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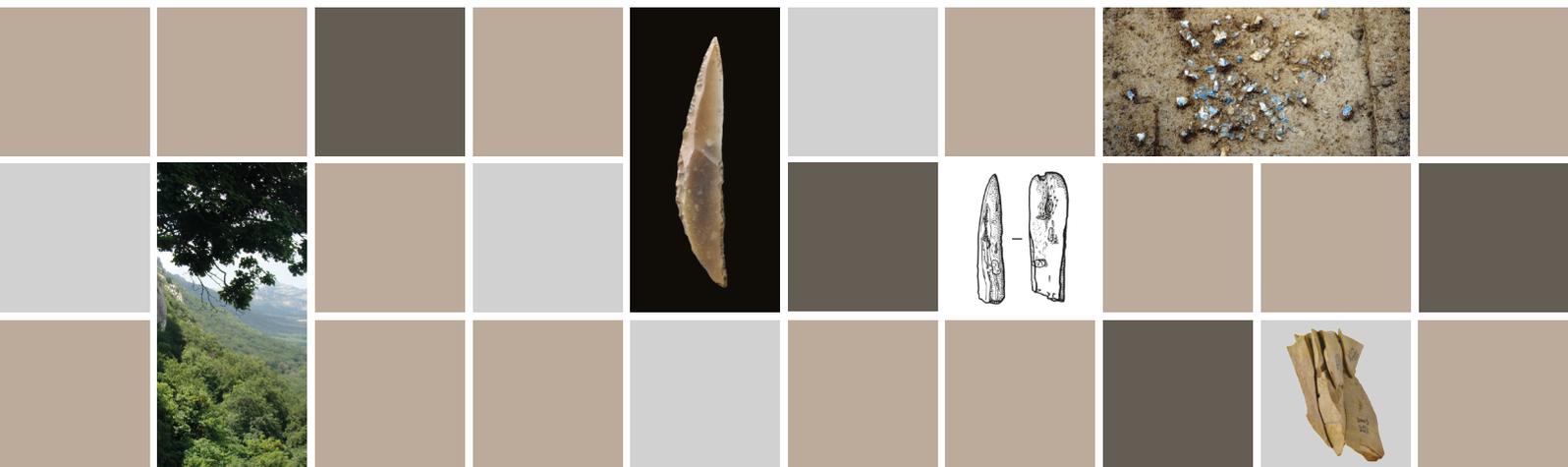
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New Insights into Mesolithic Cultures



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# REFLECTIONS ON THE MOBILITY PATTERNS OF MESOLITHIC POPULATIONS IN SOUTH-WESTERN FRANCE: the Example of the Brive and Quercy Regions

Magali REVERSAT

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## REFLECTIONS ON THE MOBILITY PATTERNS OF MESOLITHIC POPULATIONS IN SOUTH-WESTERN FRANCE: the Example of the Brive and Quercy Regions

Magali REVERSAT

### Abstract

*How was the mobility of Mesolithic groups organized in the Quercy and Brive Basins? Were open-air sites and caves and rock shelter sites complementary? What is the contribution of these different site types to questions concerning mobility patterns? Though it is probably not feasible to apply a single model to these Mesolithic hunter-gatherer societies, it is possible to address some questions through analysis of the material evidence, such as lithic industries, faunal remains, and even vegetal remains. In theory, the variable proportions of these elements reflect specialized site functions, seasonality strategies and the economic organization of these societies and their territories. However, is the variation of these elements linked to socio-cultural and environmental factors, or the function of a specific site-type (open-air, cave or rock shelter)? In the regions considered here, it is difficult to distinguish between these factors due to the variable nature of the bibliographic sources related to the sites, the taphonomic condition of the assemblages, and the great number of open-air sites known only through survey operations. This study has nonetheless enabled us to inventory the available documentation, as well as revealing differences and similarities in the economic strategies of these populations.*

### Keywords

*Sauveterrian, South-western France, mobility, resources, chronology.*

## Introduction

The organization of Mesolithic populations is represented by different site-types, which vary according to several factors: the type of mobility, the activities practiced in place, the resources sought, the role of the site in the cycle of resource procurement and, depending on the period, the duration and recurrence of occupations (Fontana, 2011). These different site-types are created by the diverse activities performed at them (table 1), which are determined by the “technical traditions” of each group, usually in relationship to their economic strategies.

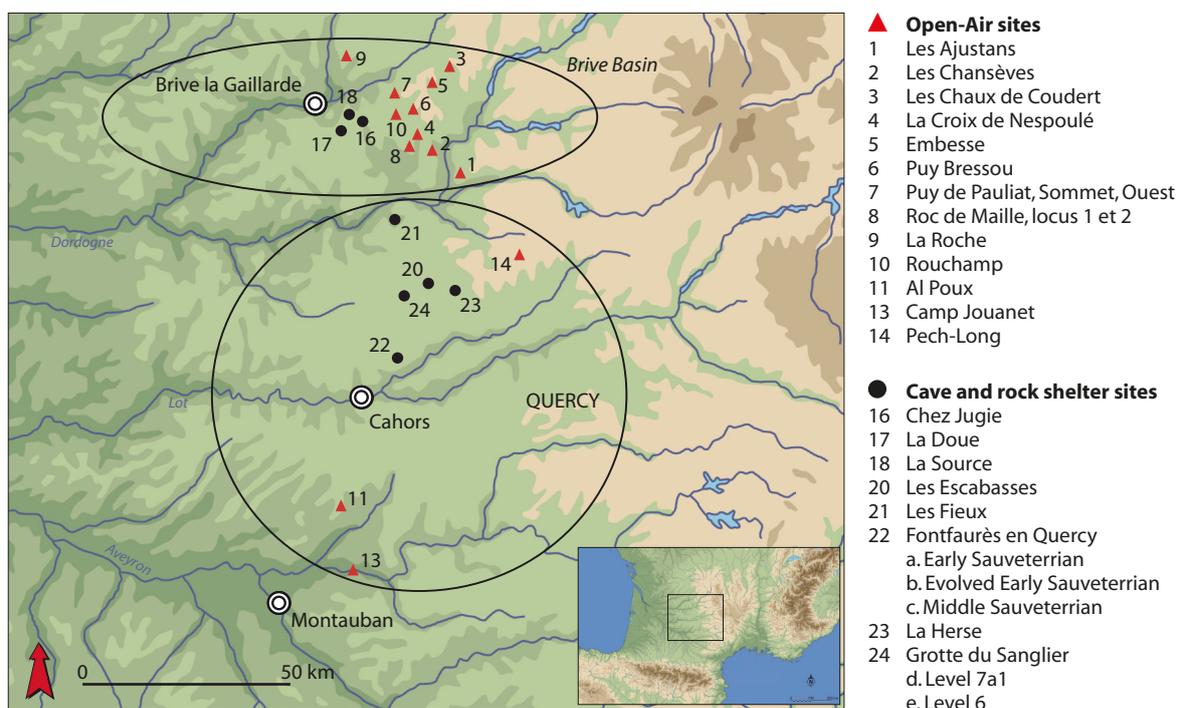
They can also be linked to other factors, such as the types of animals processed, the climatic conditions and the use of the goods obtained, in relation to the occupation duration and site functions (Beyries, 1997). The sites therefore contain different artifact types in variable proportions, even if they were occupied by the same groups. Mobility is an essential element of the socio-economic system of each group, and the main difficulty is to reconstruct these human behaviors based on very fragmentary evidence (Bonnemaison, 1981).

	Activities linked to animal resources	Halieutic activities	Activities linked to raw material use
Activity types	Scraping and cutting of dry hide	Resource exploitation	Raw material extraction
	Butchery (cutting of meat, carcass, fresh meat material, fresh hide, and scraping and sawing of fresh bone)		Flaking workshop
	Osseous material working (dry bone and antler)		
Site types	"Field camps" Temporary operational center, occupied by specialized groups		"Locations" Procurement or transformation of the raw material. Short duration, often containing a small number of tools
	"Stations" Location used by specialized groups to observe the territory and collect information on animal movements. This site type is rarely occupied at night and can include hunting camps.		
Mobility types	Logistical mobility of "Collectors" ("Stations" "Field camps")		Residential mobility of "Foragers"
			Logistical mobility of "Collectors"

**Table 1** - Site types and activities that could be generated by the different mobility types (after Reversat, 2012).

To accurately define these mobility patterns, it is necessary to determine the nature of artifact associations, which can be understood only from economic factors, themselves understood through analysis of the artifacts found at sites: stone (analyzed from three different perspectives: raw material procurement, typo-technology and usewear of lithic industries) as well as animal and plant resources.

This study, conducted as part of a Master 2 program at the University Toulouse 2 (Reversat, 2012), is based on the bibliographic information available for the Mesolithic in the Quercy and Brive Basin regions (figure 1). The great variety of exploitable biotopes in these contiguous regions are linked to the diverse activities practiced there. This context is thus well adapted to an investigation of the nature of Mesolithic mobility strategies within this space. It also raises the question of whether these two territories were unified to a certain degree during the Mesolithic. Are there functional differences and/or similarities between the sites in these two regions that could suggest they were complimentary?



**Figure 1** - Site locations (after Reversat, 2012).

## 1 - Data

Among the 24 sites in this study (annex 1), attributed to the Sauveterrian culture, 13 are located in the Brive region and 11 in the Quercy region. The average altitude of the 15 open-air sites is 472 m, and that of the 9 cave and rock shelter sites is 312 m. The majority of these sites (14) were identified through surface surveys or test pits, and the remaining ones (10) were excavated.

According to Pierre-Yves Demars (Demars, 2007), there was an increase in occupation of the Correze plateau during the Mesolithic. Most of the sites are located on a high point: a summit (Puy de Pauliat Sommet), a plateau (Puy de Pauliat Ouest), a crest (La Croix de Nespoulé, Roc de Maille), or on a cliff edge overlooking a gorge (La Roche d'Allasac, Les Ajustans), and generally open onto a vast panorama. This exposure to weather conditions indicates that the sites were occupied during the more favorable seasons (Demars, 2007). The cave and rock shelter sites (3) are located in the Brive Basin. The sites of Chez Jugie and La Source are very near each other and located in a small, 30 m high, sandstone cliff face next to the small stream of Enval. The nearby site of La Doue is located in a stone cirque (Demars, 2011).

In the Quercy region, the cave and rock shelter sites (6) are more numerous than in the Brive region, while the open-air sites (5) are less numerous. Only two open-air sites, Al Poux and Camp Jouanet, are located in the Bas-Quercy (Lower Quercy region). The other sites are located in the Haut-Quercy (High Quercy region), all within a low altitude limestone environment, between 200 m and 400 m (Barbaza *et al.*, 1991), except for the site of Pech Long at 618 m altitude. None of the sites show a clear topographic preference that would have influenced the choice of their location.

## A - Chronology

For this study, it is necessary to establish a chronology in order to determine whether the observations and comparisons made are valid (Gallay, 1986). Among the 24 sites considered, seven have available radiocarbon dates (figure 2). These are Chez Jugie and La Doue for the Brive Basin and Fontfaurès-en-Quercy, Les Escabasses, Les Fieux, La Grotte du Sanglier and Le Cuzoul de Gramat for the Quercy region. Together these sites compose a set of 27 dates clearly divided between the Early Sauveterrian and the Middle Sauveterrian. There is a clear hiatus between 7 600 and 6 400 cal BC. This period does not appear to correspond to climatic variations or calibration

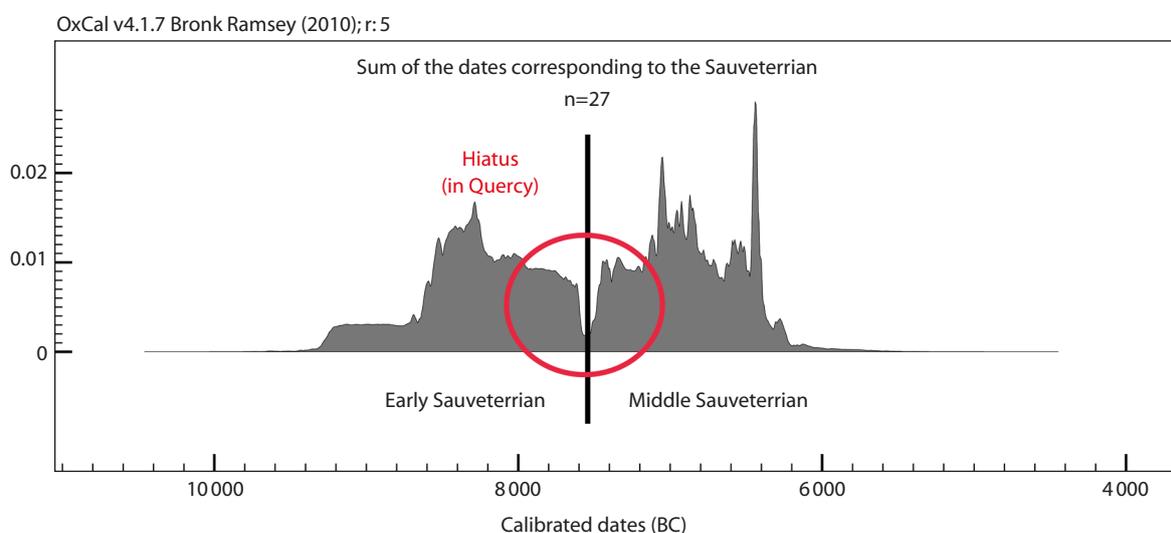


Figure 2 - Radiocarbon dates (for Quercy only, after Reversat, 2012).

curve variations. While the hypothesis of a regional phenomenon cannot be eliminated, this hiatus could also be linked to a lack of data for this period. Though it is not possible to demonstrate a strict contemporaneity between these sites, which would enable the identification of possible complementary relationships between them, they do show some chronological unity.

## B - Study limitations

Despite the large number of sites considered in this study, this corpus has certain limitations that are detrimental to determining the nature of a site: insufficient data (functional analyses, lithic industry analyses, radiocarbon dates), partial or unpublished data, taphonomic problems (palimpsests, surface collections), poor representativity of some elements (e.g. deficit of weapon elements at surface collection sites). Some types of artifacts also vary from one site to another, such as faunal remains and organic remains, which are scarce or absent in the Brive region due to the acidity of the sediments (sandstone environment), resulting in a significant loss of data. All of these problems, limitations and missing elements are a great disadvantage in the study of these sites. Nonetheless, it is possible to extract several interesting features from the studies made of some sites.

## C - Vegetal resources

Vegetal resources were studied only at the site of Al Poux in the Quercy region, where a total of 17 carpo-remains were recovered. The study by Laurent Bouby (Bouby, 2002) evidenced only three species and showed a dominance of hazelnut shells, with Galium and common dogwood (*Cornus sanguinea*). Based on these results, showing that hazelnuts were probably intentionally brought to the site, the hypothesis of a collection in autumn and preservation for winter was proposed, while the presence of the two other species appears to be accidental. The hazelnut species is advantageous due to its nutritional value, ease of collection and good preservation. In general, these three species bear fruit in autumn and most often colonize relatively clear forests and forest edges.

## D - Animal resources

The available data on animal resources originates from only a few occupation sites in the Quercy region. The site of La Herse was studied by H  l  ne Martin (Martin, 1991), who proposed that bone materials were processed and used there, represented by three fragments with saw marks, striations and shaping marks. The site of Fontfaur  s-en-Quercy, also studied by H  l  ne Martin (Martin, 1991), is interpreted as a kill zone with an exportation of the meatiest pieces. In addition, a study of fish vertebrae (Lignon, 1991) indicates that the site was occupied during the warm season. The study of the site of Escabasses, realized by Julie Riv  re (Riv  re, 2006), shows that it was occupied in the context of red deer hunting during the bellowing season, with a complementary collection of antlers from spring to fall. At La Grotte du Sanglier, Jean Dufau (Dufau, 2001) used cementochronology to show that the site was occupied from May to November. He considered hunting during the Mesolithic to be opportunistic due to the abundance of red deer, which he described as dependent on the forest. H  l  ne Martin and Olivier Le Gall (Martin, Le Gall, 1987, 1989) interpreted the site of La Doue as a specialized occupation devoted to the processing of hunted carcasses to be exported to another relatively close site where they would be preserved for winter. Finally, Al Poux, studied by Isabelle Carr  re (Carr  re, 2002) could not be interpreted due to its relatively small (21 pieces), and therefore possibly non-representative, assemblage.

The faunal assemblages of cave and rock shelter sites are generally dominated by red deer, while the only open-air site studied (Al Poux) yielded an assemblage dominated by bovinds, including aurochs. The latter are very heavy animals that provide a large quantity of meat. The large surface area of this site (Amiel, Lelouvier *et al.*, 2002), and the large quantity of meat present there, indicate that it was occupied by a large group. Questions concerning the environmental context and the distribution of animal resources must be considered. Nonetheless, since these resources were available in all environments, they appear to show a clear selection in their consumption. According to their authors, these studies revealed seasonal occupations, most often via cementochronological and carpological analyses. We must nonetheless remember that these types of analyses indicate only the time of the animal kill, and not the time of consumption. Only an exact identification of the bones present at these sites could give a precise indication of the seasonality and the nature of the occupation.

### E - Usewear analysis

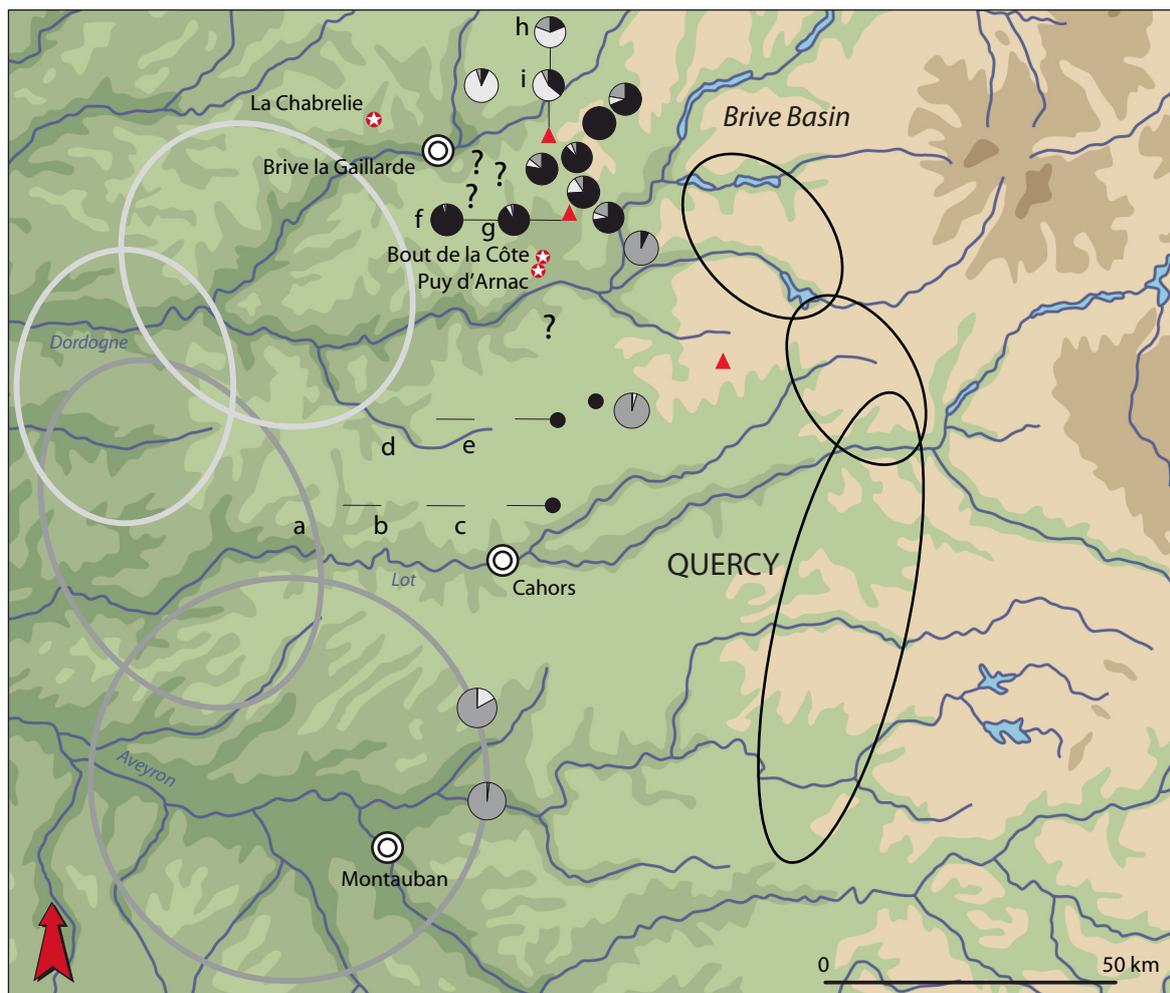
Among all the sites considered, a usewear analysis was realized for only one. This study was conducted by Sylvie Philibert on the site of Fontfaurès-en-Quercy (Philibert, 2002). It concerns three archaeological horizons: the early phase of the Early Sauveterrian, the evolved phase of the Early Sauveterrian and the Early Montclusian. Despite the small number of pieces with usewear (10% of the tool assemblage), often poorly preserved due to modifications by fire and patina, the analysis revealed that butchery activities were realized in this rock shelter during the warm season, and that it could therefore be considered as a hunting camp. This site would thus be part of a larger network of sites occupied during the movements of a small group of hunters that could come from the Haut-Agenais, the Perigord or the Massif Central, based on some flint types whose sources are in these regions. Nonetheless, there is no proof of this distant origin since the hunters could have acquired these flints at least partially through exchange.

### F - Stone resources

Three main raw materials, common in the Quercy and Brive regions, were considered in this study (figure 3). These are Tertiary flint, dominant in Quercy, Jasperoid flints, dominant in Brive, and Senonian flint (table 2).

Raw materials		Quercy	Brive Basin	Total
Jasperoid flint	Cave or rock shelter	2.00	-	<b>2.00</b>
	Open-Air	0,50	61	<b>30.75</b>
<b>Total</b>		<b>1.25</b>	<b>61</b>	
Senonian flint	Cave or rock shelter	14.00	-	<b>14.00</b>
	Open-Air	7.00	22	<b>14.50</b>
<b>Total</b>		<b>10.50</b>	<b>22</b>	
Tertiary flint	Cave or rock shelter	57.00	-	<b>57.00</b>
	Open-Air	76.00	16	<b>46.00</b>
<b>Total</b>		<b>66.50</b>	<b>16</b>	

**Table 2** - Percentage of the most prominent raw materials for each site type and region (provisional percentages).



**Figure 3** - Raw material locations (the most present and their proportions) and their primary sources (after Reversat, 2012).

The choice to consider only these three raw materials was made with the aim of having a sample with one material that is present in both regions, one that is local in each one of them, and one that can be considered as non-local. The latter could more or less determine a flexible limit of the territory. Senonian flint is available at a distance of around 30 km from both the Brive and Quercy regions (except at the sites of Camp Jouanet and Al Poux). Long distance flints (more than 100 km), such as Fumelois or Bergeracois, are absent in both regions.

The Jasperoid flint of the Infralias (beginning of the Lower Jurassic) is found south of the Corrèze at the Bout de la Côte, Puy d'Arnac and Chabrelie sources. It has also been relatively well localized all around the northern edge of the Massif Central (Demars, 1995), around Figeac, and up to Capdenac (Turq, 2000). The Tertiary lacustrine flint (Cenozoic) is abundant in the south, in the Lot-et-Garonne department (Demars, 1995). The primary sources are located on the periphery of the limestone plateaus (Cantal Basin and Aveyron to the east, the Lower Quercy to the south, and the silicifications in Périgord to the west) and contribute pebbles to the alluvial deposits and terraces of the Lot, the Célé and the Dordogne rivers, thus constituting secondary sources.

In the Brive region, Senonian flint is present in small quantities at sites other than La Roche d'Allasac, at Puy de Pauliat. Concerning the latter site, Pierre-Yves Demars (Demars, 2000) believes that this phenomenon is due to its earlier chronological attribution and believes that Jasperoid flint became “widely dominant” (Demars, 2007: 51) starting in the Middle Sauveterrian, replacing Senonian flint. For the site of La Roche d'Allasac, Demars identifies a “different province” (Demars, 2007: 51) for the procurement of raw materials. At some sites, it seems that the quality of the flint played an important role in tool manufacturing. The site of Chez Jugie, for which only one petrographic analysis of the tools has been realized (Chelotti, 2010), has a majority of Senonian flint, though it is closer to the Bout de la Côte and Puy d'Arnac sources. Other factors, such as flaking quality, determined the selection of the raw materials used to manufacture weapon elements. Two hypotheses can thus be proposed: one, this phenomenon is a result of exchanges and / or displacements; two, it is a result of a selection of good quality flints.

In the Quercy region, the range of materials used at Fontfaurès-en-Quercy, Les Escabasses and Les Fieux remains nearly the same in several occupation levels, spanning the Sauveterrian sequence. This suggests continuity in the occupation of a territory and knowledge of the resources of this geographic zone by the Mesolithic populations, as well as a transmission of this knowledge through time (Briand, 2005).

The study of the raw materials therefore reveals two aspects: a raw material economy with an intentional selection of flints from nearby sources, and the selection of different raw materials in the two regions.

## G - Lithic industry

Because the total number of pieces in the lithic industries of each site is not indicated, the percentages (table 3) were calculated based on the number of tools (domestic tools and weapon elements), cores, microburins, and non-retouched pieces (flakes, bladelets and blades).

Among the non-retouched pieces, flakes are dominant in both regions, except at Chez Jugie. Bladelets are present at cave and rock shelter sites, except at Camp Jouanet (Chalard *et al.*, 2002), and blades are generally scarce relative to the other artifact types, and even absent at Puy Bressou, Rouchamp, and in the Middle Sauveterrian level (C6) at the Grotte du Sanglier (Séronie-Vivien [dir.], 2001). Two hypotheses could explain the high proportion of flakes in both regions. First, since weapon elements are most often made from bladelets, this blank type is more frequently employed than others and they are therefore less numerous at the sites. This first hypothesis is supported by the site of Camp Jouanet where, if we take into account the retouched pieces, the percentage of flakes in the total assemblage increases from 54% to 55%, and that of bladelets from 26% to 32%. The spread between the two percentages is thus reduced, showing the high percentage of tools made on bladelets. According to the second hypothesis, flakes would have been the desired blanks and were used as expedient tools, minimizing the costs of obtaining, transporting and maintaining them. The hypothesis could be supported at Pech Long (Reversat, 2011), where it appears that

Sites	Level	Raw blanks			Cores	Domestic tools	Weapon elements	Microburins
		Flakes	Bladelets	Blades				
Puy Bressou		90.5	3	-	6.0	-	0.2	0,7
Roc de Maille locus 2		88	2	0.4	9.0	-	0,4	0.6
Rouchamp		86	3	-	7.0	3.0	-	1.0
Pech Long		74	8	0.3	14.0	3.0	0.3	0.2
Al Poux		80	7	4.0	2.0	3.0	2.0	0.1
Camp Jouanet		55	26	4.0	3.0	2.5	7.0	1.0
Chez Jugie	Disturbed	20	24	12.0	6.0	13.0	17.0	8.5
La Source		58	28	0.3	1.2	5.0	4.5	3.0
Fontfaurès-en-Quercy	C6	70	13	1.0	1.0	7.5	4.0	3.0
	C5 d, c, b	80	11	0.5	0.3	2.0	5.5	0.02
	C5 a / C4 b	79	14	0.2	0.5	2.0	4.5	-
Les Escabasses		71	14	1.6	0.2	1.6	12.0	0.1
La Grotte de Sanglier	C 7 a 1	51	10	0.2	4.0	13.0	21.5	0.5
	C 6	53	11	-	8.0	14.0	14.0	-

**Table 3** - Percentages of raw products, tools, cores and microburins for each site type and region (provisional percentages).

flaking was clearly oriented toward flake manufacturing, based on their abundance in the assemblage (51% flakes, 6% bladelets), the number of tools on flakes (17 on flakes, 12 on bladelets), and the percentage of flake cores (79% flake cores, 10% bladelet cores).

The percentage of cores found at the sites can reflect the blank types produced in place if it is high, or a segmentation of the *chaîne opératoire* (production sequence), if it is low, as is also true for an absence of cortical flakes (Dachy, 2010). The proportion of cores at the cave and rock shelter sites is usually lower (3%) than that at the open-air sites (7%). At many sites, the cores still have some cortex (non-quantified information), suggesting a superficial preparation at sites such as Camp Jouanet (Amiel, 2002), Pech Long (Reversat, 2011), Les Ajustans, Les Chaux de Coudert and La Roche d'Allasac (Demars, 2011).

Two open-air sites were interpreted as flaking workshops (annex 2). These are Rouchamp (Demars, 2007) and Camp Jouanet (Valdeyron, 2002), where all phases of one or several *chaînes opératoires* are represented. Pech Long also appears to have all the features of a flaking workshop. On the contrary, this is not true for the cave and rock shelter sites, which have fragmentary *chaînes opératoires* and low core proportions, even if the latter were exported. The sites of Les Fieux (Marcus, 2000: imprecise, non-quantified information), Les Escabasses (Guilbault, 2009: 14%) and Al Poux (Chalard *et al.*, 2002: 11 %) have a low percentage of cortical pieces, indicating that the first flaking phase could have been realized elsewhere. Similarly, at Les Fieux, there are no cores in Senonian or Jasperoid flint, showing that these pieces were imported or acquired through exchange (Briand, 2004). Finally, at Camp Jouanet, cortical flakes represent 40% of all the flakes, and 21% of the whole assemblage, compared to cores at 3%. This abundance could correspond to the quantity of blocks (70) found at the site (Amiel, 2002), or to an importation of cores that could still be used, considering the number of non-exhausted cores.

In terms of typology, weapon elements are rare at all of the open-air sites except two, Puy de Pauliat Ouest (Demars, 2007) and Camp Jouanet (Amiel, Lelouvier *et al.*, 2002). At the cave and rock shelter sites of Les Escabasses, Fontfaurès-en-Quercy (evolved Early Sauveterrian level: C 5 d, c, b; and Middle Sauveterrian level C 5 et C 4 b), and La Grotte du Sanglier (C 7 a 1) the percentage of weapon elements is high relative to the low percentage of microburins. This argues in favor of a total or nearly total importation of weapon elements to these sites. In reality, only the sites of Chez Jugie, La Source and Fontfaurès-en-Quercy (Early Sauveterrian level (C 6), have a similar percentage of weapon elements and microburins. Finally, at Fontfaurès-en-Quercy, classic domestic tools, such as endscrapers, perforators and burins, are present, but in small quantities. This deficit does not exist in the Early Sauveterrian (Barbaza *et al.*, 1991). Ochred endscrapers were found at La Herse and at Fontfaurès-en-Quercy (Philibert, 2002). Ochre is often associated with dry or tanned hide working due to its qualities as a fine abrasive (Philibert, 1995).

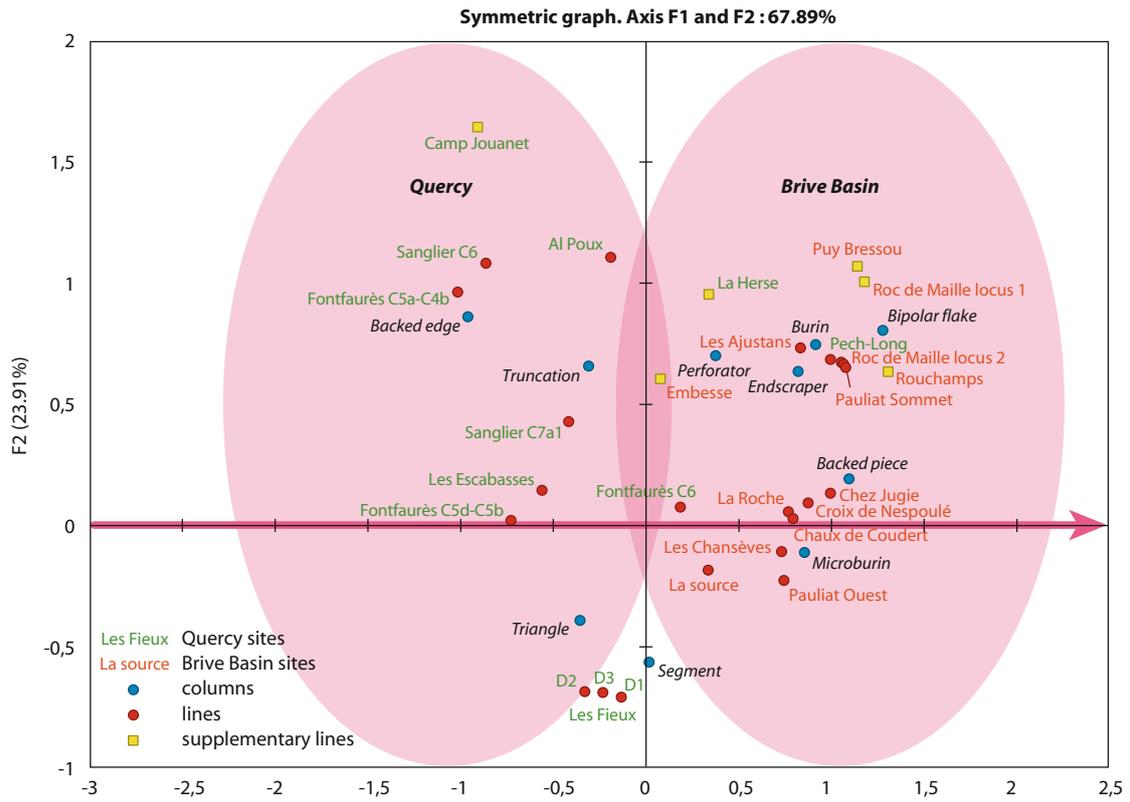
In general, the open-air sites have higher proportions of flakes and cores and very few weapon elements, while the cave and rock shelter sites have high proportions of flakes, bladelets and weapon elements, and very few cores and microburins.

## 2 - Interpretation

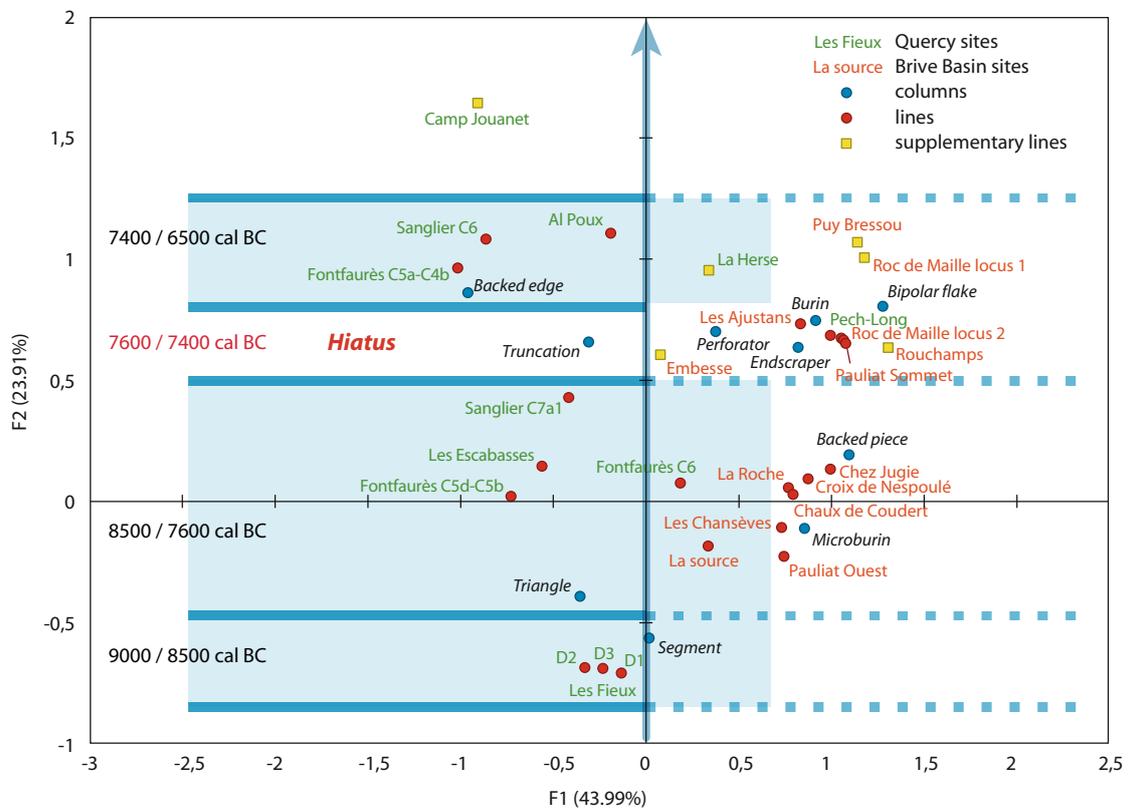
Though it is impossible to apply a single model to the organization of these Mesolithic hunter-gatherer societies, how can the study of the resources they used (stone, animal and vegetal) contribute to answering the question raised at the beginning of this paper: what were the mobility strategies of Mesolithic populations in the Quercy and Brive Basin regions?

Though it may not be possible to identify mobility strategies in this study, is it possible to determine the territory covered by these Mesolithic groups? This territory can be apprehended through petrographic analyses. The choice of a source depends mostly on its distance and accessibility, but also on the quality and quantity of its flint. The territory will differ depending on the manner of procuring the raw material, whether directly, in the context of movements, or indirectly, through exchange. The first situation would be associated with a subsistence territory, while the second would reflect a cultural territory. In the Brive region, Pierre-Yves Demars observed the disappearance of distant flints (over 100 km), such as Bergeracois and Fumelois, in Sauveterrian industries, while they are present in large quantities in Upper Paleolithic industries. In the Mesolithic, we thus observe a decrease in human movements in the context of lithic raw material procurement, and therefore a reduction of the size of territories (Demars, 2000: 281). This is perceptible in some behaviors, such as the collection of flint blocks in proximity, with morphologies that simplified the knapping actions realized during the manufacturing sequence. These behaviors can probably be associated with high mobility strategies.

The differences and similarities revealed through analyses of the lithic industries and animal and vegetal resources are generally functional in nature. The confrontation of these industries in a correspondence analysis results in two interpretations. The first, shown on the horizontal axis, clearly shows a distribution of Quercy sites on one side and Brive sites on the other (figure 4). We thus see a regional distinction and the confirmation of a functional distinction, since most of the Quercy sites are cave or rock shelter sites and most of the Brive sites are in the open-air. The second interpretation (figure 5), shown on the vertical axis, shows a probable chronological evolution: the oldest sites dated to between 9 500 and 8 000 cal BC; followed by an evolved phase between 8 500 and 7 600 cal BC; followed by a hiatus between 7 600 and 7 400 cal BC, which could be hypothetically filled by the sites in the Brive region; and finally, a late period between 7 400 and 6 500 cal BC. The lack of dates for the Brive sites is very problematical, since they would support



**Figure 4** - Factor analysis of the tool assemblage composition, horizontal axis (after Reversat, 2012).



**Figure 5** - Factor analysis of the tool assemblage composition, vertical axis (after Reversat, 2012).

this chronological hypothesis. If this group of sites indeed participated in the same territorial organization, this seems to have extended over a long time period, considering the chronological depth. The stable use of a range of raw materials throughout the Sauveterrian sequence, observed at Fontfaurès-en-Quercy, Les Escabasses and Les Fieux, could confirm this hypothesis. This group of sites could thus be integrated into a sort of *chaîne opératoire*, with different stages being represented by the diverse activities performed at the sites. These occupations could also be complementary to other sites, themselves associated with earlier or later phases of this *chaîne opératoire* (Fougère, 2008). In this geological context, can we propose the hypothesis that the open-air sites were habitat sites and that the cave and rock shelter sites were devoted to specific activities? According to Binford, it is most often the case that “caves and rock shelters were used as hunting or fishing camps by specialized groups, or as a *transient camp*, while the habitat sites were most often located in open-air contexts” (Fontana, 2011: 2).

In general, this study did not enable us to define an organization type, but rather to observe functional similarities and differences between the sites, reflecting the economic strategies of the Mesolithic groups. The establishment of a chronology first showed that these sites extend from 9 500 BC to 6 500 cal BC, with a hiatus between 7 600 and 7 400 cal BC in the Quercy region that is probably filled by the sites in the Brive region. Finally, it also enabled us to inventory the available documentation and to synthesize the data.

## Annexes

Sites	Type	Method	Attribution	Altitude	Bibliographic references
Les Ajustans	Open-Air	Survey	Sauv. undet.	450 m	Demars 1999, 2007, 2010, 2011
Les Chansèves	Open-Air	Survey	Sauv. undet.	465 m	Demars 1993, 2007
Les Chaux de Coudert	Open-Air	Survey	Sauv. undet.	558 m	Demars 2007; Demars, Soulier 2001
La Croix de Nespoulé	Open-Air	Survey	Middle Sauv.	545 m	Demars 1991, 2007
Embesse	Open-Air	Survey	Sauv. undet.	560 m	Demars 2007; Lenôtre, Demars, Dubreuil 2003
Puy Bressou	Open-Air	Survey	Sauv. undet.	Absent	Demars 2007
Puy de Pauliat sommet	Open-Air	Survey	Sauv. undet.	520 m	Bouyssonie 1927; Demars 2000, 2007, 2011
Puy de Pauliat ouest	Open-Air	Survey	Early Sauv.	475 m	Demars 1988, 2000, 2007, 2011
Roc de Maille locus 1	Open-Air	Survey	Sauv. undet.	565 m	Demars 2007
Roc de Maille locus 2	Open-Air	Survey	Sauv. undet.	560 m	Demars 2007
La Roche d'Allasac	Open-Air	Survey	Middle Sauv.	380 m	Albarellero 1981; Demars 1976, 2000, 2007, 2011
Rouchamp	Open-Air	Survey	Sauv. undet.	Absent	Demars 2007
Pech Long	Open-Air	Survey	Sauv. undet.	618 m	Reversat 2011
Al Poux	Open-Air	Excavation	Undetermined	Absente	Amiel, Lelouvier 2002; Gigounoux 2008; Valdeyron 2002
Camp Jouanet	Open-Air	Excavation	Undetermined	87 m	Amiel, Lelouvier 2002; Valdeyron 2002
Les Brouals	Open-Air	Test Pit	Undetermined	Absent	Aucun accès
Trigues	Open-Air	Test Pit	Early Sauv.	350 m	Valdeyron <i>et al.</i> 2005
Chez Jugie	Shelter	Excavation	Early Sauv.	300 m	Chelotti 2010, 2011; Demars 2011; Mazière, Raynal 1979
La Doue	Shelter	Excavation	Middle Sauv. Evolved Sauv.	144 m	Demars 2011; Gigounoux 2008; Martin 1994; Martin, Le Gall 1987, 1989; Valdeyron 1994
La Source	Shelter	Excavation	Undetermined	300 m	Demars 2011
Fontfaurès-en-Quercy	Shelter	Excavation	Early Sauv. Evolved E. Sauv. Middle Sauv.	350 m	Barbaza <i>et al.</i> 1991; Gigounoux 2008; Philibert 1995, 1999, 2002; Rousot-Laroque 2009; Valdeyron <i>et al.</i> 2008
Le Cuzoul-de-Gramat	Cave	Excavation	Undetermined	350 m	Lacam, Niederlender, Vallois 1944; Rozoy 1938; Valdeyron 2009
Les Escabasses	Cave	Excavation	Undetermined	320 m	Briand 2005; Guilbault 2009; Rivière 2006; Valdeyron <i>et al.</i> 2008
Les Fieux	Cave	Excavation	Early Sauv.	380 m	Briand 2004, 2005; Marcus 2000; Valdeyron <i>et al.</i> 2008
La Grotte de Sanglier	Cave	Excavation	Sauv. moyen	350 m	Dufau 2001; Gigounoux 2008; Seronie-Vivien 2001
La Herse	Cave	Test Pit	Sauv. undet.	Absent	Valdeyron, Challard, Martin 1998

**Annex 1** - Site corpus (Sauv. undet.: Undetermined Sauveterrian; Early Sauv.: Early Sauveterrian; Evo. E. Sauv.: Evolved Early Sauveterrian; Evo. Sauv.: Evolved Sauveterrian; Middle Sauv.: Middle Sauveterrien).

Sites	Activites	Seasonality	Evidence
Grotte du Sanglier	Diverse hunting activities, stable through time	Occupation from May to November/ year-round, but non-continuous	Segmented <i>chaîne opératoire</i> : weapon element percentage higher than that of microburins
Les Fieux	Hunting activities with some evidence for vegetal and osseous material working	Non-continuous occupation	Segmented <i>chaîne opératoire</i> : absence of Senonian and Jasperoid flint cores, few cortical pieces and weapon element percentage higher than that of microburins
Fontfaurès-en-Quercy	Hunting activities for butchery. Can correspond to a hunting camp. Hide working	Occupied in the beginning and during the warm season, or year-round, but non-continuous	Flaking oriented toward bladelet manufacturing. Segmented <i>chaîne opératoire</i> : weapon element percentage much higher than that of microburins. Ochred endscrapers found in place.
Les Escabasses	Hunting activities: red deer hunting during the bellowing season and complementary antler collection	Year-round, non-continuous occupation	Segmented <i>chaîne opératoire</i> : weapon element percentage higher than that of microburins
La Doue	Hunting camp for carcass processing	Year-round, non-continuous occupation	Evidence provided by animal resources
La Herse	Transformation or use of osseous materials	Year-round, non-continuous occupation	Evidence provided by animal resources
Camp Jouanet	Stone flaking activities		High number of weapon elements and cortical pieces
Al Poux	Habitat temporaire		Aurochs present, indicating a large quantity of mead
Pech Long	Temporary habitat		High number of cores and cortical pieces
Rouchamp	Possible stone flaking activities		High number of cores and cortical pieces

**Annex 2** - Summary of the site functions revealed by the resources and their procurement (Reversat, 2012).

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