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HUNTING CAMPS IN PREHISTORY

Current Archaeological Approaches



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Article outline

CONTRIBUTIONS OF THE 2004 PREVENTIVE EXCAVATION TO UNDERSTANDING THE AURIGNACIAN OCCUPATIONS AT SOLUTRÉ (SAÔNE-ET-LOIRE, FRANCE)

Grégory BAYLE, Céline BÉMILLI, Nelly CONNET

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CONTRIBUTIONS OF THE 2004 PREVENTIVE EXCAVATION TO UNDERSTANDING THE AURIGNACIAN OCCUPATIONS AT SOLUTRÉ (SAÔNE-ET-LOIRE, FRANCE)

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Abstract

The Aurignacian levels of Crôt-du-Charnier at Solutré (Saône-et-Loire) were the object of a preventive excavation in 2004. This work yielded a considerable amount of faunal remains and thus confirmed the significant role of hunting and its associated technical activities at this site, such as butchery, hide working and the collection of bone materials. The nature of the lithic industry, composed of a small number of pieces, indicates that human groups came to the site with a toolkit that was manufactured in large part elsewhere. The abundance of bone remains and the scarcity of lithic artifacts raises the following question: does this site, whose topography favored the passage of animals and thus would have made it an attractive location for hunting, correspond to a specialized occupation complementary to a more long-term occupation elsewhere? In other words, how can we define the Aurignacian occupations of this site? Can we qualify them as “stops” or “camps”? The complexity of these definitions of the nature and function of prehistoric sites is discussed in the case study that we present here.

Keywords

Solutré, Aurignacian, occupations, fauna, lithic.

1 - Introduction

The Upper Paleolithic levels of the prehistoric site of Solutré, discovered in the middle of the 19th century, have yielded a remarkable accumulation of well preserved bone remains. The topographic configuration of the site and the recurrence of its faunal accumulations, mostly composed of equids, have led researchers from the time of the first studies to interpret it as major hunting location. Though the hypothesis of mass kills of horse herds driven from the top of the Roche is now definitively rejected (Poplin, 1990; Combier, 1976), the question of the nature of the occupations and the artifact accumulations remains unresolved.

2 - Presentation

The site of Solutré is located in the Saône-et-Loire department in the Burgundy region of France. It opens directly onto the Saône valley (figure 1). The geographic situation of this open-air site may have given it a strategic advantage: it occupies a sort of esplanade on the western edge of the Saône valley where the Monts of Mâconnais meet the Bresse plain. It thus overlooks a corridor through which herds passed between the plateau and the valley.

From the foot of the Roche until the village, Solutré has been the object of many excavations that revealed an intensive occupation starting in the Middle Paleolithic and continuing into the Upper Paleolithic. The main cultural phases of this latter period are represented at Crôt-du-Charnier, where they are associated with a constant and recurrent exploitation of equids. The site is estimated to cover a surface of more than one hectare (Combier, 1976). Two zooarchaeological analyses have been realized, one by S. Olsen (1989) for part of the Aurignacian, and the other by E. Turner (2002) for the Magdalenian. Their results confirm that hunting took place at the site, mostly of equids. S. Olsen estimated the presence of at least 32,000 carcasses over the entire site and throughout the stratigraphic sequence (Olsen 1989). The hypotheses concerning the hunting strategies diverge, however, depending on the author. The horses could have been driven from the bottom of the valley toward the Roche where they were killed (Olsen 1989), or they may have been killed by hunters waiting in ambush on the Roche (Turner 2002).

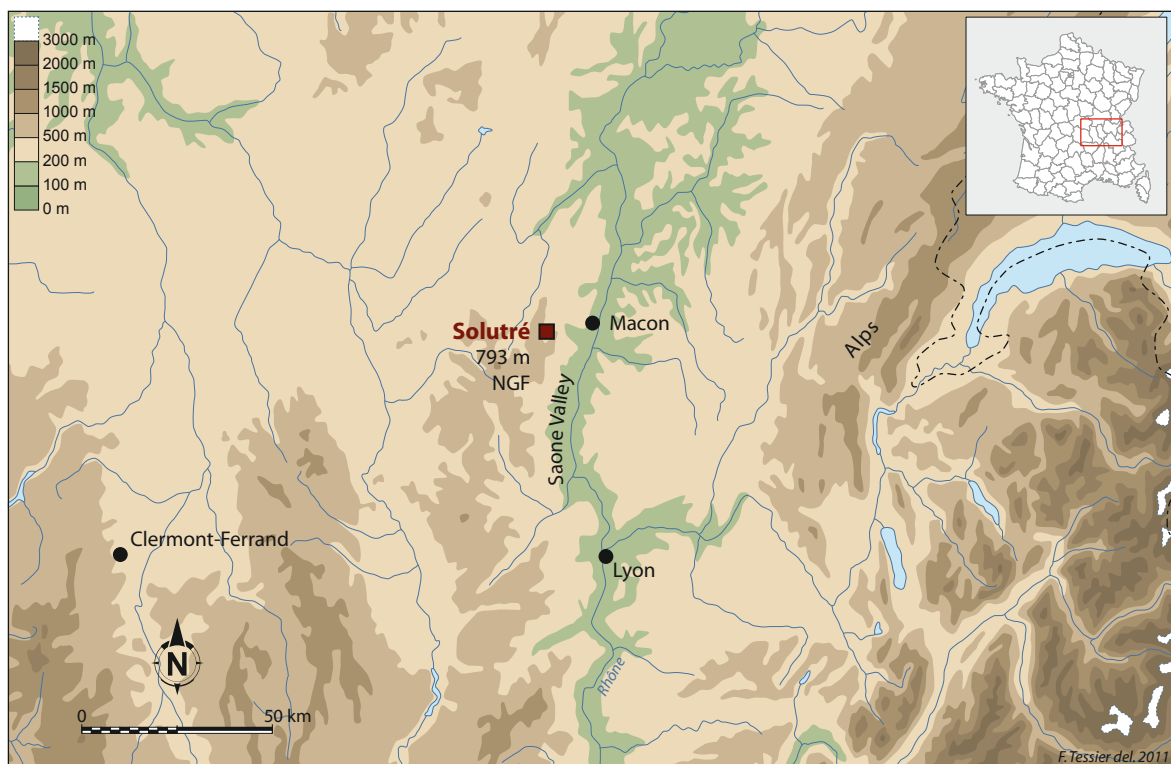


Figure 1 - Location of the site of Solutré (R. Bernard and F. Bambaggioni, INRAP).

In 2004, a preventive excavation was conducted in advance of the construction of an archaeological park at the site of Crôt-du-Charnier at Solutré. It concerned two Aurignacian levels preserved over 15 m² and located a few meters to the south-east of the excavation by J. Combier and A. Montet-White (figure 2; Connet *et al.*, 2005).

3 - The archaeological deposits

The stratigraphic sequence of Crôt-du-Charnier is mostly composed of limestone plaques that fell from the Roche (Combier, Montet-White, 2002; Konik *in* Connet *et al.*, 2005). This sediment has many voids and is unstable. It is deposited on a relatively steep slope with some areas of

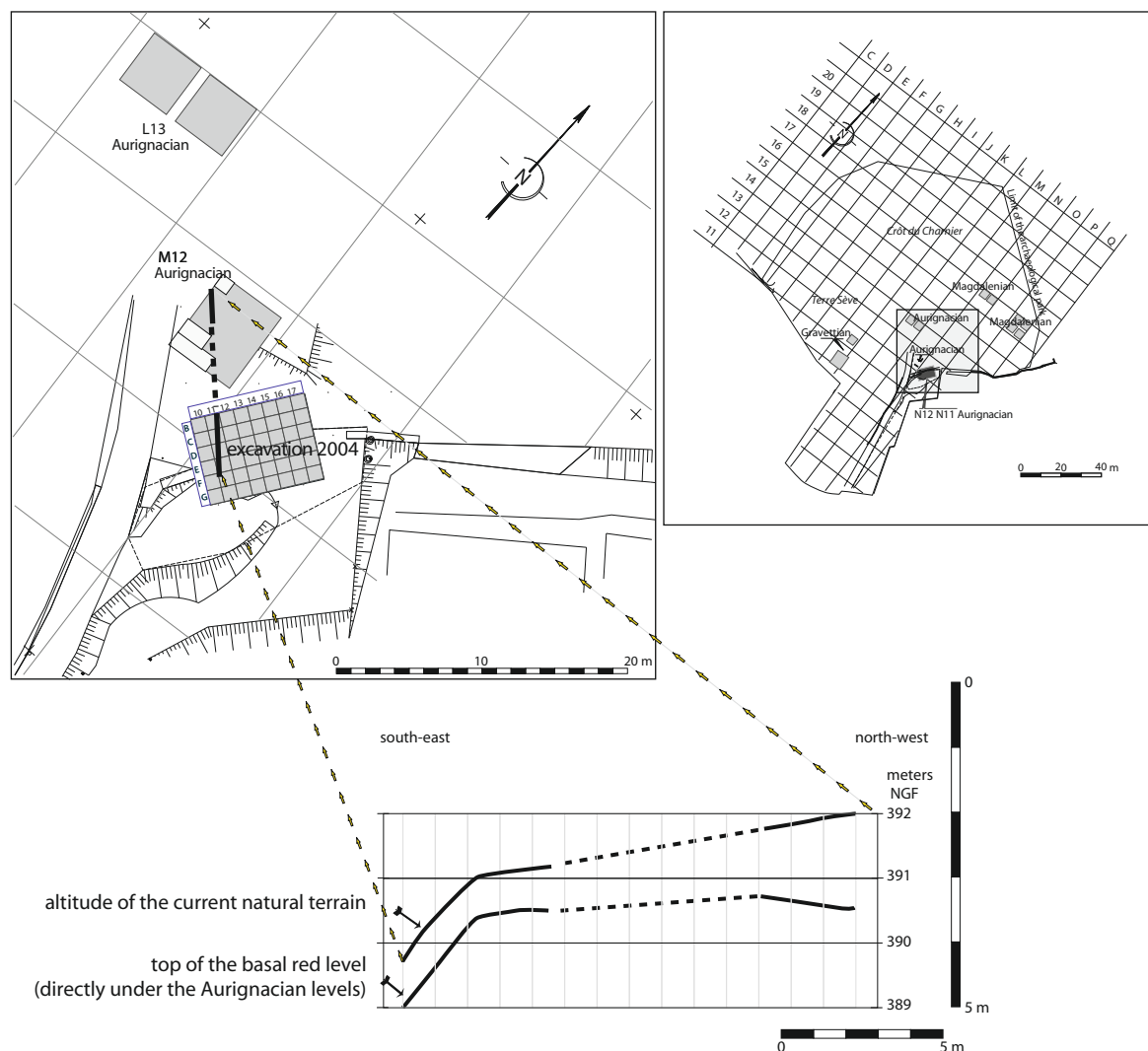


Figure 2 - Plan and profile of the preventive archaeological excavation realized in 2004 relative to the earlier excavations (Connet et al., 2005 modified).

the 2004 excavation at around 30%. Two sedimentary units corresponding to two archaeological levels (1 and 2) were identified. In this paper, we present the lower one, level 2, which yielded the greatest number of artifacts.

Level 2 is from 10 to 50 cm thick. It overlies an uneven substratum and fills its irregularities. The artifacts discovered in this level are attributed to the Early Aurignacian, dated by C^{14} to between 29 300 and 28 000 BP (Lyon-3150, 3153, 3155). They include a large quantity of well preserved animal bones whose surfaces are only slightly modified by roots and atmospheric agents. Through excavation and systematic sieving, 41 000 remains were collected, for a total of more than 2 700 remains per m^2 . The lithic industry consists of 695 artifacts (an average of 46 objects per m^2), representing 1.7% of the total archaeological assemblage.

In addition to the lithic and faunal remains, bone tools were also found. At the base of level 2, an ash horizon composed of burned bone and charcoal could correspond to the emptying of hearths onto the slope.

4 - The bone industry and personal ornaments

A few bone tools were identified among the faunal remains. They include two “finished” and used tools in the form of a smoother and a burnisher, indicating activities other than butchery, probably associated with the treatment of hides. In addition, around ten diaphysis fragments (one third reindeer and two thirds horse) were used as retouchers. Finally, a few fragments of reindeer antler display manufacturing traces and some mammoth tusk fragments could correspond to the first stages of manufacturing. We should emphasize that there is a clear deficit of reindeer antler, especially the beams, suggesting that they were transported away from the excavated zone.

Two ivory beads and an incised marmot incisor were the only personal ornaments found over the 15 m² excavated in 2004 and the first discovered in the Aurignacian levels of Solutré (figure 3).

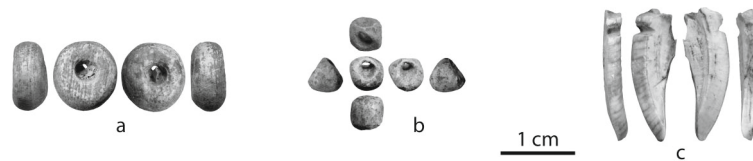


Figure 3 - Solutré 2004, level 2, personal ornaments recovered in 2004 (photograph : M. Vanhearen in Connet et al., 2005).

5 - The hunted fauna

The 3594 determined remains in level 2 at Solutré are attributed to nine species, seven of which are mammals: mammoth (*Mammuthus primigenius*), horse (*Equus sp.*), reindeer (*Rangifer tarandus*), wolf (*Canis lupus*), fox (*Vulpes sp.*), hare (*Lepus sp.*) and marmot (*Marmotta marmotta*). Birds and fish are represented by a few remains that could not be specifically determined. Only three species among the nine identified were consumed with certitude. These are horse, which is represented by approximately two thirds of the remains (NR = 2257), and reindeer, represented by the other third (NR = 1241), and Hare, which is represented by around thirty remains (table 1).

The environment of the site suggests that the two main ungulate species circulated between the plateaus and the Saône valley, through the small valley below. It is very likely that it is this context that motivated human groups to occupy this site.

Tableau 1 - Solutré 2004, level 2, inventory of the faunal remains.

Taxons		NISP	% NISP	MNif	MNIc
Horse	<i>Equus sp.</i>	2257	62,1	18	29
Reindeer	<i>Rangifer tarandus</i>	1241	34,2	10	12
Wolf	<i>Canis lupus</i>	10	0,3	1	1
Fox	<i>Vulpes/Alopex</i>	15	0,4	2	2
Mammoth	<i>mammuthus primigenius</i>	27	0,7	1	1
Hare	<i>Lepus sp.</i>	35	1,0	1	1
Marmot	<i>Marmotta marmotta</i>	1	0,0	1	1
Bird		4	0,1		
Fish		4	0,1		
Total number of identified specimens		3594			
Undetermined		3274			
Small (non mapped remains)		41020			
Total number of specimens (NSP)		47888			

5.1 - Horse hunting strategies

We estimated the minimum number of individuals based on an analysis of dental eruption and wear stages, as well as the stages of epiphysation, resulting in a combined MNI of 29. The age data indicated that the horses were killed at different times of the year with a peak at the end of fall and in winter. The hunted population is composed only of females and young. The absence of males indicates the hunting of several “harem” type herds (figure 4).

5.2 - Horse skeletal representation and carcass processing

All of the skeletal parts of horses are represented, suggesting they were hunted at or near the site. The high number of lower limbs in anatomical connection – which represent the waste products resulting from an initial dismembering of the carcasses – argue in favor of hunting at the site (figure 5). We recorded a relatively small number of cut marks (on 2 % of the horse remains), which nonetheless represent the main phases in carcass processing. These phases are: skinning, disarticulation and defleshing, with fractures and impact points on the bones indicating an extraction of the marrow. Except for a few metapodials in loose connection with the phalanges, all of the long bones were broken (the whole long bones represent 14.3 % of the horse long bones). All of these elements indicate that the horses were partially consumed in place. A small deficit of some meaty parts (neck, shoulder, upper limb) was nonetheless observed and suggests a possible selection or specific preparation and an exportation of these parts away from the excavated zone.

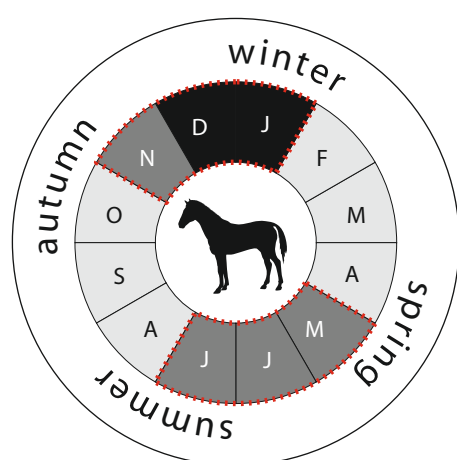


Figure 4 - Solutré 2004, level 2, season of death of the horses.

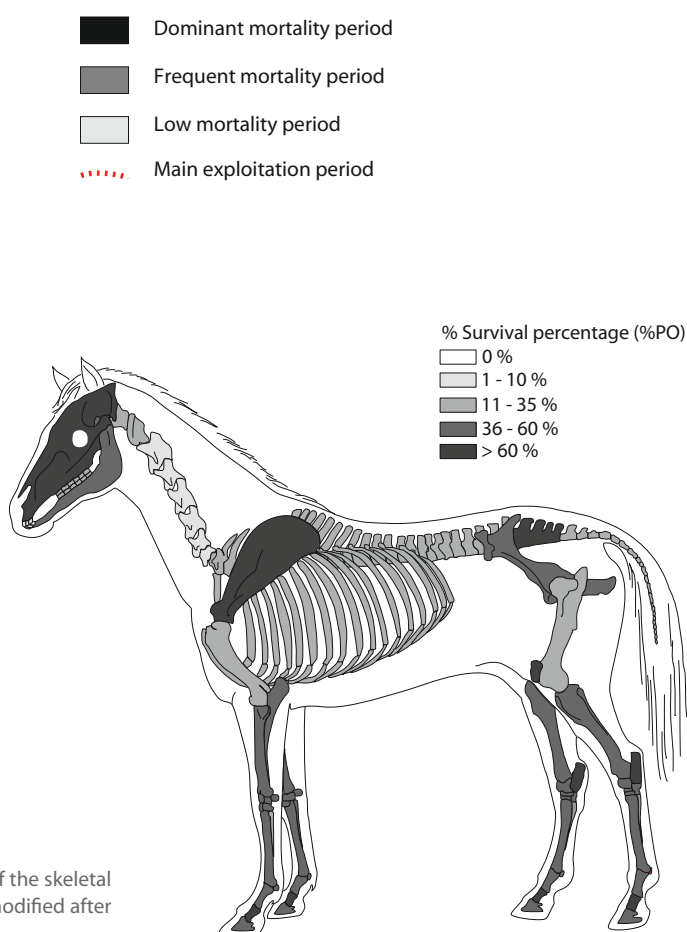


Figure 5 - Solutré 2004, level 2, survival percentage of the skeletal parts of the horses. (drawing: M. Coutureau [INRAP] modified after R. Barone, 1976).

5.3 - Reindeer hunting strategies

A minimum of 12 reindeer were identified in level 2 (based on dental elements). They were hunted at different times of the year with, as for horse, a peak at the end of fall and in winter. These kills mainly concerned young adults and adults. The sex-ratio of the reindeer population is more balanced than that of the horses with both males and females present. This indicates the hunting of different herds and confirms the seasonality data obtained based on dental ages (figure 6).

5.4 - Reindeer skeletal representation and carcass processing

All the skeletal parts of reindeer are represented (figure 7). Though it is easier to transport a reindeer carcass than a horse carcass, we believe the hypothesis of hunting at or near the site to be more plausible because all the phases of carcass processing are present. The few cut marks observed (on 3 % of the reindeer remains) suggest, as for horse, that the carcasses were skinned, disarticulated and defleshed, and the marrow extracted from the long bones. All of the long bones are fractured. All of these elements indicate at least a partial consumption in place. The use of diaphysis fragments as tools (pressure flaker / retoucher) shows that varied activities were conducted at the site. The lack of antlers suggests that they were exported away from the site.

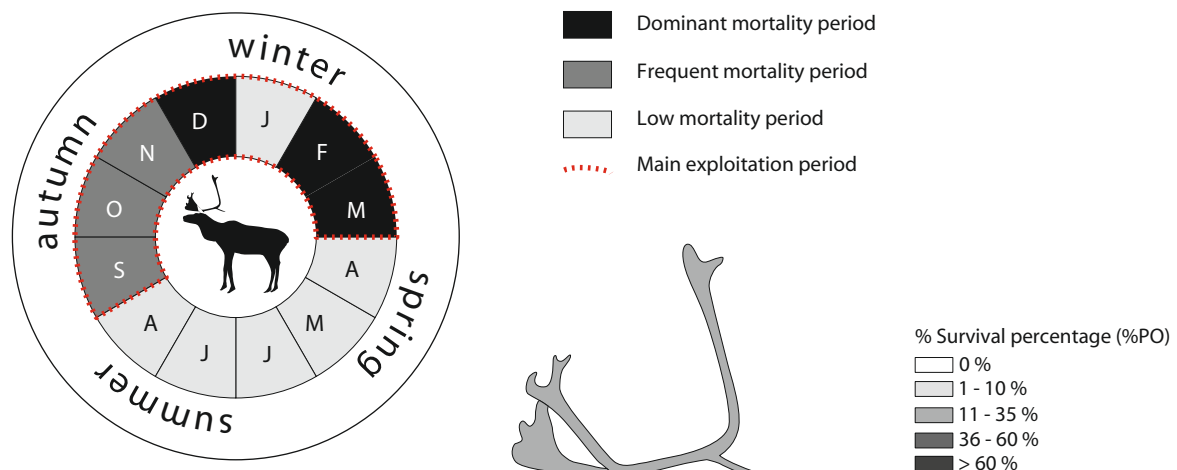


Figure 6 - Solutré 2004, level 2, season of death of the reindeer.

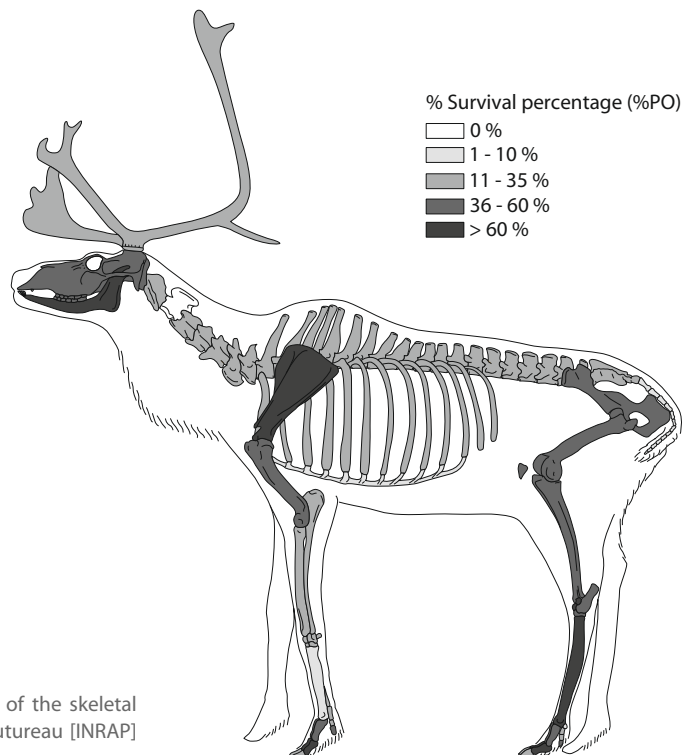


Figure 7 - Solutré 2004, level 2, survival percentage of the skeletal parts of the reindeer (drawing: C. Beauval and M. Coutureau [INRAP] modified after Cl. Bellier and P. Semal).

The main characteristics of this assemblage are also observed in the other Upper Paleolithic occupations of Solutré (Olsen, 1989; Turner, 2002). Horse is always the dominant species, followed by reindeer. We observe a small difference in the Magdalenian with the appearance of bison (Turner, 2002). The horse carcasses are nearly complete in the Aurignacian and Magdalenian assemblages, while the rachis and meaty parts of the limbs are present in smaller quantities in the Magdalenian. As in our sample, some parts, lower limbs and rachis in particular, were found in anatomical connection. In all the occupations, there is a low number of cut marks, which nonetheless represent all of the phases of carcass processing (skinning, disarticulation, evisceration, meat removal and marrow extraction). While in the Magdalenian it appears that horse and reindeer were hunted mainly in winter and spring, and female and young specimens were favored (Turner, 2002), in the Aurignacian levels studied by S. Olsen, horses were mostly hunted in summer (1989).

In summary, horse and reindeer were hunted at or near the site at all times of the year, with certain periods of more intensive occupation (or activity?). There is no doubt that this was a hunting site where initial carcass processing and consumption also took place. Meanwhile, it is more difficult to define the duration and intensity of these occupations based on the faunal data alone.

6 - The lithic industry (figure 8 ; table 2)

The lithic artifacts in level 2 compose a small assemblage of nearly 700 pieces, two thirds of which consist of small and very small knapping waste products (70 % < 10 mm and 55 % < 5 mm).

There are no exploitable siliceous materials in immediate proximity to the site. The lithic industry probably originates from the clays with flint in the Mâconnais region, located within a range of a few kilometers.

Two qualities of flint are present, one fine-grained and one coarse-grained. The absence of cores and the small number of preparation elements in the fine-grained flint suggests that these pieces arrived in the form of finished tools (including nonretouched and retouched blades and bladelets). For the coarse-grained flint, three bladelet cores on which we were able to realize a few refits indicate a partial exploitation of this raw material in place. Finally, six objects in a local chert were found, showing a very small-scale exploitation of this material. The absence of initial preparation products and the small number of cortical elements (1 %, other than small pieces)

Tableau 2 - Solutré 2004, level 2, inventory of the lithic remains.

SOLUTRE N11-12 level 2 (2004 excavation)	Fine flint	Coarse flint	Chert	Total
Whole flakes	8	11		19
Flake fragments	44	27	2	73
Whole blades and bladelets	13	6		19
Blade and bladelet fragments	37	34	1	72
Tools (w/o pieces with partial retouch)	16	10	2	28
Cores		3		3
Debris		2	1	3
Total	118	93	6	217
Small, whole by-products (5 to 10 mm)		49		49
Very small whole by-products (< 5 mm)		86		86
Small and very small fragments (< 10 mm)		338		338
Total				695

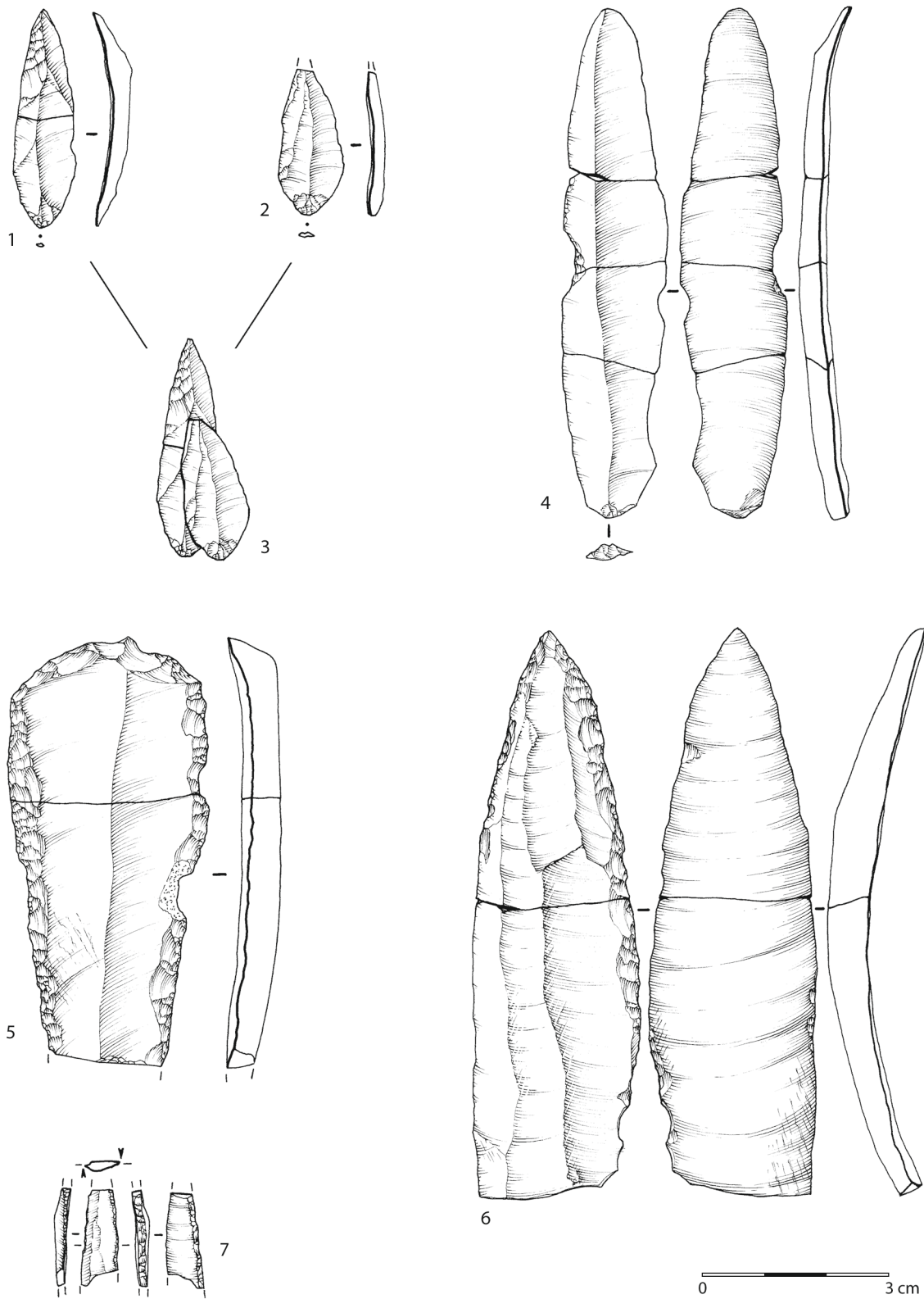


Figure 8 - Solutré 2004, lithic industry: 1 to 3: bladelets; 4: retouched blade; 5: end-scraper; 6: convergent retouched blade; 7: Dufour bladelet (drawings: E. Boitard *in* Connet et al. 2005).

suggests that blade cores were prepared outside of the excavated zone. Meanwhile, the presence of two core tablets and a few preparation elements, including two crested blades (transformed into tools) indicates that part of the blade manufacturing was conducted in place. The Aurignacians of Solutré thus arrived at the site with initially prepared bladelet cores (carinated and on nodules). Finally, the presence of retouch flakes (tool fabrication and resharpening flakes) show that at least some of the tool manufacturing and maintenance took place at the site.

In addition to the small tool and bladelet fabrication waste products, blades represent 40 % of the lithic industry of level 2. These include six retouched blades, five end-scrapers, one borer and 14 bladelets. These latter include one fragment of a backed bladelet and one Dufour bladelet with a lipped transverse fracture surface characteristic of a violent frontal impact. There is one burin spall.

The state of preservation of the lithic artifacts does not permit a usewear analysis and it is thus difficult to reliably interpret the functions of the tools. Nonetheless, the presence of retouch flakes, the dominant tool types (end-scrapers and retouched blades) and the large quantity of unretouched edges argue in favor of a site in which flint tools were used in association with the faunal remains present. The number of abandoned “useable” flint pieces, in the form of tools and objects with sharp edges, including fragments, can be estimated at 150. Based on experimentation (Poplin, 1972), this number appears sufficient for the processing of the 41 carcasses present at the Solutré, especially given that this processing appears to have been partial. Only the Dufour bladelet would argue for hunting activities by the occupants of Solutré.

The lithic artifacts recovered during later excavations of the Aurignacian levels of Solutré are very similar to those recovered in 2004, in terms of both their small number and their typotechnical composition (Combier and Montet-White, 2002). There is one blade core in coarse flint found during the later excavations (*op. cit.*), in level 5 of sector M12, which attests to more complete blade manufacturing activities at the site. According to the data of the 2004 excavations and later excavations, the Aurignacian groups that occupied the foot of the Roche of Solutré appear to have had similar behaviors:

- they arrived at the site equipped with blades, prepared cores and retouched blades or end-scrapers, some of which could have been realized or reworked in place;
- in the 2004 excavation zone, the rejection of blade tools and raw blades, along with the small quantity of blade debitage by-products (absence of cores, crested blanks transformed into tools) show a division in space, perhaps partly at the scale of the site, and time (acquisition, production, consumption) of the laminar *chaîne opératoire*;
- for bladelets, the remains present indicate a greater production unity, though we cannot determine their function, which, in the case of weapon element manufacturing, would be associated with objectives different than those of the blade production.

7 - Hunting camps at Solutré?

The exploitation of a location by a prehistoric group implies the existence of flint and animal product procurement sources, which though they can be the same, are often dissociated. In a procurement territory, whose dimensions could have changed with the seasons, what factors would define a residential camp: a long occupation duration, traces of structured installations (postholes, traces of tents), the intensity and diversity of activities? These characteristics are observed in a few open-air sites and in numerous cave and rock shelter sites. At the other extreme, what factors would indicate a “hunting camp”; a short occupation duration, a specific function, a decomposition of subsistence activities in time and space?

The few meter squares excavated in 2004, even if we integrate them with the 16 m² excavated in M12 (Combier and Montet-White, 2002), constitute only part of the Aurignacian occupation at Crôt-du-Charnier. Moreover, level 2 (correlated with level 6 of the excavations of J. Combier) corresponds to an accumulation of occupations, as is shown by the seasons of death of the hunted animals. In this context, how do we define the function and duration of these occupations?

It is certain that the site constituted a strategic hunting location. The presence of all the skeletal parts of animals suggests that they were killed in place, thus fitting the definition of a kill site.

In the lithic industry, we see the introduction of partially or totally transformed tools. There was thus a break in the production sequence between one or several sites of raw material procurement and core preparation, and the zones excavated at Solutré where some of the tools were manufactured, transformed, used and recycled.

Analysis of the bone remains shows that all the stages of carcass processing of the two main species are present. In addition, consumption of the animal products and associated activities, such as hide working, also took place at the site. The presence of combustion traces could also attest to the preparation of animal products.

In summary, though it is not possible to determine the duration of each occupation, due to a sedimentary context that does not allow us to identify distinct occupation phases, it is nonetheless possible to at least partially understand the function of the site and to propose the following definition: at Solutré, the recovered remains indicate a diversity of activities associated with the processing of hunted animal carcasses. More than a hunting camp, it thus appears to have been a site at which prey was killed, skinned and defleshed, and where the initial working of bone and antler was realized. Was it associated with a more long-term camp located elsewhere? Perhaps the lack of some elements, such as cervid antlers, could indicate their transport outside of the excavated sectors, along with the probable exportation of some meat portions. Nonetheless, in contrast to a hunting camp, or “stop” in the strict sense (meaning a site very occasionally occupied by a only a few hunters, more or less randomly during their displacements), Crôt-du-Charnier more closely resembles a true hunting camp where the members of a group gathered to participate in all the activities associated with the processing of prey hunted at a site well known for its favorable conditions for this activity.

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