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HUNTING CAMPS IN PREHISTORY

Current Archaeological Approaches



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Article outline

MOUSTERIAN HUNTING CAMPS:

Interdisciplinary Approach and Methodological Considerations

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Abstract

Recent studies concerning the exploitation of the environment by Neanderthals have revealed the existence of short-term seasonal Mousterian occupations focused on hunting activities. The exact nature of these activities has rarely been addressed through inter-disciplinary studies, however. An interpretive framework that draws upon criteria from paleontology, zooarcheology, techno-economy, archeopetrography and paleotopography helps distill the most salient aspects from each of these sites and ultimately leads to a better perception of the activities that took place at each one.

Keywords

Hunting camp, butchery site, kill-site, Mauran, Les Pradelles, La Rouquette, La Quina, bison, reindeer, Mousterian, Middle Paleolithic, interdisciplinary approach.

1 - Introduction

The complementary nature of human occupations within Paleolithic hunter-gatherer territories has now been generally accepted in prehistory and has itself come to represent a growing field of research. This complementarity is often difficult to recognize for the Paleolithic, however, since it is impossible to establish even an approximate contemporaneity between different sites. Nevertheless, methods for evaluating the types of activities carried out at each site do exist, thus making it possible to characterize their role within a dynamic settlement system. This task is aided by the fact that different human activities are segmented both spatially and temporally. The notion of *chaîne opératoire*, originally developed by ethnologists (Leroi-Gourhan, 1964; Lemonnier, 1976; Cresswell, 1976, 1983; Balfet, 1991) and now commonly employed by prehistorians, is an analytical tool that enables the sequence of these activities to be investigated. When applied to different aspects of the archeological record (stone tools, animal resources, etc.), it becomes possible to reconstruct the operational sequences from a particular site (acquisition / production – processing / use – consumption / discard). In certain favorable archaeological cases where both a techno-economic analysis of the stone tool assemblage and zooarchaeological studies are available, the role of the site within the territory of a human can be characterized.

In the context of this conference on prehistoric hunting-camps, we have attempted an interdisciplinary comparison of data (published and unpublished) from a small number of sites for which the above information is at least partially available.

Hunting camps, whether occupied before or after the hunt, are by their very nature short-term occupations representing specific activity sites devoted to acquiring prey (Locht *et al.*, 2009, pers. comm.). “Pre-hunting” camps are essentially hunting stands that leave no detectable diagnostic traces in the archaeological record (Binford, 1980), while genuine hunting camps represent locations where prey was actually acquired. These latter locations effectively represent kill-spots or areas linked to the processing of animal resources (butchery sites, possibly with the initial consumption of the kill) and may be identified under certain conditions. The slaughter and / or processing of a single animal is barely perceptible in the archeological record given the paucity of evidence left on the landscape – several weapon elements and / or tools occasionally associated with bones. Repeated localized hunting episodes, on the other hand, linked to significant topographic features and/or the mass slaughter of significant numbers of prey during the same hunting foray renders these types of sites more visible. In this context, the accumulation of a significant mass of meat and grease far too large for immediate consumption may lead to selective and therefore non-exhaustive carcass processing resulting in the abandonment of certain anatomic parts. This pattern of behavior is especially dependent on the prey and therefore its mass. The resulting skeletal profiles are thus characterized by reverse utility curves (*e.g.* Binford, 1978, 1981; O’Connel *et al.*, 1990; Speth, 1983) typical of the mass slaughter of significant numbers of forcibly gregarious ungulates during the same hunting episode and producing monospecific faunal spectrums. This study focuses on a series of Mousterian assemblages possessing this type of faunal assemblage: Mauran layer XV, Les Pradelles facies 2, La Quina level 6c and Rouquette layer 1.

2 - Dataset

The site of Mauran (Haute-Garonne), excavated by C. Farizy, lies against a partially eroded limestone cliff (Jaubert, 1994). Although only a small 25 m² surface was excavated, numerous test pits indicate that the site extends over more than a hectare. It yielded a Denticulate Mousterian (Jaubert, 1994; Thiébaut, 2005) attributed to MIS 3 and associated with a faunal spectrum comprised almost exclusively of bison (> 99 %, MNI= 137, *Bison priscus*, David, Farizy, 1994). The site of Les Pradelles (Marillac-le-Franc, Charente), excavated by B. Vandermeersch, followed by B. Maureille and A. Mann, is a collapsed karstic gallery (figure 1). Taphonomic analysis has demonstrated the faunal material to have a mixed origin, amassed by both humans and large carnivores, with the exception of the lower levels (Costamagno *et al.*, 2005). Facies 2 belongs to MIS 3/4 and has produced a Quina Mousterian dominated by reindeer (> 97 %, MNI = 55, *Rangifer tarandus*). This material was recovered from an area representing only a relatively small proportion of the estimated total occupation area¹ (Costamagno *et al.*, 2006).

La Quina (Gardes-le-Pontaroux, Charente), excavated by L. Henri-Martin and then A. Debénath and A. J. Jelinek, is located at the foot of a cliff (Henri-Martin, 1923; Jelinek *et al.*, 1989; Debénath, Jelinek, 1998). The 8m² excavated from the *Station Amont* have yielded MIS 3 and possibly MIS 4 levels. The Denticulate Mousterian from level 6c is associated with a bone assemblage dominated by bison (MNI = 22, 82 %) (Armand, 2005; Park, 2007).

1. Approximately 30 m² were excavated, while the overall surface of the site is greater than 120 m².

The site of La Rouquette (Puycelsi, Tarn), excavated by A. Tavoso, followed L. Bourguignon, is situated on a rock bench near the base of a cliff (figure 1, Tavoso, 1987; Bourguignon *et al.*, 2001). Layer 1, excavated over more than 45 m² of the site's estimated 1 hectare extension, yielded a Denticulate Mousterian (Bourguignon *et al.*, 2001). This surface, forming approximately 1/200th of the site, has yielded essentially bison remains (80 % NISP, MNI = 39). The layers were deposited during the course of MIS 3.

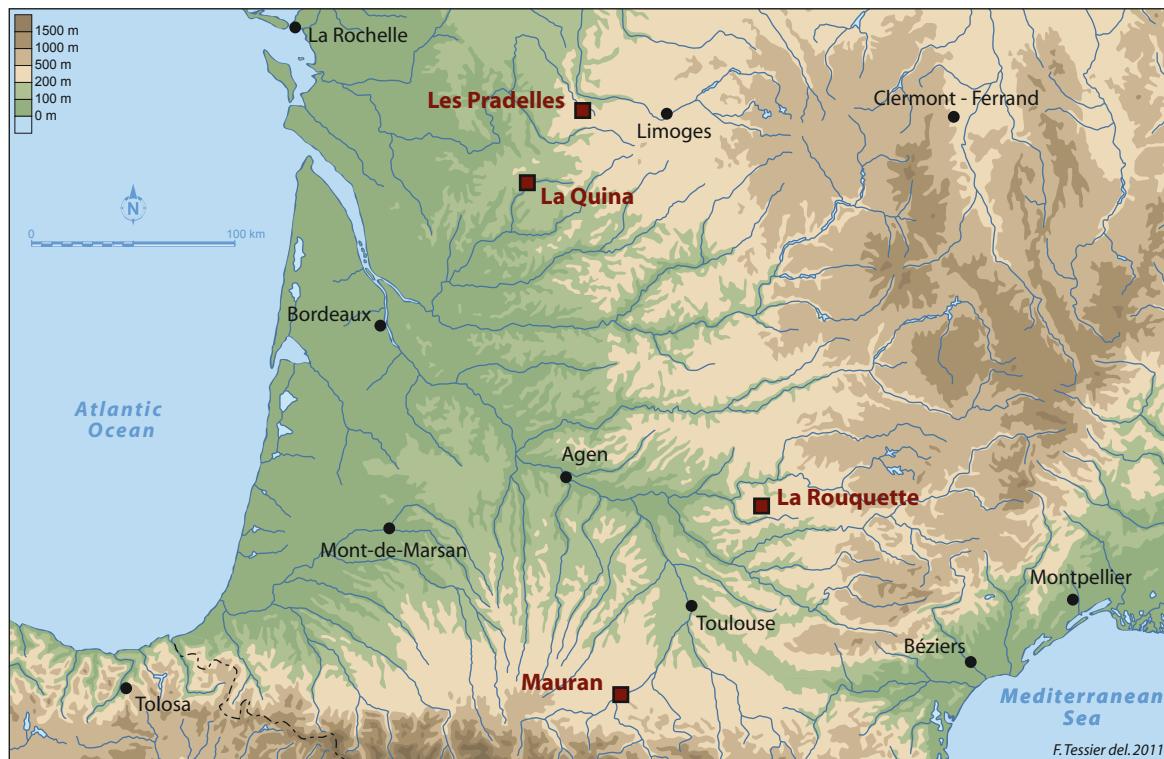


Figure 1 - Location of the sites used in the analysis.

3 - Methodology

A database was constructed from available information integrating lithic technology, debitage economy and subsistence behavior.

The transport of carcasses and their processing intensity represent two key factors likely demonstrating the slaughter of numerous individuals (see above). Skeletal profiles, degree of bone breakage and butchery marks were all considered. This information was complemented by prey species' age profiles and hunting season in order to evaluate Neanderthal hunting strategies.

In terms of lithic assemblages, the first factor considered (% of lithic pieces / number of bone remains²) highlights the relative contribution of lithic remains in assemblage composition and gives an indication of occupation duration, as well as the importance of processing animal resources.

2. Lithic artifacts greater than 2 cm and faunal remains greater than 3 cm were considered (not including sieving).

This information was then compared with the representation of the different, traditionally recognized phases of the *chaîne opératoire* at each site, in particular the technical forms under which certain products were introduced to the site. These elements were also evaluated by raw material grouped according to the respective distance to their source.

4 - Results

All of the sites considered (except La Quina for which the available information precludes this type of calculation) exhibit low densities of processed lithic materials compared with significant quantities of animal materials (table 1). This low density suggests brief occupations during which hunting and animal resource processing were the predominant activities. In the cases of Les Pradelles and La Rouquette, short-term occupations are also indicated by the absence of combustion features and the presence of bones burned after being processed by humans.

All of the assemblages present catastrophic mortality curves (table 1, David, Farizy, 1994; Armand, 2005; Soulier, 2008; Griggo, unpublished). Seasonality data systematically shows a slaughter at the end of the warm-season (Costamagno *et al.*, 2006; Rendu, 2007; Rendu, Armand, 2009, Rendu *et al.*, 2011), although at La Rouquette cold-season hunting is also documented (Fournier, 2004 ; figure 2).

Table 1 - Qualitative zooarchaeological data used in the analysis.

	Mauran ¹	La Rouquette ²	Les Pradelles ³	La Quina ⁴
NR lithic / (NR lithic + fauna)	16 % NR lithic = 1639 NR fauna = 8824	20 % NR lithic = 426 NR fauna = 1747	16 % NR lithic = 902 NR fauna = 7122	?
TAXON	BISON	BISON	REINDEER	BISON
MNI	137	38	59	22
Mortality Curve	Catastrophic	Catastrophic	Catastrophic	Catastrophic
Hunting Season	End of the warm-season	Summer and Winter	End of the warm-season	End of the warm-season
Anatomic Connections	++	-	0	0
Skeletal Profile	Transport of the richest elements		Introduction of rich elements. Absence of certain poor elements	Transport of richest elements
% of complete long bones	++	0	0	0
% of complete metapodials	+++	+	+	?
% of complete phalanges	+++	++	+	?
% of striations	-	-	+++	+++
% of percussion marks	+	+	++	?

After 1: David, Farizy, 1994; Rendu, 2007; 2: Griggo, inédit; 3: Costamagno *et al.*, 2006; Soulier, 2008.

4: Chase, 1999; Armand, 2005; Rendu, Armand, 2009.

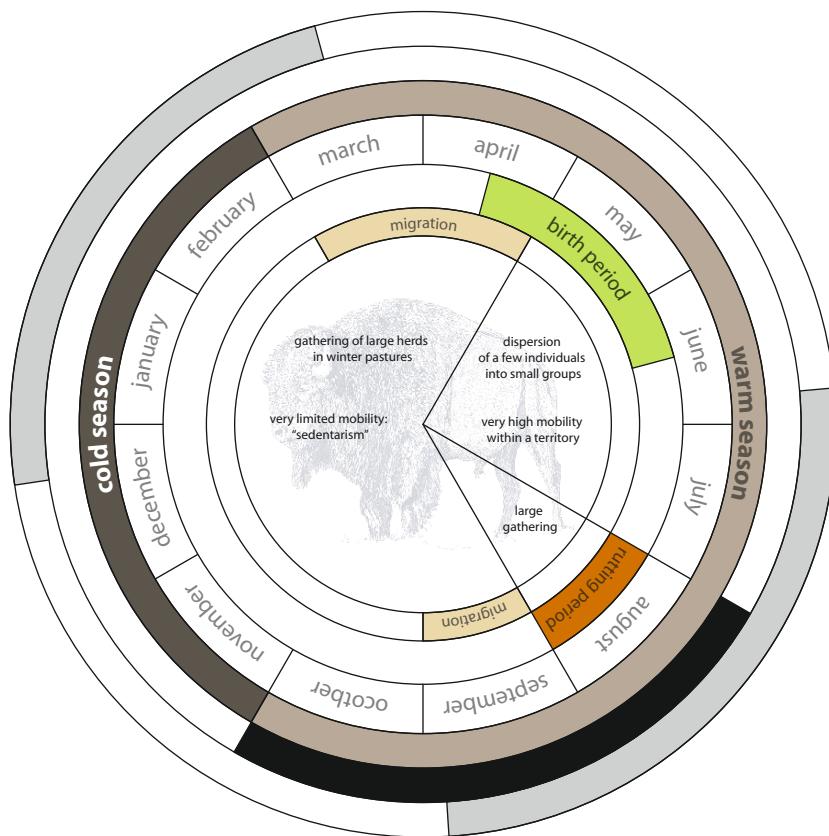


Figure 2 - Hunting seasons at Mauran and La Quina (black) and La Rouquette (grey) (Griggo, unmodified; drawing modified after Rendu, Armand, 2009).

An examination of the skeletal profiles reveals two different groups ([figures 3-5](#)). Bearing in mind the possibility of differential preservation of skeletal remains, the sites of Mauran, La Rouquette and La Quina are all characterized by the transport of richer elements from the site for deferred consumption, while less nutritious elements were abandoned on-site (David, Farizy, 1994; Griggo, unpublished; Chase, 1999). On the other hand, at Les Pradelles ([figure 6](#)) the clear over-representation of marrow-rich elements demonstrate that reindeer carcasses were introduced to the site after having been initially processed elsewhere (Costamagno *et al.*, 2006).

Other patterns emerge when the intensity of carcass processing is taken into consideration. At La Quina and Les Pradelles, complete bones are rare and anthropic traces are frequent, suggesting intensive exploitation of the skeletal remains present on the site. However, at Mauran and La Rouquette the severe alteration of cortical surfaces means that striation data could not be exploited. Nevertheless, both sites are characterized by low frequencies of percussion marks suggesting the non-exhaustive exploitation of the slaughtered prey and the presence of complete long bones and pieces in anatomic connection confirm the abandonment of at least some of the unprocessed carcasses. The sites of Mauran, La Rouquette and La Quina, all located in strategic positions at the base of a cliff, thus appear to represent kill-sites where prey were initially butchered. At La Quina, carcass exploitation does appear more thorough than at the other two kill-sites. Meanwhile, Les Pradelles provides evidence for the introduction of already processed carcasses which were subsequently processed more extensively. At each of these sites, the immediate consumption of some of these food resources may have taken place.

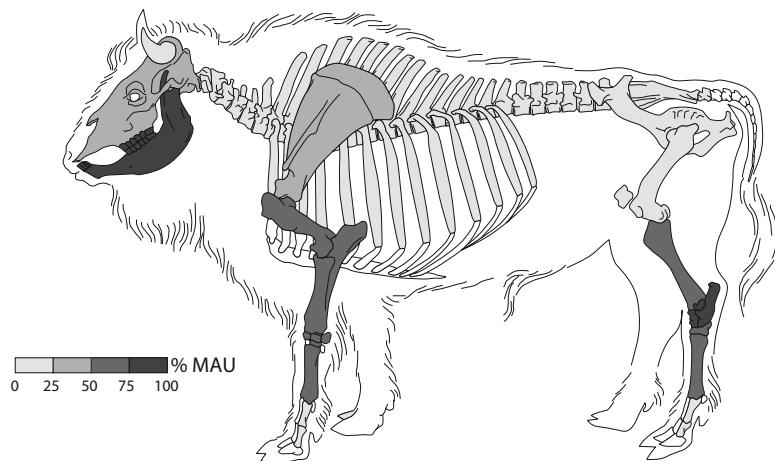


Figure 3 - Skeletal part representation for bison at Mauran
(after David, Farizy, 1994; drawing modified after Coutureau, 2003).

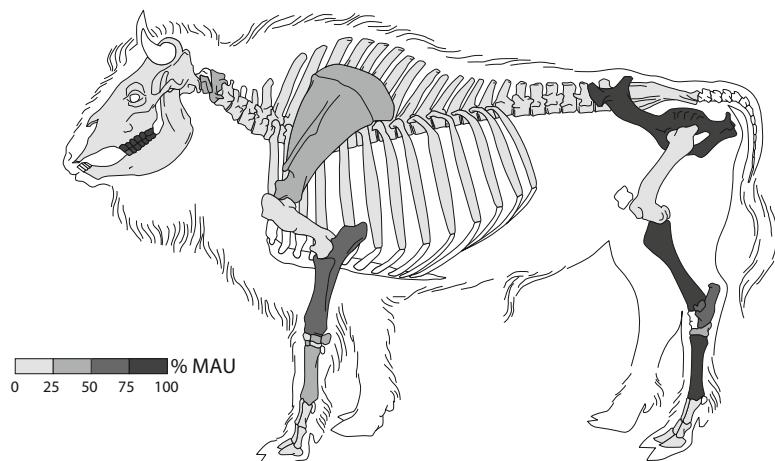


Figure 4 - Skeletal part representation for bison at La Rouquette
(after Griggo, unpublished; drawing modified after Coutureau, 2003).

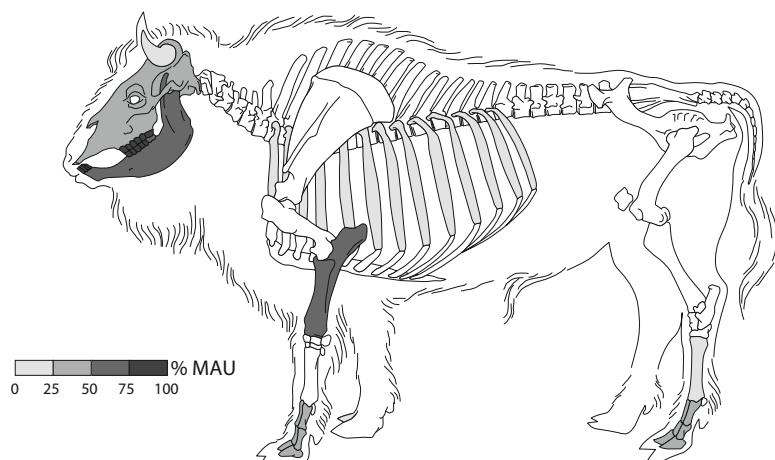


Figure 5 - Skeletal part representation for bison at La Quina
(after Chase, 1999; drawing modified after Coutureau, 2003).

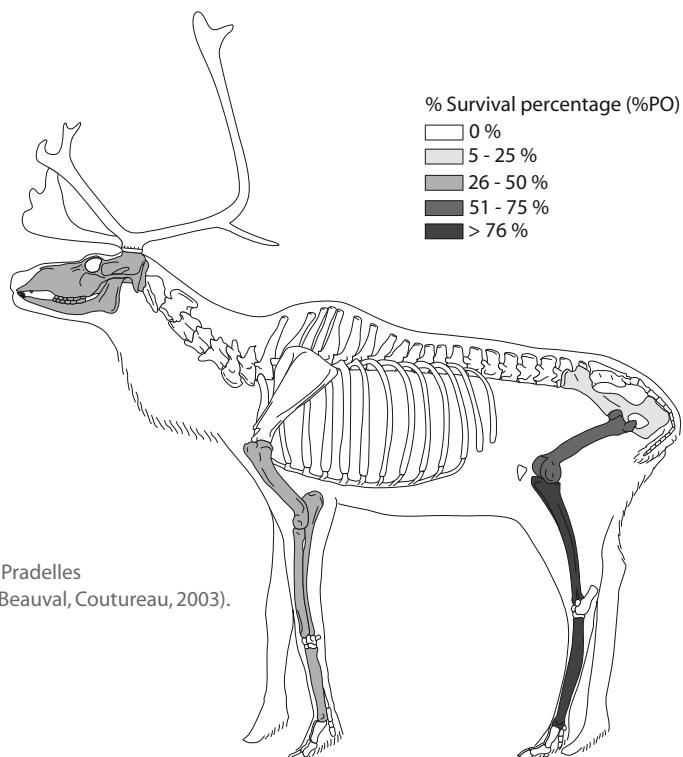


Figure 6 - Skeletal part representation for bison at Les Pradelles
(after Costamagno *et al.*, 2006; drawing modified after Beauval, Coutureau, 2003).

Behavior in terms of provisioning strategies and the maintenance of toolkits are not easy to describe given the fact that they result from strategies that we have had to largely simplify. Lithic data suggests two major behavioral modes ([tables 2-3](#)); the Mauran and La Rouquette assemblages attest to on-site debitage (Mauran) and debitage in the vicinity of the site (La Rouquette). Diverse locally available raw materials (quartz, quartzite, flint) largely dominate both assemblages ([table 2](#)), while exotic products derived from sources still within 15 km from the site are rare ([table 3](#)). The proportion of retouched products varies according to raw material, but remains low to average. Tool resharpening or recycling episodes did not take place on-site (see [tables 2-3](#), phase IIIc is absent). However, the presence of hammers and pebble tools constitute noteworthy elements in both assemblages.

At both Les Pradelles and La Quina, the on-site reduction of local raw materials ([table 2](#)) is accompanied by a fairly large number of ‘finished’ products made from local, and more often, exotic raw materials ([table 3](#)). These materials were introduced to the site in the form of flakes which were then transformed into cores or tools. These high-potential ‘matrices’ correspond to imported raw materials that were utilized when needed (Bourguignon *et al.*, 2004; Bourguignon *et al.*, 2006; Meignen *et al.*, 2007). The proportion of retouched products made from locally available raw materials (phase IIIb) is generally high, and more significant at Les Pradelles (18.6%) than at La Quina (11.4% for strictly local raw materials; 17.6% for intermediate raw materials). However, the high proportion of retouched blanks demonstrates exotic materials to be the most frequently recycled or re-sharpened (La Quina, 32.1%; Les Pradelles, 73.6%), a fact reinforced by significant quantities of management or recycling waste in these materials (Phase IIIc, 12.4% at La Quina, up to 35.2% at Les Pradelles).

Two types of techno-economic behavior can be identified based on these criteria; at Mauran and La Rouquette, lightly ‘reduced’ tools were made from local or semi-local raw materials, indicating a smaller provisioning territory. While at La Quina and Les Pradelles, the opposite can be observed; significant quantities of heavily ‘reduced’ tools made from non-local raw materials, transported over distances sometimes exceeding 40 km, were introduced in large quantities to the site from a considerably larger exploited territory.

Table 2 - Exploitation of local raw materials.

The phases of the *chaîne opératoire* adopted here, as well as the definition of the technical blanks on which estimations of the presence of these phases are based, are taken from Geneste (1985)

Local Raw Materials		Mauran ¹		La Rouquette ²		Les Pradelles ³		La Quina ⁴	
Type of Material		Quartz/Quartzite	Flint	Quartz/Quartzite	Flint	Flint	Local Flint	Intermediate Flint	
Acquisition	Phase 0	++	?	+	0	+	?	?	
Production/debitage	Phase I	+++	+++	++	0	+++	+++	+++	
Production/debitage	Phase II	+++	+++	++	+	+++	+++	+++	
Transformation/ Consommation	Phase III a Imported un-modified blanks	?	?	+	++	?	-	++	
	Phase III b Retouched products	-	-	-	++	+	+	+	
	Phase III c Recycling/resharpening flakes	0	?	0	0	-	+	+	

After 1: Jaubert, 1994; Simonet, 1994; Thiébaut, 2005; 2: Bourguignon *et al.*, 1997, 2001;
3: Meignen *et al.*, 2007; 4: Bourguignon, 1997, 2001; Debénath, Jelinek, 1998; Park, 2007.

Table 3 - Exploitation of exotic raw materials.

Exotic Raw Materials		Mauran ¹	La Rouquette ²	Les Pradelles ³	La Quina ⁴
Acquisition	Phase 0	0 ?	0	0	0
Production/debitage	Phase I	?	0	0	+
Production/debitage	Phase II	+	0	0	+
Transformation/ Consommation	Phase III a Imported un-modified blanks	+	-	++	++
	Phase III b Retouched products	?	0	+++	++
	Phase III c Recycling/resharpening flakes	?	0	++	++

After 1: Jaubert, 1994; Simonet, 1994; Thiébaut, 2005; 2: Bourguignon *et al.*, 1997, 2001;
3: Meignen *et al.*, 2007; 4: Bourguignon, 1997, 2001; Debénath, Jelinek, 1998; Park, 2007.

5 - Discussion

The correlation of zooarchaeological, paleotopographic and techno-economic data leads to a better understanding of the status of these sites. Mauran and La Rouquette represent kill-sites and primary butchery locations where the acquisition and sometimes incomplete initial processing of animal materials took place. In these instances, tools were fabricated on-site and seldom retouched or rejuvenated, while tools or blanks in exotic materials are absent. At Les Pradelles,

the introduction of ready-made and curated tools (Binford, 1979) goes hand in hand with a short-term occupation during which limited time was spent manufacturing tools (Meignen *et al.*, 2007). Zooarcheological data demonstrates the presence of significant numbers of reindeer carcasses on the sites. Several arguments (catastrophic mortality curves, selective transport of carcasses) argue in favor of a succession of hunting episodes during which numerous individuals were slaughtered (Costamagno *et al.*, 2006). The intensity of carcass processing alone demonstrates the acquisition of significant quantities of dietary resources incompatible with immediate consumption given the limited duration of the occupation. The site of Les Pradelles can be considered as a location where carcasses were processed for consumption elsewhere (i.e. a secondary butchery site [Costamagno *et al.*, 2006]). At La Quina, patterns of skeletal representation present incontestable evidence of a kill-site, while the exploitation intensity observable amongst the remaining skeletal elements suggests more intensive butchery at Mauran than at La Rouquette, indicative of a longer occupation. Tool maintenance patterns are similar to those observed at Les Pradelles, including the introduction of tools which were then re-sharpened or recycled on-site. This phenomenon could be linked with the intense processing of bison and / or the rarity of high-quality local raw materials (Parks, 2007), therefore restricting the on-site production of butchery tools.

All the sites considered here represent short-term occupations dedicated to the acquisition and/or processing of carcasses during seasonal hunting forays. They therefore represent functionally specific sites in Binford's sense (1980), in which a portion of the foodstuffs were exported for deferred consumption. These Mousterian sites can thus be considered as hunting camps as defined in the introduction. However, all of these sites also provide evidence for the partial consumption of carcasses as indicated by the breakage of at least certain bones to recover grease.

Even though these sites share a similar function (the processing of animal foodstuffs), a differentiation between acquisition/butchery sites and secondary butchery sites is nonetheless perceptible. In fact, Les Pradelles differs from the other sites in the order of the butchery *chaîne opératoire* linked to the spatial segmentation of acquisition and secondary butchery. This difference may have been influenced by the average size of reindeer, rather than representing a genuinely different form of organization. While the primary processing of this 100 to 150 kg ungulate may have taken place at the kill-site, we may envisage that certain parts were transported and carefully processed at a more appropriate location. On the other hand, large ungulates did not afford this type of leeway (Müller *et al.*, 2006). At Mauran, La Rouquette and La Quina, humans were required to carry out the entirety of the butchery process before anything could be transported.

Specialized activity sites distinguished in Binford's (1980) logistical mobility model involve individuals foraging over occasionally significant distances from the base camp where the majority of the group remained. The goal of these expeditions was the acquisition and / or transformation of resources that were subsequently transported back to the base camp. The segmentation of the hunting *chaîne opératoire* identified in the form of Mousterian hunting camps (see above) can be integrated within this type of mobility pattern. Nevertheless, the displacement of the entire group to help carry out butchery activities cannot be excluded given the quantity of raw material that required processing. This type of behavior has been identified in both the ethnographic (Bartram, 1993) and archeological record, notably at the Magdalenian hunting camps of Monruz and Champréveyres (Müller *et al.*, 2006). The quantity of carcasses processed on the sites discussed here must have required stop-overs of several days, therefore implying on-site consumption as at Monruz and Champréveyres. However, the activities identified at the sites considered here are clearly less numerous and diversified than at the two Magdalenian sites, very likely indicative of a different organization for exploiting the territory.

6 - Conclusion

The comparison of four Late Mousterian sites with monospecific faunal spectrums and short occupation durations has highlighted activities centered on the acquisition of subsistence resources that were subsequently transported and consumed elsewhere. Although the available data precluded investigating the processing of other animal materials (skins, tendons, etc.), ethnographic evidence and information from the archaeological record indicates that other more specialized activities, such as the treatment of skins and the smoking of fish can occasionally be identified on this type of site (Cochard, 2004; Le Gall, 1999). Finally, we propose the following definition to characterize Mousterian hunting camps: sites limited to the initial stages of the hunting *chaîne opératoire*, where the spatial and temporal segmentation of activities does not necessarily imply a division of the group.

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