed tools appear to have been identical. The highly diverse associated tools were made on debitage by-products (flakes, irregular laminar and crested blanks).

### 5.3 - Mugarduia Sur (Navarra, Spain)

The site of Mugarduia Sur is located on the Spanish coast of the Pyrenees, at Navarra. It is situated on a plateau nearly 900 m above sea level (Barandiarán, Montes, 1992). It is an open-air site located on a large source of very high quality Urbasa flint (Tarriño, 2001, 2004, 2006). As with the preceding site, no organic remains are preserved due to the acidity of the sediments. This site was discovered in 1975 by E. Redondo who until 1981 collected a large quantity of archaeological artifacts exposed on the surface following an exploitation of the woods on the Urbasa plateau. I. Barandiarán, in collaboration with A. Cava (Professors of Prehistory at the University of the Basque Country at Vitoria), then directed systematic excavations at Mugarduia Sur. This consisted of sondages in 1981 and 1982, followed by the excavation of 11 m<sup>2</sup> in 1987 in the middle of the survey zone of E. Redondo (figure 7, no. 1). A single archaeological level was identified (Level 1) in the central part. It was 25 to 30 cm thick and yielded a large quantity of artifacts (figure 7, no. 2). This work was first published by I. Barandiarán *et al.* in 2007. According to the preliminary inventories realized by I. Barandiarán and A. Cava, the objects collected on the surface by E. Redondo (conserved at the Navarra Museum in Pamplona) consist of 980 tools, between 1 200 and 1 500 cores, between 12 000 and 15 000 relatively whole laminar products, between 500 and 700 maintenance flakes and crested blanks and 8 hammerstones (1 anvil / hammerstone in ophite and 7 sandstone cobbles). The tools are dominated by endscrapers (283) and backed tools (237). They are followed in decreasing order by retouched flakes (123), truncations (110) and denticulates (95). Burins (47) and Becs (40) are much less frequent. There are no backed bladelets, though a few bladelets with marginal retouch were collected. The results of my preliminary study argue in favor of the homogeneity of the collection (Simonet, 2009). The artifacts collected on the surface by E. Redondo and those found during the excavations, already impressive by themselves, would thus represent only part of a rich Gravettian level extending over several hundreds of square meters and whose locus is currently impossible to delimit. The morphology of the laminar products and the laminar removal scars on the cores show an intentional production of straight, relatively thick, laminar blanks, detached with a soft stone hammer (figure 8, no. 1). The blanks resulting from the first debitage phase appear to have been transformed into domestic tools consisting mostly of endscrapers, while the smaller laminar blanks produced during the second phase were transformed into weapon elements, mostly consisting of small backed points (figure 8, nos. 2 and 3). The great majority of backed points were made with Urbasa flint and a smaller number from an exogenous flint (Treviño, Flysch, Salies, Tercis). The ophite and sandstone employed to manufacture the tools used to exploit flint (hammerstones and anvil) originate from several dozens of kilometers away. Finally, though most of the backed points consist of discarded roughouts, a few of them display complex fractures diagnostic of use as a projectile point (Fisher *et al.*, 1984; O' Farrell, 1996, 2004).



**Figure 7** - Mugardua Sur (Navarre, Spain); 1: simplified representation of the site showing the workshop zone (delimited by a dashed line) and the 15 m excavated surface (in black); 2: stratigraphy in a longitudinal section between the J and K bands (after Barandiarán *et al.*, 2007, figs. 2 and 3).



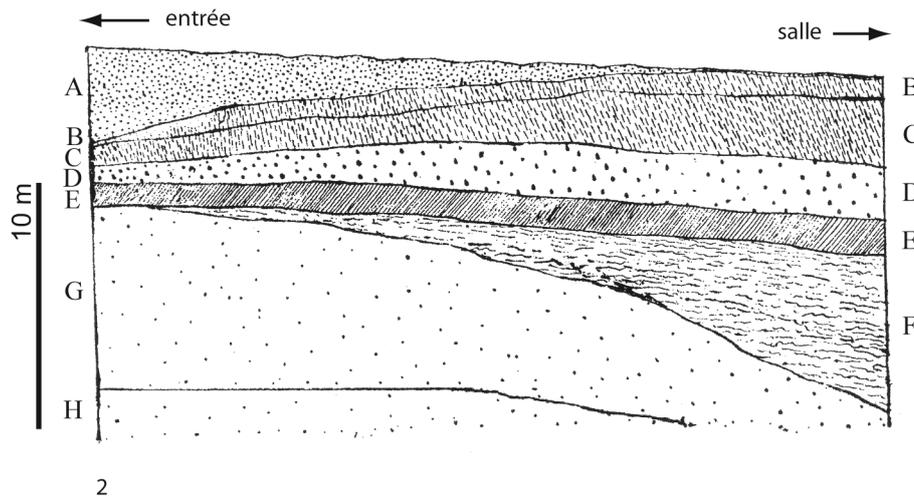
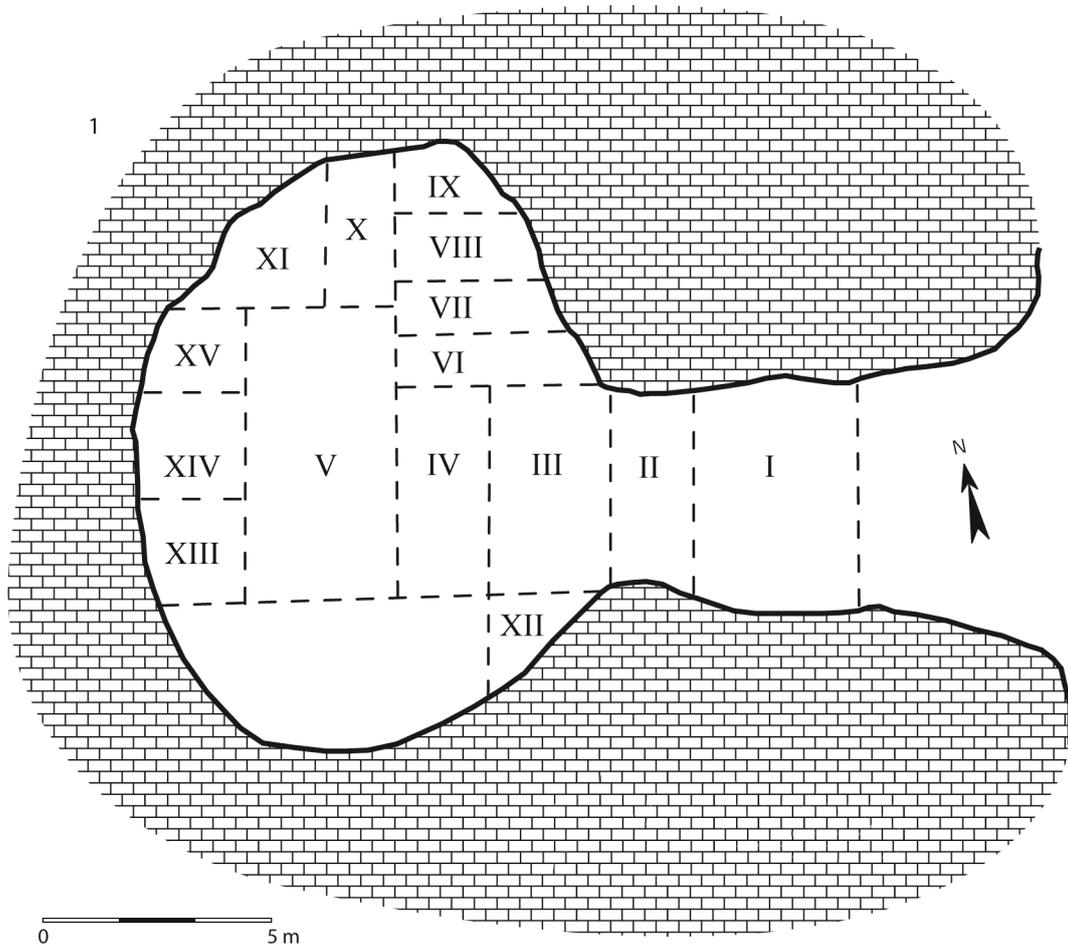
**Figure 8** - Mugardua Sur (Navarre, Spain): Gravettian lithic industry; 1: unipolar blade core in Urbasa flint; 2: endscraper on a blade; 3: backed point; 1, 3: photograph and drawing: A. Simonet; 2: after Barandiarán *et al.*, 2007, fig. 8, no. 2.

#### 5.4 - Bolinkoba (Biscay, Spain)

The site of Bolinkoba consists of a karstic network opening onto the eastern side of the Untzillatx hill, 65 m above the Asuntze stream, overlooking the Atxarte gorge. It is composed of a set of eight cavities, four of which were occupied during prehistory (Barandiarán, 1967). Bolinkoba Cave is located at an altitude of approximately 350 m above sea level (Esparza San Juan and Mújika Alustiza, 1996). The site is far from the coastal valleys where most of the currently known Gravettian sites are located. The cavity composed of a 6 m long entrance that opens into a sub-circular gallery measuring 6.6 × 8.1 m (figure 9, no. 1). Except for two witness sections, it was entirely excavated by J.M. de Barandiarán and T. Aranzadi between 1932 and 1933 (Barandiarán, 1950). The osseous industry was studied by I. Barandiarán (1967) and the lithic industry was published by McCollough (1971) and F. Bernaldo de Quirós (1982a). The cavity contains a rather long stratigraphy, extending from the Gravettian to the Bronze Age, making it one of the most complete and interesting sequences in the western part of the Pyrenees and the Cantabrian coast. Two levels are attributed to the Gravettian. The oldest one (F) contains an assemblage attributed to the Gravettian with Noailles burins. The overlying level (E) contains an assemblage whose chronocultural attribution is problematic, between the Gravettian and Solutrean (figure 9, no. 2). It is in fact possible that the two levels distinguished at Bolinkoba correspond to a single one given the homogeneity of their artifacts (Arrizabalaga, 1994). The assemblage of the apparently most homogeneous level (F) was collected during an excavation of the entire surface of the cave to a depth of 0.75 m to 1.4 m in the interior gallery (Barandiarán, 1950). The assemblage contains 670 tools, which are dominated by endscrapers (25%), retouched blades (20%) and burins (26%), including 107 Noailles burins (16%). Weapon elements are much less frequent. Backed points represent 4% of the tools, with 28 specimens. The backed micropoints represent 1.5% of the tools, with 10 specimens. The backed bladelets (mesial fragments and truncated backed bladelets) are rather numerous. They represent nearly 3% of the retouched tools with 17 specimens. Associated with this assemblage are 16 cores, 1321 unretouched laminar products and 701 lamellar products. The osseous industry is very abundant and includes spear points with a circular section and incised bones. One fragment of an Isturitz Point completes the assemblage. Personal ornaments are present in the form of one perforated red deer canine, 4 perforated *Nassa reticulata* shells and 15 perforated *Littorina obtusata* shells (Bernaldo de Quirós, 1982a). Faunal remains are also present. Level F yielded 768 determined ungulate remains (Altuna, 1990c). The clear dominance of Ibex (82.5%), followed by identical proportions of horse, bovines, chamois and red deer, is rather representative (Esparza San Juan and Mújika Alustiza, 1996; Castaños, 1983; Altuna, 1990c). We can also note the presence of species such as roe deer and wild boar. Nonetheless, 25% of the faunal remains of level F (1030 specimens) are composed of carnivores such as panther and wolf, both of which could be implicated in the accumulation of the bone assemblage. A revision of the assemblage will perhaps confirm this suspicion.

#### 5.5 - Amalda (Guipúzcoa, Spain)

Amalda Cave opens onto the side of a hill on the Basque coast at 205 m above sea level and at an orthodromic distance of approximately 5 km from the current coastline. Its porch is 14 m wide and 7 m high. The 50 m long cavity progressively diminishes in size along the first 13 m and then stabilizes with a mean width of 6 meters (figure 10). At 27 m from the entrance, a second gallery bifurcates towards the north and leads to a small gallery that opens to the exterior through a small opening (Altuna, 1990a). Discovered in 1927 by J.M. de Barandiarán, this cavity was recently excavated by J. Altuna from 1979 to 1984. Several levels were distinguished, from the Mousterian (VII)



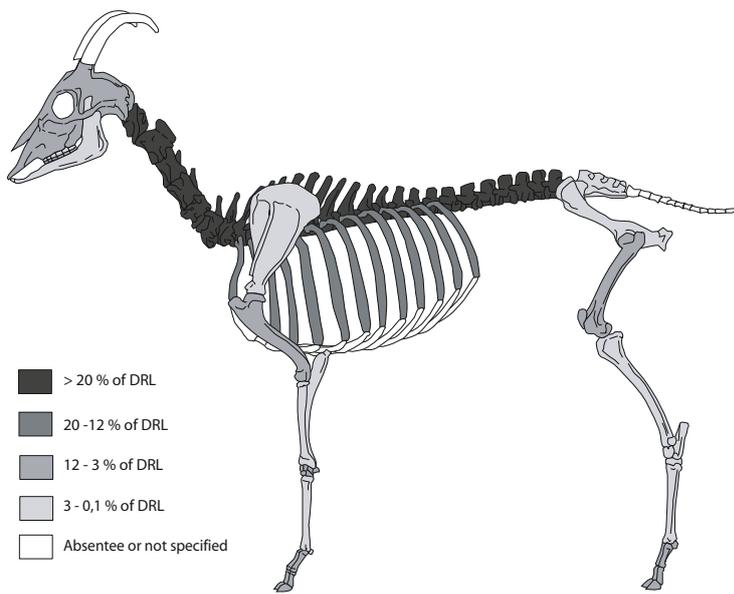
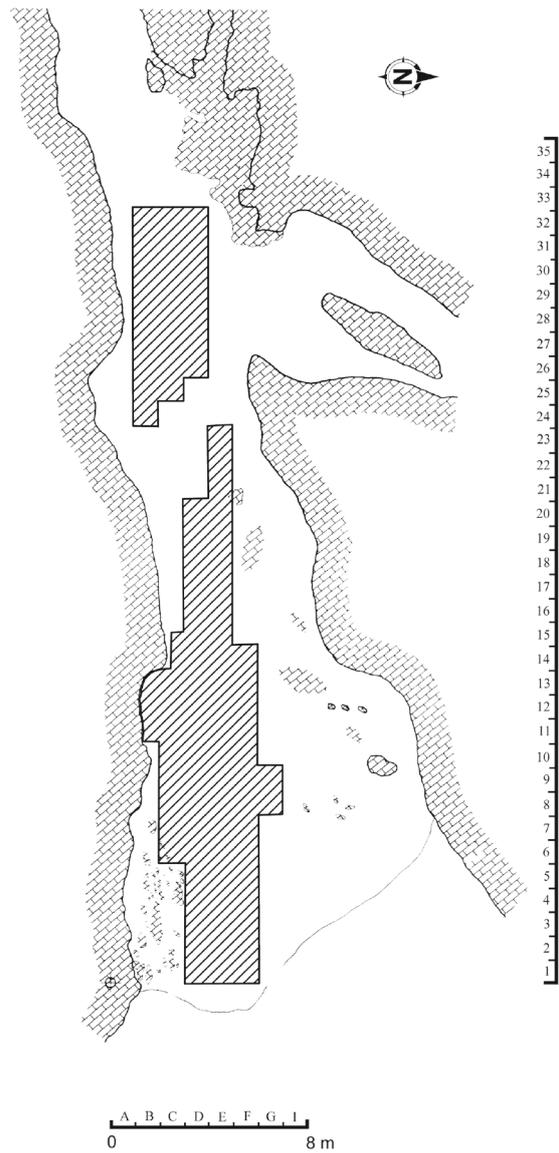
**Figure 9** - Bolinkoba (Biscaye, Spain); 1: sketch of the cave and delimitation of the excavated zones; 2: schematic section of the upper deposits (after Barandiarán, 1950, figs. 4 and 5).

to the Roman period (I and II). The two levels attributed to the Gravettian contain Noailles burins (VI and V). They were excavated over approximately 95 square meters, which is nearly half the surface of the first half of the cave (figure 10). The assemblage collected is thus representative of the occupation inside the cave. The levels in front of the entrance of the cave, however, were eroded (Altuna, 1990a). The upper level of Gravettian with Noailles burins (V) covers level VI with no hiatus and appears to be the most homogeneous. There are 102 retouched pieces out of the 797 lithic artifacts, representing 16% of the assemblage. Only 16 cores and 797 unretouched pieces attest to flint knapping activities. The tools are mostly composed of burins (26 of the 102 tools), many of which were made on a truncation, and a few borers (5), truncated blades (9), notches and denticulates (8). There are only 4 Noailles burins (Baldeon, 1990). The main characteristic that distinguishes this level is the high number of weapon elements, especially backed bladelets. While there are no backed points, the backed bladelets (mesial fragments and truncated backed bladelets) represent 23.5% of the total number of retouched lithic artifacts (29). A few backed micro-points are also present (6). A gray flint (Flysch, Bidache limestone type?) was abundantly exploited, along with a black flint (Tercis?) and a caramel flint (flint from northern Spain?) (Baldeon, 1990). The osseous industry is represented by only two spear point fragments, one with a quadrangular section, the other with a circular section, and by one perforated *Littorina obtusata*. One of the particularities of this site is the abundance of faunal remains relative to the number of lithic objects. There are 42,918 fragments in addition to the 3794 determined remains in level V. Representing 80% of the determined remains, Pyrenean chamois clearly dominates the faunal spectrum in both of the Gravettian levels. A third characteristic is the nature of the skeletal representation. According to the study by Altan (1990b), and depending on the number of remains identified, the axial skeleton of Pyrenean chamois is over represented relative to the appendicular skeleton (figure 11). This situation is rarely encountered in archeological sites due to processes of differential preservation that affects mostly vertebra and ribs, which are the least dense elements of a skeleton. This skeletal profile could be biased, however, by both the sampling technique employed and the action of carnivores. In effect, the material classed as undetermined, which could include diaphysis fragments, was lost, reducing the representation of long bones (Yravedra, personal communication). Furthermore, according to a recent taphonomic analysis of the Mousterian level (VII) by J. Yravedra (2006), the Amalda cavity was occupied by carnivores. This is shown by the presence of toothmarks on all the taxa in level VII, as well as by the presence of regurgitated bones and bone cylinders. Therefore, despite the association of the osseous and lithic assemblages and the presence of a few cutmarks and percussion impacts, these observations lead us to reconsider the origin of the assemblage of level V. For the moment, it is difficult to distinguish the respective roles of humans and carnivores in the accumulation of the assemblage, but a new zooarchaeological study by J. Lacarrière will soon provide a clearer answer to this question. The two dates obtained for level V are  $19,000 \pm 340$  BP at the base and  $17,880 \pm 390$  BP in the center. These dates, which are more coherent with the Solutrean, could indicate a phenomenon of emptying after the accumulation of the archaeological deposits (Altuna, 1990a). On the other hand, the dates obtained for level VI, of  $27,400 \pm 1000$  and  $27,400 \pm 1100$  BP are more coherent with an attribution to the Pyrenean Gravettian with Noailles burins.

### 5.6 - La Fuente del Salín (Asturias, Spain)

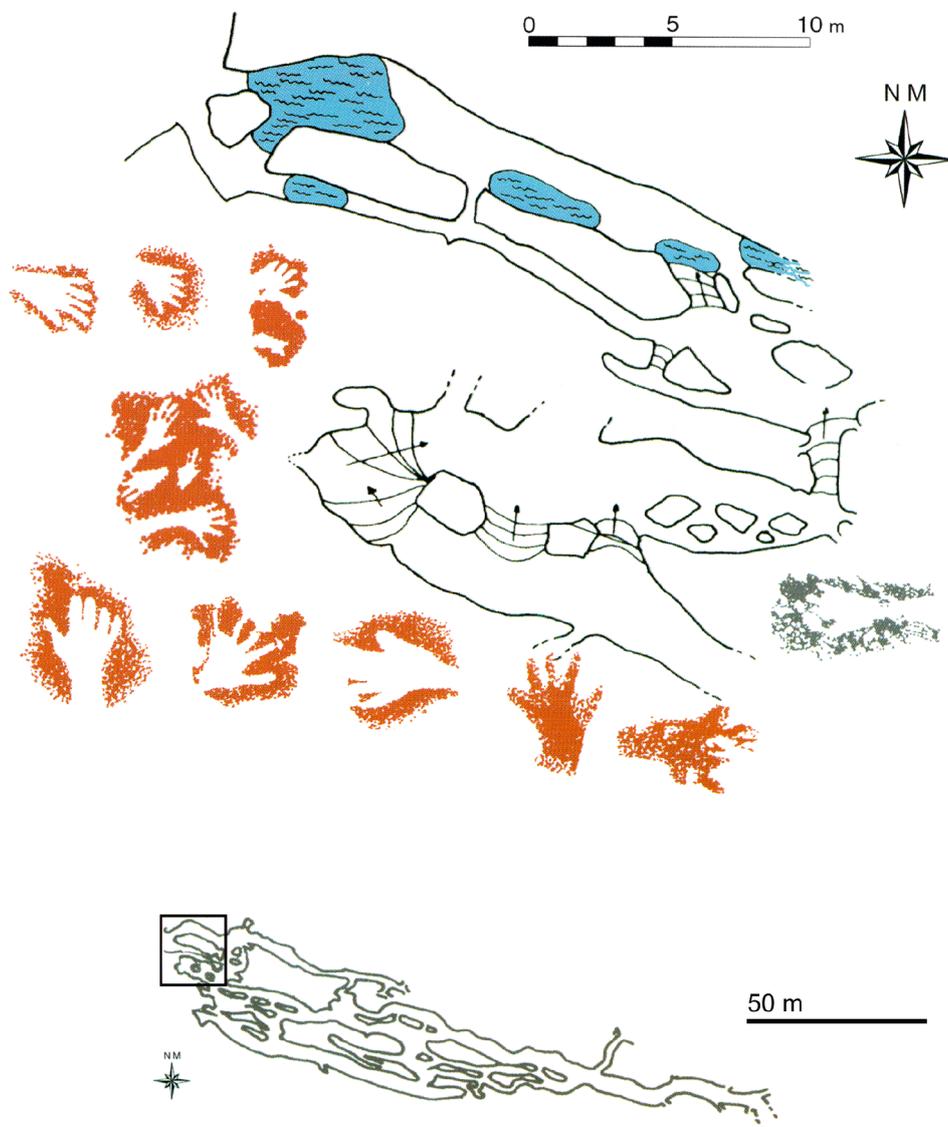
The small cave of Fuente del Salín in the Asturias was discovered in 1985 following a drought that led to a drop in the level of the resurgence at its entrance, thus making it possible to enter the cavity (Moure *et al.*, 1985). During the Paleolithic, there must have been a different, more accessible entrance that is now sealed. A single archaeological level was dated to  $22340 \pm 510$  B.P.

**Figure 10** - Amalda (Guipúzcoa, Spain): plan of the cave and the zone excavated until levels V and VI, with Noailles burins (after Altuna, 1990a, fig. 1.3, modified).



**Figure 11** - Amalda: skeletal representation of *Rupicapra Rupicapra* within level V. (CAD: J. Lacarrière, after Altuna, 1990b).

It contains a fireplace associated with a small assemblage composed of three spear points with a circular section and no defined base, a red deer canine, perforated *Trivia* shells, flint knapping by-products and a few burins and backed bladelets (Moure, González Morales, 1992, 2000). Due to the immersion of the entrance of the cavity, the initial dimensions of the prehistoric occupation are unfortunately unknown. Near the assemblage collected, there is a group of parietal works composed only of painted hands, a few discrete signs and a group of dots. Fourteen negative hand stencils were identified, 13 in red and 1 in black (figure no. 12). Two positive red hands complete the panel (Valle Gómez, Gancedo Serna, 2002). The difficulty of attributing hand representations to a particular sex or age group has led to partially opposed interpretations; R. Bohigas *et al.* (1985) attributes them to men, women and children, while A. Moure and M. R. González Morales (2000) interpret the best preserved group of hands to children no taller and 1.4 m.



**Figure 12** - La Fuente del Salín (Asturies, Spain): plan of the cave and representation of the painted hands (after Luis Serna Gancedo *et al.*, 2002, modified from Bohigas *et al.*, 1985).

## 6 - How can we interpret the diversity of these archaeological sites?

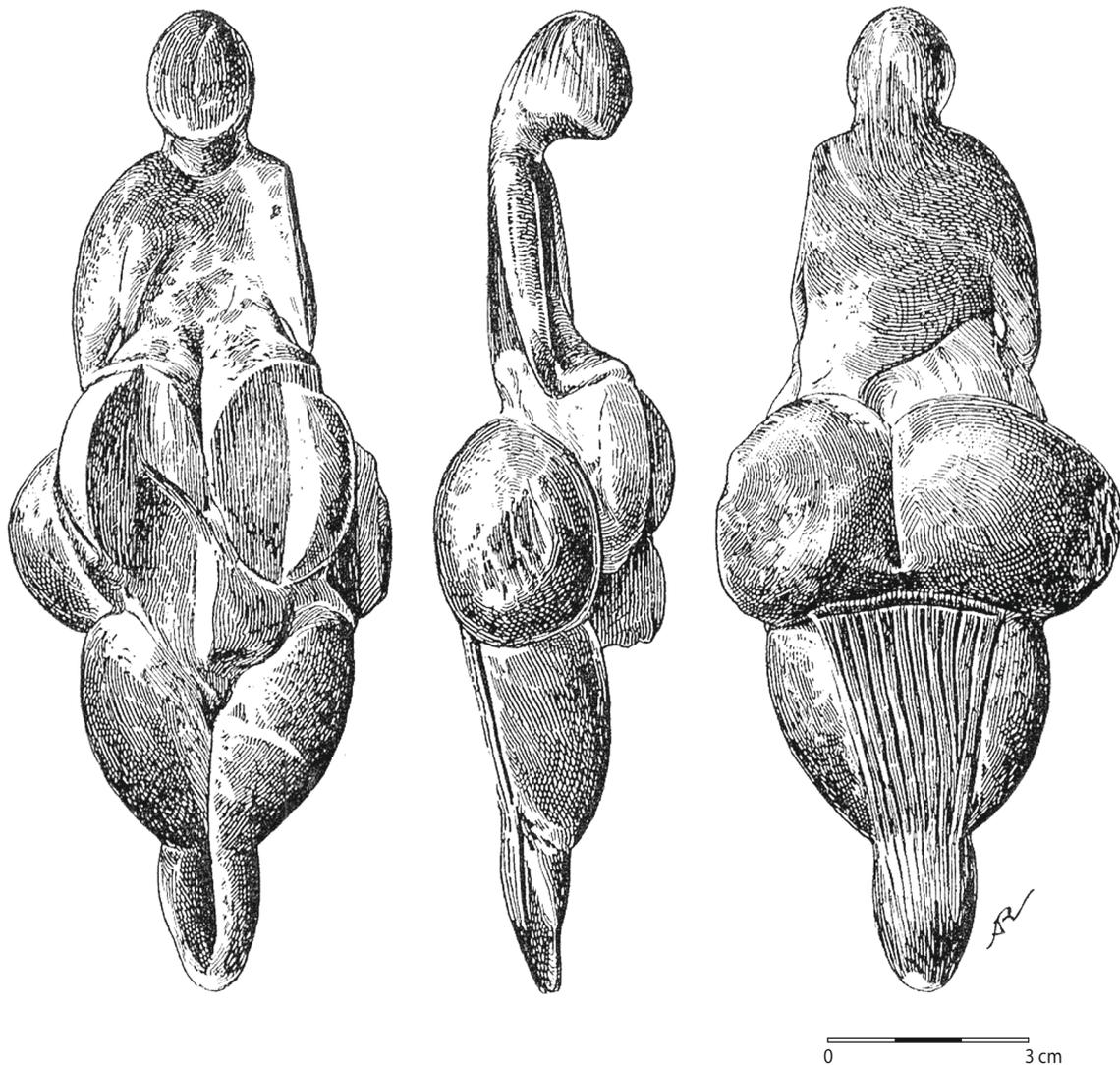
In the Pyrenean Gravettian, if we exclude three sites – Isturitz, Brassempouy and Gargas – that do not correspond to the concept of a hunting camp, we can consider the other extremity of the problem. In this case, we can ask which sites correspond to the hunting camp concept in its strictest sense, meaning the one that includes the entire set of criteria presently accepted by the scientific community as diagnostic of this site type. Such sites would be characterized by a geographic location favorable to hunting with a clear view onto hunting locations, open-air or small cavities, sites yielding small assemblages with high tool to debitage by-product ratio, and a significant proportion of weapon elements. The lithic artifacts would tend to reveal a high diversity of exogenous raw materials whose sources would represent territorial markers managed by the occupants of the hunting camps. We would also expect to find a certain number of imported tools discarded at the camp after being used. Finally, these sites could also yield particular anatomical parts of hunted animals, which were abandoned to facilitate their transport to the base camp. With this classic definition in mind, let us now review the different sites presented above.

- La Carane-3 could represent a hunting camp since it has a diagnostic conjunction of these criteria (site location overlooking a valley, occupation of a small cavity poorly adapted to an occupation by a large community, very small lithic assemblage, absence of cores, diverse exogenous flints, faunal remains of an anthropogenic origin). The Pyrenean sites of La Tuto de Camalhot, Gatzarria and Atxurra could also fit this definition. As a working hypothesis and awaiting a revision of the assemblages of these four sites, I propose that they indeed served as hunting camps;
- On the contrary, the site of Tercis fits into the category of a flint knapping workshop. Nonetheless, the concomitant presence of backed bladelet roughouts and one projectile element with a diagnostic impact fracture shows that the site functioned as both a small armature manufacturing workshop where all of the *chaîne opératoire* is present, from the fabrication of blanks to the retouching of their backs, and a site where at least some of the projectiles were repaired. The presence of a few tools (retouched flakes, retouched blades and burins) associated with the projectile elements adds a small “base camp” component, if we presume that all these artifacts are contemporary. The site of Tercis would thus have been used both as a hunting camp and as a knapping workshop.
- Though to a different degree, we see a similar phenomenon at Mugardua Sur. The presence of tools made from exogenous materials shows that the Gravettians arrived at the site with a stock of weapons and functional tools. The numeric under-representation of some categories of tools, such as burins, shows that certain specialized activities were performed at the site, including the manufacturing of backed points and probably hide working, given the clear domination of endscrapers in the assemblage. The presence of points with complex fractures, as well as the location of the site high on the side of a hill, indicates the hunting of solitary mountain species such as chamois and ibex. In addition, the presence of springs on the plateau makes it plausible that the site occupation was of a relatively long duration. All of these remains together suggest an intensive occupation of this site, at which three activities were performed: flint knapping, hunting and at least a partial processing of hunted animals, especially their hides. The site of Mugardua shows that knapping activities can be cumulated with hunting activities, making a similar interpretation of Tercis more plausible.

- Due to the early date of the excavations, questions remain concerning the formation of the assemblage of Bolinkoba and it is thus difficult to interpret it without conducting a new study of the site. Do the artifacts here correspond to a single occupation or a palimpsest of several occupation levels and/or lenses? In the scenario of a palimpsest, it is possible that at some point in its history, the site was used as a hunting camp, like La Carane-3. On the other hand, in the case of a single occupation, the completeness of the range of tools and the presence of artistic elements, such as personal ornaments and incised bones, would argue against the idea of a hunting camp. It is significant that the range of tools and weapon elements is identical to that at Isturitz (Simonet, 2010). The only thing missing is the bladelets with marginal retouch, which could have been ignored during the excavations, as at Isturitz. In fact, Bolinkoba gives the impression of a miniature replica of the super-site of Isturitz, with the different tool and weapon element types being present in identical proportions, but in much smaller numbers. The two sites diverge, however, in terms of their faunal remains, which are diverse at Isturitz and concentrated on one species at Bolinkoba. Ibex, which is favored at Bolinkoba, is minor at Isturitz. It is clear that this discrepancy is significant, but how should it be interpreted? In the case of a lithic assemblage that is not particularly characteristic of a hunting camp, the domination of a single species could correspond to a temporary site where the Gravettians concentrated on one species regardless of the hunting strategy employed (specialized or broad), as at a complete camp, which would thus indicate a specialized hunting strategy. In comparison with Isturitz, where bison dominates the faunal spectrum, this second hypothesis would indicate dietary changes depending on the seasons and/or the degree of aggregation of the community during a regional cycle. We must also remember, however, that this clear species domination could be a result of ancient excavation methods. Whatever the case, since the dimensions of the cave would not have permitted its occupation by a large group, the hypothesis of a small base camp is more feasible, though we cannot completely reject the possibility that it served as a hunting camp. If this latter is true, certain artistic activities would have been performed at this hunting camp. The assemblages of Lezia, Tarté and Lespugue clearly share certain elements with Bolinkoba. Only Lespugue is distinguished by the presence of a female statuette (figure 13). All of these questions illustrate the crucial importance of identifying hunting camps for our understanding of the sociological aspects of Upper Paleolithic groups. Knowing whether these sites were hunting camps or complete base camps is highly significant for our interpretation of the meaning of a female statuette, both in terms of its symbolic function (if linked to hunting, the emphasis placed on the sexual characteristics of the Venus would be related to richness, prosperity and reproductive strength) and the nature of Gravettian rituals (in this case, Venuses would highly mobile, rather than being kept in confined and sanctuarized places).
- The case of Amalda is once again different. The small size of the lithic assemblage, low proportion of debitage products, absence of backed points, endscrapers and retouched blades, as well as the low proportion of Noailles burins and near absence of artistic objects, all argue in favor of a specialized site. The activities performed there would be mostly linked to the use of backed bladelets and truncated burins. In addition, the domination of Pyrenean chamois among the faunal remains, which are particularly numerous in comparison to the lithic remains, suggests that this was a hunting camp. If not for the complex nature of the bone assemblage, this hypothesis would be supported by the over-representation of the axial skeletons of the animals hunted, indicating that the Gravettians would have performed butchery operations to lighten the load of the animal products to be transported to the base camp. Nonetheless, it is necessary to reexamine the bone assemblage of Level V in order to address this question. In summary, and in contrast to La Carane-3, a first phase of carcass processing could have taken place at the site, as

is indicated by the high number of burins and the nature of the bone remains. This could be a hunting camp where carcass processing was more intensive than at sites such as La Carane-3, but less intensive than at sites such as Mugarduia Sur where hide processing probably occurred, as is indicated by the strong domination of endscrapers. In this case, we could propose the working hypothesis of a hierarchy of occupation duration, being the shortest at La Carane-3, a bit longer at Almalda, and longer still at Mugarduia Sur.

- Finally, at La Fuente del Salín, the presence of a hearth associated mainly with weapon elements strongly indicates that this was a hunting camp. Meanwhile, the parietal works associated with the assemblage in this case consist of painted hand representations. As at Lespugue, we can again raise the question of the nature of the relationship between the art works and the lithic and bone assemblages. La Fuente del Salín could thus be a hunting camp similar to that of La Carane-3 in the sense that very little prey carcass processing occurred and the occupation was brief. On the other hand, this site would differ from the type defined at La Carane-3 in terms of the presence of symbolic behaviors, related or not to hunting.



**Figure 13** - Venus of Lespugue (Haute-Garonne, France). Mammoth ivory (after Saint-Périer, 1924, fig. 1).

## 7 - Chronological refinement and proposition of a regional model

In a paleosociological approach, it is essential to apprehend the time scale under consideration, which, as we noted in the introduction of this paper, is very difficult in the Pyrenees. A few indices are nonetheless beginning to appear. First, we can eliminate Tercis from the discussion because it clearly differs from the other Pyrenean Gravettian sites in several ways: the absence of Noailles burins, the existence of carefully executed opposed-skewed laminar debitage with a very oblique striking platform and the presence of backed points that are not the same as the Vachons points found at the other sites. All of these elements indicate that the assemblage of Daguin de Tercis likely corresponds to a Gravettian facies that is later than those usually found in the Pyrenees.

In addition, the assemblage from the recently excavated site of La Fuente del Salín, which is homogeneous and very coherent, could correspond to the late Gravettian period that is indicated by the dates obtained.

If we eliminate Tercis and La Fuente del Salín from the discussion, there remain, according to the characterization of Bolinkoba type sites, three or four different site types that correspond to the concept of a hunting camp (figure 14).

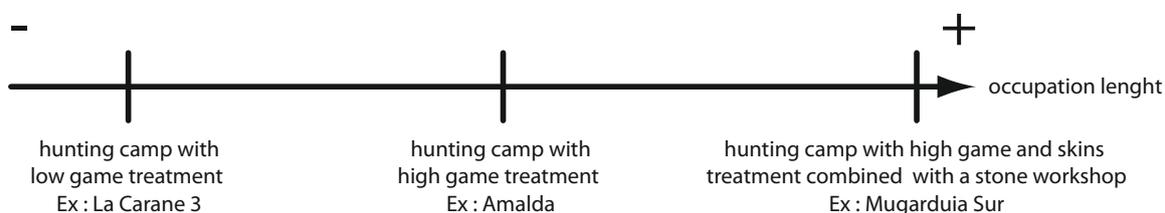


Figure 14 - Types of potential hunting camps identifiable in the Pyrenean Gravettian with Noailles burins.

These small sites would have functioned in a manner complementary to the larger sites, such as Isturitz and Brassempouy. These data corroborate the idea that there were large base camps, represented by the assemblages of Isturitz and Brassempouy, from which specialized expeditions departed and radiated.

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## Bibliographic references

- Altuna J., 1990a - Situación y descripción de la cueva de Amalda. Historia de las excavaciones. Descripción del relleno. Estructuras en el yacimiento. Dataciones de radiocarbono. Otros yacimientos del valle, in Altuna J., Baldeón A., Mariezkurrena K. (dir.), *La cueva de Amalda (Zestoa, País Vasco). Ocupaciones paleolíticas y postpaleolíticas*, San Sebastián, Eusko Ikaskuntza («Colección Barandiarán» 4), 9-31.
- Altuna J., 1990b - Caza y alimentación procedente de Macromamíferos durante el Paleolítico de Amalda, in Altuna J., Baldeón A., Mariezkurrena K. (dir.), *La cueva de Amalda (Zestoa, País Vasco). Ocupaciones paleolíticas y postpaleolíticas*, San Sebastián, Eusko Ikaskuntza (« Colección Barandiarán » 4), 149-192.
- Altuna J., 1990c - La caza de herbívoros durante el Paleolítico y Mesolítico del País Vasco, *Munibe*, 42, 229-240.
- Altuna Etxabe J., 2001 - Cueva de Aitzbitarte III (Errenteria). XII Campaña, *Arkeoikuska*, 128-130.
- Altuna J., Baldeón A., Mariezkurrena K. (dir.), 1990 - *La cueva de Amalda (Zestoa, País Vasco). Ocupaciones paleolíticas y postpaleolíticas*, San Sebastián, Eusko Ikaskuntza (« Colección Barandiarán » 4), 276 p.
- Arrizabalaga A., 1994 - Individualización morfológica de los buriles gravetienses. El « Noailense » de Bolinkoba (Abadiño, Bizkaia), *Munibe*, 46, 33-51.
- Baldeón A., 1990 - Las industrias de los niveles paleolíticos, in Altuna J., Baldeón A., Mariezkurrena K. (dir.), *La cueva de Amalda (Zestoa, País Vasco). Ocupaciones paleolíticas y postpaleolíticas*, San Sebastián, Eusko Ikaskuntza (« Colección Barandiarán » 4), 63-115.
- Barandiarán de J.M., 1950 - Bolinkoba y otros yacimientos paleolíticos en la Sierra de Amboto (Vizcaya), *Cuadernos de Historia Primitiva*, 5, 73-112.
- Barandiarán I., 1967 - *El Paleomesolítico del Pirineo occidental. Bases para una sistematización tipológica del instrumental óseo paleolítico*, Zaragoza, Monografías Arqueológicas, 3, 443 p.
- Barandiarán I., 1980 - Auriñaciense y Perigordienense en el País Vasco: Estado actual, *Munibe*, 32 (3-4), 325-333.
- Barandiarán I., Benéitez P., Cava A., Millán M.A., 2007 - El taller gravetiense de Mugarduia sur (Navarra): identificación y cronología, *Zephyrus*, 60, 15-26.
- Barandiarán I., Montes L., 1991-1992 - Ocupaciones del Paleolítico en Urbasa (Navarra). El sitio de Mugarduia Norte, *Trabajos de Arqueología Navarra*, 10, 21-67.
- Bernaldo de Quirós F., 1982a - *Los inicios del Paleolítico superior cantábrico*, Madrid, Museo de Altamira (« Monografías » 8), 347 p.
- Bernaldo de Quirós F., 1982b - The early upper Palaeolithic in Cantabrian Spain (Asturias-Santander), in *Aurignacien et gravettien en Europe*, Actes des réunions de la 10<sup>e</sup> commission de l'UISPP: Aurignacien - Périgordien - Gravettien et cultures dérivées, Liège, ERAUL, 13 (2), 65-78.
- Bohigas R., Sarabia P., Brigido B., Ibáñez I., 1985 - Informe sobre el santuario rupestre paleolítico de la Fuente del Salín (Muñorrodero, Val de San Vicente, Cantabria), *Boletín Cántabro de speleología*, 6, 81-98.

- Bourlon M., 1911** - Essai de classification des burins. Leurs modes d'avivage, *Revue anthropologique*, 21, 267-278.
- Bouyssonie J., 1939** - La grotte de Tarté, in *Mélanges de Préhistoire et d'Anthropologie offerts au Professeur Comte H. Bégouën*, Toulouse, Édition du Muséum, 179-194.
- Breuil H., 1958** - La décoration pariétale préhistorique de la grotte de Gargas, *Bulletin de la Société méridionale de spéléologie et de préhistoire*, 5, 391-409.
- Breuil H., Cheynier A., 1958** - Les fouilles de Breuil et Cartailhac dans la grotte de Gargas en 1911 et 1913, *Bulletin de la Société méridionale de spéléologie et de préhistoire*, 5, 341-382.
- Bricker H.M. (dir.), 1995** - *Le Paléolithique supérieur de l'Abri Pataud (Dordogne): les fouilles de H. L. Movius Jr.*, Paris, Maison des sciences de l'Homme (« Document d'Archéologie Française » 50), 328 p.
- Castaños P., 1983** - Estudio de los macromamíferos del yacimiento prehistórico de Bolinkoba (Abadiano-Vizcaya), *Kobie*, 13, 261-298.
- Chauchat C., 1973** - La grotte Lezia à Sare, *Bulletin du musée basque*, 155-166.
- David N.C., 1985** - Excavations of the abri Pataud, Les Eyzies (Dordogne): The Noaillien (level 4) assemblages and the Noaillien culture in Western Europe, Harvard University, Peabody Museum (« American School of Prehistoric Research » 37), 355 p.
- Demars P.-Y., Laurent P., 1992** - *Types d'outils lithiques du Paléolithique supérieur en Europe*, Paris, CNRS (« Cahiers du Quaternaire » 14), 178 p.
- Esparza San Juan X., Mújika Alustiza J.A., 1996** - El Perigordien supérieur en el País Vasco, in Delporte H., Clottes J. (dir.), *Pyrénées Préhistoriques. Arts et Sociétés*, Actes du 118<sup>e</sup> congrès national des sociétés historiques et scientifiques, Pau, 1993, CTHS, 61-71.
- Fisher A., Vemming Hansen P., Rasmussen P., 1984** - Macro and micro wear traces on lithic projectile points: experimental results and prehistoric examples, *Journal of Danish Archeology*, 3, 19-46.
- Foucher P., 2004** - *Les industries lithiques du complexe gravettien-solutréen dans les Pyrénées: techno-typologie et circulation des matières siliceuses de part et d'autre de l'axe Pyrénées-Cantabres*, Thèse de doctorat, Toulouse, université Toulouse II - Le Mirail, 2 vol., 334 p.
- Foucher P., San Juan-Foucher C., Ferrier C., Couchoud I., Vercoutère C., 2008** - **La grotte de Gargas (Aventignan, Hautes-Pyrénées): nouvelles perspectives de recherche et premiers résultats sur les occupations gravettiennes**, in Jaubert J., Bordes J.-G., Ortega I. (dir.), *Les sociétés du Paléolithique d'un Grand Sud-Ouest: nouveaux gisements, nouvelles méthodes, nouveaux résultats*, Actes des journées scientifiques de la Société préhistorique française, Bordeaux, 2006, Société préhistorique française (« Mémoire » 47), 301-324.
- Foucher P., San Juan C., Martin H., 1999** - Le site gravettien de la Carane-3, Foix, Ariège, *Bulletin de la Société préhistorique Ariège-Pyrénées*, 54, 15-42.
- Foucher P., San Juan-Foucher C., Rumeau Y., 2007** - *La grotte de Gargas. Un siècle de découvertes*, Édition Communauté de communes du canton de Saint-Laurent-de-Neste, 128 p.

- Klaric L., 2003 - *L'unité technique des industries à burins du Raysse dans leur contexte diachronique. Réflexions sur la diversité culturelle au Gravettien à partir des données de la Picardie, d'Arcy-sur-Cure, de Brassempouy et du Cirque de la Patrie*, Thèse de doctorat, Paris, université Paris I, 426 p.
- Kozłowski J.K., Lenoir M., 1988 - *Analyse des pointes à dos des gisements périgordiens de l'Aquitaine. Corbiac, Roc de Combe, Flageolet I et Terci.*, Varsovie, Uniwersytet Jagiellonski Panstowe Wydawnictwo Naukowe (« *Prace archeologiczne* » 43), 94 p.
- Lacarrière J., Goutas N., Normand Chr., Simonet A., 2011 - Vers une redéfinition des occupations gravettiennes de la grotte d'Isturitz (Pyrénées-Atlantiques) : révision critique des collections « anciennes » par l'approche intégrée des données lithiques, fauniques et d'industrie osseuse, in Pesesse D., Goutas N., Klaric L., Guillermin P. (dir.), *À la recherche des identités gravettiennes: actualités, questionnements et perspectives*, Actes de la table ronde d'Aix-en-Provence, 2008, Société préhistorique française (« *Mémoire* » 52), 67-83.
- Laplace G., 1966 - Les niveaux castelperroniens, proto-aurignaciens et aurignaciens de la grotte Gatzarria à Suhare en pays Basque (fouilles 1961-1963), *Quartär*, 17, 117-140.
- McCollough M.C., 1971 - *Perigordian facies in the Upper Palaeolithic of Cantabria*, Thèse de doctorat, Michigan, University of Pennsylvania, 547 p.
- Moure Romanillo A., González Morales M.R., 1992 - Datation <sup>14</sup>C d'une zone décorée de la grotte Fuente del Salín en Espagne, *International Newsletter on Rock Art*, 3, 1-2.
- Moure Romanillo A., González Morales M.R., 2000 - Excavaciones y documentación del arte rupestre de la cueva de la Fuente del Salín (Muñorrodero, Valde San Vicente), in Ontañón Peredo R. (dir.), *Actuaciones arqueológicas en Cantabria 1984-1999*, Consejería de Cultura, Turismo y Deporte del Gobierno de Cantabria, 149-150.
- Moure Romanillo A., González Morales M.R., González Sainz C., 1985 - Las pinturas paleolíticas de la cueva de la Fuente del Salín (Muñorrodero, Cantabria), *Ars praehistorica*, 3-4, 13-23.
- Normand Chr., 1987 - Le gisement paléolithique de plein air du Vignès à Tercis (Landes), *Bulletin de la Société d'anthropologie du Sud-Ouest*, 22 (2), 71-80.
- Normand Chr., 1993 - Un atelier de taille de pièces à dos à Tercis (Landes), *Archéologie des Pyrénées occidentales et des Landes*, 12, 27-51.
- O'Farrell M., 1996 - *Approche technologique et fonctionnelle des pointes de la Gravette: une analyse archéologique et expérimentale appliquée à la collection de Corbiac (Dordogne, fouilles Fr. Bordes)*, Mémoire de DEA, Bordeaux, université Bordeaux I, 97 p.
- O'Farrell M., 2004 - Les pointes de La Gravette de Corbiac (Dordogne) et considérations sur la chasse au Paléolithique supérieur ancien, in Bodu P., Constantin C. (dir.), *Approches fonctionnelles en Préhistoire*, XXV<sup>e</sup> Congrès Préhistorique de France, Nanterre, 2000, Société de la préhistoire française (« Congrès » 25<sup>e</sup> session), 121-138.
- Ruiz Idarraga R., 1990 - El complejo Auriñaco-Perigordense en el País Vasco, *Munibe*, 42, 23-32.

- Sáenz de Buruaga A., 1991 - *El Paleolítico superior de la cueva de Gatzarria* (Zuberoa, País vasco), Vitoria-Gasteiz, Universidad del País Vasco (« Series maior » 6) 426 p.
- Saint-Périer R. de, 1921 - Les grottes préhistoriques de Lespugue et Montmorin, Saint-Gaudens, *Revue de Comminges*, 150-190.
- Saint-Périer R. de, 1922 - Statuette de femme stéatopyge découverte à Lespugue (Haute-Garonne), *L'Anthropologie*, 32, 361-381.
- Saint-Périer R. de, 1924a - La fouille de 1923 dans la grotte des Rideaux à Lespugue (Haute-Garonne), *L'Anthropologie*, 34, 1-15.
- Saint-Périer R. de, 1924b - La statuette féminine de Lespugue (Haute-Garonne), *Bulletin de la Société préhistorique française*, 21, 81-84.
- Saint-Périer R. de, Saint-Périer S. de, 1952 - *La grotte d'Isturitz. III: les Solutréens, les Aurignaciens et les Moustériens*, Paris, Archives de l'Institut de Paléontologie humaine (« Mémoire » 25), 264 p.
- Serna Gancedo M.L., Valle Gómez Á., Smith P., 2002 - *Las cuevas con arte palaeolítico en Cantabria*, Asociación Cantabra para la Defensa del Patrimonio Subterráneo, 351 p.
- Simonet A., 2008 - L'atelier de taille gravettien de Tercis (Landes): un cas probable d'apprentissage de la confection d'armatures lithiques, in Pétilion J.-M., Dias-Meirinho M.-H., Cattelain P., Honegger M., Normand Chr., Valdeyron N. (dir.), *Recherches sur les armatures de projectiles du Paléolithique supérieur au Néolithique*, Actes du colloque C83, XV<sup>e</sup> congrès de l'UISPP, Lisbonne, 2006, *P@lethnologie*, 1, 184-211.
- Simonet A., 2009 - *Les gravettiens des Pyrénées. Des armes aux sociétés*, Thèse de doctorat, Toulouse, université Toulouse II - Le Mirail, 391 p.
- Simonet A., 2010 - *Typologie des armatures lithiques gravettiennes de la grotte d'Isturitz (Pyrénées-Atlantiques, France)*, Oxford, Archaeopress (« BAR International Series » 2156), 133 p.
- Tarriño A., 2001 - *El sílex en la Cuenca Vascocantábrica y Pirineo navarro: caracterización y su aprovechamiento en la Prehistoria*, Thèse de doctorat, Leioa Universidad del País Vasco, 364 p.
- Tarriño A., 2004 - Los recursos minerales en la Prehistoria, in Agirreazkuenaga J. (dir.), *Nosotros, los vascos. Historia de Euskal Herria. Historia general de los vascos*, Bilbao, LUR, 1, 186-201.
- Tarriño A., 2006 - *El sílex en la Cuenca Vascocantábrica y Pirineo navarro: caracterización y su aprovechamiento en la Prehistoria*, Madrid, Museo Nacional de Altamira (« Monografías » 21), 263 p.
- Thibault C., 1970 - *Recherches sur les terrains quaternaires du Bassin de l'Adour*, Thèse de doctorat, Bordeaux, université Bordeaux I, 4 vol., 840 p.
- Tixier J., 1958 - Les burins de Noailles de l'Abri André Ragout. Bois-du-Roc, Vilhonneur (Charente), *Bulletin de la Société préhistorique française*, 55 (10), 628-644.

Valle Gómez A., Serna Gancedo M. L., 2002 - Fuente del Salín, in Serna Gancedo M. L., Valle Gómez Á., Smith P. (dir.), *Las cuevas con arte paleolítico en Cantabria*, Asociación Cántabra para la Defensa del Patrimonio subterráneo, 57-62.

Vezián J., Vezián J., 1966 - Les gisements de la grotte de Saint-Jean-de-Verges (Ariège), *Gallia Préhistoire*, 9 (1), 93-130.

Yravedra J., 2006 - Zooarqueología y tafonomía en el yacimiento paleolítico de Amalda, in Haws J. (dir.), *Zooarchaeological Issues in Iberian Archaeology*, Actas del IV<sup>e</sup> Congreso de Arqueología Peninsular, Faro, 2004, 129-136.



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