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# The Pleistocene-Holocene transition in Southwestern France: A Focus on the Laborian

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## **Abstract**

During the Pleistocene-Holocene transition, the European archaeological records can be divided into two broad entities – the Epigravettian in the northern Mediterranean Basin and industries characterized by the return of a well-developed blade technology in northwestern Europe. This large Western European techno-complex comprises several cultural traditions defined essentially by various types of projectile points. One of these cultures, the Laborian, occupies an area at the crossing of northern traditions (Ahrensburgian) and the Epigravettian techno-complex. Situated between the Azilian and the Mesolithic, the Laborian (ca 12.5-11 Ka cal. BP) is, paradoxically, poorly defined in southwestern France where it was initially defined. In fact, data for this culture is essentially available in the surrounding regions and especially in northern and western France. Reevaluation of key Laborian lithic assemblages as well as the discovery of new sites today draw a new picture of the various cultural traditions occupying this large area around 12 Ka cal. BP). Despite the scarcity of data on hunted fauna, we can observe the dominance of the exploitation of large game typical of open temperate landscapes. Osseous industry is also rare but we note the maintenance of bone barbed points in few sites. Artistic conventions (engraved pebbles or bones) show several symbolic innovations, such as the development of a unique zoomorphic art. Lithic hunting weaponry essentially based around point forms, much like during the Azilian, allow to highlight two chronological phases along the Laborian culture: an older phase with straight backed points with truncated bases (Malaurie points) and bitruncated backed blades (“rectangles”) and a recent phase with pointed backed bladelets (Blanchères points) and bitruncated trapezoids. The production of large, standardized, straight blades with flat cross-sections during the Laborian reveals clear similarities with concepts recognized in Belloisian collections even if blade lengths rarely reach the standards known on these sites. Finally, the technological study of domestic stone tools and hunting weaponry is an effective means for reconstructing larger scale evolution processes influencing these last Pleistocene societies and the persistence of their traditions into the European Mesolithic.

*Key-words* : Western Europe – Lateglacial – Laborian – Lithic technology – Game - osseous industry – Portable art

## **1. Introduction**

During the Pleistocene-Holocene climate transition, Europe was crossed by several cultural currents, among which the Laborian lies at the interface between the northern (Epi/Ahrensburgian) and Mediterranean traditions (Epigravettian, Iberian Epimagdalenian). Coming after the Azilian and before the Mesolithic, the Laborian (ca 12.5-11 ka cal BP) remained paradoxically poorly studied in its eponymous region - the South-West of France - when compared to the work carried out in the North (e.g. Fagnart, 1997, 2009; Valentin, 1995; 2008, 2009; Bodu, 2000) and West (Naudinot, 2008, 2010, 2013) of the country. A few

years ago, a first re-assessment of the Laborian was made in southwestern France (Langlais *et al.*, 2014a). This collective work conducted thereafter on the eponymous site of La Borie del Rey (Blanquefort-sur-Briolance, Lot-et-Garonne), following on from the work by L. Coulonges and J.-M. Le Tensorer, proposed a subdivision of the Laborian into two phases, Early (encompassing the Protolaborian and Laborian) and Late (*i.e.* Epilaborian). During the workshop held in Bordeaux with specialists on the southern half of France and northern Italy, attention was focused primarily on the lithic industries and fauna (Langlais *et al. dir.*, 2014). Several projects have also taken a fresh look at older and more recent collections (Fat Cheung *et al.*, 2014; Langlais *et al.*, 2014b). Reviews have also provided a better understanding of the variability of technical behaviors during this period in both the Armorican Massif (Naudinot, 2013; Jacquier, 2015), Massif Central (Langlais *et al.*, 2018) and the Pyrenees (Fat Cheung, 2015).

Since 2016, the objective of the “Laborian Project” has been to review the different registers of material culture and symbolic system during this period and reflect on its chronological phasing. The overview we provide here is therefore the fruit of these recent years of study, re-assessment and collective analysis revolving around the Laborian(s).

## 2. Corpus

The review of late glacial stratigraphies from southwestern France highlighted – further to the work of G. Célérier at Pont d’Ambon – the presence of Laborian assemblages above “Magdalenian-Azilian” sequences in sites that were dug early on, and in many cases a little too early on. The stratigraphic distribution of certain markers (essentially lithic weapon elements, see Langlais, 2018) from the Upper Magdalenian (*e.g.* shouldered points, Laugerie-Basse or Teyjat points), Azilian (*e.g.* backed bipoints and different types of monopoints) and Laborian (*e.g.* Malaurie points, rectangles, Blanchères points, bitruncated trapezoids) reveals the varying levels of confidence as regards these archaeological sequences. Although they are quite coherent at Le Pont d’Ambon in Bourdeilles, Dordogne (Célérier, 1998, Boudadi-Maligne *et al.*, 2018), the stratigraphies of Rochereil in Grand-Brassac, Dordogne (Jude, 1960; Mallye and Laroulandie, 2018), Le Morin in Pessac-sur-Dordogne, Gironde (Bordes and Sonnevile-Bordes, 1979; Mallye *et al.*, 2018), Gare de Couze in Lalinde, Dordogne (Fitte and Sonnevile-Bordes, 1962) or Le Roc d’Abeilles in Calviac, Dordogne (Champagne and Espitalié, 1970) are more complex. This work brings into question the accretive cultural model put forward by F. Bordes and D. de Sonnevile-Bordes at the end of the 1970s. Ultimately, the model of a Final Magdalenian that was gradually enriched by Azilian elements (based on mixed sequences) disrupted exploration of the Laborian.

Other hitherto somewhat neglected collections, such as Auberoche in Le Change, Dordogne (Daniel, 1969) or Gouërris in Lespugue, Haute-Garonne (Saint-Périer, 1927), were reviewed and have now been attributed to the Laborian (Fat cheung, 2015; Langlais and Fat Cheung in progress). Revaluation of the eponymous collections of La Borie del Rey in Blanquefort-sur-Briolance, Lot-et-Garonne (Coulonges excavation) has provided a clearer insight into the chronological evolution of the Laborian (see below), notably through the morphotypes of lithic weapon elements (Langlais *et al.*, 2014b). Among the other stratified sites undergoing revision, that of Le Cuze de Sainte-Anastasié in Cantal (Pierron-Derville collection and Delpuech-Fernandes excavation) also provides new data on the evolution of the Laborian (Langlais *et al.*, 2018).

At the same time that these old collections were being reviewed, new sites have been discovered and excavated within the framework of scheduled archaeology operations, such as the cave-rock shelter of Peyrazet - in Creysse, Lot - presenting a sequence from the Upper Magdalenian through to the Late Laborian (Langlais *et al.*, 2015). A number of open-air sites

investigated on scheduled or rescue excavations have provided more precise information as to the spatial organization of settlements structured around hearths, and raise questions about the function of the sites and mobility strategies of Laborian groups. Such is the case notably of the sites of La Fosse in Villiers-Charlemagne, Mayenne (Naudinot and Jacquier, 2014), Port-de-Penne in Penne d'Agenais, Lot-et-Garonne (Langlais *et al.*, 2014b, Detrain *et al.*, 2018), Manirac in Lectoure, Gers (Beyneix *et al.*, 2001 ; Fat Cheung, 2015), Champ Chalatras in Les Martres d'Artière, Puy-de-Dôme (Pasty *et al.*, 2002) and Vaise in Lyon, Rhône (Jallet and Bouvier dir., 2012 ; Treffort dir., 2017). Within the framework of the Laborian Project (2016-2018), we have compared petrographic, techno-typological and functional data on the lithic industries, as well as data on fauna and the bone industry. Here we present the main results from southwestern France.

### 3. Results

#### 3.1. Prey species

Among the sites where faunal remains have been found, only those for which we are certain of their attribution to the Laborian have been taken into account in this study. In other words, making a distinction between Laborian, Azilian and even Magdalenian game animals is difficult in stratigraphic sequences that were dug a long time ago, such as Rochereil or Le Morin, unless by direct dating of certain remains (Mallye and Laroulandie, 2018; Mallye *et al.*, 2018). Studies that have been published or are currently underway show a hunting spectrum that is often varied but is largely dominated by the large plain ungulates, while totally devoid of any glacial species in southwestern France (fig.1). For Early Laborian, the work carried out by F. Delpech then J.-G. Ferrié at Le Pont d'Ambon c.2 shows a diversified spectrum dominated by aurochs, horses and then red deer (Delpech, 1983; Célérier (dir.), 1994; Fat Cheung *et al.*, 2014; Boudadi-Maligne *et al.*, 2018). The same three main prey species have been found at La Borie del Rey with wild boars (Coulonges, 1963; Gilbert, 1984; Ferrié in Langlais *et al.*, 2014b). At Port-de-Penne, level 1 is dominated by red deer, horse and bovid (of which aurochs), whereas horse is the principal game from level 2 (A. Chevallier in progress). The aurochs is the principal game in Manirac, Gers (Ducassé, 1987; Gilbert, 1984; Beyneix *et al.*, 2001) and at Champ-Chalatras, Puy-de-Dôme (Pasty *et al.*, 2002). In Quercy, Malaurie rockshelter, in Lot (Laroulandie and Langlais directors, excavation in progress, fauna studied by S. Costamagno), yielded a spectrum dominated by red deer. The mesofauna was also exploited, such as beaver and rabbit at La Borie del Rey (Langlais *et al.*, 2014b) and Le Pont d'Ambon (Jones, 2009; Fat Cheung *et al.*, 2014) or the marmot in the Alps at La Passagère and Colomb (Monin *et al.*, 2010). For Late Laborian we can quote the dominance of red deer at Peyrazet cave-rockshelter (Langlais *et al.*, 2015) and La Borie del Rey (Langlais *et al.*, 2014b). In Normandy, Aurochs is the principal game in Alizay, Eure (Bémilli *et al.*, 2014) and in Loiret, site of Chevilly- Nant valley yielded some rests of fauna with horse (Verjux *et al.*, 2013). Finally, it should also be pointed out that dogs have been shown to be present in the Early Laborian (Célérier and Delpech, 1978; Célérier *et al.*, 1999; Chaix, 2000; Boudadi-Maligne *et al.*, 2018).

Fig.1: Principal prey species for sites of Early and Late Laborian.

#### 3.2. A scarce and monotonous bone industry

As far as the bone industry is concerned, few collections have been the subject of in-depth study for the moment: La Borie del Rey, Le Pont d'Ambon, Gouërris, Peyrazet and Port-de-

Penne (see Chauvière & Marquebielle in Langlais *et al.*, 2014b; see Pétilion in Langlais *et al.*, 2015; Marquebielle, 2018). Despite biases due either to the scarcity of collections or the taphonomy of the sites, an initial review can be presented. For the moment, no evolution has been distinguished in equipment between the Early and Late Laborian. The bones have often been transformed by fracturing, notably of diaphyses. The fragments obtained have then been shaped by scraping, mainly to form awls and smoothers, and the shaping is limited to the active part in most cases. Mention should be made of signs of transversal sawing and longitudinal grooving in certain collections, which may indicate the use of more complex debitage methods. As regards cervid antler, we should note the presence at Le Pont d'Ambon of waste from the extraction of a broad rod from the posterior side of a deer antler, by a process of parallel double grooving (Marquebielle, 2018). The main type of object made in this material is the barbed point, recorded in particular at Gouërris and Le Pont d'Ambon, but also, in all probability, at Le Mas d'Azil (*ibid*) and Le Morin (artefact dated directly to  $10365 \pm 45$  BP; Barshay-Szmidt *et al.*, 2016). Evidence is still lacking, however, to establish a formal association between the extraction of rods and barbed points in the same transformation scheme. A few examples of the production of objects on volume blanks of the bone section type can also be reported.

Results of use wear analysis of flint artefacts support this perception of a relative poverty of bone industry during the Early and Late Laborian. Flint tools implicated in the processing of bone or antler (essentially burins used in scraping and secondarily grooving motions) are always particularly scarce (Jacquier, 2014, 2015; Langlais *et al.*, 2015, 2018) especially when compared to Magdalenian contexts. Flint tools typology also goes in this direction considering the scarcity of piercing tools (borers and becs) in Early and Late Laborian cultures.

### 3.3. Some particular symbolic behaviors

As far as portable art is concerned, certain collections have delivered pebbles with geometric engravings that clearly evoke the ancestral traditions of the Late Azilian: Champ Chalatras (Pasty *et al.*, 2002); le Roc in Gironde (Lenoir, 1996); Vaise (Pasty *in* Treffort dir., 2017) and maybe at La Guichaumerie, in Maine-et-Loire (Naudinot, 2010) and Roquemissou in Aveyron (Bobœuf, 2003). In the same time, three sites yielded fragments of long bones that are finely engraved with schematic zoomorphic representations (aurochs or horses), filled in with cross-hatching in places. These items have been recorded only in Early Laborian contexts: on the eponymous site ( $n=1$ ; Coulonges, 1963), at Le Morin ( $n=3$ ; Guy, 1993) and at Le Pont d'Ambon ( $n=23$ ; Paillet and Man Estier, 2014).

The attribution to the Laborian of the child burial of La Madeleine is based on direct  $^{14}\text{C}$  dating ( $10190 \pm 100$  BP) and the dorsal decubitus position of the body in a pit filled with ochre – also reminiscent of behavior in the Italian Late Epigravettian (Gambier *et al.*, 2000). Finally, the Laborian ornament is composed mainly of shells, and more particularly of turritella and dentalium (Vanhaeren and D'Errico, 2001; see Chauvière and Rigaud *in* Langlais *et al.*, 2014b; see Rigaud *in* Langlais *et al.*, 2015).

### 3.4. Flint hunting points: particular chronocultural and geographic markers

During the Early Laborian, the dominant morphotype is a straight-backed point with a truncated base, the so-called Malaurie point, sometimes associated with backed bitruncated pieces (“rectangles”) which may partly correspond to recycling of fractured truncated backed points (Langlais *et al.*, 2014b; fig.2). It should be pointed out that no preferential lateralization of the backs and truncations has been demonstrated on these artifacts (*ibid.* fig. 23) and that

variations in blank dimensions and the care taken with the retouch can be noted from one site to another. If we observe the geographic distribution of the sites that have delivered Malaurie points that can be attributed to the Laborian (fig.3), we notice a high concentration of sites in the Aquitaine basin and a few others, for the moment, towards the North (Fagnart, 1988; Valentin, 1995; Bodu, 2000; Naudinot, 2013; Biard and Hinguant dir., 2011) and East (Monin, 2000; Fornage-Bontemps, 2013).

During the Late Laborian, a shift in the lithic content of weaponry can be noticed with the development of two new morphotypes: Blanchères points and bitruncated trapezoids (Naudinot, 2013; Langlais *et al.*, 2014b; fig.2). It should be pointed out that the apexes of Blanchères points are preferentially lateralized in their proximal part (Valentin, 1995; Naudinot, 2010; Langlais *et al.*, 2014b voir fig. 23) while the backs are on the left or the right edge at La Borie del Rey (Langlais *et al.*, *op. cit.*) and more frequently on the left in the Greater West region (Naudinot, *op. cit.*). Points with oblique truncation similar to those found at the Le Buhot site in Calleville in Normandy (Biard and Hinguant dir., 2011) are also present at La Fosse in Mayenne and Les Prises in Charentes-Maritimes (Naudinot, 2013). At the La Fosse site, alongside the dominant combination of Blanchères points and bitruncated trapezoids, the possible presence of a few tanged pieces with oblique truncation, which also underscore the cultural links with the (Epi)Ahrensburgian (Naudinot and Jacquier, 2014). Parallel to the (admittedly discreet) spread of northern morphotypes towards the West, we can thus note the presence of the ideas of the Late Laborian in the North-West of France, with both Blanchères points and bitruncated trapezoids (fig.3, Jacquier *et al.*, in press). The eastward extension of the latter, thanks to the discovery of the Vaise site (see Pasty *in* Treffort dir., 2017), offers a new testimony of Late Laborian with bitruncated trapezoids. We can recall the presence of the same morphotypes “bitruncated trapezoids” in Northern Italian Late Epigravettian in early contexts of the Younger Dryas (Peresani *et al.*, 2000; Ferrari and Peresani, 2003; Dalmeri *et al.*, 2004).

Fig.2: Main component of lithic weaponry of Early and Late Laborian (1-17: Malaurie points and backed bitruncation, 18-23: Blanchères points, 24-30: bitruncated trapezoids; 1-9: La Borie del Rey, after Le Tensorer, 1981; 10-11: Port-de-Penne, after Detrain *et al.*, 2018; 12: Roc d’Abeilles after Champagne and Espitalié, 1970; 13,18-19,24,25: Peyrazet, drawing S. Ducasse; 14-15: Pont d’Ambon c.2 after Célérier, 1993; 16: Le Morin, drawings S. Pasty; 17: Rochereil, drawings C. Fat Cheung; 20,21,26-28: La Fosse, drawings F. Blanchet after Naudinot, 2013; 22,23,29,30: Borie del Rey, drawings C. Fat Cheung).

Fig.3: Location of main lithic weaponry from Laborian (purple : Malaurie Points ; red : Blanchères Points ; Orange : Trapeziform bitruncations) ; CAD ML.

Table 1: List of sites depicted in figure 3.

At the eponymous sites, as in several stratified and open-air sites, we should also note the presence of a few backed bitruncated pieces and Malaurie points in a Late Laborian context, and thus associated with the dominant combination of Blanchères points and bitruncated trapezoids. The association of points with concave oblique truncation and Malaurie points at Le Buhot-Locus 2 in Normandy can also be noted (Biard and Hinguant dir., 2011). The question of the continuation of Malaurie points into the Late Laborian remains a subject of discussion, notably in light of the taphonomic context of the records (Langlais *et al.*, 2015, 2018).

From a chronological point of view, <sup>14</sup>C AMS dates circumscribe the Laborian in its broadest sense as between 12.5 and 10.8 ka cal BP (Langlais *et al.*, 2014a and b, 2015). Despite the <sup>14</sup>C

plateau, on the basis of the small amount of available data, we propose the hypothesis of an Early Laborian corresponding roughly to the second half of the Younger Dryas, and the Late Laborian to the first half of the Preboreal. This transition seems to be centered not around the beginning of the Holocene at 11.7 ka cal BP but around the “11.4 event” recorded in glacial archives (Rasmussen *et al.*, 2014). However, further dating is necessary to clarify this correlation, as is work on continental records to establish the regional context of this climate event.

### 3.5. A technocomplex of blades and bladelets with flat cross-sections and straight profiles

In the current state of research and analyses of the material, it is difficult (if not impossible) to make a distinction between Early and Late Laborian blade production (Langlais *et al.*, 2014b). For the Early Laborian, the collections of La Borie del Rey (levels 7 and 5 after Coulonges), Rochereil (level II sup.), Port-de-Penne, Le Pont d’Ambon (level 2), Champ-Chalattras and Vaise (Pasty *et al.*, 2002; Langlais *et al.*, 2014b; see Pasty in Treffort dir., 2017) show a search for broad, regular blades with a flat cross-section and straight profile (fig.4). These particular blanks are obtained by working the broad face of a block with a soft hammerstone (see below). The same objective was noted earlier and described for the Late Laborian at La Fosse and Le Camp d’Auvours (Naudinot, 2010, 2013; Jacquier, 2015), then at Peyrazet and at Le Cuze de Sainte-Anastasie (Langlais *et al.*, 2015, 2018). Roughly speaking, the blade production scheme presented below and first defined in Western France does correspond to the scheme of the Laborian as a whole. It also shows similarities with what has been described for the Belloisian in the North, although more modest in its dimensions (Bodu and Valentin, 1992; Valentin, 1995, 2008; Biard and Hinguant, 2011; Valentin *et al.*, 2014; Biard and Bémilli, 2018). A new look to these assemblages at light of the results from Western France (Naudinot, 2013) recently allowed to recognize the search for flat cross section blades as one of the main characteristic of this production (Valentin *et al.*, 2014).

Fig. 4: Examples of desired Laborian Blades (1-3: Rochereil, drawings G. Devilder; 4: Champ Chalattras, drawings P. Alix after Pasty *et al.*, 2002; 5-6: La Borie del Rey, drawings C. Fat Cheung; 7-8: Port-de-Penne, drawings C. Fat Cheung).

When working on a block or nodule, bifacial shaping from the narrow faces forms regular transverse convexities. It is from one of these anterolateral dihedrals that initialization is performed. The debitage then works progressively into the broad surface from two striking platforms. Progression of blade/bladelet production is marked by regular returns made to one of the anterolateral dihedrals before returning to the wide face, in order to maintain minimal convexity conditions (fig.5). The core’s back is rarely exploited and generally presents transversal negatives, which are the traces of the initial transversal shaping and of reworking by anterolateral neo-crests. Few cases of complete or sub-complete rotating debitage result from a succession of combined sequences. On flakes, debitage begins by more-or-less carefully prepared anterolateral removal, then moves onto the naturally convex lower face. Most of the cores and blades show use of two striking platforms alternating more rapidly in the first laminar sequences than once the volume has been reduced to small blades and bladelets. Use of a soft hammerstone is systematic and accompanied by more or less careful abrasion of the edges of the striking platforms.

Continuous reduction of volumes allows to provide blade blanks (tools) and small blades (truncated pieces and Malaurie points/bitruncated pieces). The Late Laborian collections, however, show marked development of a lamellar component, either continuing on from the reduced laminar debitage, or separately from small volumes worked in an identical way or using less productive techniques, such as on a flake edge or from superior face of a thick

blade (Naudinot, 2013; Langlais *et al.*, 2014b, 2018). The development of bladelets production in the Late Laborian corresponds to the production of Blanchères points. However, these groups did not abandon the production of the small blades preferred during the Early Laborian in favor of Malaurie points and now points with oblique truncation and bitruncated trapezoids.

Fig.5: Examples of Blades Laborian Cores (large face with antero-latéral maintenance; 1 : La Borie del Rey; 2: Port-de-Penne ; drawings C. Fat Cheung).

The blades, small blades and bladelets of the Laborian are standardized and have an identical design structured around a straight profile and a flat cross-section. We can recall that the desired blade blanks in the Laborian can be likened to the selected blades described by M. Biard working on collections from Normandy that have been attributed to the Belloisian (Biard and Hinguant *dir.*, 2011; Biard and Valentin, *in press*). The dominant tool types are made up of truncated pieces, endscrapers, burins and rarely few pieces with bruised edges as at Le Pont d'Ambon c.2. The latter are not unlike the examples from La Fosse or Le Camp d'Auvours (Naudinot, 2013), the northern Belloisian collections (*e.g.* Bodu and Valentin, 1992; Fagnart, 1997) and the long blades of Great Britain (*e.g.* Barton and Dumont, 2000). Leaving aside the question of the use of these pieces with bruised edges (*e.g.* Fagnart and Plisson, 1997; Jacquier, 2015), functional studies carried out recently on Laborian assemblages have clearly shown that retouched tools constitute a small proportion of lithic toolkits (Jacquier 2015). Used artefacts are mainly constituted of unmodified blades (up to 70 % of the total tools excluding projectile points) used for butchering, cutting soft animal tissues, processing hide and secondarily to process plant, bone or mineral materials (Guéret and Jacquier, *in press*; Jacquier, 2014, 2015; Jacquier and Naudinot, 2015; see Jacquier in Langlais *et al.*, 2015 and 2018; fig.6); the more regular blanks being generally recycled by retouch (end scrapers and burins) after a first valuation of the cutting edges. This need for knives and unmodified cutting edges as well as the nature of the material being currently processed (essentially soft materials; plant and bone processing being scarce) appears particularly coherent with the search for flat and straight blades. It might even be tempting to propose a causal relationship between the needs of cutting edges and the Laborian debitage scheme. However, this need for unmodified cutting edges remains broadly unchanged during the Early Mesolithic (Guéret 2013, 2017, Guéret and Jacquier *in press*) despite a much more simple and flexible debitage scheme.

Fig.6: Examples of knives on blades from Early Laborian at Port-de-Penne (CAO J. Jacquier)

From the techno-economic point of view, this search for normalized, specific blanks requires flints of high clastic quality. During the Early and Late Laborian, we therefore see a renewal of raw material sourcing networks compared to the Late Azilian which was less demanding in techno-economic terms (Naudinot, 2010, 2012; Fat Cheung *et al.*, 2014; Fat Cheung, 2015). In regions with low lithic availability (the Armorican Massif, Central Massif and Pyrenees notably), importations of blocks transported over great distances (> 200 km, Fig.5 n°2) were not rare. More generally, we can note transportation of flint blades, often over distances of several hundred miles (Pasty *et al.*, 2002; Naudinot, 2012; Naudinot and Jacquier, 2014; Langlais *et al.*, 2014b, 2015; Jacquier, 2015; Langlais *et al.*, 2018).

#### 4. Discussion and Conclusion



The research conducted in recent years on various projects has provided a more precise image of the Laborian. The proposal of two phases - Early and Late – enables us, on the basis of the lithic weaponry, to extend its diffusion area northwards towards so-called “Belloisian areas” at the interface with Epihrensburgian territories in particular. The discovery of new sites, such as Vaise in Lyon (see Pasty in Jallet and Bouvier dir., 2012 and Treffort dir., 2017; Langlais *et al.*, in press) also offers new insights into the interactions during the Recent Laborian. We thus see a genuine cultural melting pot taking shape in Western Europe, the main vectors of which are hunting weapon elements and an original concept of blade production. Many studies of industries with *flat and straight blades/bladelets (sic.)* once again highlight the obvious cultural links between Laborian and Belloisian technologies (if the latter can be said to have a cultural or more strictly economic value, Valentin, 2008; Fagnart, 2009; Naudinot, 2013).

Hunting weapon elements, perforating and cutting points of Laborian hunters, thus seems to testify to interactions with groups from the Epihrensburgian (tanged points or with oblique truncation) and also the Epigravettian (bitruncated trapezoids). Laborian bone equipment, although admittedly little known for the moment, does present key features that should now be searched for more keenly, such as barbed points (see above, with Le Pont d’Ambon and Gouërris), the aim now being to understand any possible affiliation with Azilian production (Marquebielle, 2018). The same thing applies to the presence of pebbles with geometric engravings in several Early sites, while others set themselves apart within the region (on the basis of current discoveries) with original zoomorphic art on bone. The resumption of excavations of La Borie del Rey (Langlais and Mallye, directors) and Malaurie (Laroulandie and Langlais, directors) will undoubtedly allow us to advance our understanding of this newly described synchronic and diachronic cultural variability within the Laborian.

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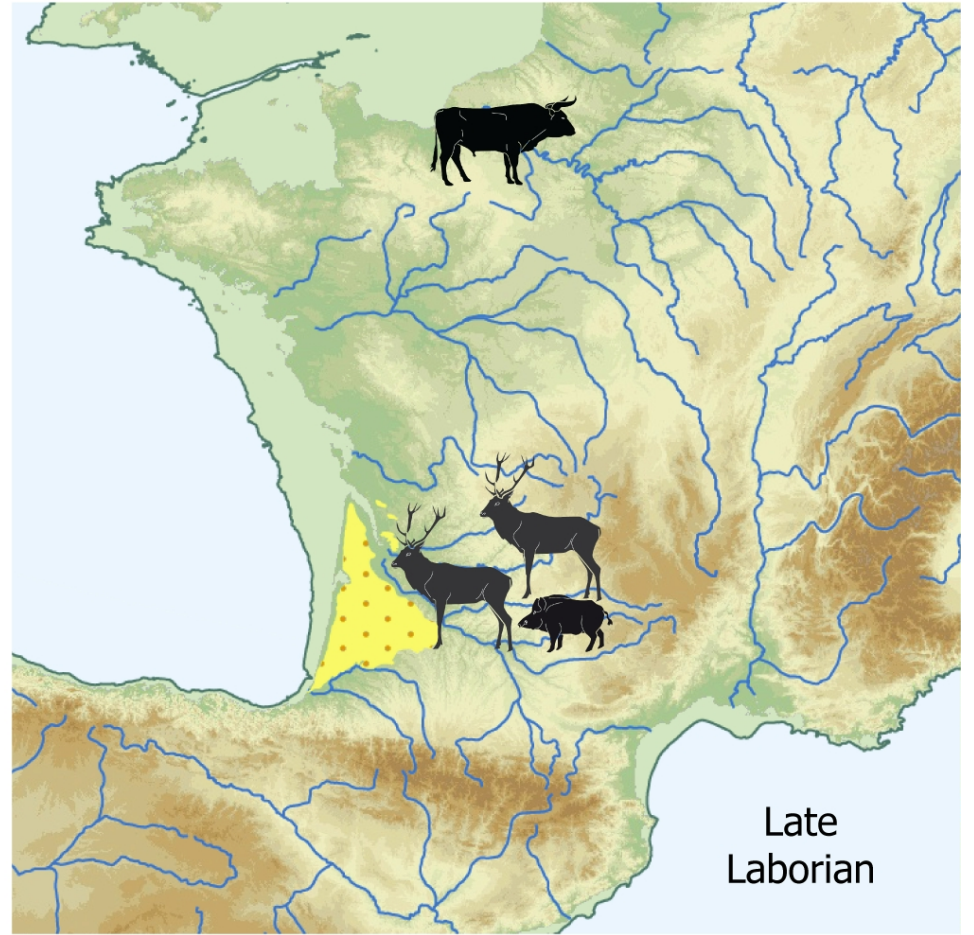
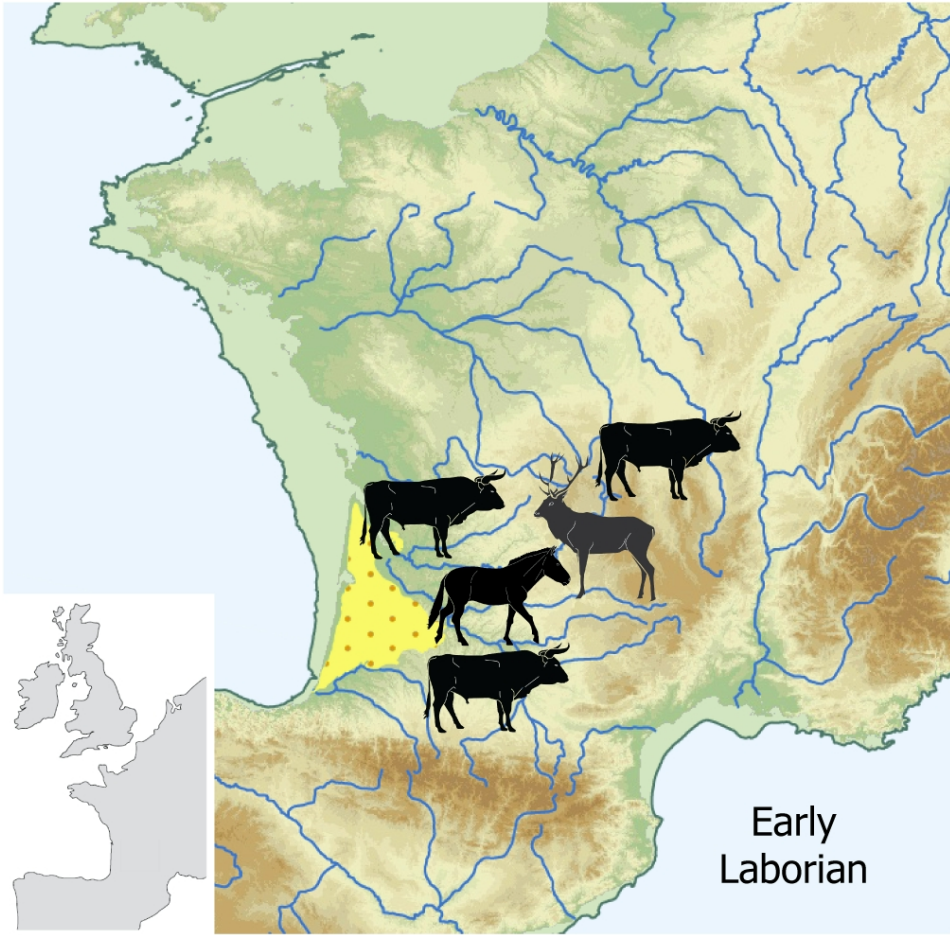
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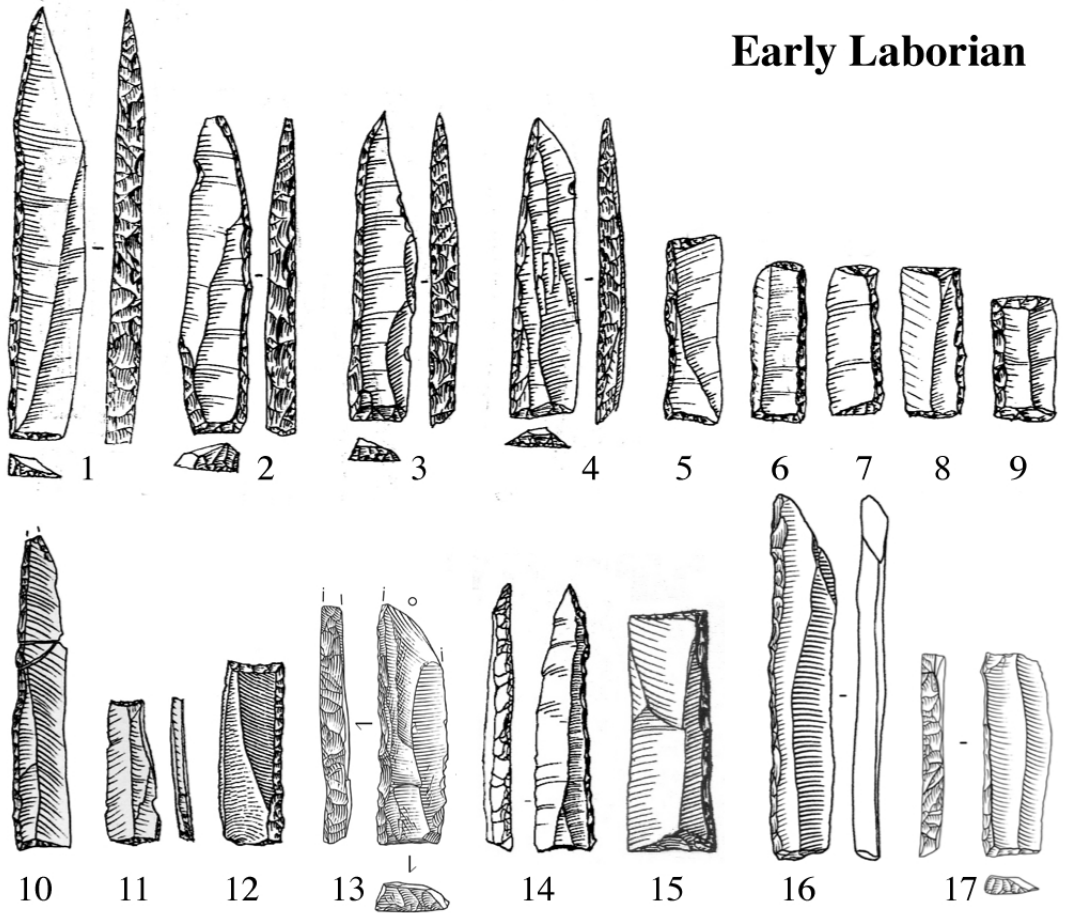
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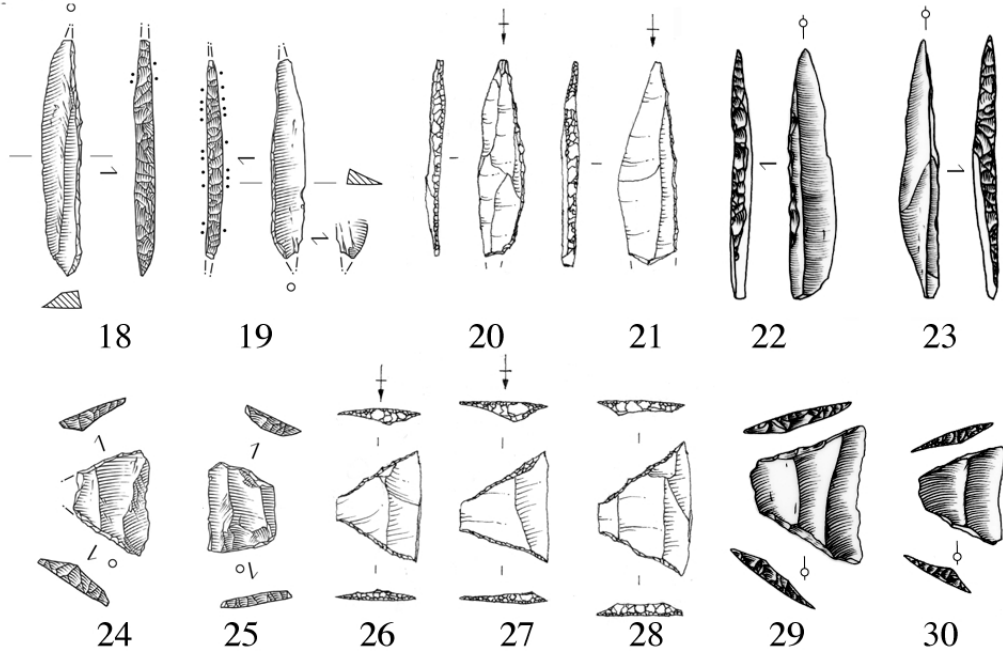




## Early Laborian

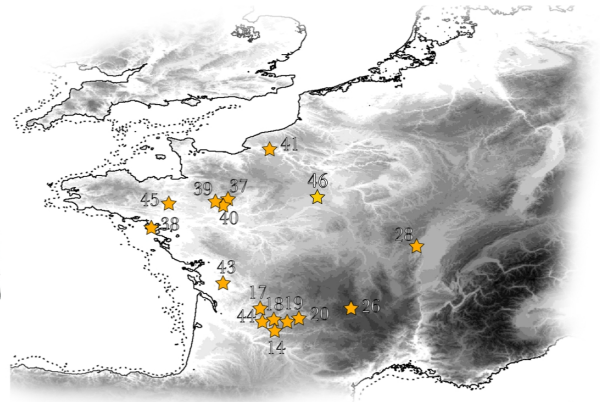


## Late Laborian

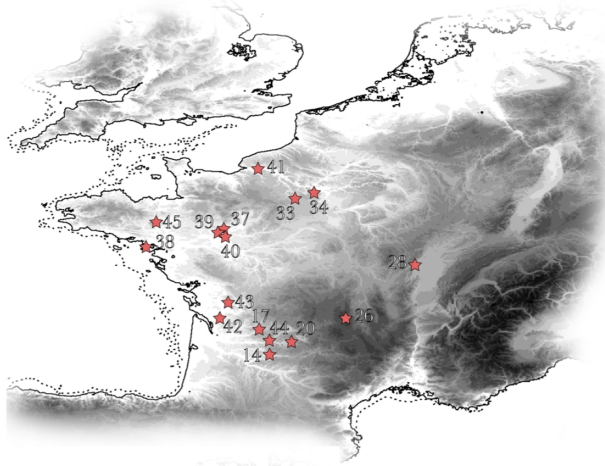


5 cm

Late Laborian

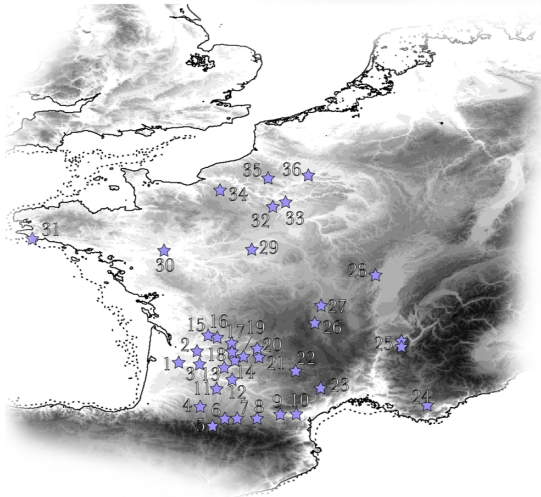
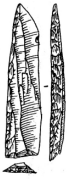


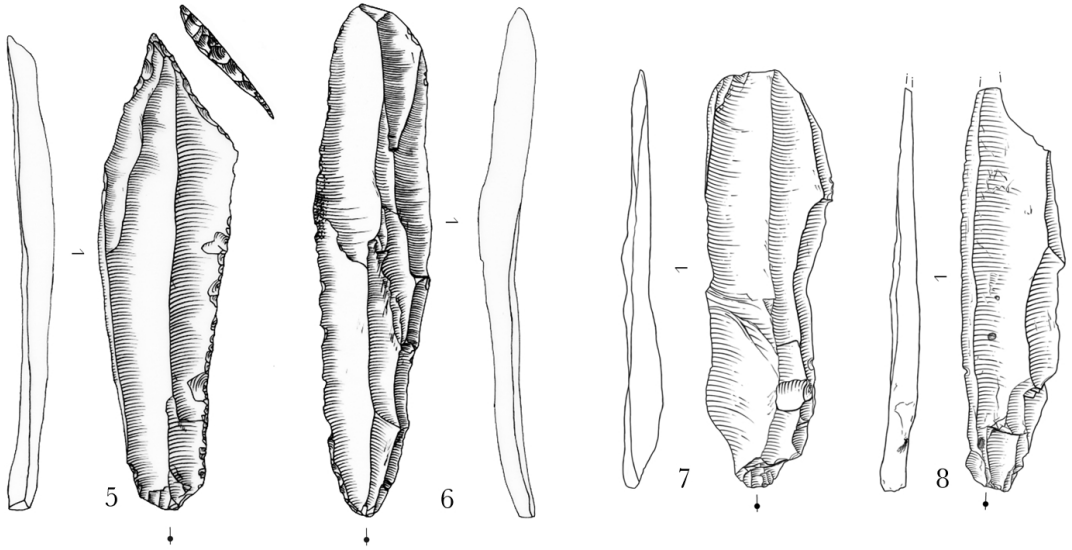
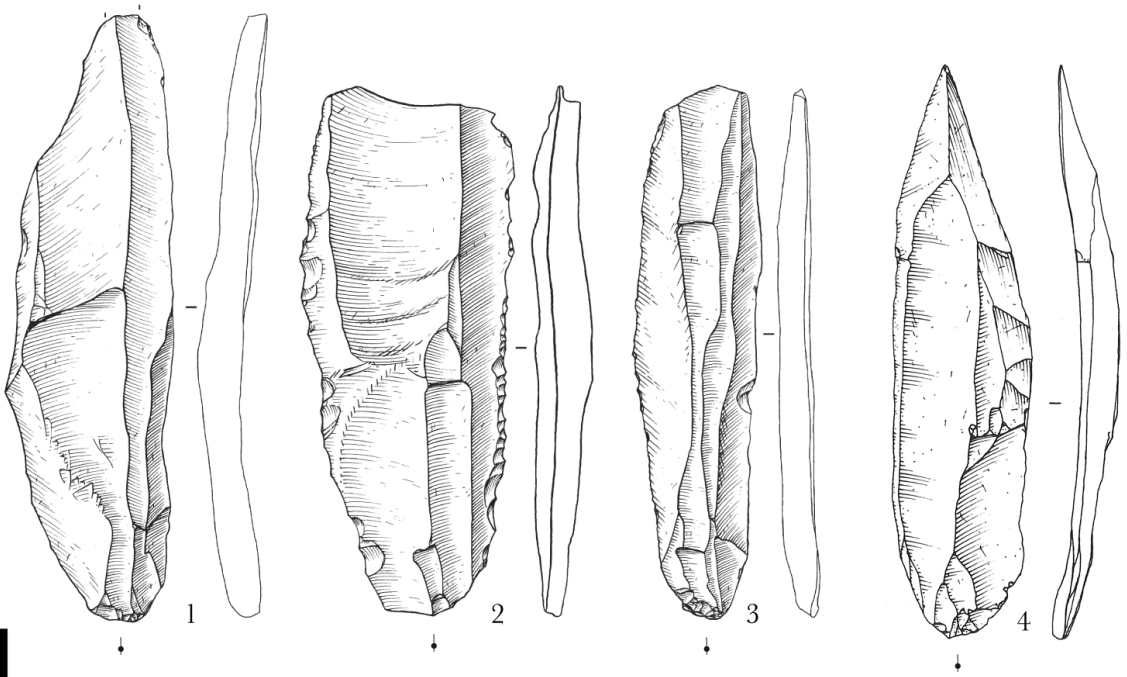
Late Laborian



500 km

Early Laborian



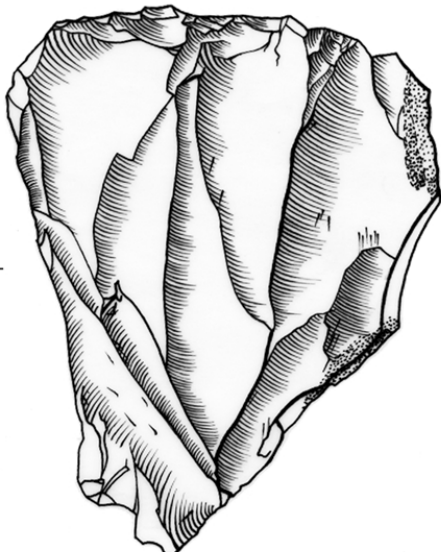




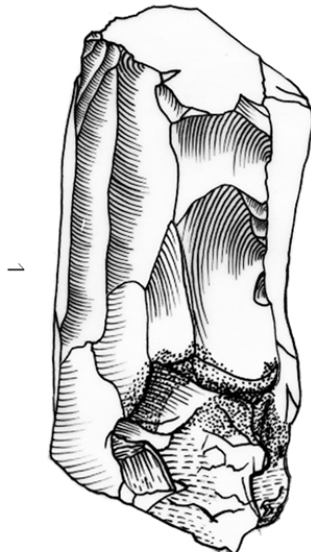
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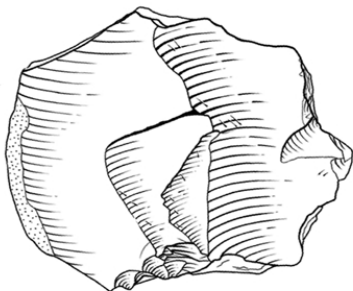
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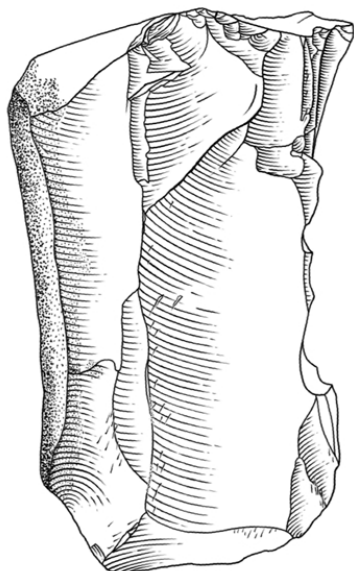
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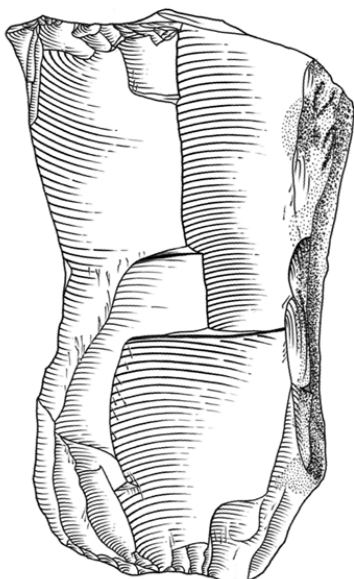


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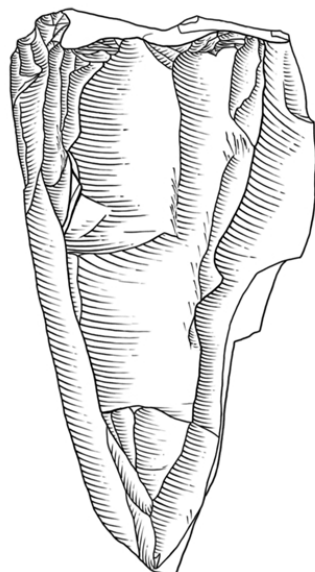


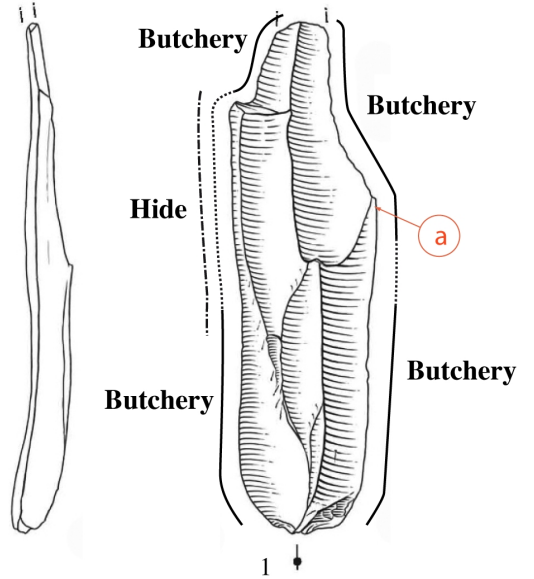
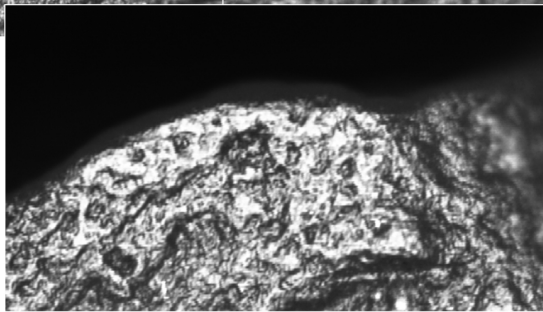
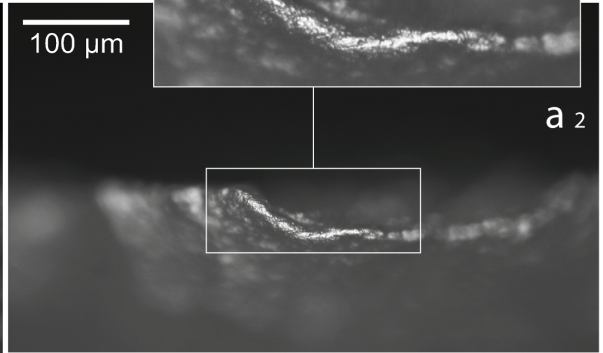
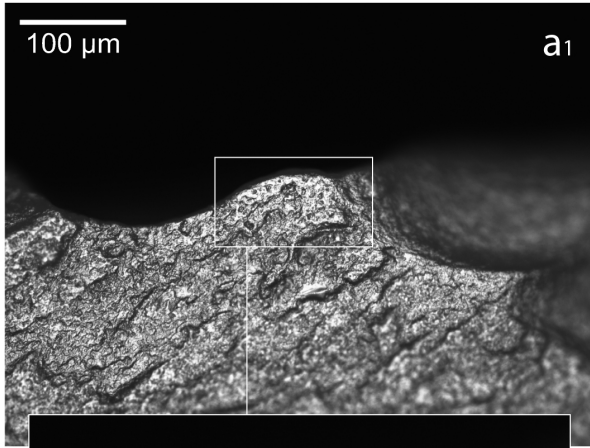
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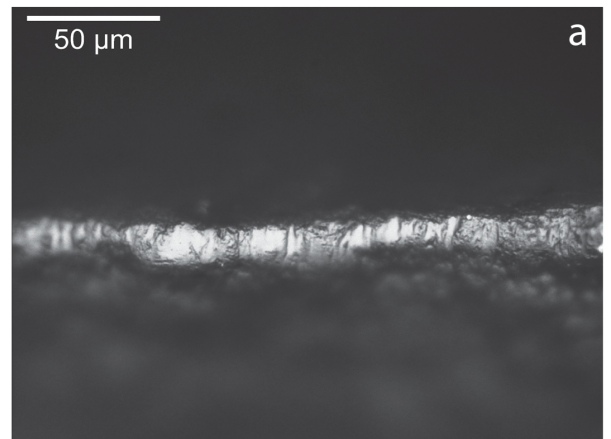
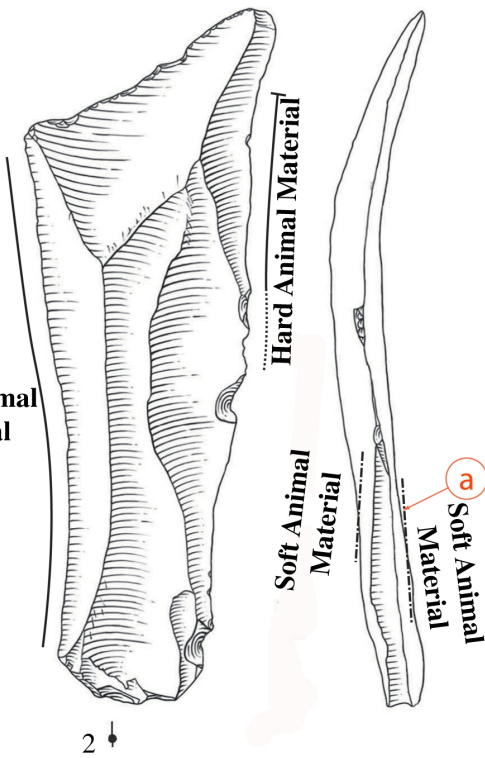
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3 cm

Hard Animal Material



<b>n°</b>	<b>site</b>	<b>n°</b>	<b>site</b>
1	Preignac	24	Baume Goulon
2	Le Morin	25	Colomb-La Passagère
3	Le Roc	26	Cuze de Neussargues
4	Gouërris	27	Champ Chalatras
5	Troubat	28	Vaise
6	La Tourasse	29	Muides/Loire
7	Buholoup	30	Guichaumerie
8	Mas d'Azil	31	Plobannalec
9	Gazel	32	Blanchères
10	L'Abeurador	33	Closeau
11	Manirac	34	Calleville
12	Guitard	35	La Muette
13	Port-de-Penne	36	Ercheu
14	Borie del Rey	37	La Fosse
15	Rochereil	38	Vigie Romaine
16	Pont d'Ambon	39	Auvours
17	Auberoche	40	Rochefort
18	Moulin du Roc	41	Alizay
19	Roc d'Abeilles	42	La Pouyade
20	Peyrazet	43	Les Prises
21	Malaurie	44	Gare de Couze
22	Roquemissou	45	La Cadiais
23	Usclades	46	Chevilly-Vallée du Nant