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HUNTING CAMPS IN PREHISTORY

Current Archaeological Approaches



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Article outline

ARCHAEOLOGICAL SIGNATURES OF HUNTING ACTIVITIES APPLIED TO COMPARISONS OF MOUSTERIAN, CHATELPERRONIAN AND AURIGNACIAN INDUSTRIES IN THE PYRENEES:

the Nature of Hunting Tools and Site Functions

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Abstract

Comparisons of lithic industries originating from a sample of sites in the Pyrenees and their Vasco-Cantabrian extension show the existence of different degrees of functional specialization, and that this specialization was more pronounced in Chatelperronian contexts than in Aurignacian ones. In the Chatelperronian, specialized sites where hunting activities took a major place ("hunting camps") are correlated to consisted of occupations that had diverse functions, while in the Aurignacian there was only one site type: multifunctional installations where hunting was an important activity, but not the only one. To correctly interpret these results, however, we must consider the difficulty of comparing the functional attributes of industries with very different weapon systems; it is necessary to take into account the relative visibility, from one assemblage to another, of hunting weapons armed with apical lithic points (Chatelperronian model) as opposed to instruments armed with antler or wood points, only some of which had retouched or non retouched bladelets attached to them (Early Aurignacian model).

This methodological discussion of the archaeological attributes of hunting activities depending on the contexts and the industries considered becomes even more pertinent when we go back even further in time to compare these data with those the Late Mousterian in this same region.

That being, the combination of two criteria - the nature of hunting equipment and the probable specialization of some sites in relation to this activity - allows us to address questions concerning the reasons for this apparent contrast between the Chatelperronian and the cultures by which it is preceded and followed. This approach can lead to new research perspectives on the evolution of human behavior at the time of change from the Middle to Upper Paleolithic.

Keywords

Pyrenees, Mousterian, Chatelperronian, Aurignacian, hunting equipment,
archaeological attributes of activities, site function, social organization of hunting.

1 - Introduction

Recent research on Mousterian, Chatelperronian and Aurignacian industries have focused on the nature of the hunting weapons used in each of these traditions (Pelegrin, 1990; O’Farrell, 2005; Shea, 2006; Tartar *et al.*, 2006; Villa, Lenoir, 2006; Normand *et al.*, 2008). A comparative analysis of the results obtained led to the hypothesis that the conception of hunting weapons and the role they played in lithic and osseous (for the Aurignacian) systems was one of the main instigators for the technical evolution perceived between the end of the Middle Paleolithic and the beginning of the Upper Paleolithic (Bon, 2005; Teyssandier, 2007; Teyssandier *et al.*, 2010). In contrast to what we observe in the Mousterian, the conception of points to be used as hunting weapon armatures became a major preoccupation of the artisans of the Chatelperronian, initiating a technological orientation that was widely pursued by Aurignacian artisans (who added points made with osseous materials to the lithic ones). Extending this idea, it was proposed that this technological transformation was influenced by underlying sociological transformations – a greater “individuality” of hunting equipment could indicate a greater “individualization” of the hunter himself (Bon, 2009). This interpretation is also based on the idea, inspired by ethnological research, that there is a close relationship between the nature of hunting weapons and the sociology of hunting (Testart, 1985). Starting from this idea, we can in effect suggest that the Mousterian weapons – if they indeed consisted of lances used as thrusting spears (Shea, *op. cit.*; Villa, Lenoir, *op. cit.*) – were used in the context of collective hunting activities, while thrown weapons, whose invention could have indeed led to the development of stone and bone armatures, would be better adapted to more individual hunting practices¹.

This type of model is mainly based on technological arguments, without consideration of the nature of the sites or the territorial organization with which they are associated. This is nonetheless the direction that should now be followed, while trying to integrate this procedure within a dialectic combining the nature of the weapons and prey, the more or less collective nature of the hunting strategy and the socio-economic distribution of activities within a territory². To be effective, such a study must of course include the contribution of zooarchaeological approaches. It is also necessary, however, to define the methodological principles involved in the study of industries alone in order to address the problem of site function, which is a preliminary step in any attempt to construct a model of territorial exploitation.

This article focuses on this procedure and we thus chose to compare a sample of sites located in the central and western Pyrenees (figure 1). The starting point of our study was the site of Brassempouy (Landes) because a clear distinction between the activities realized by Chatelperronian groups and Aurignacian groups has already been identified based on studies of their respective industries (Buisson, Delporte, 1990; Bon *et al.*, in press). After presenting the data collected at this site and then exploring their value as an example based on comparisons with other Chatelperronian and Early Aurignacian sites in the Pyrenees, we will address a broader

-
1. In support of these ideas, we can cite the work of Steven Kuhn and Mary Stiner (2006). Based on the type of prey sought, they conclude a more frequent use of hunting strategies involving all members of the group during the Mousterian than in later periods, during which they believe there was a greater sexual division of labor. They also argue that the preference of Middle Paleolithic hunters for large prey animals, and at the same time, their disdain for small prey, indicates the participation of the entire group, including men, women and children, in their capture.
 2. This procedure is inspired by those applied in other chronological contexts, particularly the Tardiglacial (Pelegrin, 2000; Valentin, 2008; Bodu *et al.*, this volume).

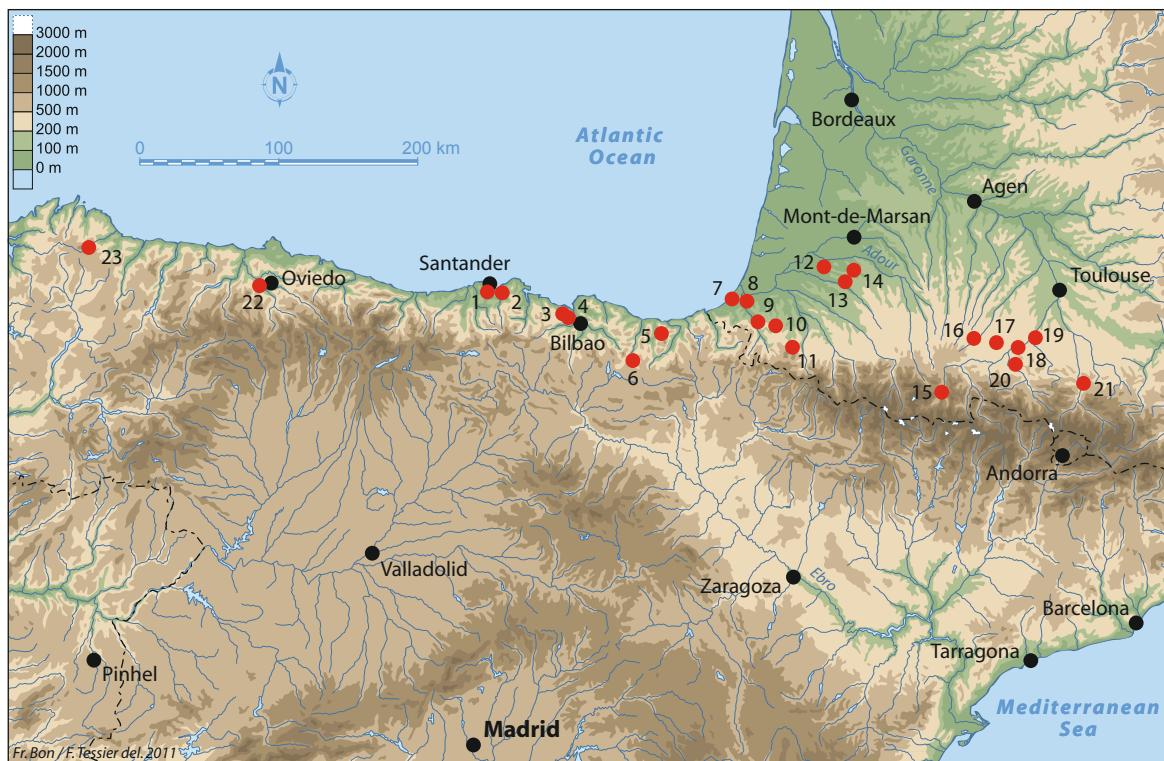


Figure 1 - Distribution map of the Pyrenean and Cantabrian sites mentioned in the text. 1: El Pendo; 2: Morín; 3: Polvorin; 4: Venta Laperra; 5: Ekain; 6: Labeko Koba; 7: Chabiague; 8: Le Basté; 9: Olha; 10: Isturitz; 11: Gatzarria; 12: Bouheben; 13: Brassempouy; 14: Garet; 15: Le Noisetier; 16: Les Abeilles; 17: Aurignac; 18: Mauran; 19: Les Tambourets; 20: Tarté; 21: Tuto de Camalhot; 22: La Güelga; 23: Valina.

chronological range, including the intermediary phase represented by the Archaic Aurignacian (also known as the Protoaurignacian), and the earlier Mousterian phase. Through a confrontation of these different contexts, we will attempt both to determine whether an evolutionary trajectory is perceptible, or not, in the territorial organization of the human groups that lived during the phase of transition between the Middle and Upper Paleolithic, and to contribute to methodological discussion concerning the contribution of the observations made.

2 - The Chatelperronian and Aurignacian occupations at Brassempouy: from a hunting camp to a residential base camp

In the interval between approximately 37 and 32000, the Grotte des Hyènes and the Abri Dubalen at Brassempouy were occupied by a succession of human groups belonging the Chatelperronian and Aurignacian traditions (figure 2 ; table 1). Our knowledge of some of them is rather scarce, however, due to the geological history of the site: the preservation of remains attributed to the Early Aurignacian is much better than that of the earlier Archaic Aurignacian and Chatelperronian phases, whose levels were subject to heavy erosion. This partly explains the small size of the Chatelperronian lithic assemblages, represented by only a few hundred pieces, while the Early Aurignacian assemblages are composed of several thousands of pieces, allowing much more precise determinations of the activities realized by the groups belonging to this culture (Henry-Gambier, Bon, in press).



Figure 2 - Brassempouy (Landes): views and stratigraphic drawing of Abri Dubalen (photograph: Fr. Bon).

Table 1 - Brassempouy (Landes): radiometric dates obtained from bone samples originating from the Chatelperronian and Aurignacian levels of the Grotte des Hyènes and Abri Dubalen ("classic" and AMS methods; after Fontugne, *in* Henry-Gambier, Bon, *in* preparation).

Sectors of the site of Brassempouy	Level(s)	Archaeological culture	Radiocarbon dates of bone (non calibrated BP dates)
Grotte des Hyènes	Level 2A, top of the Aurignacian sequence	Early Aurignacian	33 100 ± 920 (GifA-101093)
	Levels 2A-2C, top of the Aurignacian sequence		31 690 ± 780 (Gif-8569) 31 820 ± 550 (Gif-8568) 32 190 ± 620 (Gif-8174)
	Level 2D/2F, middle part of the Aurignacian sequence		30 100 ± 400 (Gif-9031)
	Level 2E, middle part of the Aurignacian sequence		31 960 ± 160 (Gif/LSM-11035)
	2DE, base of the Aurignacian sequence		32 410 ± 370 (GifA-98105) 33 600 ± 240 (Gif/LSM-11034)
	2F, base of the Aurignacian sequence		34 810 ± 540 (GifA-101094)
Abri Dubalen	I2	Early Aurignacian	31 520 ± 360 (GifA-98106)
	Ebc1	Archaic Aurignacian	<i>No dated</i>
	Ebc2, top of the Chatelperronian sequence	Chatelperronian	36 130 ± 690 (GifA-101045)

Beyond such taphonomic contrasts and their consequences for the sources of the present study, the assemblages attributed to the Chatelperronian contain a very high proportion of a single category of retouched objects, Chatelperronian points (figure 3), represented by 42 pieces versus only 5 other tools³. An analysis of these objects reveals the dominant role of one category of activities, hunting and probably butchery. In addition, most of these tools were not produced in place, but were imported in the form of finished products. While the assemblage includes very few artifacts indicating the manufacturing of blanks for these tools, several of them (12; figure 4) display macroscopic impact traces indicating that they were used as weapon armatures – though this does not exclude the possibility that some of them were used as knives, according to a hypothesis that is frequently proposed (see Pelegrin, 1995), but which cannot be confirmed here as microwear analyses have not been performed.

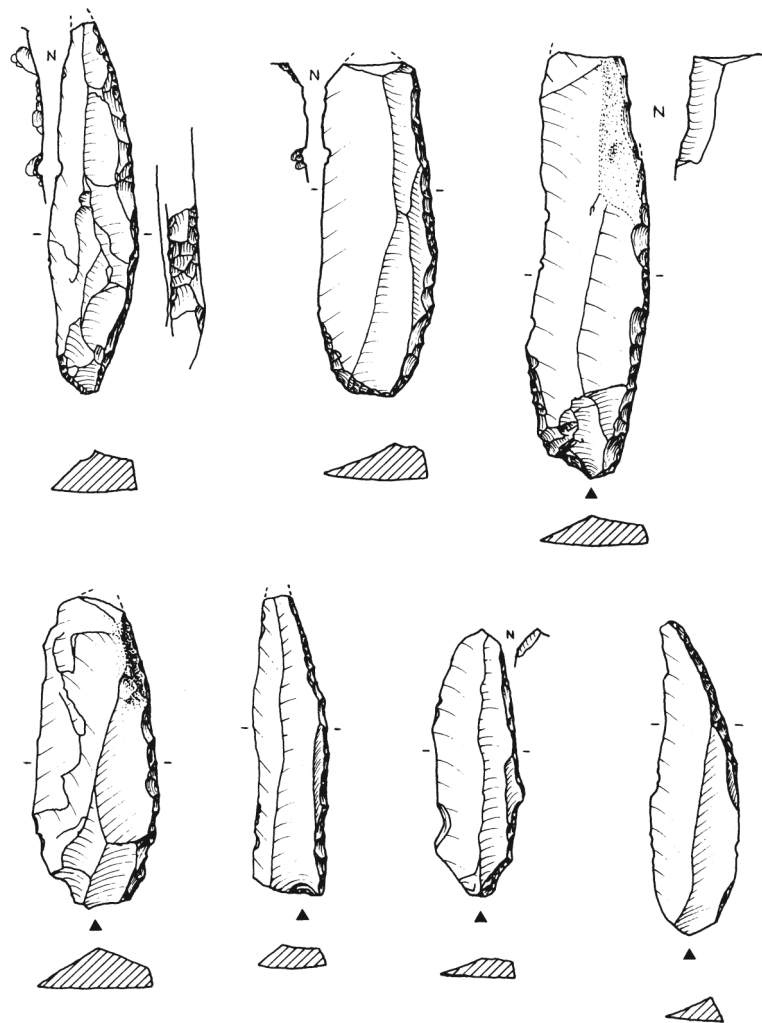


Figure 3 - Brassempouy (Landes), Chatelperronian: sample of Chatelperronian points from Abri Dubalen (after Buisson, Delporte, 1990, modified; drawings: D. Buisson).

3. These counts concern the Chatelperronian artifacts in only the Dubalen sector, which contains the largest assemblage at the site, though it is also probably very partial (approximately 200 pieces; study by J. Pelegrin, J. Primault). The other tools mentioned are a denticulate on a blade, a very thin, broken end-scraper front, a fragment of a retouched blade, a bladelet with light, direct use retouch and a small fragment of a tool that cannot be oriented. Many of these objects may be attributable to intrusions from the overlying Aurignacian levels.

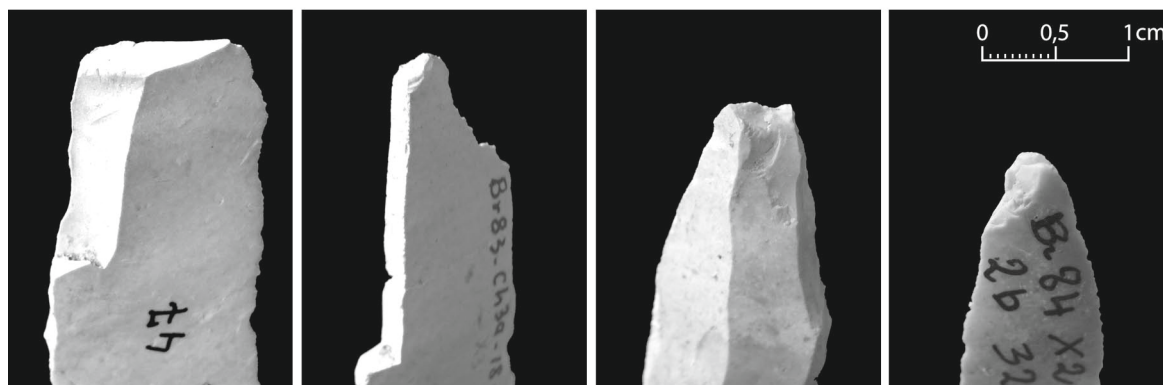
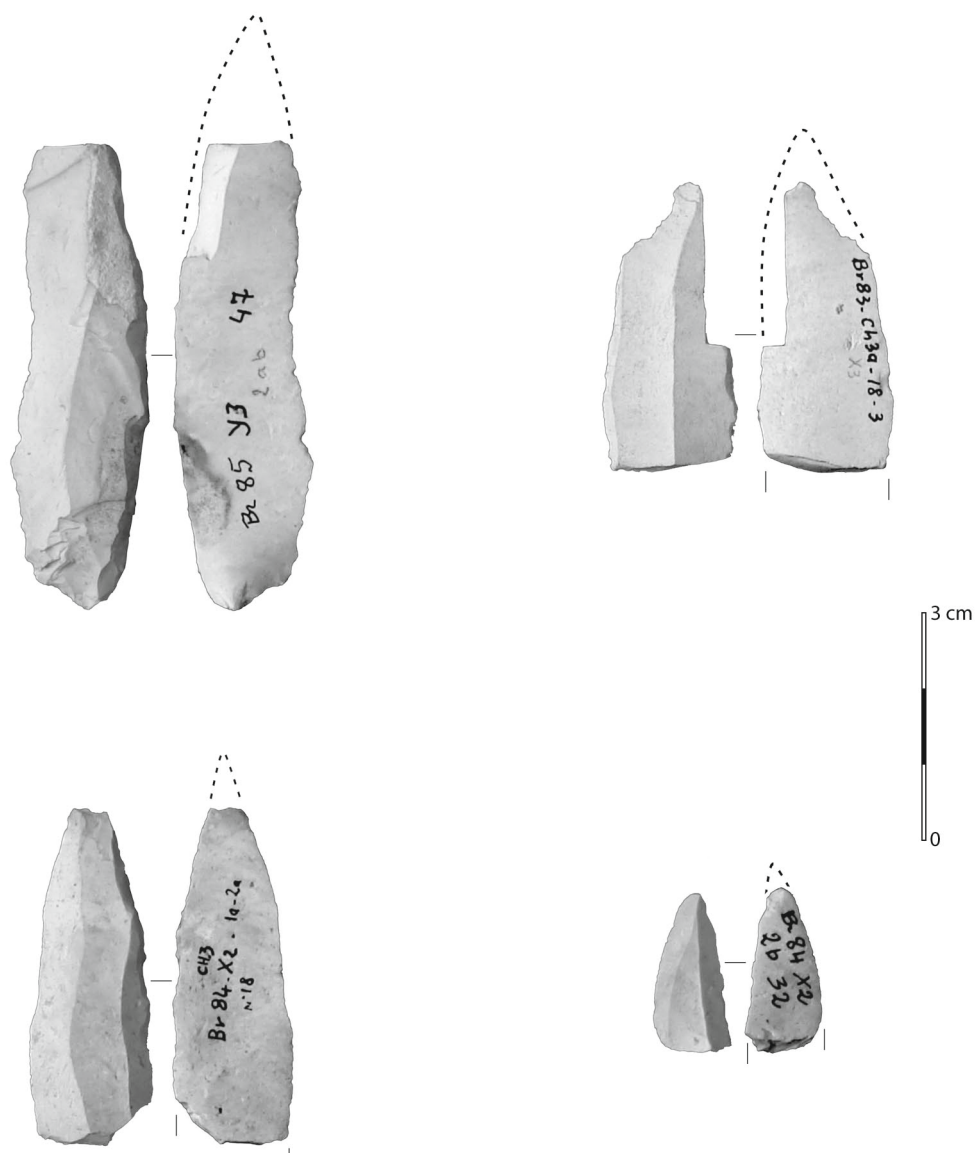


Figure 4 - Brassempouy (Landes), Chatelperronian: 4 Chatelperronian points from Abri Dubalen (excavations Delporte, Buisson 1983-1985 with apical shock stigmata indicating use as a weapon armature (photographs: J. Pelegrin; layout: G. Monthel)

In contrast, the Aurignacian artifacts, or at least the Early Aurignacian ones, are not only much more abundant, but represent a much greater range of activities (Bon, 2002; figures 5-6). This is also shown by the other artifact categories, including bone and antler tools, personal ornaments, etc. (Henry-Gambier *et al.*, 2004; Henry-Gambier, Bon, *op. cit.*; Tartar, 2009). Therefore, throughout the long stratigraphic sequence in the Grotte des Hyènes, taking into account the fact that each of the sedimentary units identified corresponds to the accumulation of remains associated with the several human occupations, there is every indication that those of the Early Aurignacian correspond to seasonal residential base camps⁴, rather than the “hunting camps” identified in the Chatelperronian.

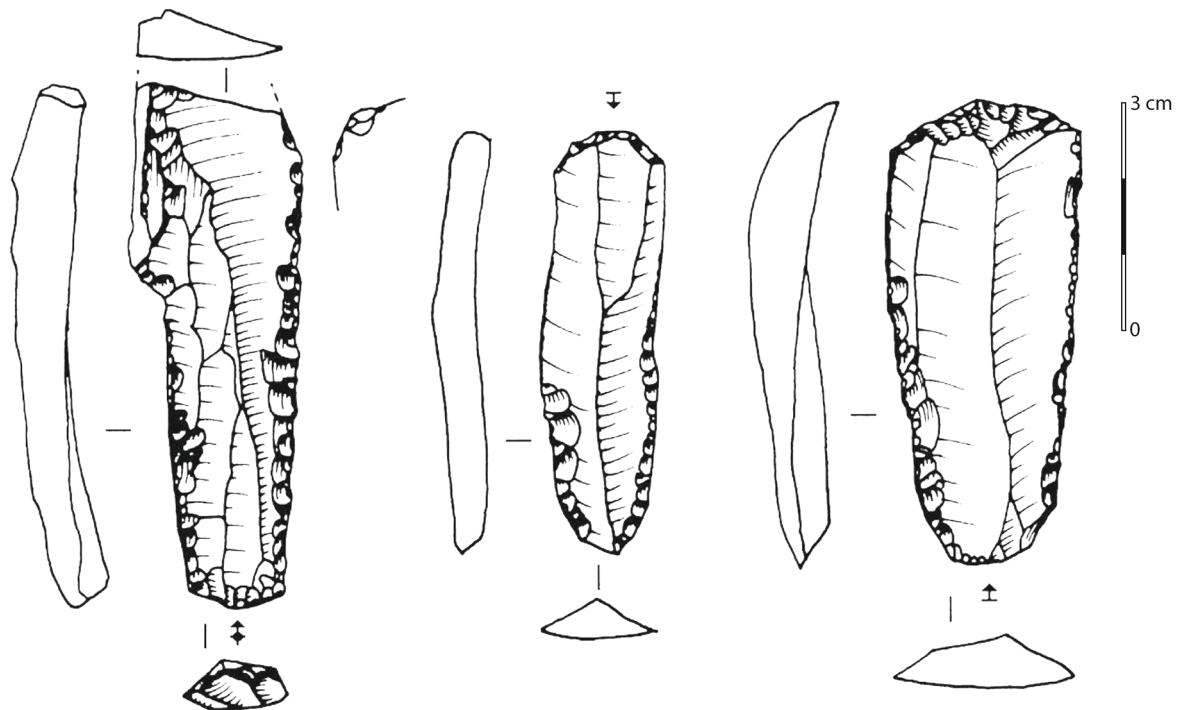


Figure 5 - Brassempouy (Landes), Early Aurignacian: end-scrapers on a blade and retouched blade from Grotte des Hyènes, level 2F (drawings: Fr. Bon).

Since we have just employed the terms, “hunting camp” and “residential base camp”, we should present the currently available elements for defining them, still based solely on the tools. The first of these terms is based on the presence of tools used to procure prey animals and the primary processing of carcasses (weapons and knives), though it also implies the absence of other elements, such as the absence of tools associated with hide working (bone smoothers, needles and awls and/or stone scrapers). We would expect to find these tools in residential base camps, on the other hand, representing the diverse activities performed there and longer occupation duration.

4. The zooarchaeological analysis indicates that this could be a summer camp (Letourneux, 2005).

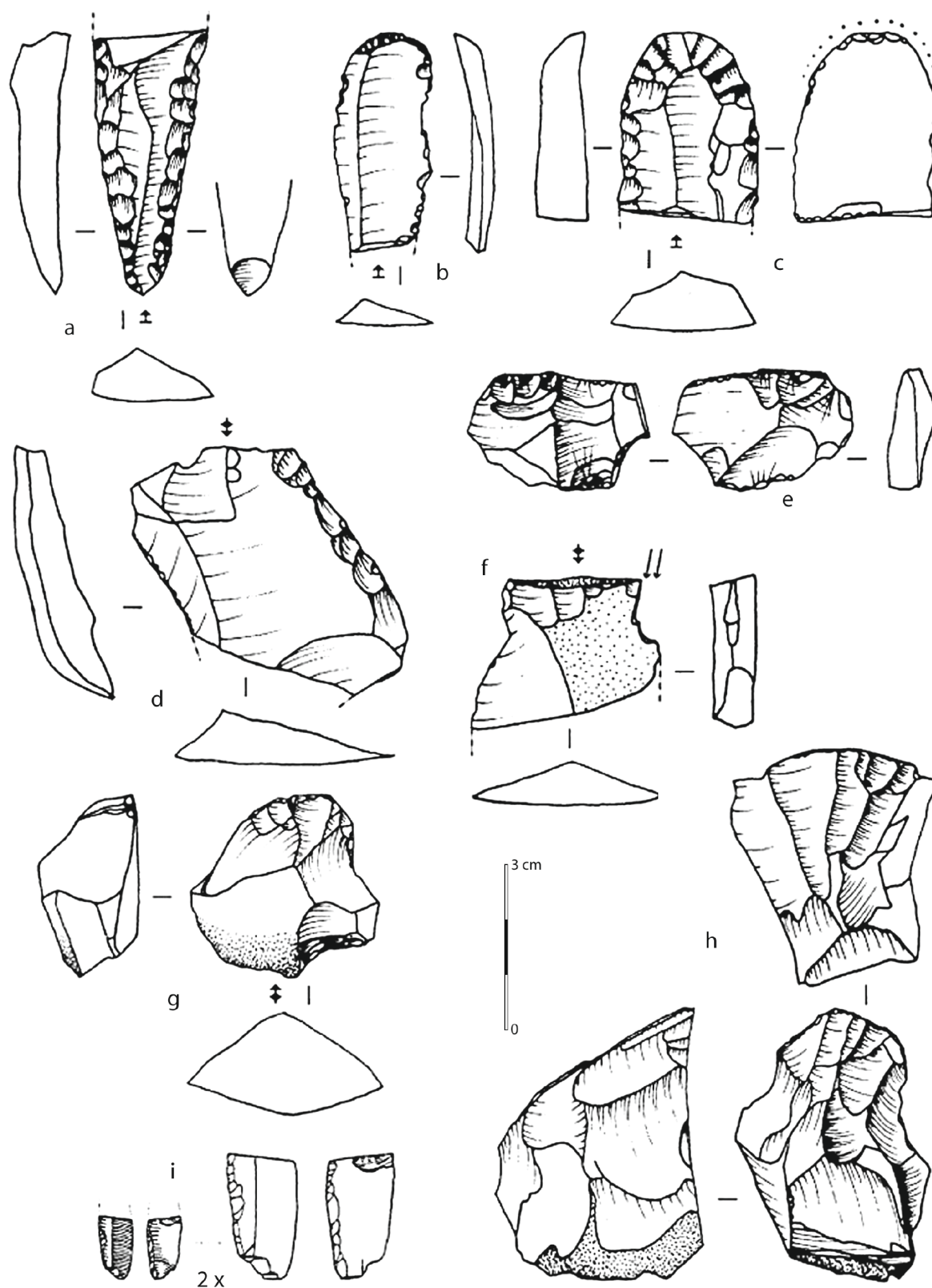


Figure 6 - Brassempouy (Landes), Early Aurignacian: sample of the lithic artifacts from Grotte des Hyènes, level 2A. a-c: end-scrapers on a blade and retouched blade; d: side-scraper; e: bipolar flake (splintered piece); f: burin; g: nosed scraper (core?); h: carinated core; i: Dufour bladelet (after O'Farrell, 2005; drawings: Fr. Bon except i: J.-G. Marcillaud).

3 - Are there other Chatelperronian “hunting camps” in the Pyrenees?

In the Pyrenees and their Vasco-Cantabrian extension, other than Morín (Maíllo Fernández, 2003) and to a lesser extent, Gatzarria (Laplace, 1966; Saenz de Buruaga, 1991), all the Chatelperronian sites in caves and rock shelters seem to represent very irregular occupations based on their assemblages that are often dominated by a single tool type, the Chatelperronian point.

However, as noted by J. M. Maíllo Fernández, most of these sites (El Pendo, La Güelga, Polvorín, Valiña, Venta Laperra and even Ekaïn) are affected by taphonomic disturbances (mainly in the form of mixed assemblages containing Mousterian and / or Upper Paleolithic artifacts), often limiting the contribution of the observations that have been made at these sites. In addition, the interpretation of Labeko Koba (Arrizabalaga, Altuna, 2000), one of the few sites in this region not subject to such taphonomic disturbances, while appearing to correspond to a “hunting camp” (based on the scarcity and nature of its artifacts), has been nuanced by an exhaustive microwear analysis of the small assemblage of level IX (containing approximately 80 lithic pieces, 12 of which are retouched; figure 7). Despite the small size of this assemblage, this analysis shows a relative diversity of activities, the presence of tools dedicated to hunting (4 points, two of which have impact traces) and butchery, accompanied by tools used to process hides (including dry ones) (Rios-Garaizar, 2008).

We must thus be cautious in our determinations of the precise function of Chatelperronian occupations in caves and rock shelters. To advance in our study, we must therefore look to a different context, that of open-air sites, several of which are clearly distinct in terms of their function relative to a site such as Brassempouy.

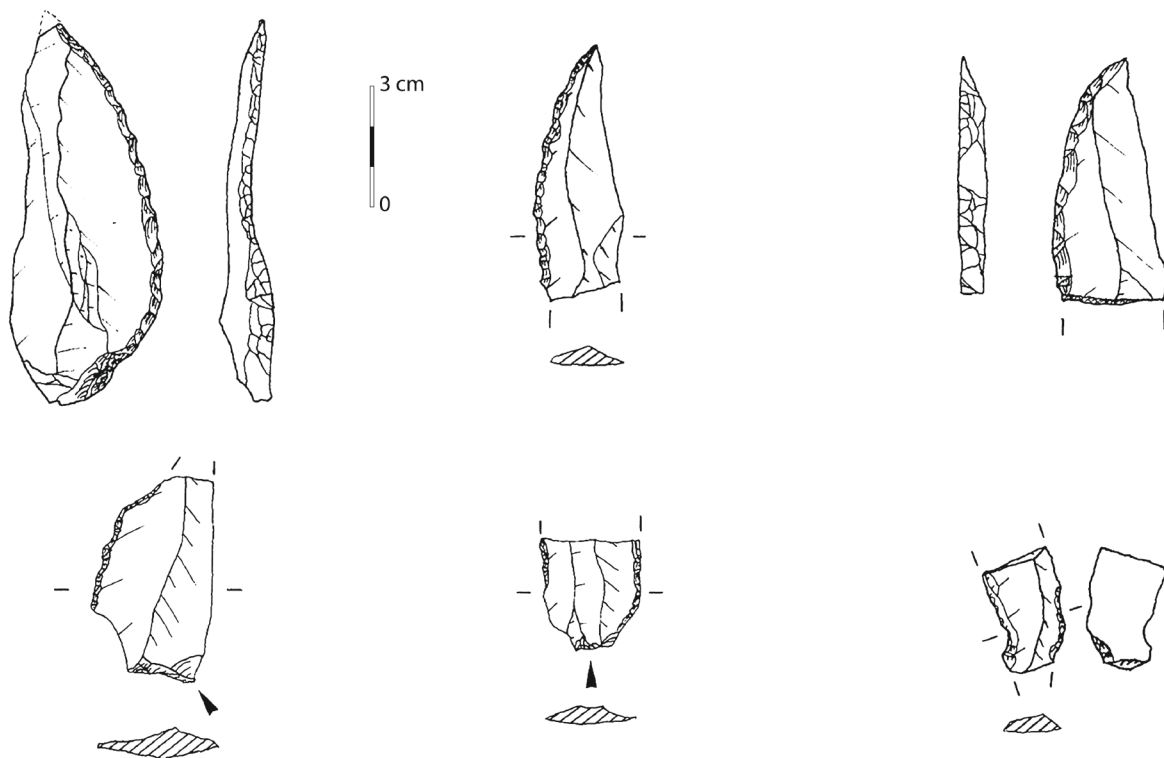


Figure 7 - Labeko Koba (Basque Country), Chatelperronian: Chatelperronian points and retouched blades from level IX (after Arrizabalaga, Altuna, 2000; drawings: A. Arrizabalaga).

4 - The functional complementarity of Chatelperronian open-air sites

Les Tambourets (Couladère, Haute-Garonne) and Le Basté (Saint-Pierre-d'Irube, Pyrénées-Atlantiques) are the two main Chatelperronian open-air sites in the Pyrenees. These two occupations are located in a similar geomorphological context (fluvial confluence zone, near a source of lithic materials) and yielded quantitatively similar lithic assemblages: the Tambourets assemblage, excavated by Harvey Bricker, contains 1621 lithic remains, including 183 retouched tools (Bricker, Laville, 1977; ScandiuZZi, 2008), that of Basté, excavated by Claude Chauchat, is composed of approximately 1 300 pieces, including 70 tools (Chauchat, Thibault, 1968).

An analysis of the lithic industries of these sites shows strong similarities between them (ScandiuZZi *op. cit.*; Bachelierie, 2011). The tools found at both sites are dominated by pieces corresponding to the “residential” or “domestic” category: end-scrapers at Tambourets (108 pieces), and retouched blades and end-scrapers at Basté (a total of 31 pieces; [figure 8](#)), while Chatelperronian

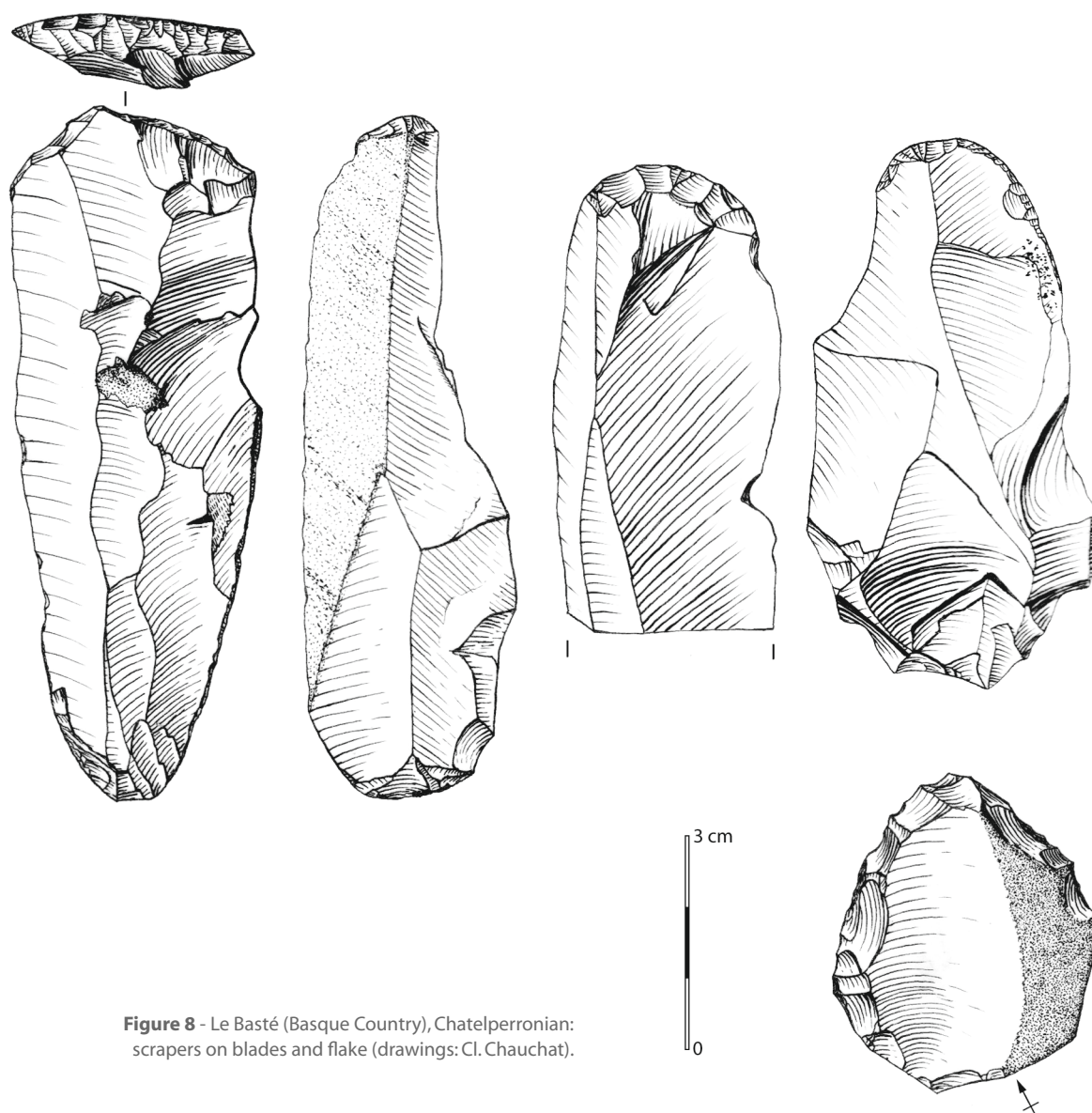


Figure 8 - Le Basté (Basque Country), Chatelperronian: scrapers on blades and flake (drawings: Cl. Chauchat).

points are less frequent (17 at Tambourets and 12 at Basté; figures 9-10). This disproportion is even more remarkable since in both cases the analysis shows that the main intention of the *in situ* flaking was to produce laminar blanks that correspond to the norms sought for Chatelperronian points and, to a lesser degree, retouched blades.

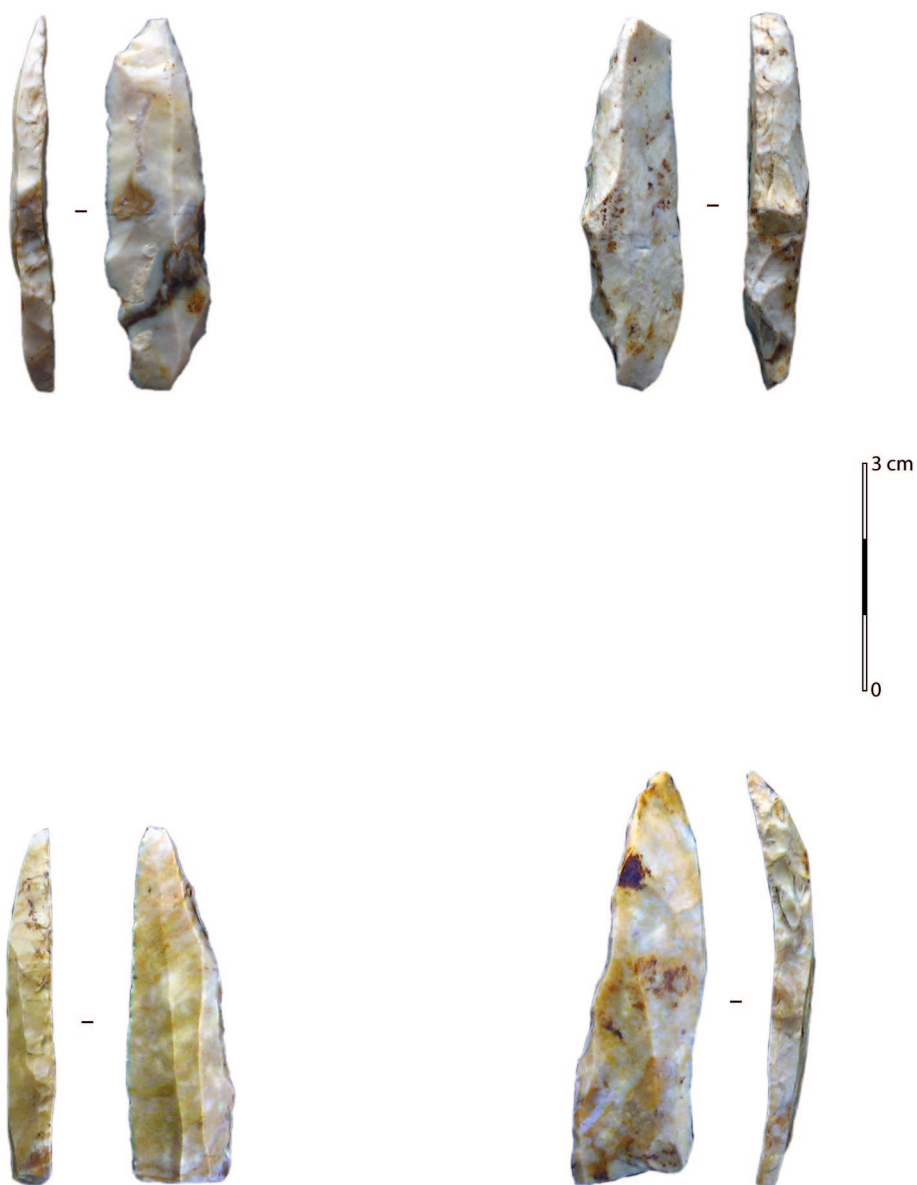


Figure 9 - Les Tambourets , Chatelperronian: sample of Chatelperronian points (Central Pyrenees; photographs: R. Scandiuizzi).

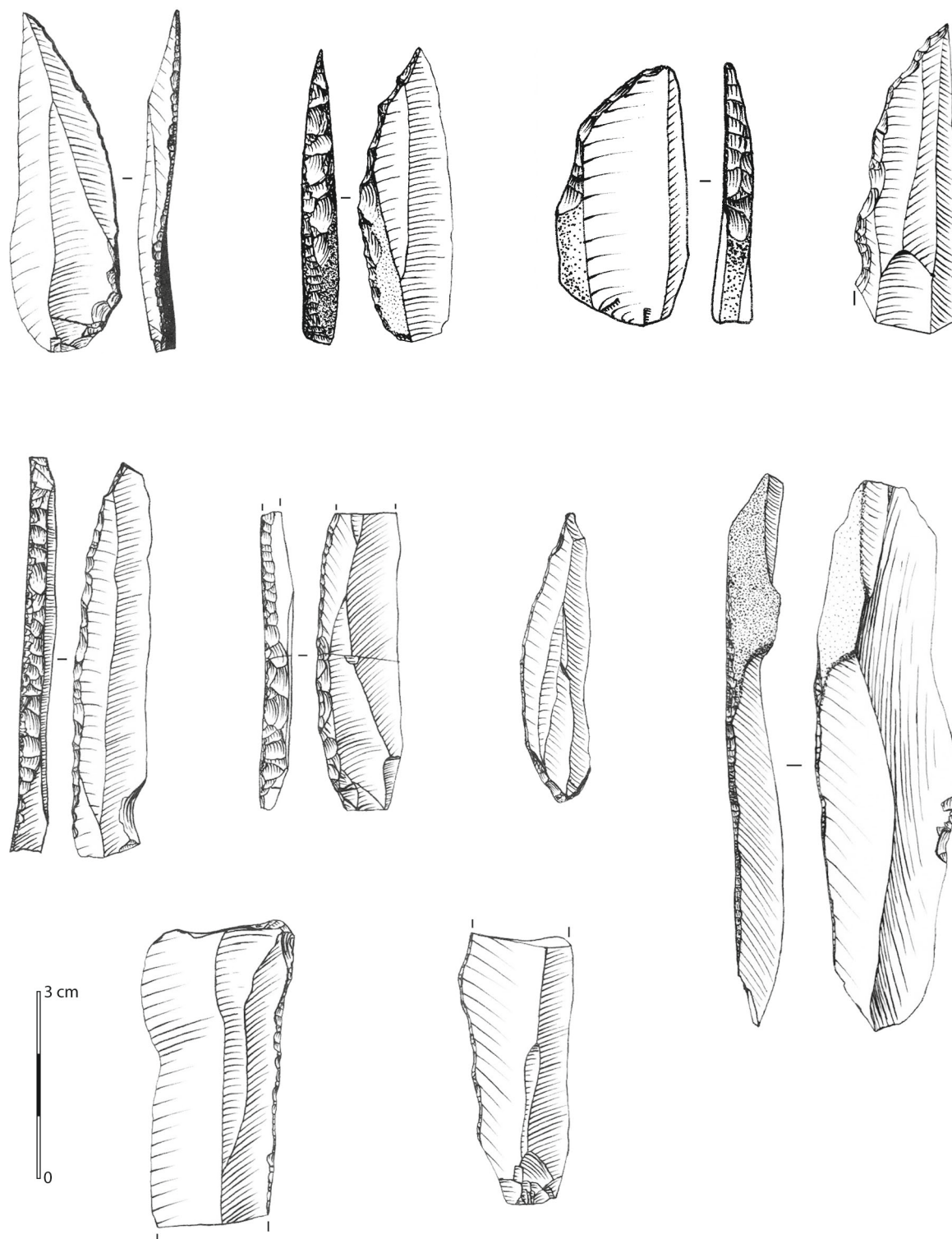


Figure 10 - Le Basté (Basque Country), Chatelperronian: Chatelperronian points and marginally backed blades (drawings: Cl. Chauchat).

In other words, not only do numerous remains indicate the *in situ* production of laminar blanks (figure 11), in contrast to Brassempouy, but others (mostly “domestic” tools, as well as colorants; figures 8, 12) confirm that these were not flaking workshops or hunting camps, but occupations where a much more diverse range of activities was realized. Among these, the manufacturing of Chatelperronian points in preparation for future displacements, as indicated by the lack of this object category in the assemblages, are directly implicated in the debate opened here. In comparison with the data from Brassempouy and, to a lesser extent, Labeko Koba, a certain degree of functional complementarity appears between different Chatelperronian occupations: it seems that supplies of Chatelperronian points were (re)constituted at open-air sites located near raw material sources; these points would then have been taken away for hunting sessions during which short stays at “hunting camps” would have allowed for broken points to be replaced and carcasses to be partially processed before being taken back to the more permanent occupation sites, where the tools were probably manufactured. The open-air sites of Tambourets and Basté thus appear to have been Chatelperronian residential base camps – of a more or less short duration – meaning locations where tools were manufactured and hunted animals were secondarily processed, these latter having been acquired during expeditions that may have been associated with “hunting camps”, such as Brassempouy.

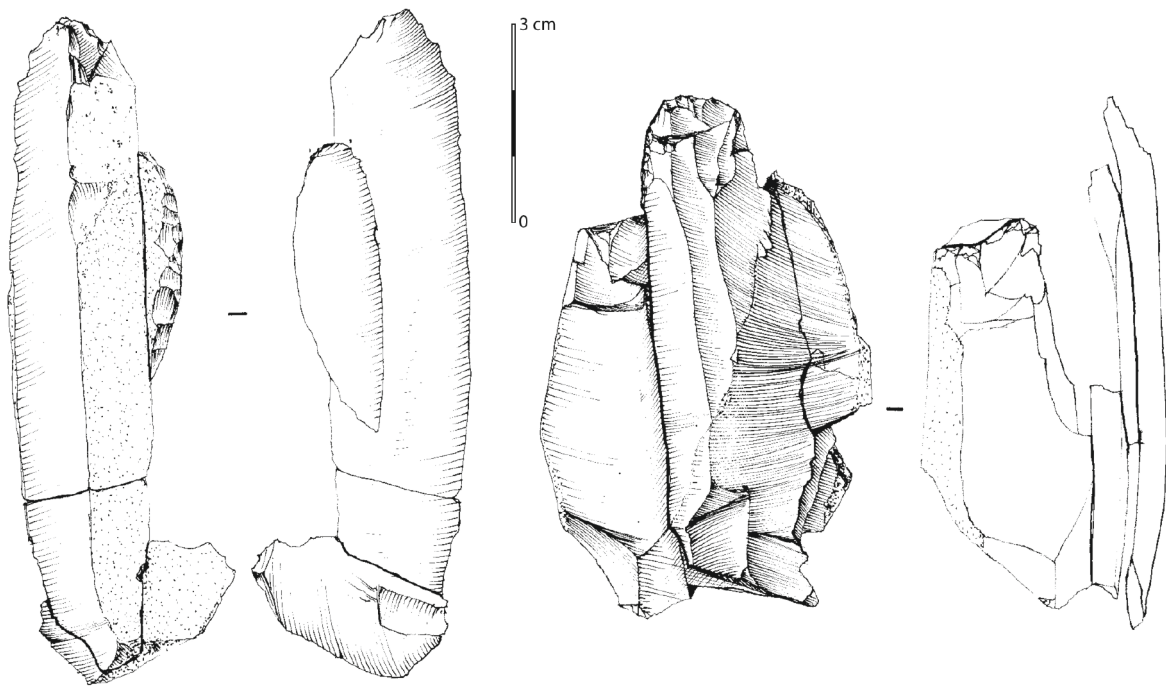


Figure 11 - Le Basté (Basque Country), Chatelperronian: two partially refit laminar production sequences. On the left hand one, we see a blade transformed into a Chatelperronian point (drawings: M. Reduron).

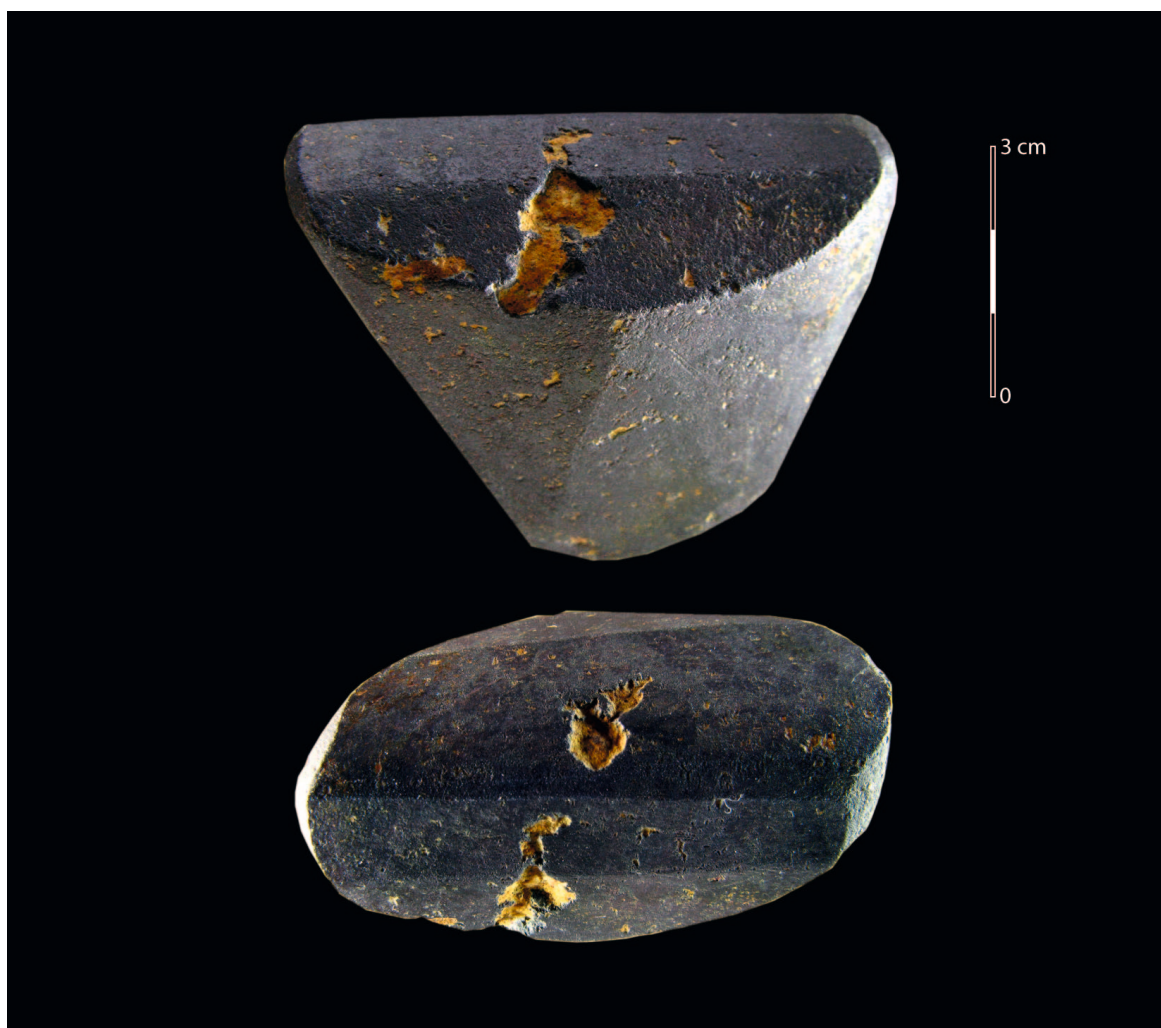


Figure 12 - Les Tambourets (Central Pyrenees), Chatelperronian: hematite block with facets resulting from intensive scraping activity (photograph: R. ScandiuZZi).

5 - An apparent absence of Aurignacian “hunting camps”

In Early Aurignacian contexts, we always find a large diversity of artifacts, as at Brassempouy, in all the other cavities of the northern face of the French Pyrenees and their Vasco-Cantabrian extension occupied by groups belonging to this tradition, such as at Tuto de Camalhot (Saint-Jean-de-Verges, Ariège), Tarté (Cassagne, Haute-Garonne), Aurignac (Haute-Garonne), Les Abeilles (Montmaurin, Haute-Garonne), Gatzarria (Ossas-Suhare, Pyrénées Atlantiques), Isturitz (Isturitz and Saint-Martin-d’Arberoue, Pyrénées Atlantiques) and Labeko Koba (Laplace, 1966; Bon, 2002; Bon *et al.*, 2005; Normand, 2005-2006, 2006; Laplace *et al.*, 2006; Arrizabalaga *et al.*, 2007; Eizenberg, in press). In addition, among the sites with a long Aurignacian sequence, such as Les Abeilles, Gatzarria and Isturitz ([table 2](#)), traces of multiple activities are already present in the Archaic Aurignacian and continue into the later phases of this culture, following the Early Aurignacian ([figures 13-16](#)).

Table 2 - Stratigraphic sequences of the main sites included in this study.

	No. on the map in figure 1	Nature of the site	Mousterian	Chatelperronian	Archaic Aurignacian	Early Aurignacian
Olha	9	rock shelter				
Le Noisetier	15	cave				
Bouheben	12	open-air				
Mauran	18	open-air				
Les Tambourets	19	open-air				
Le Basté	8	open-air				
Gatzarria	11	cave				
Labeko Koba	6	cave				
Brassempouy	13	cave				
Isturitz	10	cave				
Les Abeilles	16	cave				
Aurignac	17	rock shelter				
Tarté	20	cave				
Tuto de Camalhot	21	cave				
Garet	14	open-air				



Figure 13 - Gatzarria (Basque Country), Archaic Aurignacian: sample of the Protoaurignacian industry from level cjn2. 1: core; 2: maintenance by-products, including the right hand one reworked with a distal truncation; 3: end-scrapers; 4: Dufour bladelets (photographs: L.Eizenberg).

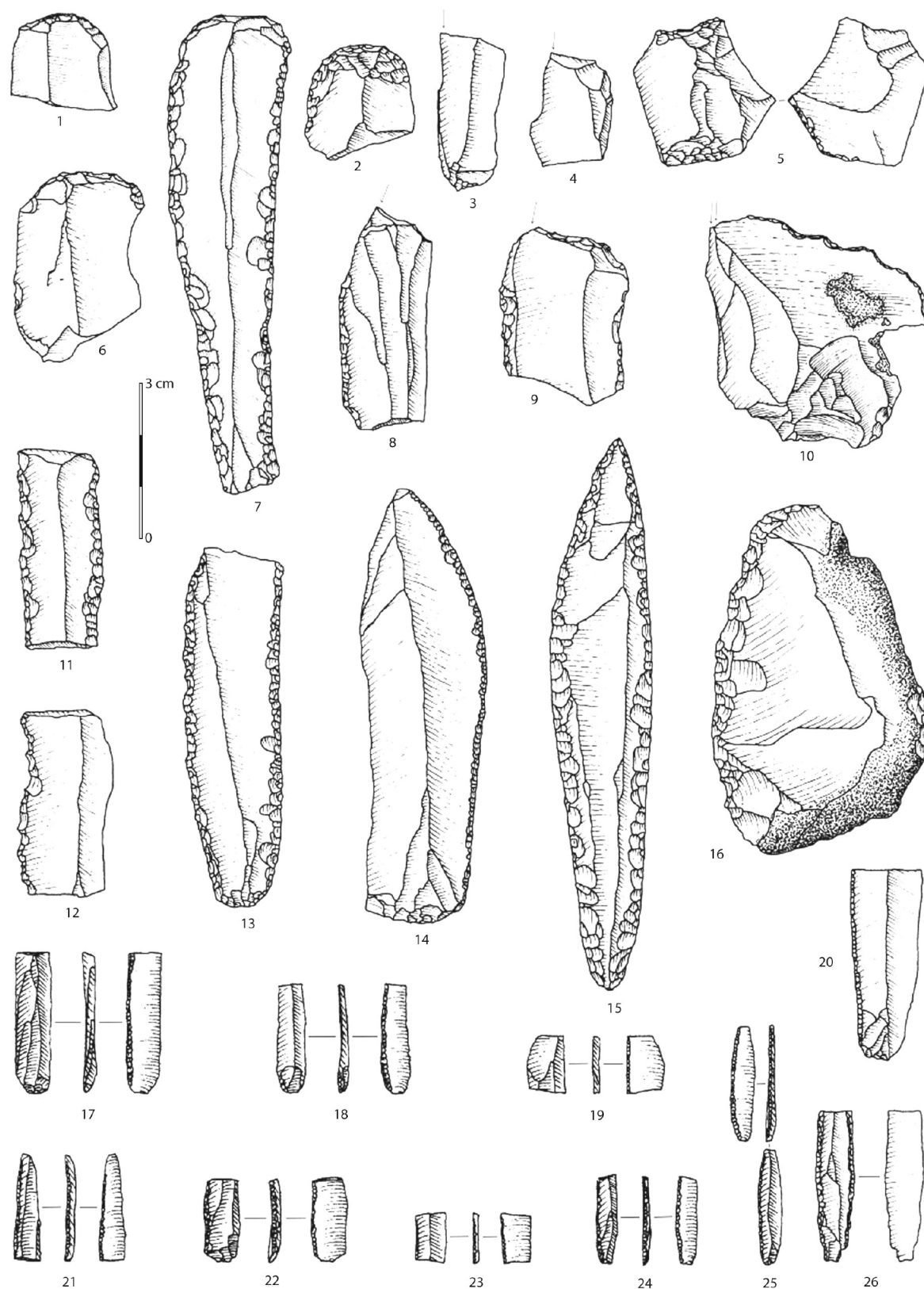


Figure 14 - Isturitz (Basque Country), Archaic Aurignacian: lithic tools. 1, 2 and 6: end-scrapers on a blade; 7: end-scraper on a retouched blade; 3 and 4: burins on a break; 8 to 10: burins on a truncation; 5: bipolar flake (splintered piece); 11, 13, 14 and 20: retouched blades; 12: blade with a denticulated edge; 15: pointed blade; 16: side-scraper; 17 to 19 and 21 to 26: retouched bladelets. (drawings: Chr. Normand).

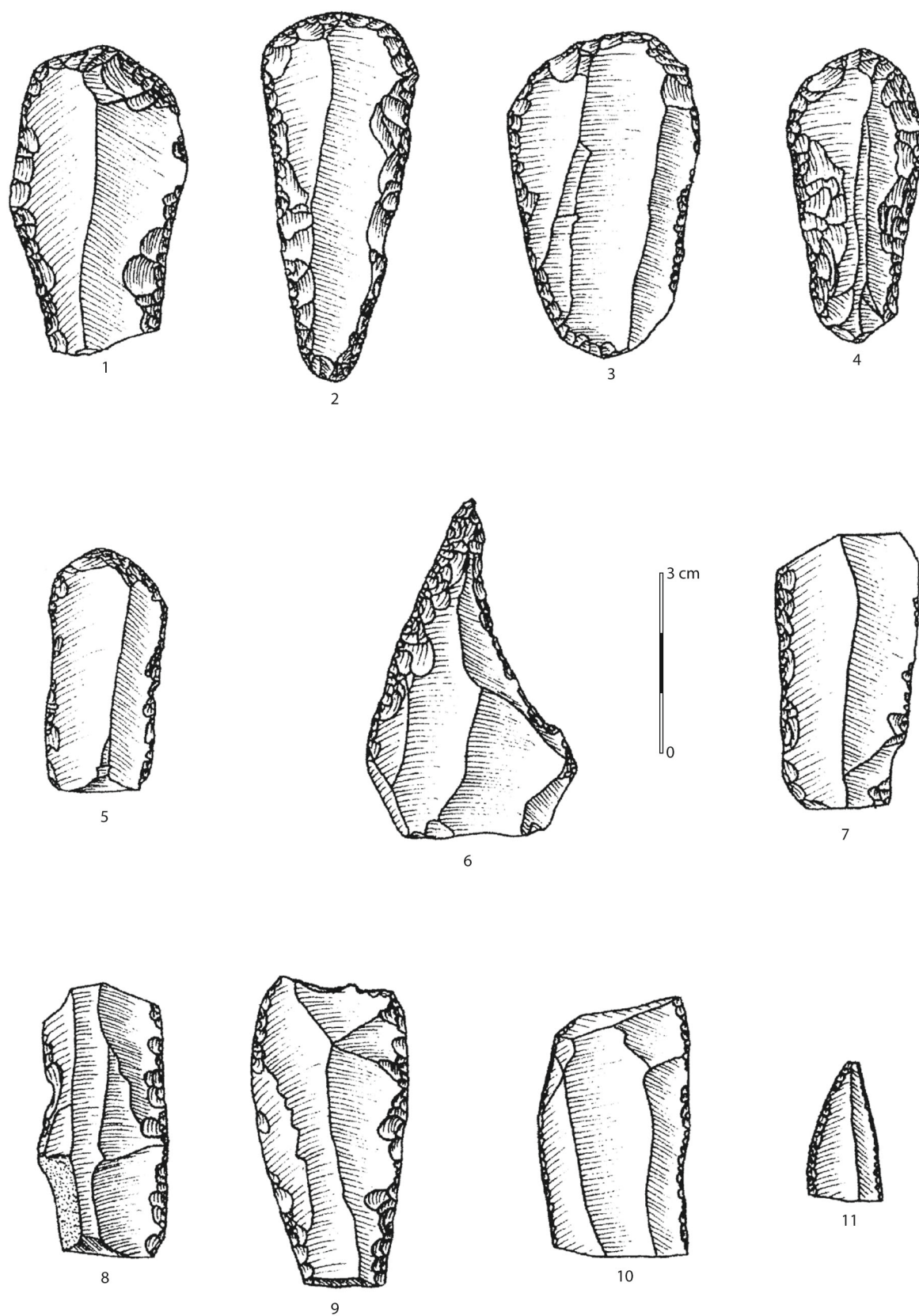


Figure 15a - Isturitz (Basque Country), Early Aurignacian: lithic tools. 1, 3 and 5: end-scrapers on a retouched blade; 2 and 4: end-scrapers on an Aurignacian blade; 6: piercing tool; 7 to 11: retouched blades (drawings: Chr. Normand).

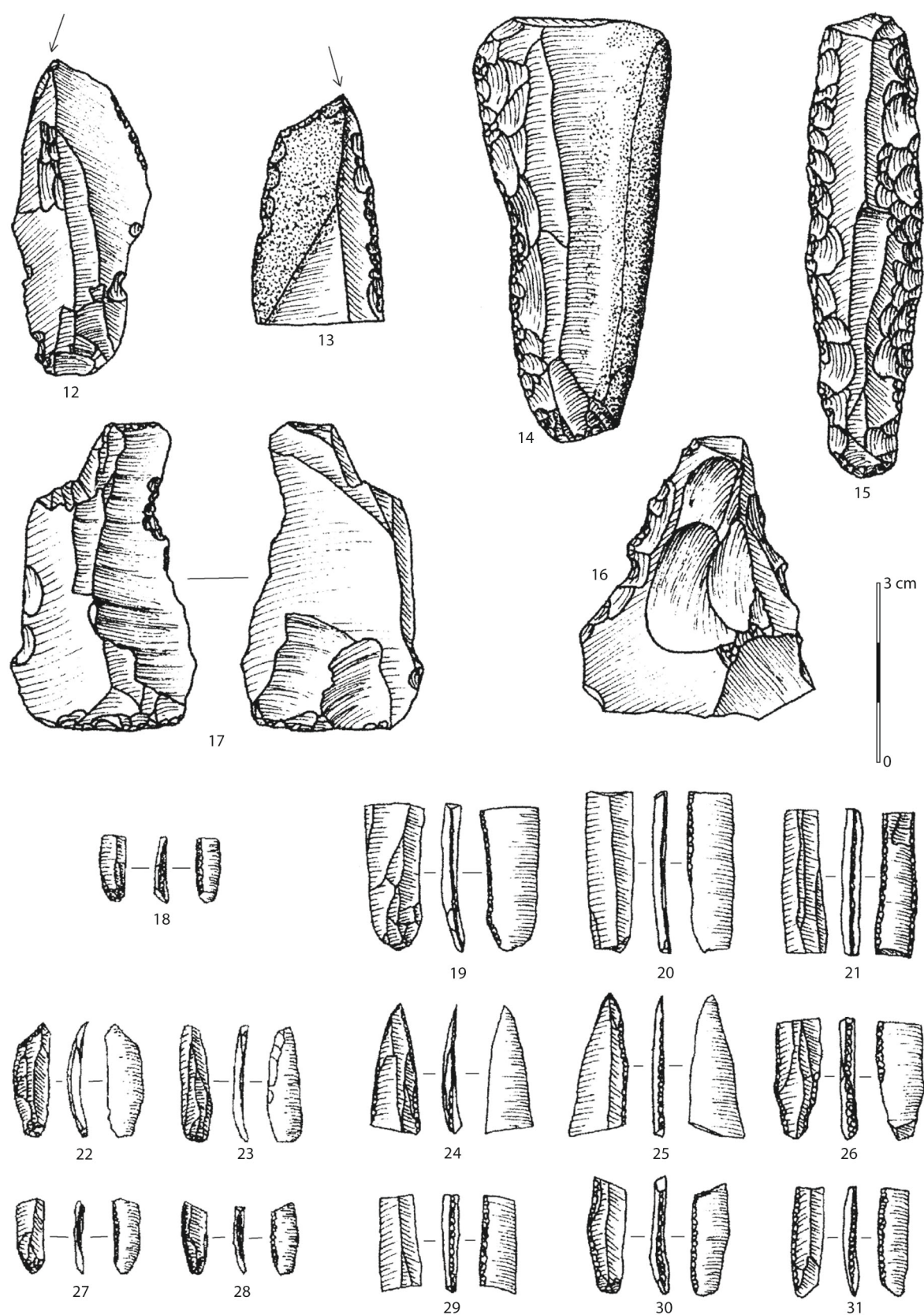


Figure 15b - Isturitz (Basque Country), Early Aurignacian: lithic tools. 12 and 13: burins on a truncation; 14 and 15: blades with Aurignacian retouch; 16: denticulate; 17: bipolar flake (splintered piece); 18 to 31: retouched bladelets (drawings: Chr. Normand).

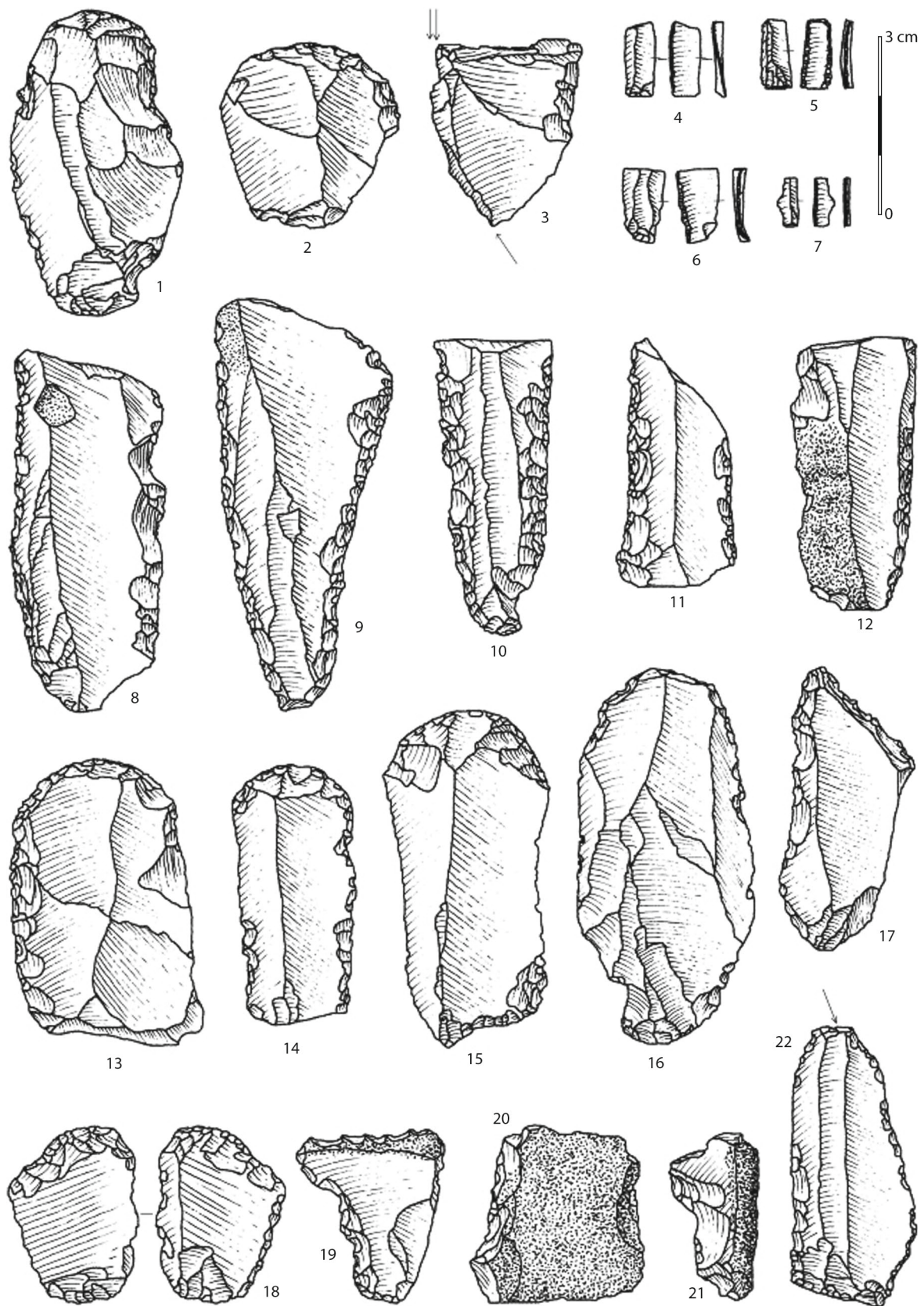


Figure 16 - Isturitz (Basque Country), Early/Late Aurignacian: lithic tools. 1: carinated core; 2: end-scaper on a flake; 3: core on an edge; 4 to 7: retouched bladelets; 8, 9, 11 and 12: retouched blades; 10: blade with Aurignacian retouch; 13 and 14: end-scrapers on a retouched blade; 15-16: end-scrapers on a blade; 17: bec; 18: bipolar flake (splintered piece); 19 and 20: denticulates; 21: notched piece; 22: burin on a truncation (drawings: Chr. Normand).

Nonetheless, the abandoned artifacts logically attest to the major role played by hunting. A functional analysis of assemblages from Isturitz shows that most of the activities performed there were linked to hunting and occurred either before (manufacturing of weapon armatures; figure 17) or after (removal of meat, tendons, skin, hide processing, probable manufacturing and possible decoration of clothing or objects, etc.; Normand *et al.*, *op. cit.*; Rios Garaizar, Normand, in press). Some hunted animals thus contributed to body ornamentation, such as fox and red deer at Gatzarria (figure 18; Saenz de Buruaga, 1989)⁵. Whatever the case, the diversity of activities observed at these sites indicates once again that they were residential base camps.

However, one of the biases of our study concerns the small number of Aurignacian open-air sites. Unknown for the archaic phase, their presence is mainly known through surface collections of Early Aurignacian sites. However, other than a few examples of “flaking workshops”, such as those found in other regions, such as the Dordogne (Chadelle, 1990; Bordes, Tixier, 2006)⁶, the open-air sites recorded have yielded artifact assemblages similar to those found in caves and, like these latter, appear to correspond to occupations with multiple activities⁷. This is the case, for example, at the site of Garet (Serreslous-et-Arribans, Landes; Klaric, 1999) where though the flaking activities appear to play a greater role than at the neighboring site of Brassempouy, the range of discarded tools is identical to that found in cave sites.

Therefore, all of the currently known Aurignacian sites, regardless of the phase (Archaic, Early, etc.) or context (small and large caves, natural rock shelters, open-air sites) have yielded tools that lead us to attribute them to the category of “residential base camps” (Bon, 2006).

6 - Critique of the model: the problem with the archaeological signatures of activities

The data collected at sites in the Pyrenees thus indicate that there was greater functional diversity in the Chatelperronian than in the Aurignacian.

Before fully interpreting this result, however, a methodological discussion is necessary. We must remember to take into account the difficulty of comparing the functional signature of industries that are very different in terms of their weapon systems. This means that we must take consider the relative visibility, from one assemblage to another, of hunting weapons armed with apical lithic points (in the Chatelperronian) relative to weapons armed with antler or wood points, only some of which had bladelets attached to them (in the Aurignacian). An additional point to consider is that in the Early Aurignacian it is possible that these bladelets were often used without first being retouched (in contrast to the Archaic and Late Aurignacian; for a synthesis, see Le Brun-Ricalens, 2005). The evidence and the use-life of these different point types perhaps partly explains the contrast between the data collected in these two early Upper Paleolithic cultures.

5. We should note that hunting appears to provide a small proportion of the elements used as body ornaments by Archaic Aurignacian groups. For example, no object originating from hunted animals hunted for subsistence has yet been observed among the large assemblage found at Isturitz (White, 2007). The situation is less clear for the Early phase but once again, based on the data collected at Brassempouy, the teeth used come from animals that are not among the predominantly hunted ones. At Isturitz, for example, the great majority of the numerous teeth used come from bovids, while horse and reindeer were the most frequently hunted species (Normand *et al.*, 2007).

6. Among the sites located near Bergeracois flint sources, we must remember that some of them were more than “simple” knapping workshops, such as Barbas (Ortega, 1998; Teyssandier, 2000).

7. We will nonetheless consider certain contexts that merit more extensive investigations below, using the example of the site of Chabiague (Biarritz, Pyrénées-Atlantiques).



Figure 17 - Isturitz (Basque Country), Archaic Aurignacian: bladelets with stigmata indicating use as projectile weapon elements (after O'Farrell in Normand *et al.*, 2008).

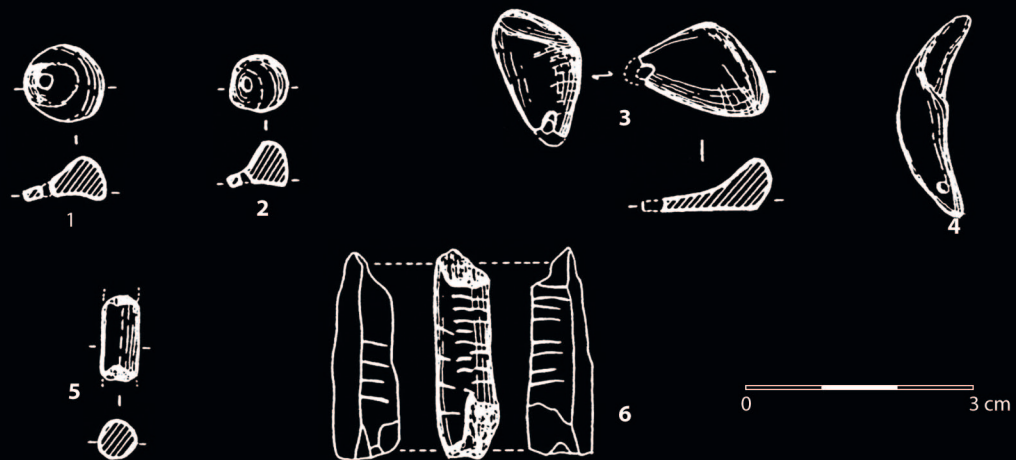


Figure 18 - Gatzarria (Basque Country), Archaic Aurignacian: personal ornaments from upper level Cjn1. 1 and 2: steatite beads; 3: perforated vestigial canine of a red deer; 4: perforated fox canine; 5: cylindrical worked bone fragment; 6: bone fragment with straight horizontal incisions (after Saenz de Buruaga, 1989; drawings: A. Cava).

In other words, if Aurignacian “hunting camps” exist, they are perhaps represented in the archaeological record by only a few shavings produced by the resharpening of antler spear heads, possibly in association with just a small handful of bladelets. These elements are as tenuous as lithic points are obvious, the latter being both easier to identify than bladelets (especially when they are not retouched)⁸ and more numerous than antler points because they were more often replaced.

This methodological discussion on the archaeological signatures of hunting activities depending on the contexts and industries considered becomes even more relevant when we attempt to go back even further in time to compare these data with those available for the Mousterian in these same regions.

7 - Incursions into the Mousterian world

Even if we must exercise caution when considering the available information for such a long period, one of the general technological traits of Mousterian, at least in the Pyrenees, is that there were no technological systems specifically oriented toward the production of a dominant tool category, and therefore, of tools linked to weapon manufacturing, such as exists in the Chatelperronian with its emblematic point. This explains why the identification of hunting activities is not directly based on the identification of hunting tools, which are usually poorly, if at all, represented in the lithic industries of this period.

Some sites in the Pyrenees region have nonetheless yielded objects that can be interpreted as weapon armatures. This is the case at the site of Bouheben (Baigts, Landes), where an analysis of Mousterian points by Paola Villa and Michel Lenoir appears to show that some of them were used in hunting activities, probably as a component of thrusting spears, rather than projected spears (due to their mass). Some pieces display characteristic impact fractures (Villa, Lenoir, 2006; [figure 19](#)). This situation is exceptional, however, and at most sites, the objects that could serve this function are relatively rare. At Olha II (Cambo-les-Bains, Pyrénées-Atlantiques), for example,

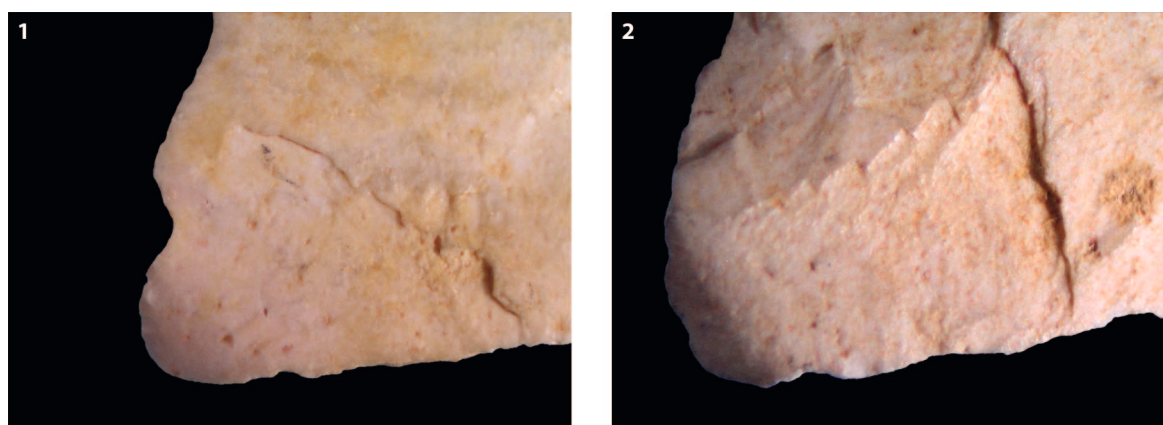


Figure 19 - Bouheben (Landes), Mousterian: apical impact fractures on two Mousterian points (after Villa, Lenoir, 2006).

8. In effect, in contexts in which the arguments are only industrial, who could conclude based on the simple observation of a few bladelets in a level (especially if there are taphonomic problems, which is often the case)? Another example is the “small” assemblage from the open-air site of Chabiague (Chauchat, 1968; Normand, study in progress), which includes very few tools, but where the great majority of the fifteen cores attest to the manufacturing of bladelets, probably to arm projectile weapons: if this site is associated with the manufacturing and repair of hunting tools, could this “workshop” in fact hide a “hunting camp”?

as at Gatzarria, the tool assemblage is largely dominated by scrapers and denticulates (figure 20), while lithic points are not frequent (less than 10 % of the assemblage). In addition, impact fractures on these points are very rare (at Olha II, only 3 pieces display possible impact fractures) and their use as a weapon armature thus remains tentative (Deschamps, 2009 and dissertation thesis in progress).

An emblematic example is that of the site of Mauran (Haute-Garonne, OIS 3; figure 21). The abundance of hunting activities is well demonstrated by a zooarchaeological analysis of its faunal assemblages (figure 22). For several hundreds of years, this site probably functioned as an occupation specialized in the acquisition and skinning of bison, followed by the exportation of some parts of the animals (David, Farizy, 1994; Rendu, 2007; Rendu *et al.*, this volume). However, lithic points that could have been axially hafted are nearly absent⁹ and the lithic flaking activities were clearly oriented toward the production of pseudo-Levallois points with two convergent edges opposite a more or less thick natural back, while the retouched tools are dominated by denticulates (Farizy *et al.*, 1994; Jaubert, 1993; Thiébaud, 2005; figures 23-24). Furthermore, a usewear analysis strongly confirmed the abundance of butchery activities at this site, using these tools (Thiébaud *et al.*, 2011).

One more example can be cited to contribute to this discussion on the archaeological signature of hunting activities in the Mousterian context, that of the Grotte du Noisetier at Fréchet-Aure (Hautes-Pyrénées; OIS 3; figures 25-26). Following the excavations directed by Michel Allard, this cavity was interpreted as a hunting camp linked to the exploitation of mountainous species, such as ibex and chamois (Jaubert, Bismuth 1996). However, new excavations undertaken since 2004, and a taphonomic study realized by Sandrine Costamagno and Jean-Baptiste Mallye, have shown that the accumulation of mountainous species, and especially chamois, was the result of mostly natural processes linked to the presence of Bearded Vultures and Doles (Costamagno *et al.*, 2008; Mourre *et al.*, 2008a-b; Mallye *et al.*, in press). The anthropogenic traces mainly concern Red Deer, a common species, though not strongly linked to the site context and also present on the plains. The lithic industries were mainly realized with local materials (quartzite, lydian, etc.), and less often with imported flint. The production was dominated by flake manufacturing, which were most often used unretouched. A few retouched tools are present (scrapers, denticulates), including pieces with convergent retouch, but none of which resemble hunting weapon armatures (figure 27). Given all of these data, the functional interpretation of the site as a “hunting camp” is clearly contested: it more closely resembles an occupation site associated with displacements within the Pyrenean mountain chain, in the form of a “residential base camp” occupied by all the members of a group. We can also add the presence of deciduous teeth from young children as an additional argument (Maureille in Mourre *et al.*, 2008b). But here again, little information is provided by the lithic industries.

From this rapid summary of examples, we can retain the following observation: though it is possible that true “hunting camps” existed in the Pyrenees during the Middle Paleolithic, there does not appear to have been any specialization in the lithic industries, particularly in the production of standardized blanks for the manufacturing of weapon armatures, which can aid in the identification of this type of site. In other words, based on the toolkits alone, we do not observe any archaeological signatures that permit the identification of this type of occupation in this region. The site of Mauran is an example of a site at which only the faunal remains contribute to its interpretation as a hunting and initial carcass processing site.

9. The usewear analysis realized by Aude Coudenneau (Thiébaud *et al.*, 2011) revealed the presence of a unique piece (a pseudo-Levallois point in quartzite) whose distal extremity has a bending fracture. Nonetheless, its relation to the use of this piece as a weapon armature is possible but not certain because this type of fracture can also result from butchery activities, such as disarticulation.

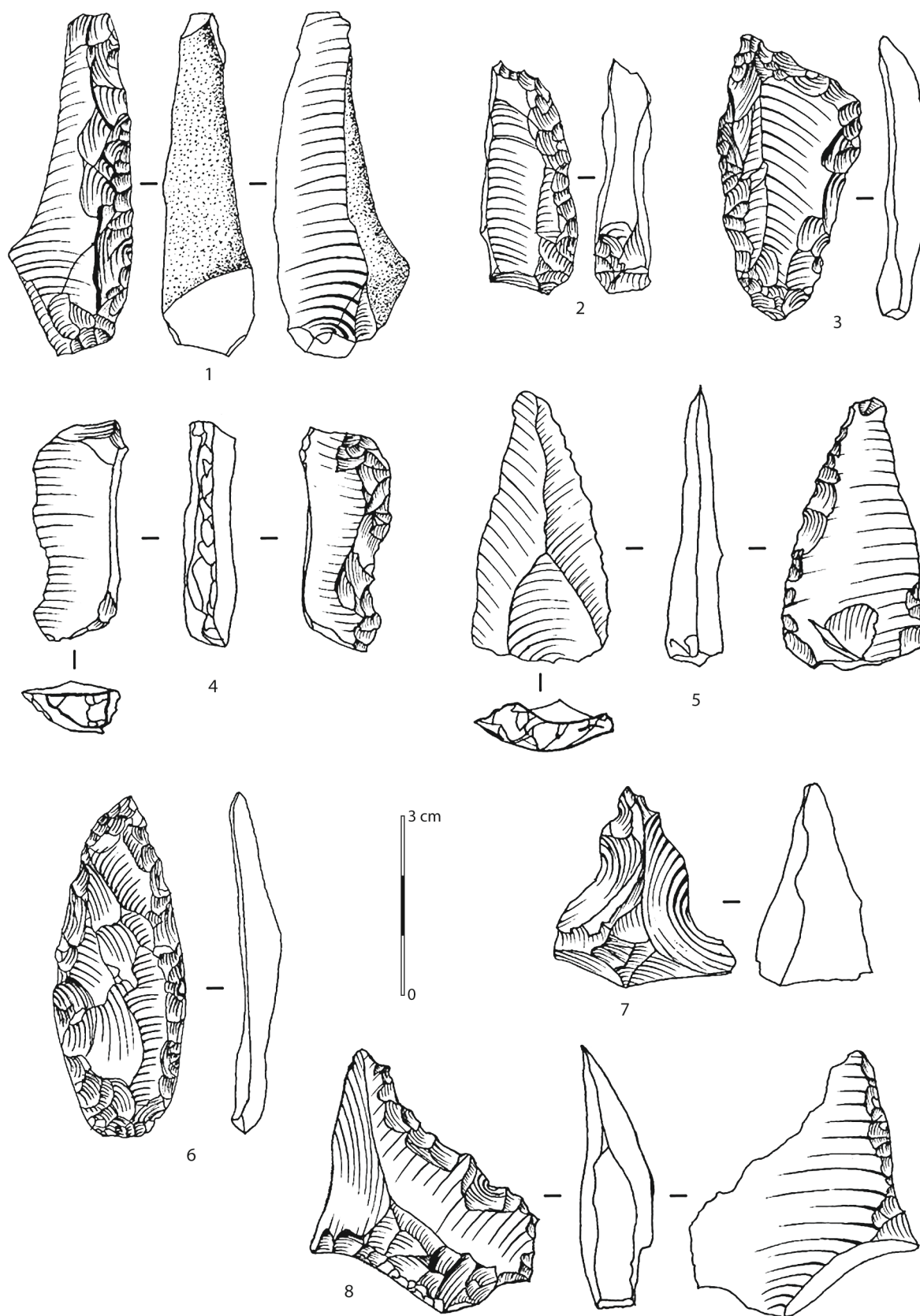


Figure 20 - Ohla 2 (Basque Country), Mousterian: sample of retouched pieces. 1 and 2: simple scrapers; 3: déjeté scraper; 4: denticulate; 5: denticulated point; 6: double convergent scraper; 7: Tayac point; 8: alternate scraper (drawings: M. Deschamps).



Figure 21 - Mauran (Central Pyrenees), Mousterian: site location
(photograph: D. Martin, mission SRA Midi-Pyrénées of May 1993; after Farizy *et al.*, 1994).



Figure 22 - Mauran (Central Pyrenees), Mousterian: close-up of an excavation unit in the main archaeological level
(photograph: C. Farizy; after Sacchi, Vaquer, 1996).

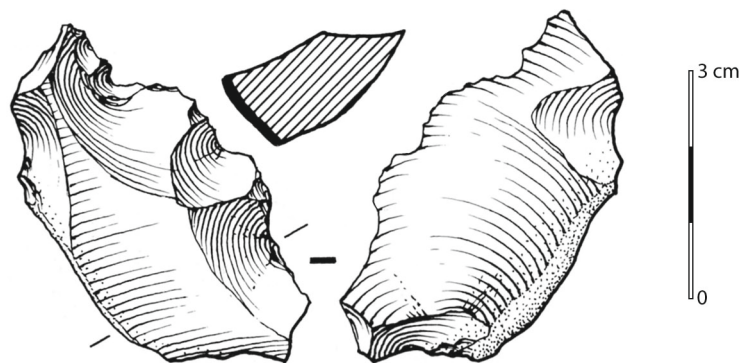


Figure 23 - Mauran (Central Pyrenees), Mousterian: Denticulate in flint (after Farizy *et al.*, 1994; drawing: J. Jaubert).

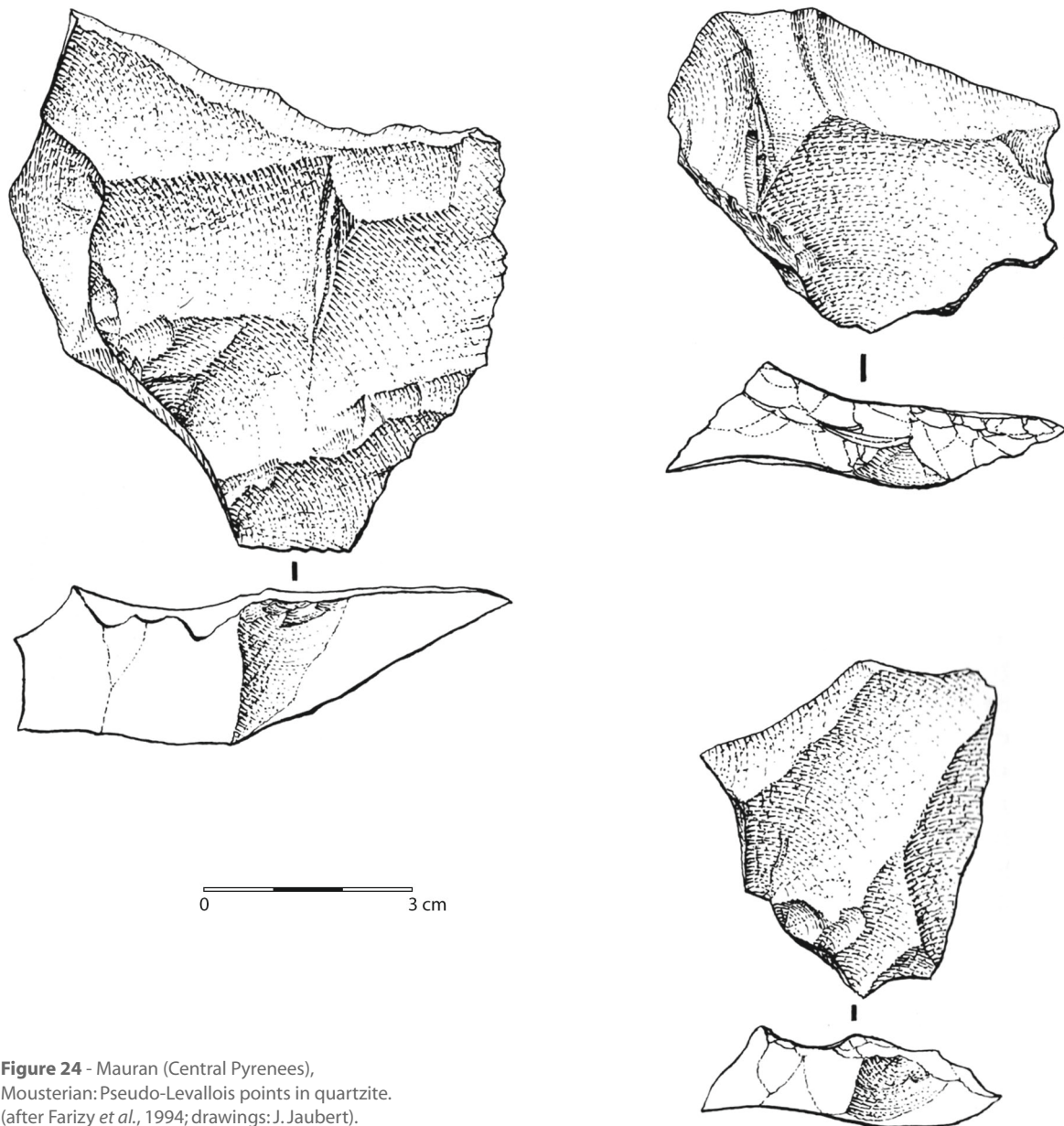


Figure 24 - Mauran (Central Pyrenees), Mousterian: Pseudo-Levallois points in quartzite. (after Farizy *et al.*, 1994; drawings: J. Jaubert).



Figure 25 - Le Noisetier (Central Pyrenees): site location (photograph:V. Murre).



Figure 26 - Le Noisetier (Central Pyrenees): view of the cave during excavation (photograph:V. Murre).

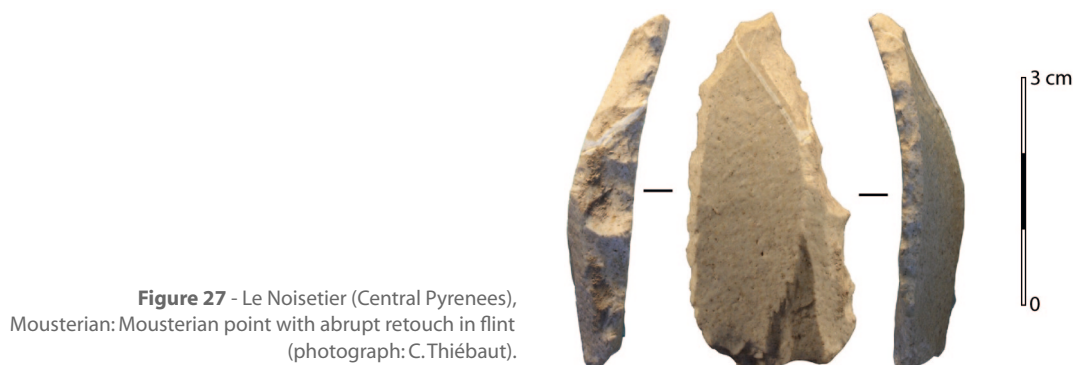


Figure 27 - Le Noisetier (Central Pyrenees),
Mousterian: Mousterian point with abrupt retouch in flint
(photograph: C.Thiébaud).

8 - Result(s): towards the formulation of a model... and its weighting

Based on the data gathered here, we can postulate that the Chatelperronian is distinct from the cultures situated chronologically before and after it, both in terms of a higher technical investment in the manufacturing of hunting tools (especially relative to the Mousterian), and the greater specialization of some sites associated with hunting activities (especially relative to the Aurignacian). If we link these two ideas, we can conclude that in the Mousterian, the balance established between the low technological sophistication of its weapons and the practice of collective hunting justifies that fact that the residential base camps were most often located very near the zones where animals were captured. On the other hand, the higher technological sophistication of Chatelperronian weapons could correspond to a less collective social organization of hunting, with hunters travelling for several days on foot from their residential camp in order to procure animal products that would then be brought back to the camp. In the same manner, we can attempt to interpret the socio-economic meaning of the differences that exist between Aurignacian and Chatelperronian weapons. In this case, we can postulate that the projectiles equipped with stone points made by the latter were better adapted to individual hunting strategies, as has already been proposed for other cultural contexts (cf. Tardiglacial: Pelegrin, 2000; Valentin, 2008), than those armed with bone points. The main argument thus resides in the relationship between the time invested in the fabrication of a weapon and the probability that it will be lost or irreparably damaged during use. Since individual hunting leads to more loss than collective hunting, it is possible that a bone point is less “cost-effective” than a stone point, given the investment it requires for the procurement of raw materials and the manufacturing time¹⁰. If this is true, and if Aurignacian groups preferred weapons adapted to collective hunting strategies, this would explain why the absence of specialized hunting sites among their diverse manners of occupying space, in contrast to the Chatelperronian.

10. We must nonetheless note the fact that in the studies cited here, the argument is even stronger given that in one case, lithic points were attached to arrows, and in the other, osseous points were attached to spears launched with a spearthrower. Such information on the type of weapon used (arrow or spear) is completely unavailable to us.

This model, as seductive as it may be, must nonetheless be weighted in the following manner: we were in effect led to conclude that because the choices made by these different human groups for their hunting weapons result in a very contrasting visibility of this type of activity, they result in a methodological bias that prevents us from reaching conclusions concerning the absence of Mousterian and Aurignacian “hunting camps”, at least based on their tool industries alone. Therefore, given this reservation, while the social organization of hunting could be determined for the Chatelperronian due to the visibility of the traces left by their techniques (the relative number of weapon armatures relative to the rest of the tools, depending on the site, being a criteria of distinction between “hunting camps” and “residential base camps”), we must be wary of interpreting the activities of their Mousterian predecessors and Aurignacian successors in the same manner.

So let's stop *hunting* for a conclusion! And simply retain for now that the formulation of this model, as well as its criticism, serves above all to lay the foundations for an inquiry in which studies of tool industries, faunal remains and the analysis of sites in general must now converge. The challenge is daunting since the question of the social organization of hunting plays a major role in our attempts to interpret the paleo-sociological changes that occurred between the Middle and the Upper Paleolithic.

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