

## Session C60

Thursday, 7 September 2006 / Jeudi, 7 Septembre 2006

Room 5.2, Faculty of Letters, Lisbon University  
Salle 5.2, Faculté de Lettres, Université de Lisbonne

**Paleopathology Medical approach of the relations between man and environment in Prehistory.**

**Paléopathologie Approche médicale aux relations entre l'Homme et l'Environnement en Préhistoire**

*organized by / organisé par*

**Bertrand MAFART** Laboratoire d'Anthropologie, UMR6569, Faculté de Médecine, Marseille, France - [mafartbertrand@aol.com](mailto:mafartbertrand@aol.com)

### SESSION'S ABSTRACT

Among the parameters governing relations between the prehistoric man and his environment, the medical component was essential. The modifications of the biotopes, technical progress human like the acquisition of fire and the cooking of food, the neolithisation with the proximity of the domesticated animals played a major role in the relations of the man and his in particular microbiological environment. Recent progress in paleoparasitology, molecular and genetic biology allows new approaches of the relations between Prehistoric men and its environment. This colloquium will make it possible to gather the best international teams for a new step to prehistoric paleopathology.

### SESSION PROGRAMME / PROGRAMME DE LA SESSION

11:00 **Opening / Ouverture**

11:00-11:15 Maria Giovanna BELCASTRO (Bologna, Italy)  
Benedetta BONFIGLIOLI (Bologna, Italy)  
Silvana CONDEMI (Marseille, France)  
Fiorenzo FACCHINI (Bologna, Italy)  
Valentina MARIOTTI (Bologna, Italy)

**C60-01** **The biocultural perspective to the study of the alterations of the human skeletal remains of the Epipalaeolithic necropolis of Tavoralt (Morocco, 12-11000 BP).**

11:15-11:30 Virgílio do ROSÁRIO

**C60-02** **Malaria and human evolution**

11:30-11:45 DEBONO  
MAFART

**C60-03** **Activité et lésions osseuses en Préhistoire: que reste t'il de la tracéologie?**

- 11:45-12:00 S.R. WALIMBE  
Veena MUSHRIF  
**C60-04** **Skeletal Markers of Occupational Stress in the Early Agro-pastoral Populations of south India: An Ethnoarchaeological Approach.**
- 12:00-12:15 S.R. WALIMBE  
Veena MUSHRIF  
**C60-05** **Palaeopathology at the Origins of Agriculture: Scenario of the Indian sub-continent**
- 12:15-12:30 Karl J. REINHARD  
**C60-06** **Evolutionary Biology of Human Parasitism**
- 12:30-12:45 B.MAFART  
**C60-07** **Diseases and human evolution: an intimate link**
- 12:45-13:00 **Discussion**

## ABSTRACTS / RÉSUMÉS

- C60-01** Maria Giovanna BELCASTRO (Bologna, Italy)  
Benedetta BONFIGLIOLI (Bologna, Italy)  
Silvana CONDEMI (Marseille, France)  
Fiorenzo FACCHINI (Bologna, Italy)  
Valentina MARIOTTI (Bologna, Italy)  
**The biocultural perspective to the study of the alterations of the human skeletal remains of the Epipalaeolithic necropolis of Tavoralt (Morocco, 12-11000 BP).**

**ABSTRACT:** In this study the analysis of some skeletal alterations, caused by intentional or accidental events, on the human skeletal remains of the Epipalaeolithic necropolis of Tavoralt (Morocco, 12-11000 BP) will be presented. Many different traits on teeth (interproximal grooves, avulsions, etc.) and bones (trephination, fractures, etc.) have been observed on the skeletons of this necropolis. Macroscopic and microscopic (SEM) analyses of some of these features have been performed in order to obtain further information about the aetiology of these alterations, taking into account the possibility that they were the result of cultural and/or biomedical interventions. Therefore this study could contribute to understand the life style of the Tavoralt populations and their possible strategies to face the environment.

## Session C61

*Thursday, 5 September 2006 / Mardi, 5 Septembre 2006*

*Room 11.06, Faculty of Law, Lisbon University  
Salle 11.06, Faculté de Droit, Université de Lisbonne*

### **Animal exploitation by prehistoric hunter-gatherer societies Environment, subsistence and technical behaviour**

### **Exploitation du monde animal par les sociétés de chasseurs-cueilleurs préhistoriques Environnements, subsistance et comportements techniques**

*organized by / organisé par*

**Laure FONTANA**

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### **SESSION'S ABSTRACT**

Prehistoric hunter-gatherer societies have left, in their habitation sites, many kinds of remains. Some of them, whether preserved or not, can shed light on animal procurement and exploitation. These remains are of two kinds : unmodified faunal remains (food residues) and bone artefacts (by-products, finished and unfinished artefacts). These two kinds of remains have been, since the start, the subject of distinct analyses: zooarchaeozoological studies on the one hand, study of bone tool industry on the other hand. Nevertheless, whatever the purposes and the means of the procurement (hunting or collecting), the raw material is the same (antler, tooth, bone). So these remains have a part of their handmade sequence ("chaîne opératoire") in common.

Whatever the questions specific to each study, one of the main goals is the characterization of the whole animal exploitation. We have to understand its purposes connected to places and seasons of procurement, but also in relation to the procurement of other resources, such as stone raw materials. That is why this characterization is only significant in a diachronic perspective, i.e., at the scale of a year (annual cycle).

So it becomes obvious that faunal remains and bone artefacts have to be studied together, in a global and integrated analysis and in an economic perspective. Nevertheless, a two-fold approach is required to connect the patterns of procurement/transformation/consumption-use of these different products. This approach is based on various separate studies of the animal "bones" (technological and functional analysis, species identification, assessment about hunting strategies and seasons) as well as a multidisciplinary study of these remains by various specialists.

If this seems an ordinary approach, from a theoretical and methodological point of view, its application can be found only in some rare papers. This symposium offers to specialists of these disciplines working on Palaeolithic and Mesolithic sites, to share their experience (e.g. informative or methodological) in this multidisciplinary field.

**SESSION PROGRAMME / PROGRAMME DE LA SESSION**

- 09:00            **Opening / Ouverture**
- 09:00-09:20    Laure FONTANA (Aix-en-Provence, France)  
François-Xavier CHAUVIÈRE (Hauterive, Suisse)  
**C61-01**        **Animal exploitation by the prehistoric hunter-gatherer societies: questions and methodology.**
- 09:20-09:50    Evgeny MASCHENKO (Moscow, Russia)  
Sergey LEV (Moscow, Russia)  
Natalia BUROVA (St. Petersburg, Russia)  
**C61-02**        **Reasons of specific selection of the large mammal remains on Zaraysk site (Russia): evidence and data.**
- 09:50-10:20    Gennady KHLOPACHEV (St. Petersburg, Russia)  
Galina GRIGORIEVA (St. Petersburg, Russia)  
Mikhail SABLIN (St. Petersburg, Russia)  
**C61-03**        **Mammoth ivory and bone exploitation at the Upper Palaeolithic site of Yudinovo (Russia).**
- 10:20-10:45    Alexis BRUGÈRE (Nanterre, France)  
Laure FONTANA (Aix-en-Provence, France)  
Martin OLIVA (Brno, Czech Republic)  
**C61-04**        **Mammoth procurement and exploitation in Milovice (Czech Republic): new data for the moravian's Gravettian.**
- 10:45-11:00    **Break / Pause**
- 11:00-11:30    Martina BARTH (Tübingen, Germany)  
Nicholas CONARD (Tübingen, Germany)  
Susanne MÜNZEL (Tübingen, Germany)  
**C61-05**        **Upper Palaeolithic subsistence and organic technology in the Swabian Jura (Germany).**
- 11:30-12:00    Werner MÜLLER (Neuchâtel, Suisse)  
Denise LEESCH (Neuchâtel, Suisse)  
Jérôme BULLINGER (Lausanne, Suisse)  
**C61-06**        **The diverse animal exploitation at the Magdalenian sites Champgréveyres and Monruz (Neuchâtel, Switzerland).**
- 12:00-12:30    Céline BEMILLI  
Grégory BAYLE  
**C61-07**        **Aurignacian Animal Exploitation at Solutré (Saône-et-Loire, France)**
- 12:30-13:00    Laure FONTANA (Aix-en-Provence, France)

François-Xavier CHAUVIÈRE (Hauterive, Suisse)  
 Laurent LANG (Lye, France)

- C61-08** **The complete exploitation of Reindeer at the magdalenian site of Les Petits Guinards: what's new about the annual cycle of nomadism of Magdalenian groups in the french Massif Central?**

13:00-14:30 **Lunch / Déjeuner**

14:30-15:00 Anne BRIDAULT (Nanterre, France)  
 Eva DAVID (Nanterre, France)  
 Marc BOBOEUF (Nanterre, France)

- C61-09** **Matter or material? A case study of the antler remains from a Mesolithic site, Clos-du-Poujol (Aveyron, France).**

15:00-15:30 Jean-Christophe CASTEL (Genève, Suisse)  
 François-Xavier CHAUVIÈRE (Hauterive, Suisse)

- C61-10** **From the valleys to the plateaus: a differential exploitation of ungulates? The example of Petit Cloup Barrat (Cabrerets, Lot, France).**

15:30-16:00 Carole VERCOUTÈRE

- C61-11** **Traitement des Animaux: entre technique et subsistence**

16:00-16:30 **Break / Pause**

16:30-17:00 Veronique LAROULANDIE (Talence, France)

- C61-12** **From the feather to the egg: the exploitation of the bird resources during the Magdalenian in the South of France.**

17:00-17:30 Ivana FIORE (Roma, Italia)  
 Monica GALA (Roma, Italia)  
 Antonio TAGLIACOZZO (Roma, Italy)

- C61-13** **The specialised hunting of *Otididae* (little Bustard and great Bustard) of the Upper Paleolithic from the Romanelli Cave (Pouilles, Italy).**

17:30-18:00 José Miguel TEJERO (Madrid, Spain)  
 Alicia ESTRADA MARTIN (Barcelona, Spain)  
 Jordi NADAL LORENZO (Barcelona, Spain)  
 José Maria FULLOLA (Barcelona, Spain)  
 Xavier MANGADO (Barcelona, Spain)  
 Raul BATROLI (Barcelona, Spain)  
 M<sup>re</sup> Angels PETIT (Barcelona, Spain)

- C61-14** **Hunters and artisans of Tardiglaciaire. The exploitation of animal resources in Parco Cave (Alós de Balaguer, Lleida) during the Magdalenian.**

18:00-18:30 Pilar GARCIA-ARGUELLES (Barcelona, Spain)  
 Jordi NADAL LORENZO (Barcelona, Spain)

José Maria FULLOLA (Barcelona, Spain)

- C61-15**     **The evolution of faunas at the end of the Upper Palaeolithic and the Epipalaeolithic and its effect on the transformation of lithic industries in the North-East Iberian.**

## ABSTRACTS / RÉSUMÉS

- C61-01**     Laure FONTANA (Aix-en-Provence, France)  
François-Xavier CHAUVIÈRE (Hauterive, Suisse)  
**Animal exploitation by the prehistoric hunter-gatherer societies: questions and methodology.**

**ABSTRACT:** Zooarchaeological and organic technology studies are more and more numerous, which explains in parts that the whole animal exploitation became an interesting subject related to a specific approach.

Whatever the questions specific to each study, one of the main goals is, on our mind, the characterization of the whole animal exploitation. We have to understand its purposes connected to places and seasons of procurement, but also in relation to the procurement of other resources, such as stone raw materials. That is why this characterization is only significant in a diachronic perspective, *i.e.*, at the scale of a year (annual cycle).

So it becomes obvious that faunal remains and bone artefacts have to be studied together, in a global and integrated analysis and in an economic perspective. Nevertheless, a two-fold approach is required to connect the patterns of procurement/transformation/consumption-use of these different products. This approach is based on various separate studies of the animal “bones” (technological and functional analysis, species identification, assessment about hunting strategies and seasons) as well as a multidisciplinary study of these remains by various specialists. If this seems an ordinary approach, from a theoretical and methodological point of view, its application can be found only in some rare papers.

We will present in detail our point of view relating to methodological aspects of such studies (local and regional scales) and then we will focus on questions relating to quantification of « bone » assemblages.

- C61-02**     Evgeny MASCHENKO (Moscow, Russia)  
Sergey LEV (Moscow, Russia)  
Natalia BUROVA (St. Petersburg, Russia)

**Reasons of specific selection of the large mammal remains on Zaraysk site (Russia): evidence and data.**

**ABSTRACT:** The open-air Upper Palaeolithic site of Zaraysk is located in the center of the town of Zaraysk, about 155 km south of Moscow. The Zaraysk site is the northern most known occurrence of the Kostenki-Avdeevo archaeological culture (Gravettian tradition) on the Russian Plain.

The common feature of Zaraysk and other “mammoth hunter’s” sites of Russian Plain is the presence of woolly Mammoth (*Mammuthus primigenius* Blumenbach, 1799) remains, which makes up about 96% of the total number of mammals bones. But, long-term researches in Zaraysk gave evidence of some especial features in mammoth exploitation that we will discuss.

- A specific variety of mammals on the site is rather limited.

- Among the large Mammoth bones discovered, skulls, lower jaws, ribs and scapulas are the most common. There was also a large quantity of isolated teeth and tusks. Long bones are rare and usually only fragments are found. Whereas, on other sites of Russian Plain, the most of Mammoth remains are long bones, vertebrae, and bones of distal parts of the legs.

- Most mammoths hunted (more than 23 individuals) are adults and excavations during the 2005 season (42 m<sup>2</sup>) yielded the remains of 16 adult individuals. Bones of young mammoths including

calves and infants, usually numerous at similar sites on the Russian Plain, are less common (2 individuals found in the excavated area).

There is still an open question on the importance of the woolly Mammoth as a hunted species by the inhabitants of the Zaraysk site. Collecting of bones of the perished animals does not negate the reality of their hunting. Large number of the rests of the Mammoth specifies that this animal was the basic natural resource in various kinds of human activity, but there is still no evidence of butchering process. (...)

**C61-03**

Gennady KHLOPATCHEV (St. Petersburg, Russia)  
Galina GRIGORIEVA (St. Petersburg, Russia)  
Mikhail SABLIN (St. Petersburg, Russia)

**Mammoth ivory and bone exploitation at the Upper Palaeolithic site of Yudinovo (Russia).**

**ABSTRACT:** The Upper Paleolithic settlement of Yudinovo (Bryansk region, Russia) is situated on right bank of river Sudost, which is a right tributary of Desna. The site was discovered by K.M. Polikarpovich in 1934 and excavated by him in 1947 and 1961. In the 1960s the site was excavated by V.D.Bud'ko, then from 1980 to 1994 by Z.A. Abramova, from 1995 to 2003 by G.V. Grigorieva and from 2004 to the present by G.A. Khlopatchev.

At present we have more than two dozens radioisotope dates, most of them fall within 14-13 Kyr. The total excavated area exceeds 1000 m<sup>2</sup>. The remains of four dwellings made with mammoth bones, two small outside hearths, four storage pits, five knapping area, three places used for bone and ivory proceeding and several ones for arctic fox butchering were discovered on the site. The fauna remains include Mammoth, Musk Ox, Reindeer, Red Deer, Bison, Horse, Wolf, Red Fox, Polar Fox, Hare, Marmot and small rodents. There are few remains of Brown Bear, Cave Lion, Goose, Hawk, Eagle and Eagle Owl. A single fish vertebra was found as well. The most numerous remains are those of the Mammoth bones, comprising 70 % of the bones found at the site. It is obvious that the mammoth played a key role in the economy of the Yudinovo settlement.

According to our studies, this resource was used in numerous applications. First, big bones were used as building elements to construct dwellings. Yudinovo buildings are rounded constructions with slightly deepened floor and their plinth parts are made of big mammoth bones, especially mandibles, pelvises, and long bones. Skulls, which form the walls, were positioned vertically with their alveolar parts looking downwards. (...)

**C61-04**

Alexis BRUGÈRE (Nanterre, France)  
Laure FONTANA (Aix-en-Provence, France)  
Martin OLIVA (Brno, Czech Republic)

**Mammoth procurement and exploitation in Milovice (Czech Republic): new data for the moravian's Gravettian.**

**ABSTRACT:** The excavations of 11 sectors of Milovice delivered more than 61.000 bones remains of which 98% belong to the Woolly Mammoth. Human groups came several times to this place between 26.000 and 21.000 BP where several activities, in association with the proboscidiens' remains, have been practiced as in the neighbouring pavlovian sites. We tried to get evidence of how mammoths had been exploited in this atypical Moravian site. The zooarcheological study demonstrates that the gravettian groups have not occupied the site and exploited the mammoth only to get food. Indeed, bones and teeth have been recovered and worked, which display grooves, intentional cut-marks and objects, similar to those known in others gravettians sites (Dolni Vestonice, Krakow-Spadzista, Krems-Wachberg). The great under-representation of tusks and molars allows us to suppose that ivory was recovered to move to another destination. At last, mammoth bones have probably been used to consolidate dwellings in a part of the site. Then, if the exploitation of the Woolly Mammoth was diversified, it doesn't seem to have been intensive, for different reasons as well as logistical, economical, cultural or territorial, as we will discuss.

**C61-05**

Martina BARTH (Tübingen, Germany)  
Nicholas CONARD /Tübingen, Germany)

Susanne MÜNDEL (Tübingen, Germany)

**Upper Palaeolithic subsistence and organic technology in the Swabian Jura (Germany).**

**ABSTRACT:** Animals provide materials which Pleistocene hunters and gatherers used for food, for the production of equipment and for jewellery and artworks. The patterns of subsistence and technical exploitation of animal resources reflect specific cultural behaviour of social groups. These patterns are the result of a number of economic as well as symbolic choices. Here we focus on data from the Swabian Palaeolithic to address behavioural patterns and cultural preferences. While data on diet and seasonality show a relatively high degree of stability as far back as the Middle Palaeolithic, organic technology and symbolic representations in the form of personal ornaments and figurative representation using organic materials show a much more variation.

**C61-06**

Werner MÜLLER (Neuchâtel, Suisse)  
Denise LEESCH (Neuchâtel, Suisse)  
Jérôme BULLINGER (Lausanne, Suisse)

**The diverse animal exploitation at the Magdalenian sites Champréveyres and Monruz (Neuchâtel, Switzerland).**

**ABSTRACT:** The two Magdalenian open-air sites Champréveyres and Monruz are situated 1 km apart from each other at the shore of Lake Neuchâtel. Both sites show well defined living floors, with numerous hearths, abundant flint artifacts and well preserved bone remains. Not only teeth and large compact bone fragments are present, but also elements from small mammals, birds, fishes, and even egg shells. Accordingly, small bone/antler debris resulting from the production of tools, such as needles and projectile points are also abundant.

The wild horse provided more than 90 % of the weight of the animal resources, with a Minimum Number of Individuals of 20 and 65 for the two sites, respectively. In spite of the overwhelming dominance of the horse, 12 other mammal and more than 10 bird species were hunted, and regular fishing occurred as well. The sites were occupied mainly throughout spring and early summer. The abundance of these data allows a more comprehensive approach than often possible. In the present contribution, emphasis will be placed upon the diversity with which the different animals were exploited. In other words, why just these species, and how differently have they been exploited in terms of nutritional, technical and ornamental requirements?

**C61-08**

Laure FONTANA (Aix-en-Provence, France)  
François-Xavier CHAUVIÈRE (Hauterive, Suisse)  
Laurent LANG (Lye, France)

**The complete exploitation of Reindeer at the magdalenian site of Les Petits Guinards: what's new about the annual cycle of nomadism of Magdalenian groups in the french Massif Central?**

**ABSTRACT:** The archaeological site of Les Petits Guinards (discovered in 1981 and excavated in 2002-2003) is one of the recent Upper Palaeolithic sites located along the Allier river, in the northern Limagne, in the north of the Massif Central. (France). It was originally a roc-shelter site which was occupied several times between 19 500 and 10 700 BP. The site is characterized by ancient radiocarbon dates, very well preserved bones, but more specially by more than 900 pieces of Reindeer antler (shed and unshed antlers) and by 74 pieces of bone industry (bone, ivory, Reindeer antler, tooth and shell), which is very unusual for the Massif Central. Several technical categories (scraps of manufacture, rods of "débitage", finished objects) and functional categories (chisels, needles, projectile points, worked rib and jewels) are represented. Of the 15 distinct taxa revealed by the on-going zooarchaeological work, the Reindeer and the Horse significantly predominate. The study of reindeer bone industry gave evidence of a large variability among the projectile points, which demonstrates the abundance of the technical processes used to produce hunting equipment. We also found a worked bone which is, according to us, a foreshaft, which has been introduced in the site already made, as witnesses the whole study of reindeer antlers.

At this preliminary step of the analysis, the site of Les Petits Guinards gives evidence of a main difference in the exploitation of reindeers which was more diversified and took place at many seasons in regard of the other sites of the Massif Central. Preliminary data, relying on Reindeer exploitation on several sites, allow us to consider the annual cycle of the human groups in a dynamic perspective for a region where a great part of the lithic raw material came from a long distance.

**C61-09** Anne BRIDAULT (Nanterre, France)  
Eva DAVID (Nanterre, France)  
Marc BOBOEUF (Nanterre, France)

**Matter or material? A case study of the antler remains from a Mesolithic site, Clos-du-Poujol (Aveyron, France).**

**ABSTRACT:** Bone, antler and teeth, before they are assigned into analytical categories, are firstly part of a living animals and, as are many matters, likely to be chosen, removed, worked, used and exchanged for various purposes by the prehistoric societies. A complex process, as mental as technical, allows a “bony matter” to become a material then an equipment or an ornament. Recent studies of bone and antler industry aim to reconstruct part of this process. In some cases, the nature of such remains is not obvious: are they raw matter or fragments/waste of worked material? The cervid antler remains from the mesolithic assemblages of Clos-du-Poujol illustrate such a case. In this site, a significant amount of small fragments of cervid antlers have been sorted from the faunal material recovered from the sieving, under magnifying lenses. This was all the more unexpected since only a very small number of items had initially been regarded as belonging to the bone and antler industry. Moreover, in comparison with the proportion of Red deer bone remains and to a lesser degree of Roe deer, the cervid antler fragments are usually poorly represented in the French Mesolithic faunal assemblages. How do we consider this kind of remains? As an anatomic part of the Cervids, such antler remains, should be addressed by the zooarchaeological analysis. As a potential raw material, they also come in the study of antler industry. As archaeological remains, their taphonomic and contextual analysis can shed light on the nature of the deposits and on the site. Therefore an embedded integrated study of economic, technical and contextual aspects appears to be more appropriate to bring some relevant information on the acquisition and exploitation of the Cervids in this site, and to identify the links between so-called economic and technical systems.

**C61-10** Jean-Christophe CASTEL (Genève, Suisse)  
François-Xavier CHAUVIÈRE (Hauterive, Suisse)

**From the valleys to the plateaus: a differential exploitation of ungulates? The example of Petit Cloup Barrat (Cabrerets, Lot, France).**

**ABSTRACT:** Located on the Jurassic plateau of Quercy, the site of Petit Cloup Barrat (Cabrerets, Lot) is a small cave (20m<sup>2</sup>) situated on the edge of a small doline (35 meters long and 1 to 2 meters deep). This “enclosed site” is located halfway between the Paleolithic sites of Cuzoul de Vers (Vers) to the west, and Les Peyrugues (Orniac) to the east. The prehistoric entrance to Pech Merle Cave is located 800 meters to the east.

On the micro-regional scale, most of the archaeological documentation comes from sites in the valley bottoms (Lot and Célé), while information are very rare concerning sites on the neighboring plateaus. It is, however, interesting to compare the strategies of procurement and management of alimentary resources (notably large ungulates) and lithic raw materials in the different sectors and biotopes of a single geographic entity, such as the Quercy region.

The study of the plateau site of Petit Cloup Barrat is thus integrated in a framework of palethnographic hypotheses, some of which have already been proposed. Analyses of materials from the levels attributed to the Solutrean and Badegoulian and integration of results related to the animal environment will permit a characterization of the subsistence economy in a natural environment that is still little known. They should also clarify the relationship between Petit Cloup Barrat and the contemporary sites that constitute its environment, as well as leading to new hypotheses concerning regional occupation modes between 20,000 and 16,000 years ago.

**C61-11** Carole VERCOUTÈRE**Traitement des Animaux: entre technique et subsistence**

**ABSTRACT:** En terme de subsistance, un animal peut être considéré comme un ensemble de ressources alimentaires et non-alimentaires. Il semble alors impératif que l'étude de l'industrie osseuse allie une approche archéozoologique (qui concerne le choix, la disponibilité et l'acquisition des matières premières) et une analyse technologique (pour la conception et la fabrication des objets).

C'est dans cette optique que nous avons établi une grille d'étude des objets en matières dures d'origine animale, en nous appuyant sur le matériel osseux des niveaux aurignaciens et gravettiens de l'abri Pataud (Dordogne, France).

Nous traitons ici des nouveaux résultats obtenus pour l'industrie osseuse aurignacienne de Gargas (Hautes-Pyrénées, France) et présentons certains éléments culturels qui pourraient être caractéristiques de l'Aurignacien du sud-ouest de la France.

**C61-12** Veronique LAROULANDIE (Talence, France)**From the feather to the egg: the exploitation of the bird resources during the Magdalenian in the South of France.**

**ABSTRACT:** Bones are the only archaeological remains which bear witness to the possible exploitation of bird resources by Magdalenian hunter-gatherer societies. Thus, this presentation, even if it can only scrape the surface of the question on the usage of feathers and the collection of eggs, aims to cover the precious vestiges that have been conserved. These bones may have been either the form of transformed objects or waste products from food, even if it is sometimes difficult to identify which easily. Through the examples taken from the Magdalenian in the South of France the relationships that existed between the two categories of remnants were discussed. These relationships appear to vary. And in the end, the Ptarmigans, or the alpine Chough, do not seem to have been used outside the sphere of diet. By contrast, the snowy Owl was the object of integrated exploitation as both a meat resource and a primary material. Some other species at last are represented only by manufactured elements. This raises the question of the type of acquisition set to work by hunter-gatherers.

**C61-13** Ivana FIORE (Roma, Italia)  
Monica GALA (Roma, Italia)  
Antonio TAGLIACOZZO (Roma, Italy)**The specialised hunting of *Otididae* (little Bustard and great Bustard) of the Upper Paleolithic from the Romanelli Cave (Pouilles, Italy).**

**ABSTRACT:** The Grotta Romanelli is situated on the eastern coast of the Pouilles and represents the most important sequences of the Italian Tardiglaciaire. The mammals exploited by man as a food resource were principally *Cervus elaphus*, *Equus hydruntinus* and *Bos primigenius*. Bird bones form more than 60% of the 32,000 faunal remains studied which represent 109 different species. The bones of the family *Otididae* (the little Bustard, *Tetrax tetrax* and the great Bustard, *Otis tarda*) that are the most numerous and present multiple traces of human activity compose the purpose of this article. The study (taphonomy and archeozoology) of these two species permits us to reconstruct the mode of exploitation (food and technique) of this important bird resource.

**C61-14** José Miguel TEJERO (Madrid, Spain)  
Alícia ESTRADA MARTIN (Barcelona, Spain)  
Jordi NADAL LORENZO (Barcelona, Spain)  
José Maria FULLOLA (Barcelona, Spain)  
Xavier MANGADO (Barcelona, Spain)  
Raul BATROLI (Barcelona, Spain)  
M<sup>a</sup> Angels PETIT (Barcelona, Spain)**Hunters and artisans of Tardiglaciaire. The exploitation of animal resources in Parco Cave (Alós de Balaguer, Lleida) during the Magdalenian.**

**ABSTRACT:** The Parco Cave, discovered by archeological researchers in 1974, delivered more than fifty pieces of bone industry found in the Upper-Final Magdalenian levels. The studies of faunal remains characterized this site as a temporary occupation dedicated to the specialized hunting of *Capra pyrenaica*. This idea seems to be in agreement with the bone industry found there. The most frequent hunting weapons are the projectile points, made from antlers. Needles made in bone, relating to skin working, and a few personal ornaments like perforated shell jewels have also been found. The question of the origin of the primary resources of the bone industry poses numerous problems. There is a very clear difference in the choice of the primary resources, whether it was antler, bone, or shells. The points were made of antlers, while the needles were made from bone. The ornamental jewelry was produced by perforating the shells of gasteropods. Bone objects were obtained from food resources by the inhabitants of Parco. Nevertheless, the area where the antlers originated can not be stated with certainty (hunted or collected). Fluvial shells were obtained by the inhabitants of Parco from the surrounding river beds whereas marine shells were traded. What concerned the habitual behaviors of the occupants at the Parco Cave, archaeology poses the ultimate question to know if the production of bone industry unfolded at the time when this site was occupied. The functional studies of the lithic industry of the Upper Final Magdalenian indicate that the burins and truncations would have worked particularly well on bones. Given this, associations to the existence of scraps and pieces in the midst of fabrication or reparation, all of this evidence leads us to believe the hypothesis which we have proposed.

**C61-15**

Pilar GARCIA-ARGUELLES (Barcelona, Spain)

Jordi NADAL LORENZO (Barcelona, Spain)

José Maria FULLOLA (Barcelona, Spain)

**The evolution of faunas at the end of the Upper Palaeolithic and the Epipalaeolithic and its effect on the transformation of lithic industries in the North-East Iberian.**

**ABSTRACT:** The subject of this communication is to study the faunas of the end of the Magdalenian in the North-East of the Iberian Peninsula. We will also present our study of the principal palaeoenvironmental changes during the Tardiglaciaire and the initial Holocene.

We will insist on the analysis of the evolution of industries, from the end of the Magdalenian until the Epipalaeolithic (bladelet and geometric industry). We will attempt to place in relation the changes in fauna with the hunting strategies, therefore the appearance of new types of projectiles and points

## Session C62

*Monday, 4 September 2006 / Lundi, 4 Septembre 2006*

*Room 12.02, Faculty of Law, Lisbon University  
Salle 12.02, Faculté de Droit, Université de Lisbonne*

### Coastal geoarchaeology: the research of shell mounds

### Geoarchéologie de la côte : la recherche des amas de coquilles

*organized by / organisé par*

**Marisa COUTINHO AFONSO** Universidade de São Paulo, Brasil -[marisa@br2001.com.br](mailto:marisa@br2001.com.br)  
**Geoff BAILEY** University of York, Dept. of Archaeology, York, UK –  
[gb502@york.ac.uk](mailto:gb502@york.ac.uk)

#### SESSION'S ABSTRACT

We intend to discuss new research on the shell mounds from Brazil and to place that research into a wider comparative framework, including new geoarchaeological and bioarchaeological work on the shell mounds of Northwest Europe, including the classic sites of the Tagus Valley (Portugal) and the Danish Ertebølle, Central and South Americas and Australia. (SAP)

#### RÉSUMÉ DE LA SESSION

Nous voulons discuter des recherches nouvelles avec les amas de coquilles du Brésil et placer cette recherche dans un cadre comparatif plus vaste, avec de nouveaux travaux geoarchéologiques et bioarchéologiques dans les amas de coquilles du Nord-ouest de l'Europe, y compris les sites classiques de la Vallée du Tage (Portugal) et de la région Danoise de Ertebølle, Amériques Centrale et du Sud et Australie.

#### SESSION PROGRAMME / PROGRAMME DE LA SESSION

- 14:30            **Opening / Ouverture**
- 14:30-14:50    Geoff BAILEY (York, UK)  
**C62-01**        **When is a mound not a mound? Shell deposits, palimpsests and the dynamics of archaeological site visibility.**
- 14:50-15:10            Nina NIELSEN (Copenhagen, Denmark)  
                              Soren ANDERSEN (Copenhagen, Denmark)  
**C62-02**        **Geoarchaeological investigations of Danish Stone Age Shell Middens.**
- 15:10-15:30    Manoel GONZALEZ (Santos, Brasil)  
                              Sandra NAMI AMENOMORI (Brasília, Brasil)

**C62-03**      **The occupation of prehistoric fisher-gatherer groups in insular landscape at the coast of São Paulo State, Brazil.**

15:30-15:50      Peter HISCOCK (Canberra, Australia)  
Patrick FAULKNER (Canberra, Australia)

**C62-04**      **Australian shell mounds, coastal economies, and Aboriginal social constructions.**

15:50-16:10      Flávio RIZZI CALIPPO (São Paulo, Brasil)

**C62-05**      **The underwater shell mounds of Cananéia, Southern coast of São Paulo, Brazil.**

16:10-16:30      DEVARA (Barcelona, Spain)  
Ernesto PIANA (CADIC-CONICET-Ushuaia, Argentina)

**C62-06**      **Microstratigraphy of shell middens of Tierra del Fuego.**

16:30-16:50      Ignacio CLEMENTE CONTE (Barcelona, Spain)  
Ermengol GASSIOT BALLBÈ (Barcelona, Spain)  
Leonardo LECHADO RÍOS (Managua, Nicaragua)

**C62-07**      **Shellmounds of the Atlantic Coast of Nicaragua: something more than middens.**

16:50-17:10      Marisa Coutinho AFONSO (São Paulo-Brasil)  
Laércio Loida BROCHIER (São Paulo-Brasil)

**C62-08**      **Geoarchaeological Investigations at Shell Mounds (Southern Brazil).**

17:10-17:30      José ROLÃO (Lisboa, Portugal)  
Tim VAN-DER-SCHRIEK (Newcastle upon Tyne, UK)

**C62-09**      **The Muge Shell Mounds of Portugal: Cultural and Environmental Factors in Mound Formation.**

17:30-18:30      **Discussion**

## ABSTRACTS / RÉSUMÉS

**C62-01**      Geoff BAILEY (York, UK)

**When is a mound not a mound? Shell deposits, palimpsests and the dynamics of archaeological site visibility.**

**ABSTRACT:** Shell mounds comprise a range of shapes and sizes, from the conical or dome-shaped mounds that are characteristic of tropical regions such as Brazil and northern Australia, reaching heights of 30m or more, to lower, more extensive linear mounds no more than a few metres thick but equally impressive in volume that are more typical of other regions. These in their turn merge into smaller shell deposits perhaps no more than a few centimetres thick, or shell scatters, and this continuum of size variation should perhaps be extended to deposits in which shells are entirely absent. Stratigraphic and survey data suggest that in many parts of the world the large mounds represent a coalescence of smaller deposits, and that their impressive dimensions are the unintended long-term outcome of numerous smaller episodes of activity and deposition

successively repeated in the same location. In this presentation, I will explore a range of field data and models of site formation that might account for these characteristics, taking account of geological, environmental and cultural factors that may favour mounding in some cases but not in others. It seems clear that the larger mounds must in their later history of growth have become prominent and recognised features of the landscapes, features that exerted a continued attraction on repeated use and further growth, and which also most likely acquired significance for their makers that may have been quite different at different stages in the history of mound formation. These characteristics pose a number of challenges to interpretation, including the demographic and social interpretation of mounding, the reduced resolution that usually follows from successive and repeated deposition and use on the same surface, and the identification of the symbolic significance that the mounds may have had for the people who lived on and around them.

**C62-02**

José ROLÃO (Lisboa, Portugal)  
Tim VAN-DER-SCHRIEK (Newcastle upon Tyne, UK)

**The Muge Shell Mounds of Portugal: Cultural and Environmental Factors in Mound Formation.**

**ABSTRACT:** The shell mounds of the Lower Tagus valley are one of the largest and most distinctive groups of Mesolithic shell mounds in Europe. Although some of the mounds have been destroyed, older information and more recent excavations have demonstrated that the largest mounds were very substantial deposits, amongst the largest in Europe. They clearly represent middens in the conventional sense with plentiful remains of artefacts, animal bones and domestic features, but some were also used as burial mounds, the most notable example being the mound of Armoreira, with a reported 300 burials. Recent radiocarbon dating indicates that the burials are broadly contemporaneous with the formation of the mounds, and are not later intrusions. This is very different from shell mounds elsewhere in Europe where burials are rare and human material confined to isolated and scattered individual bones. In this paper we will consider the function and significance of the mounds in the light of the most recent archaeological investigations. We will also examine the impact of changes in the availability and distribution of molluscan habitats on the growth of the mounds, using new geomorphological and palaeoenvironmental investigations of valley floor evolution in the Lower Tagus catchment.

**C62-03**

Nina NIELSEN (Copenhagen, Denmark)  
Soren ANDERSEN (Copenhagen, Denmark)

**Geoarchaeological investigations of Danish Stone Age Shell Middens.**

**ABSTRACT:** Denmark has a 150-year long history of shell midden research combining archaeology and the natural sciences. A new era of midden investigations began in the 1970s, with the emphasis on exposing larger areas such as living surfaces and settlement structures, and on obtaining stratigraphic sequences to provide dates and information on depositional history. In this paper we will discuss the excavation techniques and analytical methods used in Danish shell midden research and we will present our results regarding formation processes and other aspects.

**C62-04**

Peter HISCOCK (Canberra, Australia)  
Patrick FAULKNER (Canberra, Australia)

**Australian shell mounds, coastal economies, and Aboriginal social constructions.**

**ABSTRACT:** *Anadara granosa* dominated shell mounds are found across a vast area of tropical northern Australia. We review archaeological evidence for the formation of these mounds, and examine models of the economies and social systems they might reveal. Similarities in the spatial and temporal patterns of these structures exist between disparate regions, revealing distinctive economic and political forager systems operating along the northern coast from more than 2,000 years ago until about 800-600 years ago, as Aboriginal people intensively exploited large beds of the *Anadara* mollusc. Formation of anthropogenic shell mounds in northern, coastal Australia reflects an intricate relationship between Aboriginal

foraging economy and the environment; neither the prehistoric economy nor its environmental setting survived until the historic period. This conclusion invites consideration of the relevance of ethnographic information for reconstruction of the prehistoric economy and social system of shell mound builders.

**C62-05**

Ignacio CLEMENTE CONTE (Barcelona, Spain)  
Ermengol GASSIOT BALLBÉ (Barcelona, Spain)  
Leonardo LECHADO RÍOS (Managua, Nicaragua)

**Shellmounds of the Atlantic Coast of Nicaragua: something more than middens.**

**ABSTRACT:** Usually diggings of shellmiddens in the Middle America have been test pits of reduced area in order to know the characteristics of their internal stratigraphy and to the recovering of both sediment and artefactual samples. Nevertheless recent extensive excavations of shellmiddens in the Americas proved their utility to understand this kind of sites as by-products of past social life. This paper exposes the results of the extensive excavation of a shellmidden in the Karoline site, in the central Caribbean coast of Nicaragua. The results of the fieldwork and the later analyses of the archaeological remains allow us to know both aspects concerning the social life in this old village (occupied between 450 calBC until 350calAD), the use of the domestic space inside and surrounding a hut and the process of formation of the shellmidden close to this habitation area. More than a simple midden area, the shellmound is either a place where some works were made as, e.g., intensive cocking. More, the detailed view of the internal stratification show a large process of sedimentation of the shellmidden, with a constant remodeling of their internal labour spaces.

**C62-06**

Marisa Coutinho AFONSO (São Paulo-Brasil)  
Laércio Loiola BROCHIER (São Paulo-Brasil)

**Geoarchaeological Investigations at Shell Mounds (Southern Brasil).**

**ABSTRACT:** Brazilian south coast presents a concentration of shell mounds (*sambaquis*), including the highest one (Garopaba do Sul), 22 meters high. Although these sites have been studied since the nineteenth century, the social characteristics of its formation is still poorly known. Till the 80's, Brazilian shell mounds were considered as products of low demographic populations, bands with high mobility in a territory involving a variety of marine environments, with subsistence based mostly on shellfish. In the 90's new researches in shell mounds, involving zooarchaeological, geoarchaeological, bioanthropological and chronological studies, held in the north and south parts of Santa Catarina State coast indicated long-duration occupations by people specialized in exploitation of sea resources (fish and shellfish), using shells to build the sites. Geoarchaeological studies aim to identify sites distribution in the landscape, based on recent geological data on sea-level changes and also to identify site formation processes, based on stratigraphical and sediment analysis and postdepositional processes. Detailed researches were carried out at three different places: Santa Catarina State Northern Coast (Joinville region), Santa Catarina State Southern Coast (Camacho Lagoon) and Paraná State Southern Coast (Guaratuba Bay). These three areas present huge shell mounds as landmarks, near small ones and other coastal sites showing a very complex occupation pattern. This paper will present some sites of these three areas as examples of the field methodology applied to shell mounds and data interpretation.

**C62-07**

Manoel GONZALEZ (Santos, São Paulo)  
Sandra Nami AMENOMORI (Brasília, Brasil)

**The occupation of prehistoric fisher-gatherer groups in insular landscape at the coast of São Paulo State, Brazil.**

**ABSTRACT:** The aim of this work is to study aspects of the prehistoric insular landscape, based on "landscape archaeology and human geography theories", with the purpose to verify prehistoric fisher-gatherer occupation in eight archaeological sites at the coast of São Paulo state.

The analysis of these archaeological sites was focused on the landscape with all its natural and cultural features.

This work is based on the thesis that the groups who lived there shared the same landscape perception: a place that could offer shelter and hide. This symbolic meaning was important when they were supposed to choose a settling place. Even when the new area was not surrounded by water, the apparent aspect of insular landscape given by the shape of a mound caused a sensation of safety and isolation among these groups and at the same time there is a meaning of notability in the landscape.

**C62-08** Flávio Rizzi CALIPPO (São Paulo, Brasil)

**The underwater shell mounds of Cananéia, Southern coast of São Paulo, Brazil.**

**ABSTRACT:** Among the Cananéia mangrove (extreme south of São Paulo's coastline), it was identified within the Archaeological Programme of the Lower Ribeira Valley, eight shell mounds within which could be found archaeological submerged traces. Aiming at the understanding of these shell mounds occurrence and the contextualisation in space and time in relation to the holocenic variations of the sea level, this study was based on an adaptation of the Vibracoring technique, underwater archaeological methods and techniques, on the geoarcheological interpretation of Waters (1992), and on the studies of Formation Process adopted by Stein (1992).

Thus, the shell mounds preserving potential and distribution in this area show a strong correlation with the sea related level changes, that occurred after the last holocenic regressive maximum. These evidences also indicated that not only were there real chances that completely submerged shell mounds were preserved but also that it is not always that sites related to an ancient sea level ended up into being destroyed or kept submerged. In some cases, some that should have been destroyed or kept submerged, are seen in land covered by recent coast sediments or protected by any geological feature.

Besides contributing to the development and maturation of the scientific underwater archaeology and for the studies of the curves of the related sea level changes the research also identified some important evidences to the understanding of the shell mounds phenomenon such as the occurrence of stratigraphic sequences that attach functional differences and an intention in building some sites, such as the one dated back to almost 8.000 years ago when Cananéia was first inhabited by the people of the shell mounds.

**C62-09** Devara Research Project Team (Barcelona, Spain)

Ernesto Piana - Proyecto Arqueológico Canal Beagle (CADIC-CONICET - Ushuaia, Argentina)

**Microstratigraphy of shell middens of Tierra del Fuego.**

**ABSTRACT:** One of the aims of the Argentinean-Spanish research project in Tierra del Fuego was the build up of a systematic strategy for recovering the archaeological record of fisher-hunter-gatherers shell middens of the Beagle Channel. This strategy was based on the previous experience of the Argentinean counterpart in:

excavating sites formed by the accumulation process of big amounts of mussels and other remains of fauna and human activities

the development of a system to identify and recover the finer stratigraphic units of these sites. The first approach relied on designing a recording system that combined the systematic record of spatial points (3D) of the perimeter and surface of each stratigraphic subunit, a photographic control and the orderly notation of the characteristics of each of these subunits (e.g. sediment composition, colour, texture and contents). Afterwards, in the joint research the spatial information collected during the excavations was systematically recorded by direct digital capturing system and a small scale GIS. The results of this were then compared with the results from the micromorphological analysis, and bone and stone material refitting as well as the information on seasonality recovered from the biological remains uncovered in the stratigraphic subunits (e.g. plant and animal remains).

This approach has allowed for the identification of subsequent episodes of occupation and for the reconstruction of the fine-grained sequence of site formation. Two sites (Tunel VII and Lanashuaia) are herein discussed to illustrate the advantages of this methodological approach for understanding shell middens formation processes.

## Session C63

*Thursday, 7 September 2006 / Jeudi, 7 Septembre 2006*

*Room 11.02, Faculty of Law, Lisbon University  
Saale 11.02, Faculté de Droit, Université de Lisbonne*

### Transitions in the Palaeolithic

### Transitions au Paléolithique

*organized by / organisé par*

**Marta CAMPS**

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### SESSION'S ABSTRACT

This session focuses on the temporal bridges that have been used since the early days of Palaeolithic studies to link the major periods in which it is divided. Its aim is to offer a world-wide varied analysis of data-rich papers from as many regions as possible.

What is meant by a 'transition' and what criteria can be used to distinguish transitions? The validity of the classic divisions is also addressed. Transitional periods open to discussion in this colloquium range from the "gaps" in between the major ages, to ideas such as whether the Middle Palaeolithic itself can be seen as a transition between the Lower and Upper Palaeolithic.

What are the differences between the divisions in various parts of the world, especially in those cases where geographical areas that have seen formulae of other regions used to make sense of a record which does not fit such parameters. What are the crucial aspects of hominid behaviour during these moments, and how can they be analysed are weighed against the traditional large interest on the typological classification, the latter having turned a system to aid research into a widely accepted end-product.

### SESSION PROGRAM / PROGRAMME DE LA SESSION

09:00            **Opening / Overture**

9:10-9:25        Kathy SCHICK (The Stone Age Institute, Indiana, U.S.A.)  
Nicholas TOTH (The Stone Age Institute, Indiana, U.S.A.)

**C63-01**        **The Oldowan-Acheulean Transition.**

9:30-9:45        Christian A. TRYON (The George Washington University, Washington, D.C.,  
U.S.A.)

**C63-02**        **Is it the Middle Stone Age yet? An eastern African perspective on the Early  
to Middle Stone Age transition.**

- 9:50-10:05 John A.J. GOWLETT (University of Liverpool, Liverpool, U.K.)  
**C63-03** **The long gradient of human evolution in relation to transitions in archaeology: proxy evidence, biological classification and unintended effects.**
- 10:10-10:25 Parth R. CHAUHAN (The Stone Age Institute, Indiana, U.S.A.)  
**C63-04** **Assessing Palaeolithic Transitions In The Indian Subcontinent: Implications And Limitations.**
- 10:30-10:45 Michael CHAZAN (University of Toronto, Toronto, Canada)  
**C63-05** **Assessing the Lower to Middle Paleolithic Transition.**
- 11:05-11:15 **Break / Pause**
- 11:15-11:30 Stephen J. LYCETT (University of Cambridge, England, UK)  
**C63-06** **Quantifying transitions: a morphometric approach to Palaeolithic variability and technological change.**
- 11:35-11:50 Bonnie A.B. BLACKWELL (Williams College, Williamstown, Massachusetts, U.S.A.)  
 Anne R. SKINNER (Williams College, Williamstown, Massachusetts, U.S.A.)  
 Joel I.B. BLICKSTEIN (RFK Science Research Institute, Flushing, NY, U.S.A.)  
**C63-07** **ESR dating at hominid and archaeological sites during the Plio-Pleistocene.**
- 11:55-12:10 Rupert Andrew HOUSLEY (University of Glasgow, Scotland, U.K.)  
 Philip ALLSWORTH-JONES (University of the West Indies, Kingston, Jamaica)  
 Oliver BAZELY (University of Cambridge, England, UK)  
 Christopher I. BURBIDGE (Environmental Research Centre, Scotland, East Killbride, Scotland, U.K.)  
 David PYLE (University of Cambridge, England, UK)  
 David C. W. SANDERSON (Environmental Research Centre, Scotland, East Killbride, Scotland, U.K.)  
 Nick MCCAVE (University of Cambridge, England, UK)  
 Tjeerd H. VAN ANDEL (University of Cambridge, England, UK)  
**C63-08** **The Middle/Upper Palaeolithic Transition in Southern Russian and the Crimea: new chronological and environmental data.**
- 12:15-12:30 Kelly GRAF (University of Nevada, Nevada, U.S.A.)  
**C63-09** **Uncharted Territory: Human Colonization of the Siberian Mammoth Steppe.**
- 12:35-12:50 Olga SOFFER (University of Illinois, Illinois, U.S.A.)  
**C63-10** **The Politics Of Rubicons And The Imagined Pasts.**
- 12:55-14:30 **Lunch / Déjeuner**
- 14:30-14:45 Marta CAMPS (The George Washington University, Washington, D.C., U.S.A.)  
**C63-11** **Past and Present: The role of Iberia in the Mid-Upper Paleolithic Transition.**

- 14:50-15:05 Geoffrey A. CLARK (Arizona State University, Arizona, U.S.A.)  
**C63-12** **Accidents of History.**
- 15:10-15:25 Deborah Irene OLSZEWSKI (University of Pennsylvania, Pennsylvania, U.S.A.)  
**C63-13** **Middle to Upper Paleolithic Transitions in the Middle East and Egypt: A Comparative Approach.**
- 15:30-15:45 Peter HISCOCK (Australian National University, Canberra, Australia)  
**C63-14** **Where Are The Transitions? A Technological Reconsideration Of The Middle-Upper-Palaeolithic Transition At Haa Fteah.**
- 15:50-16:05 Alison S. BROOKS (The George Washington University, Washington, D.C., U.S.A.)  
 John E. YELLEN (National Science Foundation, Virginia, U.S.A.)  
**C63-15** **From Acheulian to Middle Stone Age in Eastern Africa**
- 16:10-16:25 Julien RIEL-SALVATORE (Arizona State University, Arizona, U.S.A.)  
**C63-16** **The Uluzzian as a Manifestation of the Middle-Upper Paleolithic Transition.**
- 16:30-16:40 **Break / Pause**
- 16:40-16:55 Ivor KARAVANIĆ (University of Zagreb, Croatia)  
 Marylène PATOU-MATHIS (Institute de Paléontologie Humane, Paris, France)  
**C63-17** **Middle/Upper Paleolithic interface at Vindija cave (Croatia): new results and interpretations.**
- 17:00-17:15 Ana PINTO (Cosejo Superior de Investigaciones Científicas, Madrid, Spain)  
**C63-18** **The late Middle and Early Upper Palaeolithic of Sopeña (Asturias, Spain).**
- 17:20-17:35 Francis B. HARROLD (University of Nebraska, Nebraska, U.S.A.)  
**C63-19** **Historical Perspectives on the Transition from Middle to Upper Paleolithic.**
- 17:40-17:55 Jehanne FÉBLOT-AUGUSTINS (Centre National de la Recherche Scientifique, University Paris X Nanterre, France)  
**European Upper Palaeolithic raw material transfers revisited: implications for Palaeolithic transitions.**
- 18:00-18:15 Marylène PATOU-MATHIS (Institute de Paléontologie Humaine, Paris, France)  
**C63-21** **The subsistence behaviours of the last Crimea Neanderthals.**
- 18:15-18 :30 Leif STEGUWEIT (University of Erlangen-Nürnberg)  
**C63-22** **Testifying the Aurignacian/ Gravettian transition in Eastern Central Europe**

**ABSTRACTS / RÉSUMMÉS****C63-01**Kathy SCHICK (The Stone Age Institute, Indiana, U.S.A.)  
Nicholas TOTH (The Stone Age Institute, Indiana, U.S.A.)**The Oldowan-Acheulean Transition.**

**ABSTRACT:** In this paper we will review the prehistoric archaeological evidence for the transition from the Oldowan Industrial Complex (early Mode 1 industries) to the Acheulean Industrial Complex (early Mode 2 industries), especially focusing on Africa. Important sites that are considered here include Gona, Middle Awash, Gadeb, Melka Kunture, Konso Gardula, and Omo in Ethiopia; East Turkana, West Turkana, and Chesowanja in Kenya; Peninj and Olduvai Gorge in Tanzania; Sterkfontein in South Africa; Ain Hanech, El Kherba and Ternifine in Algeria; Casablanca and Rabat in Morocco; Dmanisi in the Republic of Georgia and Ubeidiya in Israel.

This transition will be examined in light of geochronology and dating; Artifact typology and industry classification; technological characteristics and reduction patterns; raw material selection and transport; possible presence of fire; associated and contemporaneous hominin fossils; the anatomical characteristics of the different hominin taxa; paleoneurological considerations; environmental and ecological context; site formation processes; experimental archaeological data; considerations of adaptive patterns; considerations of social organization; the coexistence of Mode 1 and Acheulean industries at some localities; and the nature of the spread of hominins out of Africa and into Eurasia.

**C63-02**

Christian A. Tryon (The George Washington University, Washington, D.C., U.S.A.)

**Is it the Middle Stone Age yet? An eastern African perspective on the Early to Middle Stone Age transition.**

**ABSTRACT:** The replacement of Acheulian (Early Stone Age) sites by those attributed to the Middle Stone Age (MSA) is a key element of archaeological change that occurred in Africa circa 150-300 ka, broadly coincident with the first appearance of *Homo sapiens*. Examples from the Kapthurin Formation of Kenya demonstrate the methodological and practical problems of defining Middle Stone Age origins. I divide these into problems of definition and problems of scale. Existing archaeological taxonomy for later Middle Pleistocene archaeological sites likely obscures complex processes of behavioral change, our understanding of which is dependent upon evidence of variable temporal and spatial resolution.

**C63-03**

John A.J. GOWLETT (University of Liverpool, Liverpool, U.K.)

**The long gradient of human evolution in relation to transitions in archaeology: proxy evidence, biological classification and unintended effects.**

**ABSTRACT:** Archaeology has periods, periods succeed one another, and so we have transitions. The same might be said for history, but history has somewhat different circumstances. If a dynasty falls, it is clear that a regime has ended, but equally plain that the dynamic of everything else goes on. In archaeology, we start from bodies of artefacts that are themselves static and which – especially with the slow pace of Pleistocene change – often lead us to think that one stasis follows another, after some period of change which might require special explanation. My paper aims to look at such changes – including those leading up to modern humans - in broader evolutionary perspective.

Archaeology begins formally with tool-making that can leave a record, and in grand schemes it has dealt with Early, Middle and Later stone ages in Africa, and Lower, Middle and Upper Palaeolithic in Europe and much of Asia. Gradually discrepancies between these two schemes have been eased out, and fortunately improved dating has removed some of the apparent offsets. Broadly we can now talk of an Early Palaeolithic from 2.6 to 0.4 million years, a Middle Palaeolithic from 400,000 years to 40,000 years, and a Late Palaeolithic from 40,000, in which the classic 'Upper Palaeolithic' is one regional variant. But it is preservation and the history of archaeology which has made us do this in stone, and the issue is whether the phases give a good fit between biological and cultural evolution. The cultural scheme has to take into account detailed variation in artefacts (e.g. the Oldowan, the Acheulean, the fact that Acheulean hand-axes run on into later periods), and in the biological scheme

there is not full agreement over speciation issues such as chronospecies and anagenesis. Transitions may thus be artefacts of both coincidence and the nature of the proxy, and a multidisciplinary approach seems necessary to isolate real major changes in human capabilities.

**C63-04**

Parth R. CHAUHAN (The Stone Age Institute, Indiana, U.S.A.)

**Assessing Palaeolithic Transitions In The Indian Subcontinent: Implications And Limitations.**

**ABSTRACT:** The Indian subcontinent contains a rich and continuous behavioral record of hominin occupation since, at least, the early Middle Pleistocene. All lithic assemblages demonstrate the presence of Lower, Middle and Upper Palaeolithic features and variable patterns of blank reduction, being in general congruence with other parts of the Old World. However, empirical lacunae continue to persist, such as the lack of absolute dates for many important sites and well-excavated spatial information. As a result, it has been challenging to assess the timings and nature of these technological transitions and compare that data with other regions. Although broad ages have been assigned to most assemblages on the basis of lithic typology, stratigraphy, and biochronology, they are inadequate when discussing the precise causes of the behavioral shifts and resulting adaptive strategies.

Accumulated data, to date, reflects diverse techniques of raw material acquisition, transport, and reduction. From the few stratified sites that have yielded evidence of technological phases include both open-air and rock-shelter contexts. Both the Lower to Middle and Middle to Upper Palaeolithic transitions vary at an inter-regional level, particularly in peninsular India. This probably reflects the collective impact of a suite of factors: demography, raw material type, topographical prominence, water resources, cognitive capabilities, mobility and settlement patterns, and subsequent hominin dispersals from peripheral regions. This paper discusses the dynamic character of the archaeological record in Pleistocene South Asia and attempts to highlight key behavioral and technological changes in comparison with the global record.

**C63-05**

Michael CHAZAN (University of Toronto, Toronto, Canada)

**Assessing the Lower to Middle Paleolithic Transition.**

**ABSTRACT:** The transition between the Lower and Middle Paleolithic has received relatively little attention in the archaeological literature. This paper will review a number of major issues relating to this transition:

1. What is the geographic area covered by this transition?
2. Is the transition uniform across its geographic range?
3. What was the tempo of the transition
4. What are the potential scenario linking the archaeological transition to processes in hominid evolution.

An attempt will also be made to compare the Lower to Middle Paleolithic transition to other major transition events in prehistory

**C63-06**

Stephen J. LYCETT (University of Cambridge, UK)

**Quantifying transitions: a morphometric approach to Palaeolithic variability and technological change.**

**ABSTRACT:** Robust assessment of lithic technological transitions requires dependable methodologies for the comparative analysis of stone tools from different localities, regions, and even continents. Morphometrics is the application of geometric principles to the metric analysis of shape data. In palaeontology (and biology in general) powerful mathematical and statistical methods of analysis are routinely applied to detailed morphometric data sets that allow secure assessments of intra- and inter-taxonomic variability, at both regional and global levels. Conversely, Palaeolithic archaeology has been slow to adopt methods that enable the comparative morphometric analysis of lithic variability, which could potentially allow a more secure assessment of the pattern and validity of technological transitions. This paper will briefly assess the reasons why Palaeolithic archaeology has been relatively slow to adopt the

morphometric approach applied in the biological sciences. It also presents a new method for morphometric lithic analysis with the intention of promoting further discussion and development in this regard. Finally, with worked examples of Pleistocene lithic data analysis, the paper will assess the importance of developing a 'morphometric comparative anatomy' of stone tools for understanding the nature of technological transitions.

**C63-07**

Bonnie A.B. BLACKWELL (Williams College, Williamstown, Massachusetts, U.S.A.)  
 Anne R. SKINNER (Williams College, Williamstown, Massachusetts, U.S.A.)  
 Joel I.B. BLICKSTEIN (RFK Science Research Institute, Flushing, NY, U.S.A.)

**ESR dating at hominid and archaeological sites during the Plio-Pleistocene.**

**ABSTRACT:** Electron spin resonance (ESR) dating has been developed for many materials, including hydroxyapatites in tooth enamel, aragonite and calcite in travertine, molluscs, and calcrete, and quartz from ash, which have many potential applications in archaeological sites. Dating tooth enamel is the most commonly used application in archaeological sites, although molluscs and corals can also be dated easily. When tested against other dating techniques, ESR ages for mammalian teeth, corals, and molluscs agree very well making them the most generally reliable applications.

ESR dating uses signals resulting from trapped charges created by radiation in crystalline solids. Ages are calculated by comparing the accumulated dose in the dating sample with the internal and external radiation dose rates produced by natural radiation in and around the sample. For materials that absorb uranium (U) during their burial history, such as teeth, bones, or mollusc shells, the age calculation considers their U uptake by cross-calibrating with  $^{230}\text{Th}/^{234}\text{U}$  or U/Pb dating. The ESR isochron method, in which the sample acts as its own dosimeter, can date museum samples and reveal the tooth's U uptake history. ESR dates must consider variable sedimentary water concentrations, mineralogy, and geochemistry for all sites, as well as changing sedimentary cover and cosmic dose rates in open-air sites.

ESR dating has been used in many archaeological sites ranging from Late Pleistocene to Late Pliocene in age. ESR dates at Divje babe I, Slovenia, have revealed a complex depositional history and Middle Paleolithic occupation from 40 to  $115 \pm 5$ -10 ka, Oxygen Isotope Stage (OIS) 3 to 5. At Roc de Marsal, France, ESR ages indicate that the Neanderthal child dates to  $> 79 \pm 3$  ka (OIS 5). The hominid from Pradayrol, France, dates to  $330 \pm 5$  ka (OIS 9), while dates for pebble tool cultures from Treugol'naya Cave, Russia, range from  $338 \pm 17$  ka to  $583 \pm 25$  ka (OIS 11-15). At Attirampakkam, India, ESR isochrons revealed rapid changes in groundwater tables and sedimentary geochemistry with time. Analyses at both Isampur and Hathnora, India, indicate changing groundwater geochemistry in response to paleoenvironmental changes. Thus, ESR analyses also reveal paleoenvironmental data vital to understanding site formation processes.

**C63-08**

Rupert Andrew HOUSLEY (University of Glasgow, Scotland, U.K.)  
 Philip ALLSWORTH-JONES (University of the West Indies, Kingston, Jamaica)  
 Oliver BAZELY (University of Cambridge, England, UK)  
 Christopher I. BURBIDGE (Environmental Research Centre, Scotland, East Killbride, Scotland, U.K.)  
 David PYLE (University of Cambridge, England, UK)  
 David C. W. SANDERSON (Environmental Research Centre, Scotland, East Killbride, Scotland, U.K.)  
 Nick MCCAIVE (University of Cambridge, England, UK)  
 Tjeerd H. VAN ANDEL (University of Cambridge, England, UK)

**The Middle/Upper Palaeolithic Transition in Southern Russian and the Crimea: new chronological and environmental data.**

**ABSTRACT:** In so many ways the chronology of the Middle/Upper Palaeolithic transition in Europe is complicated by the fact that it occurs close to the point where  $^{14}\text{C}$  dating, arguably still the chronological backbone to prehistory, increasingly encounters major difficulties as it approaches its upper limit of age estimation. In such periods, alternative non- $^{14}\text{C}$  based chronological methodologies have an increasing role to play (as has been demonstrated in the changes that have taken place in the last two decades in the accepted timing of the peopling of

Australia) but their applicability and degree of age resolution are not always sufficient for the purposes that we ask of them.

The complications in combining uncalibrated radiocarbon determinations associated with archaeological and environmental data, isotopic and other climate data that use an absolute timeframe, and non-14C chronological methodologies, are well known but the implications not always fully appreciated. Such factors may significantly influence the interpretation of the archaeological and hominid record. For example, one scenario could see Neanderthals disappearing from a region before anatomically modern humans arriving – a result of a hiatus between the dates for the Middle and the Upper Palaeolithic and interpreted as indicating no contact – as opposed to another where overlap in age measurements suggests co-habitation of the same region and the high likelihood of interaction. Comparing chronologies may appear simple if making comparisons with identical timescales, but in the case of the middle to upper Palaeolithic transition, frequently this is not what is being done.(...)

**C63-09** Kelly GRAF (University of Nevada, Nevada, U.S.A.)

**Uncharted Territory: Human Colonization of the Siberian Mammoth Steppe.**

**ABSTRACT:** Was the transition from the middle Upper Paleolithic (MUP) to late Upper Paleolithic (LUP) in Siberia the result of gradual in-situ cultural change or abrupt change brought about by multiple recolonization attempts? Although hundreds of Paleolithic sites exist in Siberia, overwhelmingly they lie below 55°N. Successful colonization of northern Siberia above this latitude by MUP foragers did not transpire until after 30,000 cal BP. Further, during the LGM (22,000-19,000 cal BP), site frequencies appear to have dwindled. Soon after, LUP foragers seem to have recolonized the region and eventually succeeded in dispersing into the Arctic. This paper tests the above proposed colonization scenario, investigating the nature and tempo of the transition from MUP to LUP in south-central Siberia.

**C63-10** Olga SOFFER (University of Illinois, Illinois, U.S.A.)

**The Politics Of Rubicons And The Imagined Pasts.**

**ABSTRACT:** This paper begins with the assumption that the analytical categories we impose on the world - including the deep past - are arbitrary constructs invented for heuristic purposes rather than discovered innate properties. I argue that such partitioning is and always was affected by political realities - extant or envisioned - which clearly demonstrate the “virtual” rather than intrinsic reality of such “Rubicons”. I further argue that when we fail to acknowledge this, we assign unwarranted significance to our constructs and waste precious research resources analyzing them. I illustrate these points by discussing the “Modernity” conundrum - the Middle to Upper Paleolithic Transition - that has been the subject of innumerable muddled and ultimately largely sterile debates over the last 25 years or so.

I suggest that the current “modernity muddle” is with us largely because of the dual heritage that our evolutionary theories have once we get beyond pure biology. These two roots differed significantly in how change was envisioned. The progressive directionality of social philosophy, while broadly congruent with Lamarckian thought, was in an ongoing tension with the innate opportunism of Darwinian biology. The net result of this 19th century syncretism was to envision human prehistory as a series of universal progressive stages, each featuring specific technologies, subsistence practices, and social organization - something clearly exemplified by Henry L. Morgan’s grand scheme, for example.

By the end of that century the depth of human antiquity was recognized, the archaeological record augmented with hominid remains, and the Paleolithic sub-divided within the Stone Age. The social-political realities in the first half of the 20th century led to a divergence in what Euro-American scholars focused on in Paleolithic research. Scholars in continental Western Europe, after initial paleontological criteria to subdivide the Paleolithic (e.g. the Age of the Reindeer, the Age of the Mammoth and Woolly Rhino), settled on stratigraphy and changes in tool typologies. Anglophone scholars, on the other hand, conjoined earlier Scandinavian interests in the natural environment with Thomsen’s effective sorting scheme and focused on technological progress through time (e.g. the Three Ages, dividing the Stone age into the Old and New Stone Ages).(…)

**C63-11** Marta CAMPS (The George Washington University, Washington, D.C., U.S.A.)

**Past and Present: The role of Iberia in the Mid-Upper Paleolithic Transition.**

**ABSTRACT:** The Mid-Upper Paleolithic Transition is one of the most hotly debated topics in Paleolithic research. The debate on how, when and why this transition took place is over 30 years old, and still going strong. Originally a French issue, as many other paleolithic research topics, the study of this phenomenon has grown tremendously in the recent past. Information from other areas has proved crucial to refine explanations that pretended to answer the aforementioned questions on the matter, in a generalized format, using primarily if not only French data.

This paper examines the research performed until present on the Transition from the Middle to the Upper Paleolithic in the Iberian Peninsula. By using specific case-studies, the aim is to understand the importance of this region in the global framework of studies that focus on this phenomenon, the effects of the influence of 'classic' works on the subject and clearly assess the importance of this area in the future of this field of research.

**C63-12** Geoffrey A. CLARK (Arizona State University, Arizona, U.S.A.)

**Accidents of History.**

**ABSTRACT:** A moment's reflection will show that the various analytical units commonly used by paleolithic archaeologists in western Europe (e.g., Aurignacian, Mousterian) are 'accidents of history', created for the most part by French prehistorians between c. 1880 and c. 1940 in order to solve chronological problems in the years before absolute dating techniques had become available. Whether or not it makes sense to continue to use them as anything other than a vague and general lingua franca is addressed here, along with the question of what 'transitions' between these units might mean or imply about prehistoric human behavior. Since the units themselves are 'accidents of history', the transitions between them might not mean anything at all from the human behavioral ecology perspective adopted by many American workers. The focus will be on archaeological monitors of human adaptation and how these change, or fail to change, at analytical unit boundaries

**C63-13** Deborah I. OLSZEWSKI (University of Pennsylvania, Pennsylvania, U.S.A.)

**Middle to Upper Paleolithic Transitions in the Middle East and Egypt: A Comparative Approach.**

**ABSTRACT:** Transitions in the lithic archaeological record are beset by numerous caveats. Should we expect that this record will be characterized by gradualism or by punctuated changes? How do different terminologies, for example, the Middle Stone Age and the Middle Paleolithic, affect interpretations? Does the role of formal tools, as recognized in Old World typologies, influence the determination of Middle or Upper Paleolithic? At what point is a lithic assemblage classified as Upper rather than Middle Paleolithic? Are there lithic transitions from the Middle to Upper Paleolithic for both anatomically modern humans and Neandertals? And, if so, are they similar or different? I examine these and other questions first in a context where both Neandertals and anatomically modern humans were present (the Zagros Paleolithic and the Levantine Paleolithic), and then in a context where only anatomically modern humans were present (the Egyptian Paleolithic).

In the Middle East, there are several instances of lithic transitions from the Middle to Upper Paleolithic; the best known are Ksar 'Akil (Lebanon) and Boker Tachtit (Negev Desert). Transitions within the Early Upper Paleolithic have been found at Tor Sadaf (Jordan) and Üçagizli (Turkey). Less well known is the transition in the Zagros, where an Aurignacian facies emerges from the Zagros Middle Paleolithic, with subsequent changes in this Early Upper Paleolithic industry (Zagros Aurignacian).

In contrast to the Middle East is the lithic record of the Egyptian Paleolithic. Formal tools here are quite scarce in both Middle and Early Upper Paleolithic assemblages. Various researchers have used either Middle Stone Age or Middle Paleolithic terminology, dependent in part on their view of the relationship of Egyptian industries to those of subSaharan Africa. Finally, the rarity of Early Upper Paleolithic sites means that our understanding of the transition here is limited by few available data.

**C63-14** Peter HISCOCK (Australian National University, Canberra, Australia)

**Where Are The Transitions? A Technological Reconsideration Of The Middle-Upper-Palaeolithic Transition At Haua Fteah.**

**ABSTRACT:** When conventional typological analyses have been applied to the extraordinary lithic sequence from Haua Fteah (Libya) archaeologists have felt confident that phases such as the Middle Palaeolithic, Upper Palaeolithic and Epi-Palaeolithic could be distinguished and employed as meaningful analytical categories for describing assemblage change; even though anomalous observations were noted. This paper presents a technological re-examination of retouched implements in the Haua Fteah sequence concentration on reduction intensity and reworking of specimens. Technological evidence demonstrates that there are many striking technological continuities between Middle and Upper Palaeolithic stoneworking, indicating fundamental and important behavioural and conceptual similarities across what has often been claimed to be a radical transition. Because the Haua Fteah evidence is more 'sensitive' than previous typological and technological approaches the conclusions lead to a reconsideration of our image of the transition.

**C63-15** Alison S. BROOKS (The George Washington University, Washington, D.C., U.S.A.)

John E. YELLEN (National Science Foundation, Virginia, U.S.A.)

**From Acheulian to Middle Stone Age in Eastern Africa:**

**ABSTRACT:** Recent advances in dating and stratigraphic correlation methods such as tephratigraphy have allowed new insights into behavioral change during the African Middle Pleistocene. At least four East African regions: — the Middle Awash valley of Ethiopia, and the Baringo, Narok-Naivasha and Olorgesailie basins of Kenya, — are yielding long archaeological sequences spanning the period 500-100 kyr which represent the transition from Acheulian technology to local variants of the Middle Stone Age. We present results from our work at Aduma in the Middle Awash and in two areas of the Olorgesailie basin, confirming earlier suggestions that the transition is complex, with multiple types of "transitional" industries, with or without handaxes and/or points. Both débitage and façonnage techniques were employed to produce pointed forms, and small flake industries, often based on Levallois technology, were interstratified with core-axe and hand-axe industries. Ecological data from fauna and sediment analyses suggest that this transition followed a major faunal shift from specialized grazers to more generalized herbivores, and that East Africa, which today has the largest terrestrial mammal biomass in the world, would have supported a consistently large population of humans, and constituted a major center for behavioral innovation.

**C63-16** Julien RIEL-SALVATORE (Arizona State University, Arizona, U.S.A.)

**The Uluzzian as a Manifestation of the Middle-Upper Paleolithic Transition.**

**ABSTRACT:** The Uluzzian is often argued to have been a manifestation of the Middle-Upper Paleolithic Transition in peninsular Italy. Here, I present a discussion of what a transitional industry ought to look like and contrast these expectations with the Italian archaeological record, to see whether the data concord with the expectations. I argue that discrepancies between some of the expectations and a number of facets of the Uluzzian material record can be accounted for by two complementary lines of explanation: 1) that the Uluzzian does not, in fact, embody what a 'transition' between the Middle and the Upper Paleolithic theoretically should look like; and 2) that expectations about the nature and tempo of change during the Late Pleistocene need to be considered on their own rather than modeled after the results of episodes of cultural change in later periods characterized by distinct demographic and climatic contexts. This discussion enables a renewed discussion about what the Uluzzian may represent in behavioral and evolutionary terms over the course of the 40-30 kya interval.

**C63-17**Ivor KARAVANIĆ (University of Zagreb, Zagreb, Croatia)  
Marylène PATOU-MATHIS (Institute de Paléontologie Humaine, Paris, France)**Middle/Upper Paleolithic interface at Vindija cave (Croatia): new results and interpretations.**

**ABSTRACT:** Vindija cave in Croatia is a well known site because of association of fossil hominids and Middle and Upper Paleolithic industries. Several publications have discussed Neanderthal remains found alongside Mousterian industry in level G3 and Upper Paleolithic bone points in level G1. This paper presents recent results of lithic and faunal analyses from transitional levels of this site. Taphonomy of large mammals and hominid bones were examined. Although no human remains were found within the faunal assemblage, results of this analysis are important addition to understanding site formation processes as well as Neanderthal behavior during the so-called transitional period

**C63-18**

Ana PINTO (Cosejo Superior de Investigaciones Científicas, Madrid, Spain)

**The late Middle and Early Upper Palaeolithic of Sopeña (Asturias, Spain).**

**ABSTRACT:** Sopeña is a rock shelter in the Picos de Europa area of the Cantabrian Mountains of Asturias, not far from El Castillo. A test pit excavated in 2002 revealed a continuous stratigraphic sequence of at least 16 archaeological levels. Levels XII to XVI are Mousterian and Levels I to XI are Early Upper Palaeolithic. Despite the richness of archaeological artifacts, the EUP of Sopeña does not seem to conform with the Aurignacian as defined by traditional lithic typologies. Here we offer an update on current excavations and analysis of materials from Sopeña and some new dates for the site.

**C63-19**

Francis B. HARROLD (University of Nebraska, Nebraska, U.S.A.)

**Historical Perspectives on the Transition from Middle to Upper Paleolithic.**

**ABSTRACT:** In recent years, the transition from the Middle Paleolithic to the Upper Paleolithic has been a major focus of archaeological research and debate. There are widely varying views on the behavioral and evolutionary significance of this long-recognized change in the archaeological record. This paper contextualizes current controversies by tracing the development and use of the conventional conceptual subdivision of the Paleolithic archaeological record, and of the changing meanings attributed to the Middle-Upper Paleolithic transition by prehistorians over time.

**C63-20**

Jehanne FÉBLOT-AUGUSTINS (Centre National de la Recherche Scientifique, Nanterre, France)

**European Upper Palaeolithic raw material transfers revisited: implications for Palaeolithic transitions.**

**ABSTRACT:** Building on very current data pointing to the existence of raw material transfers over far longer distances than previously (J. Féblot-Augustins 1997) recorded for the Upper Palaeolithic of western Europe, in globally less exacting environments than those acknowledged for eastern central Europe, the paper investigates the relevance of the cultural ecological paradigm for addressing issues relating to man's dealings with space on a macro-regional scale. Additionally, behavioural and cognitive implications for Palaeolithic transitions are explored. While the recently collected data lead to toning down synchronic differences between western and eastern macro-regions, they reinforce previously stated diachronic differences between the Middle and Upper Palaeolithic. Transfers greater than 100 km remain exceptional in the European Middle Palaeolithic, suggesting differences of a socio-economic nature. Moreover, the recorded long-distance occurrences remain associated with a strategy of provisioning individuals, even when continuity in mobility patterns can be argued for the same region. Nevertheless, the fact that Middle Palaeolithic people did not provision places with raw materials from afar need not necessarily be indicative of specific cognitive capacities, as opposed to those of Upper Palaeolithic people

**C63-21** Marylène PATOU-MATHIS (Institute de Paléontologie Humaine, Paris, France)

**The subsistence behaviours of the last Crimea Neanderthals.**

**ABSTRACT:** Some sites that show the Neanderthal persistence until 29 000 years are discovered in Crimea, as it is the case in the South of the Iberic peninsula. Here, we deal with the subsistence behaviours of the last representatives of this population through the example of Kabazi II and Buran Kaya III (two recent excavated sites). The industries of these sites are different Western Crimean Mousterian for Kabazi II and industry with leaf-shaped bifacial points, which is called transitional industry, for Buran Kaya III. Moreover, in Buran Kaya III, a level (dated around 28 000 years) with a Crimean Micoquian industry was exposed above the leaf-shaped bifacial points level. It's unquestionably that craftsmen, which elaborated Mousterian and Micoquian industries, are Neanderthals. But, those who made the transitional industry remain unknown. From a subsistence point of view, there is a game acquisition and processing similarity between the Mousterian level of Kabazi and the leaf-shaped bifacial points level of Buran Kaya. Men organised recurrent seasonal hunts that were oriented towards only one species: a small horse, *Equus hydruntinus*, in Kabazi II and saiga antelope in Buran Kaya III. They killed animals in the prime of life and juveniles within herds that are composed of females and young. The processing of these animals was complete and relatively intensive in the both sites. What does this similarity of behaviours mean?

**C63-22** Leif STEGUWEIT (University of Erlangen-Nürnberg, Germany)

**Testifying the Aurignacian/ Gravettian transition in Eastern Central Europe**

**ABSTRACT:** While large parts of Western Central Europe and especially France display a well-defined beginning of Gravettian inventories, a confusing radiocarbon record of the Eastern European Aurignacian has been known for the last three decades. Especially in Romania in the 50-s and 60-s were recovered several sites with Aurignacian character – at least without any Gravettian implements – providing <sup>14</sup>C dates from 25-21kyr BP. The data were produced in experienced labs like Groningen; so a simple technical incompatibility can be excluded. For the same time are known lots of Gravettian sites in Romania. Focusing the possibility of about 5,000 years of overlapping technical traditions, the transition in that part of Europe seems to be far away from suggestive models like linear spreading or migration.

One of the most interesting regions to discuss is the Bistrița Valley in the East Carpathian region with some well-known very late Aurignacian sites. In 2005 our team found evidences for a long stratigraphical loess sequence in the Gravettian site of Poiana Cirepului. The lowest Gravettian layer recovered so far provides an age of about 26 ka BP. Comparing the lithic inventory of that layer from Poiana Cirepului with Aurignacian sites of the region, there is no significant change in the use of lithic raw material. Given some cultural layers below, that site furthermore can provide for standard proxies of the sedimentological sequence including both Aurignacian and Gravettian toolkits. The potential of that investigation will be discussed. (...)

## Session C64

*Saturday , 9 September 2006 / Samedi, 9 Septembre 2006*

*Amphitheatre 5, Faculty of Law, Lisbon University  
Amphithéâtre 5, Faculté de Droit, Université de Lisbonne*

### **Space And Time: Which diachronies, which synchronies, which scales?**

### **Espace et temps : Quelles diachronies, quelles synchronies, quelles échelles?**

*organized by / organisé par*

- Thierry AUBRY** Instituto Português de Arqueologia, Parque Arqueológico do Vale do Côa, Vila Nova Foz Côa, Portugal (UISPP, Comm. 8) -  
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### **SESSION'S ABSTRACT**

Recent geoarchaeological and taphonomic studies on some of the reference sites for the establishment of the general Upper Palaeolithic and Mesolithic chrono-stratigraphic sequence have shown that formation and post-depositional processes are complex and discontinuous through time.

Reconstructions of the evolution of lithic assemblages, as well as of their respective human societies, are thus dependent on our capacity to define reliable chronological assemblages, which are independent of the studied lithostratigraphic and pedo-sedimentary sequences.

Having such frameworks in mind, this session will be present the results of studies based on:

- Reconstructions of formation processes and preservation conditions of archaeological contexts
- Spatial organization studies at the site scale;
- Raw material source determination studies at the regional scale.

### **RÉSUMÉ DE LA SESSION**

Depuis quelques années les approches taphonomiques de sites de référence pour l'établissement de la séquence chrono-stratigraphique du Paléolithique supérieur et du Mésolithiques ont montré que les processus sédimentaires, pédologiques et modifications post-dépositionnelles sont complexes et discontinus au cours du temps.

La reconstitution de l'évolution des industries lithiques et des sociétés humaines respectives dépend donc de notre capacité à définir des ensembles chronologiques fiables, qui peuvent être indépendants des unités litho-stratigraphiques des séquences pédo-sédimentaires étudiées.

Nous proposons dans cette session des exemples d'études fondées sur la reconstitution des processus de constitution et de conservation des ensembles archéologiques, sur l'analyse de l'organisation spatiale à l'échelle du site et sur la détermination de l'origine des matières premières exploitées permettant d'établir des relations spatiales avec d'autres espaces géographiques.

**SESSION PROGRAMME / PROGRAMME DE LA SESSION**09:00 **Opening / Ouverture**09:00-09:20 Thierry AUBRY (Pombal, Portugal)  
Miguel ALMEIDA (Paris, France)  
Luca DIMMUCIO (Coimbra Portugal)  
Maria João NEVES (Coimbra, Portugal)  
Laurent KLARIC (Nanterre, France)**C64-01** **Caractérisation et discontinuités des registres pédo-sédimentaires de l'Occident péninsulaire, entre 30.000 et 10.000 BP: implication sur l'interprétation archéologique.**

09:20-09:40 M. Mercè BERGADA (Barcelona, Spain)

**C64-02** **Implications des processus pédo-sédimentaires dans les sols d'occupation du Paléolithique Supérieur et de l'Épipaléolithique du versant méditerranéen de la Péninsule Ibérique.**09:40-10:00 Thierry AUBRY (Pombal, Portugal)  
Miguel ALMEIDA (Paris, France)  
Morgane LIARD (Orléans, France)  
Bertrand WALTER (Preuilley-sur-Claise, France)  
Maria João NEVES (Coimbra, Portugal)**C64-03** **Approche pluridisciplinaire pour la reconstitution de processus pédo-sédimentaires et anthropiques pendant le Pléniglaciaire supérieur: application au site solutréen de plein air des Maîtres (France).**10:00-10:20 Catherine CRETIN (Montpellier, France)  
Michel BRENET (Cesson-Sevigné, France)**C64-04** **Le gisement Paléolithique Moyen et Supérieur de Combemenu (Brignac-la-Plaine, Corrèze). Du microvestige au territoire, réflexions sur les perspectives d'une recherche multiscalaire.**

10:20-10:40 Miguel CORTÉS SÁNCHEZ

**C64-05** **El inicio del Paleolítico Superior en el sur de la Península Ibérica.**10:40-11:00 Pascal FOUCHER (Toulouse, France)  
Cristina SAN JUAN (Toulouse, France)**C64-06** **Du silex, de l'os et des coquillages: matières et espaces géographiques dans le Gravettien pyrénéen.**11:00-11:20 **Break / Pause**11:20-11:40 Cristina GAMEIRO (Lisboa, Portugal)  
Francisco ALMEIDA (Lisboa, Portugal)  
Thierry AUBRY (Pombal, Portugal)**C64-07** **L'exploitation des matières premières au Magdalénien Final en Estremadura portugaise : données des sites de Lapa dos Coelho e de l'Abrigo dos Covões.**

- 11:40-12:00 Francisco ALMEIDA (Lisboa, Portugal)  
**C64-08** **Big Puzzles, Short Stories: the advantages of refitting for micro-scale spatial analysis of lithic scatters from Gravettian occupations in Portuguese Estremadura.**
- 12:00-12:20 Monique OLIVE (Nanterre, France)  
 Nicole PIGEOT (Nanterre, France)  
**C64-09** **Le fractionnement des chaînes de débitage à Étiolles (Essonne, France): un moyen de définir l'espace et le temps de l'occupation.**
- 12:20-12:40 Pierre BODU (Nanterre, France)  
 Grégory DEBOUT (Paris, France)  
**C64-10** **L'organisation spatiale: un fossile-directeur pour les occupations tardiglaciaires du Bassin parisien? Les exemples des gisements magdalénien de Pincevent et azilien du Closeau.**
- 12:40-13:00 Francisco ALMEIDA (Lisboa, Portugal)  
 Ana Cristina ARAÚJO (Lisboa, Portugal)  
**C64-11** **Refitting artefacts and fire cracked rocks to assess site formation process and human behavioural patterns: the case of Barca do Xerez de Baixo.**
- 13:00-13:20 Grégor MARCHAND (Nanterre, France)  
 Aurélie CROWCH  
 Sylvène MICHEL  
 Laurent QUESNEL  
 Farid SELLAMI (Grignon, France)  
**C64-12** **Les structures de combustion de l'Essart (Poitiers, Vienne, France): des épandages de pierres au fonctionnement d'un habitat mésolithique.**
- 13:20-13:40 Marie-Isabelle CATTIN (Neuchâtel, Suisse)  
**C64-13** **Le « bagage » des Magdaléniens : Indices d'arrivées et de départs à partir du matériel en silex des campements de Monruz et Champréveyres (Suisse).**

## ABSTRACTS / RÉSUMÉS

- C64-01** Thierry AUBRY (Pombal, Portugal)  
 Miguel ALMEIDA (Paris, France)  
 Luca DIMMUCIO (Coimbra, Portugal)  
 Maria João NEVES (Coimbra, Portugal)  
 Laurent KLARIC (Nanterre, France)  
**Caractérisation et discontinuités des registres pédo-sédimentaires de l'Occident péninsulaire, entre 30.000 et 10.000 BP: implication sur l'interprétation archéologique.**

**RÉSUMÉ:** Depuis ses débuts, la recherche préhistorique portugaise fut tributaire des résultats de la Préhistoire française. En conséquence, le Paléolithique de la façade atlantique de la Péninsule ibérique a longtemps été interprété en fonction de la chronologie établie à partir des séquences karstiques du Sud-Ouest français et plus particulièrement de Dordogne.

À la lumière de ce paradigme comparatif, l'interprétation de l'absence de certaines phases de la séquence classique, dans le registre paléolithique du Portugal fait depuis quelques années

l'objet d'une vive discussion concernant la chronologie et les modalités de diffusion des premières « cultures » du Paléolithique supérieur dans la région.

Dans la basse vallée du Mondego, le registre stratigraphique karstique pour le Pléistocène supérieur montre des discontinuités sédimentaires à la fin du Paléolithique moyen et pendant le Paléolithique supérieur initial. Ces observations réalisées lors de travaux archéologiques récents, indiquent que ces discontinuités sédimentaires pourraient expliquer les hiatus archéologiques observés. De tels phénomènes compliqueraient donc l'interprétation du registre préservé pour la reconstitution des premières phases du Paléolithique supérieur de l'Ouest de la Péninsule ibérique.

En conséquence, la description de ces discontinuités et une caractérisation de leurs rythmes et processus spécifiques nous apparaissent comme des préalables nécessaires à toute discussion concernant l'interprétation des hiatus archéo-stratigraphiques.

Cette communication a donc pour objectif de décrire précisément le registre pédo-sédimentaire et archéo-stratigraphique de différents sites archéologiques du massif karstique de Condeixa-Sicó-Alvaiázere (Gruta do Ourão, Buraca Grande, Buraca Escura, Vale das Buracas et Abrigo 1 de Vale dos Covões) et de la rive droite du Mondego (Gândara do Outil 1). Nous proposons une corrélation entre les séquences sédimentaires de chaque site en terme de faciès et d'interprétation des conditions climatiques correspondantes. Dans un second temps nous avons intégré dans un cadre chronologique les événements sédimentaires, érosifs ou lacune de sédimentation, matérialisés par des discontinuités majeures. (...)

**C64-02** M. Mercè BERGADA (Barcelona, Spain)

**Implications des processus pédo-sédimentaires dans les sols d'occupation du Paléolithique Supérieur et de l'Épipaléolithique du versant méditerranéen de la Péninsule Ibérique.**

**RÉSUMÉ:** Actuellement les recherches relatives aux sols d'occupation de sites préhistoriques sont orientées vers l'identification des relations entre le sédiment et la distribution des artefacts. Pour établir cette relation il est indispensable de considérer de manière systématique les processus pédo-sédimentaires qui altèrent la position et la conservation des matériaux archéologiques spécialement dans les dépôts où se produit une sédimentation lente après l'occupation.

Dans les gisements que nous avons étudié, il existe une série de processus pédo-sédimentaires qui affectent les résultats des analyses spatiales des niveaux d'occupation. Parmi ces phénomènes nous soulignons ceux qui sont relatifs au gel-dégel, la cristallisation et la dissolution des carbonates, l'activité biologique, l'éluviation et l'illuviation.

**C64-03** Thierry AUBRY (Pombal, Portugal)  
Miguel ALMEIDA (Paris, France)  
Morgane LIARD (Orléans, France)  
Bertrand WALTER (Preuilley-sur-Claise, France)  
Maria João NEVES (Coimbra, Portugal)

**Approche pluridisciplinaire pour la reconstitution de processus pédo-sédimentaires et anthropiques pendant le Pléniglaciaire supérieur : application au site solutréen de plein air des Maîtres (France).**

**RÉSUMÉ:** Sur le site solutréen de plein air des Maîtres (Indre-et-Loire, France), les études de la répartition spatiale des vestiges lithiques taillés et de leurs méthodes de transformation, comparées à un référentiel expérimental, permettent d'observer que les déplacements post-dépositionnels sont réduits et la répartition spatiale des vestiges peu modifiée depuis leur abandon.

L'analyse de leur organisation et leur remontage permet de définir des unités spatiales correspondant à moins d'une dizaine de passages successifs qui présentent des constantes au niveau des comportements techniques et probablement sociaux.

Une tentative d'évaluation de l'intervalle entre les passages et de corrélation des données archéologiques avec les rythmes sédimentaires et pédologiques définis par l'approche géo-

archéologique introduit une réflexion sur les moyens et les limites dont nous disposons dans chaque domaine de recherche, pour évaluer le facteur temps et établir des relations à différentes échelles spatiales.

**C64-04**

Catherine CRETIN (Montpellier, France)  
Michel BRENET (Cesson-Sevigné, France)

**Le gisement Paléolithique Moyen et Supérieur de Combemenu (Brignac-la-Plaine, Corrèze). Du microvestige au territoire, réflexions sur les perspectives d'une recherche multiscalaire.**

**RÉSUMÉ:** Le site de plein air de Combemenu (Brignac-la-Plaine, Corrèze) a fait l'objet d'une fouille préventive en octobre 2002. Deux horizons archéologiques ont été reconnus, l'un moustérien, l'autre, beaucoup mieux conservé que le premier, aurignacien. Bien que ce site ne présente pas les conditions optimales (site de plein air, fouille assez difficile, niveau paléolithique moyen très dispersé, résultats de l'analyse taphonomique assez réservés), son étude nous a permis d'aborder différents niveaux d'analyse, depuis le microvestige jusqu'au territoire. Toutes les échelles ne sont pas forcément abordées dans l'étude des deux niveaux archéologiques. Mais les difficultés rencontrées, l'absence de certaines données et la nécessaire prudence de nos conclusions nous ont conduits à engager une discussion sur la nature des faits archéologiques que nous avons rencontrés, sur les grilles méthodologiques que nous utilisons et sur leurs interactions réciproques. Les données de l'analyse taphonomique, par exemple, n'ont pas la même incidence selon le type d'approche, diachronique ou synchronique, et le type d'échelle, microvestige ou territoire.

Nous proposons ici une présentation des résultats de nos analyses et de notre réflexion. Nous espérons faire la démonstration du caractère pluridimensionnel d'une approche que nous croyons représentative de la démarche d'une majorité de technologues. Nous souhaitons montrer à quel point il est important d'avoir conscience de la multiplicité des échelles abordées, parce qu'elles constituent autant de voies différentes qui s'offrent à nos recherches.

**C64-05**

Miguel CORTÉS SÁNCHEZ (Málaga, Spain)

**El inicio del Paleolítico Superior en el sur de la Península Ibérica.**

**RESUMIO** El comienzo del Paleolítico Superior en el sur de la Península Ibérica ha sido hasta hace relativamente poco tiempo una cuestión bastante controvertida. Esta situación era el resultado de la aparente amplia prolongación de las poblaciones de neandertales en el SW de Europa hasta casi el último máximo glacial pero, sobre todo, creemos que era el resultado de un escaso interés investigador sobre el tema y el resultado del azar en el descubrimiento y excavación de los yacimientos analizados hasta la fecha.

No obstante, en los últimos años nuevos descubrimientos y trabajos han arrojado la suficiente luz sobre el tema como para demostrar que, en sentido amplio, la secuencia del Paleolítico Superior en este ámbito geográfico es similar a la estructurada para otras áreas del ámbito mediterráneo ibérico.

Así, Cueva Bajondillo (Torremolinos, Málaga) dispone de un nivel auriniense contextualizado tanto a nivel secuencial (intercalado entre un estrato musteriense (Bj/14) y otro gravetiense (Bj/10) como cronológico (dos dataciones AMS y otras tantas de TL insertas en una amplia serie y diferentes métodos (AMS, TL, U/Th) o paleoclimático (micromorfología sedimentaria, polen e isótopos) que ponen de manifiesto que las innovaciones tecnológicas del Paleolítico Superior llegan al sur de la Península Ibérica bastante antes de lo propuesto (32-34 ka B.P. en datos AMS y en torno a 28,5 ka B.P. en términos TL).

Otro tema es el de la generalización espacial de estas novedades y la sustitución de las últimas poblaciones de neandertales, apartado más controvertido y que quizás se produzca con posterioridad, cuando las novedades ligadas al gravetiense se implanten de forma amplia en el SW europeo tanto en el apartado de la cultura material, como indica el propio Bajondillo como otros yacimientos (Nerja, Higueral de Valleja o Vale Boi), como al parecer en el ámbito de las manifestaciones artísticas (Ardales y, posiblemente, La Pileta). (...)

**C64-06** Pascal FOUCHER (Toulouse, France)  
Cristina SAN JUAN (Toulouse, France)

**Du silex, de l'os et des coquillages: matières et espaces géographiques dans le Gravettien pyrénéen.**

**RÉSUMÉ:** Comme suite aux nouvelles perspectives ouvertes par un projet de recherche portant sur le Gravettien et le Solutréen des Pyrénées, nous pouvons désormais replacer les occupations gravettiennes de la grotte de Gargas au sein des circuits d'échanges techniques et/ou d'approvisionnement en matière première, dans un contexte géographique comprenant les Pyrénées et le couloir littoral cantabrique.

Tour à tour sont présentés les résultats des recherches sur l'origine des matières siliceuses employées à Gargas, des analyses typo-technologiques de l'industrie lithique ainsi que des études, encore préliminaires, des modes d'élaboration de l'industrie en matière dure d'origine animale. L'ensemble de ces données indique clairement que la partie la plus occidentale des Pyrénées a été une zone très fréquentée par les Gravettiens de Gargas. Aux déplacements pour l'approvisionnement en silex se surimposent des relations étroites entre Gargas et d'autres sites pyrénéens (Isturitz, La Tuto de Camalhot), que l'on perçoit à travers les caractéristiques typomorphologiques de l'outillage osseux. Enfin, la découverte récente de coquillages percés d'origine océanique au cours des campagnes de fouilles menées à Gargas en 2004-2005, établit des liens directs avec le littoral atlantique et renforce l'hypothèse de l'existence de déplacements réguliers des groupes humains entre cette région et la zone centrale pyrénéenne.

**Mots-clés:** Gravettien, Pyrénées, Industrie lithique, Industrie osseuse, Parures en coquillages, Origine des matières premières.

**C64-07** Cristina GAMEIRO (Lisboa, Portugal)  
Francisco ALMEIDA (Lisboa, Portugal)  
Thierry AUBRY (Pombal, Portugal)

**L'exploitation des matières premières au Magdalénien Final en Estremadura portugaise : données des sites de Lapa dos Coelhos e de l'Abri dos Covões.**

**RÉSUMÉ:** La grotte dénommée Lapa dos Coelhos (Torres Novas) et l'abri de Vale dos Covões (Soure) ont fait l'objet de fouilles récentes et préservent des vestiges lithiques du Magdalénien récent qui témoignent probablement d'occupations temporaires et répétées.

L'étude technologique des industries lithiques provenant des niveaux d'occupation magdaléniens des deux sites a été réalisée selon le concept de chaîne opératoire en considérant les différents groupes lithologiques établis sur une observation macroscopique ou sous un faible grossissement. La comparaison avec un référentiel des roches siliceuses disponibles permet la localisation des sources d'origines des différents matériaux employés et la définition d'espaces géographiques d'approvisionnement.

La corrélation de cette information spatiale avec une approche comparative de la fragmentation des chaînes opératoires de production, des modes de transformation et d'utilisation, pour les différentes matières premières lithiques disponibles à moins de 50 kilomètres de leur lieu d'abandon, permet de définir des choix des sources exploitées et de proposer des hypothèses interprétatives des modalités d'approvisionnement par ces groupes humains

Francisco ALMEIDA (Lisboa, Portugal)  
**Big Puzzles, Short Stories: the advantages of refitting for micro-scale spatial analysis of lithic scatters from Gravettian occupations in Portuguese Estremadura.**

**ABSTRACT:** Recent archaeological investigation in Portuguese Estremadura has yielded some contexts representing very ephemeral occupations. The associated lithic samples are usually poor both in quantity and typological variability. This fact is compensated by almost pristine post-depositional conditions, which allow us for an exquisite high success of refitting procedures.

It is generally recognized that lithic refitting is an excellent pattern recognition technique in the scope of technological, stratigraphic/taphonomic and spatial analyses. The combined evaluation of these three lines of investigation, however, is seldom applied in archaeological studies.

This presentation compares the results of the application of refitting on two Gravettian contexts from Portuguese Estremadura: Lapa do Anecrial (with an average refitting success of 91%) and Lagar Velho EE15 (with an average refitting success of 99%). The combined use of technological information and micro scale tridimensional spatial data from the reconstructions allowed the creation of short stories about past behaviours on the two sites. Such interpretations would have been impossible without the application of refitting.

**C64-09**

Monique OLIVE (Nanterre, France)

Nicole PIGEOT (Nanterre, France)

**Le fractionnement des chaînes de débitage à Étiolles (Essonne, France): un moyen de définir l'espace et le temps de l'occupation.**

**RÉSUMÉ:** Parmi les activités réalisées dans l'habitat magdalénien d'Étiolles, la taille du silex a occupé une place importante. A travers celle-ci se dessine une communauté sociale avec ses choix et ses valeurs. Un comportement domine largement dans l'exploitation des nucléus: le fractionnement des chaînes de débitage qui a pour cadre le campement, avec ses habitations et ses aires d'activité satellites, et toute la durée du séjour. Ce découpage spatial et temporel fait apparaître une grande cohérence des déplacements des tailleurs et permet de différencier les aires de travail dans et autour des habitations. De plus, ces discontinuités mettent en relief des objectifs différents selon le moment du débitage qui renvoient à la fois aux valeurs relatives attribuées aux ressources et aux statuts des tailleurs.

Au-delà de comportements généralisés, de règles communes à tous les Magdaléniens qui se sont succédé à Étiolles (comme, par exemple, l'attribution des meilleurs nucléus aux meilleurs tailleurs qui les débitent à des emplacements spécifiques et, à l'opposé, la reprise de nucléus épuisés par des tailleurs apprentis qui s'exercent ailleurs dans l'habitat), la comparaison entre une habitation ancienne, U5, et une habitation récente, Q31, révèle des différences, notamment dans la sélection des blocs de matière première ou dans la conception de chaînes opératoires disjointes ou intégrées, qui traduisent une évolution des pratiques relatives à l'exploitation du silex entre les premiers et les derniers occupants du site.

**C64-10**

Pierre BODU (Nanterre, France)

Grégory DEBOUT (Paris, France)

**L'organisation spatiale: un fossile-directeur pour les occupations tardiglaciaires du Bassin parisien? Les exemples des gisements magdalénien de Pincevent et azilien du Closeau.**

**RÉSUMÉ:** Le Tardiglaciaire du Bassin parisien est un formidable laboratoire pour l'étude des espaces et des temps qu'ont connus et fréquentés les derniers chasseurs-cueilleurs du Paléolithique.

La fouille de vastes gisements magdalénien et azilien au sein du bassin versant de la Seine, permet d'aborder le temps long (diachronie) et le temps court (synchronie).

Fossilisés en fond de vallée, la plupart de ces sites témoignent en effet de conditions de conservation optimum qui ont autorisé de longue date des enquêtes rigoureuses sur les modes de vie de ces populations tout le long de stratigraphies importantes. L'un des points forts de cette recherche concerne notamment l'organisation spatiale de ces gisements, à l'échelle de l'unité d'habitation comme à celle du campement. Un travail récent sur la saisonnalité permet par ailleurs de rediscuter des modèles d'occupation classiquement adoptés pour ces vastes habitats.

Nous appuyant sur quelques exemples (Pincevent, Le Closeau), nous tenterons d'illustrer la diversité des diachronies et des synchronies ainsi que des échelles de lecture au sein du Tardiglaciaire du Bassin parisien.

Une tentative d'évaluation de l'intervalle entre les passages et de corrélation des données archéologiques avec les rythmes sédimentaires et pédologiques définis par l'approche géo-archéologique introduit une réflexion sur les moyens et les limites dont nous disposons dans chaque domaine de recherche, pour évaluer le facteur temps et établir des relations à différentes échelles spatiales.

**C64-11** Francisco ALMEIDA (Lisboa, Portugal)  
Ana Cristina ARAÚJO (Lisboa, Portugal)

**Refitting artefacts and fire cracked rocks to assess site formation process and human behavioural patterns: the case of Barca do Xerez de Baixo.**

**ABSTRACT:** The systematic application of refitting procedures both on artefacts and fire cracked rocks was crucial to recognize some of the mechanisms evolved in the process of formation and modification of Barca's archaeological deposits. This site, dated to the early Mesolithic, is characterized by the presence of macrolithic assemblages made of local raw-materials, bone fragments, mostly from aurochs, and several fire related features of different construction types. Studies undertaken in all archaeological components allow us to interpret it as a camp focused in aurochs carcass processing.

The application of the method allowed for the recognition of patterns not only related to lithic technology and site formation processes, but also to the functional variability of the hearths' sample, and past habitat organization.

**C64-12** Grégor MARCHAND (Rennes, France)  
Aurélie CROWCH  
Sylvène MICHEL  
Laurent QUESNEL  
Farid SELLAMI (Grignon, France)

**Les structures de combustion de l'Essart (Poitiers, Vienne, France): des épandages de pierres au fonctionnement d'un habitat mésolithique.**

**RÉSUMÉ:** De 2003 à 2005, les fouilles sur le site mésolithique final de l'Essart à Poitiers (Vienne, France) ont permis d'identifier 59 structures de combustion : soles circulaires posées à plat d'environ un mètre de diamètre, foyers à plat déstructurés, vidanges de foyers et probablement quelques regroupements naturels de blocs brûlés. Le nombre de pièces lithiques recueillies est compris entre 150 000 et 200 000. Alors que les études ne font que commencer, le taux de pièces brûlées frappe les esprits (70% des pièces débitées) ; ce rôle particulièrement marquant du feu, s'il est naturel, confère à cet habitat un rôle particulier dans l'exploitation des territoires.

Le large décapage (2000 m<sup>2</sup>) sur cette ancienne île de la rivière Clain a permis de saisir toutes les limites du site actuellement préservé. Ces limites sont toutes liées à des processus érosifs que l'on s'attachera à décrire dans cette communication. Par ailleurs, la transformation post-dépositionnelle du niveau archéologique est importante, pour diverses raisons : faiblesse de l'apport sédimentaire après le Mésolithique, lessivage du niveau par variation du niveau d'eau à l'intérieur des sols, nouvelle occupation du Néolithique récent, voire de l'âge du Bronze, immédiatement par-dessus la précédente. Ces contraintes doivent être prises en compte avant de proposer une lecture paléo-ethnographique de ce vaste habitat, une lecture qui reste très profitable comme l'ont montré les premiers travaux réalisés sur quelques secteurs.

De la taphonomie à l'analyse du fonctionnement de l'habitat, nous tenterons dans cette communication de nous interroger sur le champ des possibles dans l'interprétation d'un tel site. Pour la première fois dans l'ouest de la France, l'Essart nous donne à comprendre ces grands habitats de bords de rivière de la fin du Mésolithique, connus uniquement lors des prospections de surface.

**C64-13** Marie-Isabelle CATTIN (Neuchâtel, Suisse)

**Le « bagage » des Magdaléniens : Indices d'arrivées et de départs à partir du matériel en silex des campements de Monruz et Champréveyres (Suisse)**

**RÉSUMÉ:** Localisés au pied de la chaîne du Jura central au bord du lac de Neuchâtel (Suisse), les campements de Neuchâtel-Monruz et Hauterive-Champréveyres se distinguent, entre autres, par l'introduction et l'emploi d'une grande variété de matières d'origines lointaines et l'exploitation d'un silex local de médiocre qualité. Cette diversité des matériaux constitue un avantage indéniable pour l'étude, car des comportements et des stratégies d'approvisionnement peuvent être déduits en fonction des origines et de la distance. Ainsi, l'étude techno-économique de même que les remontages permettent d'observer sous quelles formes arrivent les matières et les nucléus.

A une échelle plus réduite, la localisation de ces éléments dans le campement fournissent des arguments pour établir une chronologie interne. Des idées de la durée d'occupation sont suggérées notamment par la superposition des activités et le degré de perturbation des amas de débitage. L'introduction d'une matière ou d'un outil, le départ d'un nucléus prêt à être débité signalent des moments de la vie du campement tels l'arrivée ou le départ du groupe. Mais s'il reste difficile d'organiser ces événements entre eux, la corrélation des données spatiales, technologiques et économiques apportent une image dynamique de ces sites, où l'espace s'anime.

## Session C65

**Friday, 8 September 2006 / Vendredi, 8 Septembre 2006**

**Room 12.04, Faculty of Law, Lisbon University  
Salle 12.04, Faculté de Droit, Université de Lisbonne**

### Typology vs Technology

### Typologie vs Technologie

	<i>organized by / organisé par</i>
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### SESSION'S ABSTRACT

The methodological shift which began in the late 1970's towards the use of the Chaîne opératoire concept for the technological study of lithic assemblages is still far from achieving some of its original goals.

In fact, morpho-typological approaches still predominate in the literature and rarely integrate technological data on fundamental issues, such as the refinement of general chrono-stratigraphic sequences for both the Upper Palaeolithic and Mesolithic, and their respective behavioural variability.

In this session, through presentations of the lithic assemblages of the aforementioned periods, we try to demonstrate that technological and typological approaches can complement each other, and that such an association can only contribute to improve our definitional criteria for geographic and chronological entities.

Can examples of such a methodological association contribute to changes in the traditional frameworks, based solely on typological grounds, and produce more precise reconstructions of lithic production behaviours?

### RÉSUMÉ DE LA SESSION

Un examen des études produites depuis la mise au point, à la fin des années 1970, des principes de l'étude technique d'ensembles lithiques selon le concept de chaîne opératoire, révèle que ce virage méthodologique n'a pas encore répondu pleinement à ses promesses. Une «confrontation» avec les approches purement morpho-typologiques reste latente et les informations obtenues par l'analyse technique sont encore souvent négligées comme critères pour l'établissement des cadres chronostratigraphiques des technocomplexes du Paléolithique supérieur et du Mésolithique

Nous proposons par des exposés concernant des assemblages lithiques du Paléolithique supérieur et du Mésolithique de montrer que les approches techniques et typologiques sont complémentaires et que leur association ne peut que contribuer à améliorer et nuancer nos critères de définition et de reconstitution d'entités géographiques et chronologiques basées sur les productions lithiques.

Dans quelle mesure cette approche peut-elle modifier le cadre chronostratigraphique, encore essentiellement fondé sur des bases typologiques et aboutir à une reconstitution plus objective des comportements en relation avec la production lithique ?

## SESSION PROGRAMME / PROGRAMME DE LA SESSION

- 09:00            **Opening /Ouverture**
- 09:00-09:20    Lawrence G. STRAUS (Albuquerque, New Mexico, U.S.A.)  
**C65-011**      **Palimpsests, assemblages, phases & facies: the conundrum of taxonomic generalization from particular archeological cases.**
- 09:20-09:40    Michel LENOIR (Talence, France)  
**C65-02**        **Typologie et technologie: alliées ou opposées?**
- 09:40-10:00    Anthony E. MARKS (Dallas, Texas, U.S.A.)  
 Nicholas CONARD (Tübingen, Germany)  
**C65-03**        **Technology vs. Typology: The Case for and Against a Transition from the MSA to the LSA at Mumba Cave, Tanzania.**
- 10:00-10:20    Álvaro ARRIZABALAGA (Vitoria, Spain)  
 José Manuel MAÍLLO FERNÁNDEZ (Madrid, Spain)  
**C65-04**        **Typology vs Technology? The example of the Cantabrian Archaic Aurignacian or Protoaurignacian.**
- 10:20-10:40    Luc MOREAU (Tübingen, Germany)  
**C65-05**        **The Geissenklösterle Gravettian lithic assemblage and its relevance for the European Gravettian chrono-stratigraphy.**
- 10:40-11:00    Laurent KLARIC (Nanterre, France)  
**C65-06**        **Comment interpréter la variabilité technique et qualitative des débitages lamellaires : Les nucléus débités par méthode du Raysse à la Picardie (Indre-et-Loire, France), un «cas d'école» du Gravettien moyen d'Europe occidentale.**
- 11:00-11:20    Juan Francisco GIBAJA (Barcelona, Spain)  
 Nuno BICHO (Faro, Portugal)  
**C65-07**        **Gravettian and Solutrean Stone tools from Vale Boi (Algarve, Portugal): techno-typology vs. function.**
- 11:20-11:40    Thierry AUBRY (Pombal, Portugal)  
 Miguel ALMEIDA (Paris, France)  
 Javier MANGADO LLACH (Barcelona, Spain)  
 Maria João NEVES (Coimbra, Portugal)

Jean-Baptiste PEYROUSE (Autun, France)  
 Bertrand WALTER (Preuilley-sur-Claise, France)

**C65-08** **Interprétation techno-économique des présences et absences dans les registres archéologiques solutréens du centre de la France.**

11:40-12:00 Marc TIFFAGOM (Valencia, Spain)

**C65-09** **La notion de «structure hybride» dans l'analyse des systèmes techniques pré- et protohistoriques : un exemple de complémentarité entre typologie et technologie.**

12:00-12:20 Catherine CRETIN (Montpellier, France)

**C65-10** **Typologie et technologie après le Solutréen/avant le Magdalénien. Réflexions sur la nature des deux approches et sur leur utilisation dans la définition d'une «phase de transition».**

12:20-12:40 Pierre BODU (Nanterre, France)  
 Lucie CHEHMANA (Issy-Les-Moulienaux, France)  
 Grégory DEBOUT (Paris, France)

**C65-11** **Le Badegoulien du Bassin parisien présente-t-il des «caractères régressifs»? Réflexions à partir de l'étude du gisement de plein air de Oisy (Nièvre, France).**

12:40-13:00 Frédéric BAZILE (Vauvert, France)  
 Guillaume BOCCACCIO

**C65-12** **Les industries lithiques de la fin du Solutréen et du Salpêtrien ancien : apports de l'étude technologique à la compréhension de l'évolution culturelle au pléniglaciaire en Languedoc.**

13:00-14:30 **Lunch / Déjeuner**

14:30-14:50 Marianne CHRISTENSEN (Paris, France)  
 Boris VALENTIN (Paris, France)

**C65-13** **Typologie vs typologie. Comment la technologie peut contribuer à une typologie efficace des armatures lithiques.**

14:50-15:10 Elisa Domènech FAUS (Cocentaina, Spain)

**C65-14** **Lithic technology: a new interpretative way in the knowledge of the early hunter-gatherers in the northwest Mediterranean versant.**

15:10-15:30 Ursula WIERER (Siena, Italy)

**C65-15** **Techno-typological analysis of a Sauveterrian industry: the case of Galgenbühel/Dos de la Forca in the Adige Valley (South Tyrol, Italy).**

15:30-15:50 Federica FONTANA (Ferrara, Italy)  
 Maria Giovanna CREMONA  
 Erika FERRARI

**C65-168** Human occupation at the Southern Po Plain margin in the Early Mesolithic: the contribution of technological and typological studies.

15:50-16:10 Marta LEWICKA

**C65-17** Late Mesolithic lithic technology – the case of Swietoszyn (SW Poland).

16:10-16:30 Foni LE BRUN-RICALENS (Grand-Duché de Luxembourg)

**C65-18** «Nucléus» ou-et «outil»? Entre syndrome d'Esope et quadrature du cercle. De la complémentarité de la Technologie et de la Typologie: bilan et perspectives après un siècle d'investigations scientifiques.

## ABSTRACTS / RÉSUMÉS

**C65-01** Lawrence G. STRAUS (Albuquerque, New Mexico, U.S.A.)

**Palimpsests, assemblages, phases & facies: the conundrum of taxonomic generalization from particular archaeological cases.**

**ABSTRACT:** Upper Paleolithic prehistorians have become increasingly aware of the fact that the assemblages we recover during excavation are the combined products of such diverse factors as past human activities at different spots within each site, site formation processes, and sampling. Most sites (especially those considered to be key sequences) are complex palimpsests and very few are completely excavated. The old excavations which, because they did go through large volumes of deposits, often serve as the bases for the definition of cultural traditions and phases, were generally conducted (and their finds curated) with methods far less comprehensive or careful than those used in recent decades. Modern excavations, paradoxically, usually cover much smaller areas because they are so painstakingly slow and costly. With more sites and radiocarbon dates for each period in each region of Western Europe, taxonomic characterizations of supposed phases are becoming problematic. An alternative approach to the Upper Paleolithic record is to try to understand the role of each site as a place used by humans within a variable landscape, in terms of both functional stability and change. Forced to accept the palimpsest nature of most archaeological levels—especially in caves and rockshelters, which are quintessentially favored fixed places on the landscape—archeologists increasingly must compare levels and sites in terms of the organization of space (e.g., hearth-centered activity areas), food and raw material procurement and consumption patterns, evidence of seasonality, artistic and exotic object indicators of social relationships, etc., while using sediment stratigraphy and radiocarbon as at least relative measures of contemporaneity or sequentially. This paper will attempt to illustrate these problems with case studies from the author's work with many colleagues throughout the Atlantic facade of Europe, particularly in the Magdalenian period.

**C65-02** Michel LENOIR (Talence, France)

**Typologie et technologie: alliées ou opposées?**

**RESUME :** A partir des années 1950, l'analyse typologique fondée sur l'utilisation des listes types a sous l'impulsion de François Bordes, puis de D. de Sonneville Bordes, incontestablement beaucoup contribué à la connaissance des industries lithiques, parallèlement à la mise en pratique des méthodes de la typologie analytique par G. Laplace. Ces approches surtout basées sur des critères morphotechniques ne furent pas dissociées d'une étude technique, F. Bordes étant passé maître dans la taille expérimentale des roches dures. Depuis près de quarante ans, les études technologiques fondées sur les notions de chaîne opératoire et de lithotechnologie ont fourni un énorme apport à l'étude des ensembles lithiques ou osseux et ont permis ainsi une vision plus dynamique des industries. Depuis quelques années l'approche technologique ne privilégie plus l'analyse de la production des pièces-supports, mais elle s'intéresse aussi

aussi à la fabrication et à l'utilisation des outils. Ainsi, plutôt que d'opposer typologie et technologie, les orientations de recherche actuelles qui font agir en synergie divers domaines, se révèlent de plus en plus pertinentes pour une approche des comportements techniques des hommes préhistoriques. Quelques cas de figures relatifs à des ensembles lithiques seront évoqués pour illustrer ce sujet.

**C65-03** Anthony E. MARKS (Dallas, Texas, U.S.A.)  
Nicholas CONARD (Tübingen, Germany)

**Technology vs. Typology: The Case for and Against a Transition from the MSA to the LSA at Mumba Cave, Tanzania.**

**ABSTRACT:** Excavations by M. Kohl-Larsen in the late 1930's at Mumba Cave produced both a deep stratigraphic section, as well as very large, screened artifact samples. Initial studies on selected samples suggested that, typologically, there was a developmental continuum connecting the MSA (Unit VI) to the LSA (Unit III), through a culturally distinct transitional deposit, called the Mumba Industry (Unit V). Recent studies of the complete excavated samples suggest that this interpretation may need revision, since the typological vs. the technological aspects of this sequence indicate quite different patterns of change and stability, clearly showing that typology and technology do not always point in the same interpretive direction.

**C65-04** Álvaro ARRIZABALAGA (Vitoria, Spain)  
José Manuel MAÍLLO FERNÁNDEZ (Madrid, Spain)

**Typology vs Technology? The example of the Cantabrian Archaic Aurignacian or Protoaurignacian.**

**ABSTRACT:** The employment of the Typology and, later, of the Lithic Technology has represented a great progress to know the material culture of the prehistoric groups. Nevertheless, an excessive importance has been granted to these tools. In absence of other archaeological sources, the Typology of empirical base became a key piece for the stratigraphical and cronocultural reconstruction of the sites, moving away from its primitive aim. As for the technology, many researchers adopted it as the natural substitute of the typology and they have committed the same mistakes that with the Typology.

If we take both methodological tools as such, and we forget the generated scleroses in both by his incorrect use, it will be able to obtain some satisfactory results. With these premises we have carry out the study of the Archaic Aurignacian of the Cantabrian region (Cueva Morín and Labeko Koba) obtaining a global result from the available lithic pieces.

**C65-05** Luc MOREAU (Tübingen, Germany)

**The Geissenklösterle Gravettian lithic assemblage and its relevance for the European Gravettian chrono-stratigraphy.**

**ABSTRACT:** In the recent decades the Swabian Gravettian has not received as much attention as the region's well known Aurignacian assemblages. Unlike the Aurignacian that is well documented in both the Lone and Ach Valleys, the Gravettian is found almost exclusively in the Ach Valley, where particularly rich assemblages are known from sites including Brillenhöhle, Hohle Fels and Geißenklösterle.

This paper presents a typo-technological study of the Gravettian lithic assemblage from Geissenklösterle. Geissenklösterle cave was excavated with modern standards from 1973 to 2002 by the University of Tübingen and presents a well-documented chrono-stratigraphy for the early Upper Palaeolithic. The Gravettian from Geissenklösterle dates between 30,000 and 27,000 BP, thus documenting the earliest and still underrepresented phase of this pan-European culture. The refittings between the different Gravettian horizons of the site demonstrate the homogeneous character of the assemblage. The lithic assemblage shows some particularities which do not conform to chronological expectations derived from Western Europe. These results lead to the discussion of the pan-European cultural stratigraphic sequence for the Gravettian and

Conard's Kulturpumpe hypothesis to explain early Gravettian innovations in southwestern Germany

**C65-06** Laurent KLARIC (Nanterre, France)

**Comment interpréter la variabilité technique et qualitative des débitages lamellaires : Les nucléus débités par méthode du Raysse à la Picardie (Indre-et-Loire, France), un «cas d'école» du Gravettien moyen d'Europe occidentale.**

**RESUME:** Ces dernières années, la plupart des phases du Paléolithique supérieur ont fait l'objet d'analyses technologiques consacrées aux productions lamellaires. Bien souvent, il s'agissait de démontrer que certains artefacts (en général catégorisés comme outils) avaient bel et bien servi de nucléus à lamelles, en général pour la production de supports d'armatures. Cependant, rares sont les exemples où, au de-là de la caractérisation, on a tenté d'expliquer plus finement la variabilité, parfois importante des nucléus en question, celle-ci étant implicitement imputée aux aléas du débitage. Les burins du Raysse (artefacts caractéristiques de la seconde phase du Gravettien moyen en France) constituent un bon exemple pour illustrer ce propos. Ces nucléus sont régis par des règles de débitage strictes (méthode du Raysse) qui conduisent à des morphologies très «typées». A la Picardie (Indre-et-Loire), la poursuite des fouilles et des travaux ont permis de mettre en évidence l'existence de pièces reflétant une variabilité typologique et technologique importante par rapport aux «burins du Raysse typiques» déjà connus sur le site. Cette variabilité est parfois telle que les artefacts concernés échappent à la définition formelle du type. Pourtant, une analyse technologique approfondie permet de mettre en évidence l'existence de caractères conceptuels analogues entre les deux catégories. Plusieurs points seront envisagés dans cette communication: tout d'abord comment caractériser puis interpréter cette variabilité (débitages «simplifiés», variabilité fonctionnelle, savoir-faire en cours d'acquisition, etc.), ensuite, comment résoudre les problèmes de convergences avec les catégories voisines comme les «burins transversaux et autres nucléus sur tranche d'éclat»? On verra à travers une analyse combinant démarches typo-morphologique et technologique, qu'une partie de la variabilité technique des artefacts rassemblées sous différentes catégories peut, peut-être, être réinterpréter, à l'échelle du site, comme le reflet des degrés de savoir-faire des tailleurs.

**C65-07** Juan Francisco GIBAJA (Barcelona, Spain)  
Nuno BICHO (Faro, Portugal)

**Gravettian and Solutrean Stone tools from Vale Boi (Algarve, Portugal): techno-typology vs. function.**

**ABSTRACT:** The main objective of the present paper is to present the relation between morphological and technological aspects and the function of stone tools from the Upper Paleolithic of Vale Boi. Morpho-technological criteria that may have guided the blank selection in the use of different materials were investigated. Since data covers both Gravettian and Solutrean phases at the site, the present study focus both the diachronic and synchronic technological and functional aspects of stone tools dynamics in Southwestern Iberia.

**C65-08** Thierry AUBRY (Pombal, Portugal)  
Miguel ALMEIDA (Paris, France)  
Javier MANGADO LLACH (Barcelona, Spain)  
Maria João NEVES (Coimbra, Portugal)  
Jean-Baptiste PEYROUSE (Autun, France)  
Bertrand WALTER (Preuilly-sur-claise, France)

**Interprétation techno-économique des présences et absences dans les registres archéologiques solutréens du centre de la France.**

**RÉSUMÉ:** L'analyse des séries lithiques des sites solutréens du bassin versant de la Creuse montre, sur tous les sites, des déplacements de silex et des absences au sein des chaînes opératoires de transformation et d'utilisation de différentes ressources lithiques de la région.

Les seules analyses typologiques et technologiques des productions lithiques ne permettent pas de dépasser le niveau élémentaire de l'observation des faits pour essayer d'établir une contemporanéité, complémentarité fonctionnelle et économique entre ces occupations (et avec celles d'autres régions).

Notre approche qui intègre une évaluation de la représentativité du registre archéologique et l'analyse de la diffusion de silex marqueurs, aboutit à plusieurs hypothèses pour reconstituer les différents processus de transformation/déplacement, intervenus entre le lieu d'abandon d'un silex taillé et sa source.

**C65-09** Marc TIFFAGOM (Valencia, Spain)

**La notion de «structure hybride» dans l'analyse des systèmes techniques pré- et protohistoriques: un exemple de complémentarité entre typologie et technologie.**

**RESUME:** Appliquée aux productions lithiques du Solutréen de la grotte du Parpalló, site emblématique du sud-est de l'Espagne, la méthode des remontages stratigraphiques, aussi bien «physiques» que «mentaux», a permis de reconstituer une partie de la séquence originelle de ce site, en l'occurrence celle attribuée au Solutréen de faciès ibérique. Mais c'est en introduisant la notion de «structure hybride» dans l'interprétation de ces remontages, ainsi que des pièces isolées bien sûr, qu'à pu être mise en évidence l'unité culturelle dans le temps de ce faciès. Or, il s'est avéré que ce métissage des traits techniques solutréens n'était pas seulement de nature technologique, mais aussi, surtout, au risque de commettre une lapalissade, typo-technologique, démontrant une nouvelle fois, s'il en était encore besoin, que pour l'Homme préhistorique comme pour nous le fond est indissociable de la forme.

Au-delà de cette constatation, de cette complémentarité donc entre Typologie et Technologie, et au vu des résultats obtenus au Parpalló, il est proposé d'élever au rang d'outil descriptif et interprétatif cette notion de «structure hybride» dans l'analyse des systèmes techniques pré- et protohistoriques, au même titre, notamment, que les concepts de «chaîne opératoire», «schème technique», «manières de voir et de faire» et d'«économie des matières premières».

**C65-10** Catherine CRETIN (Montpellier, France)

**Typologie et technologie après le Solutréen/avant le Magdalénien. Réflexions sur la nature des deux approches et sur leur utilisation dans la définition d'une «phase de transition».**

**RESUME:** L'objectif de cette communication, plutôt qu'une présentation de résultats, est de proposer une réflexion sur l'utilisation des analyses typologiques et technologiques dans le traitement de la question de la transition Solutréen/Magdalénien. Les exemples concrets, venant de notre expérience personnelle, servent à illustrer cette réflexion que nous croyons d'une portée beaucoup plus générale.

Après un exposé de la problématique, des données obtenues, des interrogations soulevées qui constituent la base de notre raisonnement, nous tâcherons de mettre en évidence la complémentarité de chacune des deux approches, typologie et technologie, ainsi que leurs différences, leurs spécificités et qualités respectives. Nous nous demanderons notamment si les deux méthodes nous permettent de répondre aux mêmes questions, si la technologie, en particulier, peut servir efficacement à définir des entités culturelles, et de quelle manière. Cette question s'est en effet posée avec une certaine acuité pour la période étudiée, déjà difficilement définie par la typologie. Or, il s'avère que les analyses technologiques ont plutôt eu tendance, ces trente dernières années, à nous révéler la complexité du comportement technique au lieu de la norme culturelle. Il y a bien entendu des explications liées à la nature même de la méthode, plus dynamique, mettant plus l'accent sur l'interaction entre les

différents éléments que sur la synthèse. Mais il est possible que l'effort de caractérisation des entités ait été relégué au second plan par les technologues, par crainte du raccourci. Pourtant, éviter la question aurait pour conséquence de laisser ce soin à d'autres. C'est pourquoi nous croyons qu'un effort de clarification de nos intentions, de nos attentes et de nos objectifs ne peuvent qu'être salutaires pour les deux méthodes employées.

C'est, partiellement du moins et en ce qui concerne la période inter solutréo-magdalénienne, l'objectif de cette communication

**C65-11**

Pierre BODU (Nanterre, France)

Lucie CHEHMANA (Issy-Les-Moulienaux, France)

Grégory DEBOUT (Paris, France)

**Le Badegoulien du Bassin parisien présente-t-il des «caractères régressifs»? Réflexions à partir de l'étude du gisement de plein air de Oisy (Nièvre, France).**

**ABSTRACT:** Depuis plus de 10 ans, les études menées sur les industries badegouliennes tentent de mieux définir l'unité technique et économique de cette culture matérielle. Les analyses réalisées sur l'industrie lithique du gisement de Oisy (Nièvre, France) s'inscrivent précisément dans cette démarche. De nouvelles données ont notamment permis de mieux caractériser une part de la production encore peu identifiée, le «lamellaire».

La reconnaissance de la chaîne opératoire lamellaire a deux incidences importantes. La première est d'ordre méthodologique. Pour reconstituer les différentes étapes de la production lamellaire, il a fallu une nouvelle fois mêler intimement les données typologiques et technologiques. Cette approche conduit à une réinterprétation des pièces communément appelées «burins transversaux», désormais considérées en grande partie comme des nucléus à lamelles. C'est une vision dynamique de ces objets sous forme de schéma opératoire qui sera proposée ici et qui précisera les différentes séquences de production, les déchets afférents mais aussi les intentions. Car en effet à Oisy, la découverte de nombreuses lamelles retouchées permet enfin de relier ce schéma opératoire à un objectif précis : la confection d'armatures.

La découverte de lamelles retouchées à Oisy a une seconde portée qui a trait au rapport idéologique que les préhistoriens entretiennent avec le Badegoulien. Jusqu'à présent, malgré l'existence d'armatures dans certains sites du Sud-Ouest de la France, le Badegoulien était considéré comme l'une des seules cultures matérielles du Paléolithique supérieur exempte d'une production lithique destinée à l'équipement de chasse. Plus encore, l'absence totale de lamelles à dos dans les assemblages du nord de la France a conduit certains auteurs à conclure à leur «caractère régressif». Nous appuyant sur l'exemple du gisement de Oisy, nous tenterons de montrer de quelle manière la prise en compte du système technique lithique dans son ensemble permet d'une part d'enrichir nos connaissances sur les productions badegouliennes et d'autre part d'alimenter le débat sur la genèse du Magdalénien.

**C65-12**

Frédéric BAZILE (Vauvert, France)

Guillaume BOCCACCIO

**Les industries lithiques de la fin du Solutrén et du Salpêtrien ancien : apports de l'étude technologique à la compréhension de l'évolution culturelle au pléniglaciaire en Languedoc.**

**RESUME:** Le Salpêtrien ancien, culture du Paléolithique supérieur de la basse vallée du Rhône a été défini par Max Escalon de Fonton en 1964 à la Grotte de la Salpêtrière située dans les gorges du Gardon en Languedoc (Gard, France). Cette industrie est caractérisée par un outil particulier, la pointe à cran abrupt de type méditerranéen réalisée sur support fortement calibré, mais également par l'absence remarquable de la retouche solutréenne.

Dans cette cavité, le Salpêtrien ancien est en contact direct avec le Solutrén moyen sous-jacent suite à un ravinement important. Le Solutrén supérieur est donc absent de la

succession stratigraphique. Les datations du niveau 6 de la Salpêtrière donnent un âge moyen d'environ 19000 ans B.P. (non calibré). Les deux autres sites salpêtriens actuellement connus en Languedoc sont localisés en plein-air et ne présentent aucun élément permettant de compléter les données chronostratigraphiques ou radiométriques.

Sur la base des différentes données chronologiques et typologiques, le Salpêtrien ancien est donc actuellement interprété comme un véritable épisolutréen découlant directement du Solutréen supérieur tel qu'il est connu localement à la baume d'Oullins. (...)

**C65-13** Marianne CHRISTENSEN (Paris, France)

Boris VALENTIN (Paris, France)

**Typologie vs technologie. Comment la technologie peut contribuer à une typologie efficace des armatures lithiques. and waste on a dirty Mesolithic floor. An Early Ertebølle dwelling excavated under water.**

**ABSTRACT:** Une étude récente sur des lamelles à bord abattu provenant du site magdalénien d'Étiolles (Essonne, France) illustre l'intérêt de la démarche technologique quand elle est appliquée à l'étude des microlithes. «Mesurer le soin et le confronter à l'efficacité, nous sommes ici au croisement des deux démarches que nous avons adoptées: l'analyse des méthodes de fabrication et celle de la fonction» (Christensen, Valentin, 2004). D'autres exemples issus de contextes culturels variés montreront ce qu'on peut attendre d'une typologie servie par la technologie. (...)

**C65-14** Elisa Domènech FAUS (Cocentaina, Spain)

**Lithic technology: a new interpretative way in the knowledge of the early hunter-gatherers in the northwest Mediterranean versant.**

**ABSTRACT:** The reconstruction of the Chaîne opératoire based on the study of several lithic assemblages of the French and Spanish Mediterranean of the Final Upper Paleolithic and the Epipaleolithic enables us to establish the specific technical behaviours. In the Magdalenian, we have identified complex chaînes opératoires entailed to diverse process of production. In the Postpaleolithic production of blade presents different technological behaviours. In the Geometric Epipaleolithic facies Filador the working of blades is more sophisticated. Finally, the stratum 2 in Filador presents a dual lithic production: flakes and blades. From the first one were obtained the bases for the pieces with notches and denticulates, whose retouches are different to the rest of denticulates from older phases.

**C65-15** Ursula WIERER (Siena, Italy)

**Techno-typological analysis of a Sauveterrian industry: the case of Galgenbühel/Dos de la Forca in the Adige Valley (South Tyrol, Italy).**

**ABSTRACT:** The research at the rockshelter Galgenbühel/Dos de la Forca at Salurn/Salorno led to the discovery of an Early Mesolithic archaeological deposit dating between the end of the 9<sup>th</sup> and the middle of the 8<sup>th</sup> millennium BC cal. Sauveterrian hunter-gatherer groups who occupied the shelter followed an economy mainly based on fishing and on the exploitation of the resources at the valley bottom.

The study of the lithic industry wants to achieve an integration of results coming from a traditional typological approach with those of the technological study. Data come mainly from the refittings and from the analysis of cores and some waste products. The stratigraphic distinction of numerous episodes of occupation (grouped into 5 phases) allows to analyse the industry from a diachronic point of view.

**C65-16** Federica FONTANA (Ferrara, Italy)

\Maria Giovanna CREMONA  
Erika FERRARI

### Human occupation at the Southern Po Plain margin in the Early Mesolithic: the contribution of technological and typological studies.

**ABSTRACT:** This paper focuses on the study of a set of lithic assemblages brought to light in the last 20 years along the Southern margin of the Po Plain, between the cities of Bologna and Piacenza. Geological studies and pollen analyses support an Early Holocene age for these open-air sites and indicate that they were located along the ancient river banks of some main tributaries of the Po river. Due to the pedological features of these deposits, lithic assemblages represent the dominant archaeological finds uncovered; on the contrary, organic remains (bones, charcoals) appear badly preserved. The application of both a technological and a typological approach to the study of these assemblages therefore represents a unique opportunity to examine aspects related to the occupation of this area in the early Holocene.

Our study indicates that the lithic assemblages analysed share several aspects (same volumetric concepts and *débitage* objectives, presence of a common pool of retouched tools) allowing them to be referred to the same cultural complex (i.e. Sauveterrian, Early Mesolithic of Northern Italy). Nevertheless each of them is characterized by some specific features concerning raw materials provisioning, variations in the *chaînes opératoires*, types and rates of retouched tools and presence/absence of the microburin technique. (...)

**C65-17**

Marta LEWICKA (Wroclaw, Pologne)

#### Late Mesolithic lithic technology – the case of Swietoszyn (SW Poland).

**ABSTRACT:** At present one of the most often discussed issues in the Mesolithic studies in Poland is the technological study of lithic assemblages, in particular the concept of chaîne opératoire. This is manifested by a tendency to re-examine inventories studied previously no more than by using methods of morphological classification.

The paper shows the results of technological analysis of a flint material from Swietoszyn site 8 (Poland) recovered during excavation in 1967 and 1970. Swietoszyn was the first and for many years the only site in SW Poland linked with the Janislawice Technocomplex - a Late Mesolithic taxonomic unit known from eastern part of Poland, White Russia and Western Ukraine. However, the taxonomic position of this assemblage has continued to be problematic because of the modest number of tools distinctive for the Janislawician.

The endeavour of technological study of these assemblages was to trace the subsequent stages of the flintworking process. Moreover, an attempt was made to reconstruct the main steps in the manufacture of blanks and retouched tools carried out at the site. Finally, it was made a comparison of the inventory from Swietoszyn with other assemblages of the Janislawice culture, already examined from the point of technology. This study demonstrates technological similarity of this inventory to standard sites of Janislawice tradition.

**C65-18**

Foni LE BRUN-RICALES (Grand-Duché de Luxembourg)

#### «Nucléus» ou-et «outil»? Entre syndrome d'Espe et quadrature du cercle. De la complémentarité de la Technologie et de la Typologie: bilan et perspectives après un siècle d'investigations scientifiques.

**RESUME:** Malgré diverses recherches pionnières en «Technologie» lithique menées dès la seconde moitié du XX<sup>ème</sup> siècle, les acquis et retombées de cette démarche scientifique analytique furent longtemps occultés par les différentes approches proposées en «Typologie», alors en plein essor, en particulier celles consacrées aux industries du Paléolithique supérieur d'Europe occidentale. Face à cette hégémonie, le développement progressif des études technologiques, au lieu d'être intégré, fut interprété –et l'est encore par certains– comme une tentative d'éviction de la Typologie. Pourtant et paradoxalement, sur un plan méthodologique, il n'y a pas lieu d'opposer «méthode explicative» versus «méthode descriptive». En effet, la discussion se trouve ailleurs, à un niveau sémantique qui invite à s'affranchir de raisonnements circulaires autonomes et à privilégier l'interactivité entre ces deux méthodes d'investigation.

A travers une approche historiographique, cette contribution présente quelques raisons de l'opposition –non fondée– entre Technologie et Typologie, à savoir, d'une part, rigidité de

l'enseignement des concepts intellectuels, des définitions textuelles et des codes de représentation visuelle associés, et, d'autre part, processus cloisonnés d'actualisation du savoir au sein de la communauté scientifique. Le propos est abordé en prenant l'exemple du débat concernant l'interprétation de certains artefacts lithiques classés par les uns, technologues, en «nucléus» et par d'autres typologies en «outil». Il s'agit au niveau du langage de ne pas confondre classification taxonomique (comparaison statistique, etc.) propre aux méthodes descriptives, avec l'interprétation morphodynamique (chaîne opératoire, analyse fonctionnelle, etc.) des méthodes explicatives, au risque d'occulter l'information première, en l'occurrence la réalité paléohistorique. (...)

## Session C66

*Tuesday, 5 September 2006 / Mardi, 5 Septembre 2006*

*Room 5.1, Faculty of Letters, Lisbon University  
Salle 5.1, Faculté de Lettres, Université de Lisbonne*

### **Harvesting the Sea: current perspectives on hunter-gatherer coastal adaptations**

### **Cueillant dans la mer: perspectives actuelles sur les adaptations côtières des chasseurs-cueilleurs**

*organized by / organisé par*

**Nuno BICHO** Universidade do Algarve, AD Historia e Arqueologia, Faro, Portugal - [nbicho@ualg.pt](mailto:nbicho@ualg.pt)  
**Jonathan HAWS** University of Wisconsin-Madison, Dept of Anthropology, U.S.A. - [jonathan.haws@louisville.edu](mailto:jonathan.haws@louisville.edu)

#### **SESSION'S ABSTRACT**

Much of the recent work on hunter-gatherer coastal adaptations emphasizes three related areas of research:

- 1) the documenting early coastal adaptations in the Pleistocene and early Holocene,
- 2) explaining the shift to coastal resource use and
- 3) the impact of human predation on marine animal communities.

Historically, archaeologists recognize early coastal research use but are limited by the destruction of paleoshorelines by postglacial sea level rise. This perhaps led to a bias against accepting any significant coastal exploitation by Pleistocene peoples. Recently, some earlier negative views on paleoproductivity in the glacial oceans have been reconsidered and many are beginning to recognize the potential of Pleistocene coastal adaptations.

Relating to the dietary role of marine resources, the primary explanatory framework employed by archaeologists was the 'Broad Spectrum Revolution' model. This has also been revised and altered many views on prehistoric coastal adaptation. The majority of the latest studies employ at least an implicit evolutionary ecological framework to address the problem of coastal resource selection and subsequent human impacts.

This symposium brings together researchers working in a wide range of time periods and geographic areas in order to show the variation in human use of coastal areas. The goal is not necessarily to build a consensus but to provide a forum for discussion of the many approaches to understanding human uses of coastal resources.

#### **SESSION PROGRAMME / PROGRAMME DE LA SESSION**

14:30 **Opening / Ouverture**

14:30-14:50 Judith SEALY (Rondebosch, South Africa)

**C66-01** **The importance of marine foods among Middle and Later Stone Age hunter-gatherers in South Africa.**

- 14:50-15:10 Clive FINLAYSON (Gibraltar)  
Kimberly BROWN (Cambridge, UK)  
Geraldine FINLAYSON (Gibraltar)  
Darren FA (Gibraltar)
- C66-02** **On the exploitation of coastal and marine resources by humans at Gibraltar during the last glacial cycle (118-7.5 ka).**
- 15:10-15:30 Andreas DARLAS (Athens, Greece)
- C66-03** **Adaptation des hommes préhistoriques aux changements du rivage pendant le Pléistocène Supérieur dans la Péninsule du Mani (Grèce du Sud).**
- 15:30-15:50 Mary C. STINER (Tucson, Arizona, U.S.A.)
- C66-04** **Zooarchaeological evidence for expanding diet breadth in the Mediterranean basin during the Upper Paleolithic.**
- 15:50-16:10 Andrei V. TABAREV (Novosibirsk, Russia)
- C66-05** **Blessing the Salmon: Archaeological Evidences of the Transition to Intensive Fishing in the Final Paleolithic, Maritime Region, Russian Far East.**
- 16:10-16:30 F. Igor GUTIÉRREZ ZUGASTI (Santander, Spain)
- C66-06** **Changes in the molluscan exploitation patterns during the late Pleistocene and early Holocene in the eastern Cantabria (Spain).**
- 16:30-16:50 Nuno BICHO (Faro, Portugal)
- C66-07** **Sea level transformations and the Prehistory of Southern Portugal.**
- 16:50-17:10 Tina H. MANNE  
Mary C. STINER (Tucson, Arizona, U.S.A.)  
Nuno BICHO (Faro, Portugal)
- C66-08** **Intensification and dietary diversification at Vale Boi (southern Portugal), during the Upper-Epi Paleolithic transition.**
- 17:10-17:30 E. James DIXON (Boulder, Colorado, U.S.A.)
- C66-09** **Early Holocene Maritime Adaptations on the Northwest Coast of North America: Excavations at On your Knees Cave (49-PET-408).**
- 17:30-17:50 Rebecca DEAN (Faro, Portugal)
- C66-10** **Surf and Turf: The use of marine and terrestrial resources in the Early Neolithic of costal southern Portugal.**
- 17:50-18:10 Daryl FEDJE (Victoria, Canada)  
Quentin MACKIE (Victoria, Canada)
- C66-11** **Environmental reconstruction and archaeological visibility in the latest Pleistocene on the northwest coast of Canada.**

18:10-18:30 Daryl FEDJE (Victoria, Canada)  
 Quentin MACKIE (Victoria, Canada)

**C66-12** **Maritime adaptation on the northwest coast of Canada at the Pleistocene-Holocene boundary.**

18:30-18:50 Mariano BONOMO (La Plata, Argentina)

**C66-13** **The Use of the Space in Pampean Atlantic Coast (Argentina, South America): A Comparative View.**

18:50-19:10 Jonathan HAWS (Madison, Wisconsin, U.S.A.)  
 Bryan HOCKETT (Elko, Nevada, U.S.A.)  
 Caroline FUNK (Pomona, )  
 Nuno BICHO (Faro, Portugal)  
 J. Micheael DANIELS (Laramie, Wyoming, U.S.A.)  
 Michael BENEDETTI (Wilmington, North Carolina, U.S.A.)

**C66-14** **Neandertals at the Beach: Late Pleistocene Coastal Settlement of Central Portugal.**

19:10-19:30 Jonathan HAWS (Madison, Wisconsin, U.S.A.)

**C66-15** **Sea level transformations during the tardiglacial of Portuguese Estremadura**

19:30-20:00 **Discussion**

## ABSTRACTS / RÉSUMÉS

**C66-01** Judith SEALY (Rondebosch, South Africa)

**The importance of marine foods among Middle and Later Stone Age hunter-gatherers in South Africa.**

**ABSTRACT:** South Africa has a long history of coastal occupation, with numerous sites dating from the Holocene, and a sizable number from the Late Pleistocene. Research in progress is now revealing evidence of coastal occupation as far back as the Middle Pleistocene. This makes it an especially fruitful area in which to explore questions about the use of coastal resources and how these changed both through time and across space. Many archaeologists believe that Middle Stone Age (c. 200 – 30 kya) hunter-gatherers in southern Africa were less efficient hunters than their Later Stone Age (< 30 kya) descendants, and that Middle Stone Age population sizes were therefore relatively low. This would have meant limited human impact on coastal resources, even those that are easy to collect, such as shellfish. According to this way of thinking, therefore, the larger mean sizes of many species of mollusks recovered from Middle Stone Age sites, as compared with Later Stone Age sites is a reflection of lower predation pressure. This may indeed be the case, but there are other possible explanations that I believe require closer investigation. Changes in oceanic circulation, specifically temperatures, near-shore currents etc. affect productivity, and thus the growth rates of marine organisms. This presentation will draw on multiple sources of evidence, including shellfish sizes and stable isotope analysis of human remains, to consider the importance of marine foods for coastal communities in South Africa over the past 100 000 years.

**C66-02**

Clive FINLAYSON (Gibraltar)  
 Kimberly BROWN (Cambridge, UK)  
 Geraldine FINLAYSON (Gibraltar)  
 Darren FA (Gibraltar)

**On the exploitation of coastal and marine resources by humans at Gibraltar during the last glacial cycle (118-7.5 ka).**

**ABSTRACT:** The purpose of this paper is to present a synthesis of data obtained from Gorham's, Vanguard and other caves at Gibraltar since excavations started in 1991. The landscape and vegetation of the sites will be described in the context of the coastal shelf off the eastern side of the Rock of Gibraltar and the sea level fluctuations between Oxygen Isotope Stages (OIS) 5 and 1. The Gibraltar peninsula is seen as a high-density human occupation site on account of the richness of terrestrial and marine resources that have been available throughout. The density and size of caves and the conditions of preservation have left a unique record of activity.

It will be argued that the exploitation of marine resources (molluscs, fish, birds, pinnipeds, cetaceans) has been a regular feature in this peninsula throughout the period studied. Throughout this period humans have alternated a diet of terrestrial and marine resources. The exploitation of marine resources may have intensified during periods of sea level high stand when terrestrial resources may have become scarcer. Even in the Neolithic, the inhabitants of the peninsula were in the main fishermen. The importance of marine resources to humans will be discussed.

**C66-03**

Andreas DARLAS (Athens, Greece)

**Adaptation des hommes préhistoriques aux changements du rivage pendant le Pléistocène Supérieur dans la Péninsule du Mani (Grèce du Sud).**

**RÉSUMÉ:** Les nombreuses grottes qui s'ouvrent dans la péninsule du Mani (Grèce du Sud), l'extrémité la plus méridionale de l'Europe continentale, contiennent des remplissages datant du Pléistocène supérieur. La plupart des grottes s'ouvrent près du rivage et sont influencées par les oscillations du niveau de la mer pendant le Pléistocène. Très souvent, elles contiennent à la base une ou plusieurs plages tyrrhéniennes, surmontées par des dépôts continentaux, qui couvrent toutes les périodes du Pléistocène supérieur et le début de l'Holocène.

Le répertoire de tous ces sites offre un très bon exemple d'adaptation des chasseurs-cueilleurs du Pléistocène supérieur aux changements des lignes de rivage. Il met en évidence que les oscillations du niveau de la mer ont eu des conséquences très importantes non seulement à la morphologie de la péninsule, mais également à son occupation par les hommes.

Les fouilles effectuées dans ces sites permettent également de constater l'utilisation des ressources marines pour la nourriture ou pour d'autres motifs (p.ex. coquilles retouchées, récolte des coquilles pendant le Paléolithique moyen et supérieur, etc.).

**C66-04**

Mary C. STINER (Tucson, Arizona, U.S.A.)

**Zooarchaeological evidence for expanding diet breadth in the Mediterranean basin during the Upper Paleolithic.**

**ABSTRACT:** Zooarchaeological data provide evidence for fundamental changes in the ecology of Paleolithic humans in four areas of the Mediterranean Basin from the viewpoint of small and large game exploitation. The data indicate greater use of smaller and more productive prey with time. Computer simulation modeling of predator-prey population dynamics and diminution in tortoises link the archaeofaunal trends to increasing human population densities and predator pressure, beginning in the eastern end of the Mediterranean Basin. Intensification comes later in the western areas of the basin, and here one sees the convergence of bone grease rendering and increasing use of quick small game.

Andrei V. TABAREV (Novosibirsk, Russia)

**Blessing the Salmon: Archaeological Evidences of the Transition to Intensive Fishing in the Final Paleolithic, Maritime Region, Russian Far East.**

**ABSTRACT:** Flexible adaptation systems based on the complex exploration of the sea/river resources are well-known to the archaeologists in many regions over the World (Europe, Western Africa, Peruvian coast, Northern Pacific etc.). Intensive fishing of Pacific salmon is one of the famous ones. Recent field works in the Russian Far East (Sakhalin Island, Amur Region, Maritime Region) led specialists to the new horizons of understanding of this cultural phenomenon and to the new interpretations of the technological, social and ritual changes during Terminal Pleistocene – Early Holocene (16 – 8000 bp).

F. Igor GUTIÉRREZ ZUGASTI (Santander, Spain)

**Changes in the molluscan exploitation patterns during the late Pleistocene and early Holocene in the eastern Cantabria (Spain).**

**ABSTRACT:** During the late Pleistocene and early Holocene there was a progressive intensification in the exploitation of molluscs experienced in eastern Cantabria (Spain). This intensification represents not only the increased importance of coastal resources, especially molluscs, in the subsistence strategies of the human populations, but also signifies an evolutionary change in molluscan exploitation patterns over time. In this paper, we assess the role of molluscan exploitation in Magdalenian, Azilian and Mesolithic hunter-gatherer economies and examine potential causes of why these changes occurred. Molluscan faunal remains from sites located in both the lower Asón river basin (Peña del Perro rock shelter and La Fragua's cave) and the lower Agüera river basin (La Trecha's cave and Arenillas's small cave) were recently analyzed using a modern methodology to address this question.

Nuno BICHO (Faro, Portugal)

**Sea level transformations and the Prehistory of Southern Portugal.**

**ABSTRACT:** Hunter-gatherer marine adaptations are very common around the world independently of time. However, as one gets further back from the Pleistocene-Holocene transition in Iberia, those subsistence resources tend to disappear at a fast rate. Thus, the very Late Pleistocene appearance of marine and aquatic resources tends to be interpreted as a change in subsistence and settlement patterns. This paper, presents data that allows a different explanation of this very traditional view of cultural development of Paleolithic and Mesolithic times in Southern Iberia.

Tina H. MANNE

Mary C. STINER (Tucson, Arizona, U.S.A.)

Nuno BICHO (Faro, Portugal)

**Intensification and dietary diversification at Vale Boi (southern Portugal), during the Upper-Epi Paleolithic transition.**

**ABSTRACT:** Archaeofaunal assemblages from southwestern Portugal reveal information regarding changes in human foraging behavior during the dynamic Upper and Epi-Paleolithic periods. The coastal archaeological site of Vale Boi is unique to southern Portugal for both its antiquity and cultural representation. Spanning three cultural phases (Gravettian, Solutrean and Magdalenian), Vale Boi has the potential to provide detailed information on questions of changing human foraging decisions. Using a combination of zooarchaeological and geoarchaeological techniques, research questions that include issues of expanding diet breadth are being explored. Zooarchaeological work at Vale Boi indicates that only some prey species shifts can be explained by environmental changes and that other aspects of dietary diversification appear to be independent of climate effects. Grease rendering of large mammals, leporid hunting and shellfish

gathering is evident by the Gravettian, a period of climactic amelioration. These responses are in concert with prior research in central and eastern sections of the Mediterranean rim that suggest increasing population pressure as the catalyst for increasing diet breadth and subsequent technological radiation during the Upper through Epi-Paleolithic.

**C66-09** E. James DIXON (Boulder, Colorado, U.S.A.)

**Early Holocene Maritime Adaptations on the Northwest Coast of North America: Excavations at On your Knees Cave (49-PET-408).**

**ABSTRACT:** Human remains of an adult male  $^{14}\text{C}$  dated to 9,880 +/- 50 BP  $\delta^{13}\text{C}$  -12.1 ‰(CAMS-32038) (pelvis) and 9,730 +/- 60 BP  $\delta^{13}\text{C}$  -12.5 ‰(CAMS-29873) (mandible) have been excavated from 49-PET-408 (On Your Knees Cave), an archeological and paleontological site on Prince of Wales Island, Southeast, Alaska (Dixon et al, 1997, Dixon 1999). AMS  $^{14}\text{C}$  results indicate these are oldest reliably dated human remains yet recovered in Alaska and Canada.  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  values demonstrate the individual was raised on a diet based of marine foods. Trace element analyses of obsidian artifacts document two sources, Mount Edziza on the British Columbia mainland and Sumez Island in Southeast Alaska. These data suggest that by 10,300 calendar years ago humans along the Northwest Coast of North America were coastal navigators with an economy based on maritime subsistence and had established trade networks between islands and the mainland for obsidian.

**C66-10** Rebecca DEAN (Faro, Portugal)

**Surf and Turf: The use of marine and terrestrial resources in the Early Neolithic of costal southern Portugal.**

**ABSTRACT:** This paper presents the faunal data from two roughly contemporaneous but strikingly different early Neolithic sites located along the coast of the western Algarve. Land resources are entirely absent from the shell midden site of Rocha das Gaivotas, situated on a promontory overlooking the ocean, while at the site of Vale Boi, less than 2.5 km inland from the coast, terrestrial resources dominate the assemblage, and the majority of shell remains post-date the Neolithic occupations. Despite the disparity in the resources found at these two sites, the assemblages are similar in one important respect: they are both dominated by low-ranked prey species. At Vale Boi, rabbits (*Oryctolagus cuniculus*) are the most common species, with a substantial component of small ungulates, particularly ovicaprids. The assemblage from Rocha das Gaivotas is overwhelmingly comprised of perceves (*Pollicipes pollicipes*), a small barnacle, and limpets (*Patella* sp.), while mussels (*Mytilis* sp.) were found in only small numbers. The prominence of small species in the Neolithic occupation levels at these sites is in marked contrast to earlier occupations at each, where more highly ranked resources were present in greater abundance.

**C66-11** Daryl FEDJE (Victoria, Canada)  
Quentin MACKIE (Victoria, Canada)

**Environmental reconstruction and archaeological visibility in the latest Pleistocene on the northwest coast of Canada.**

**ABSTRACT:** For late glacial to earliest Holocene time archaeological visibility on the west coast of Canada has been severely constrained by environmental change, especially sea level and climate. To resolve these constraints we have modeled Pleistocene-Holocene transition landscapes of the Haida Gwaii archipelago and are conducting investigations of karst caves and ancient shorelines. Landscape models combine conventional and high resolution topographic and bathymetric data. Investigations of karst caves have extended evidence of human occupation to at least 11,000 14CBP and, of terrestrial and anadromous fauna to 12,000 BP. Submarine excavations of a deeply drowned shoreline are scheduled for 2006.

**C66-12** Daryl FEDJE (Victoria, Canada)  
 Quentin MACKIE (Victoria, Canada)

**Maritime adaptation on the northwest coast of Canada at the Pleistocene-Holocene boundary.**

**ABSTRACT:** Excavations of 9,500 to 9,000 14CBP archaeological sites in the south of Haida Gwaii, west coast of Canada, are providing abundant evidence of early maritime adaptation. The Richardson Island and Kilgii Gwaii archaeological sites are on fossil beaches (respectively raised 15 m and drowned 4 m). The site contents and settings speak to the broader North American story of early maritime/coastal fluency.

**C66-13** Mariano BONOMO (La Plata, Argentina)

**The Use of the Space in Pampean Atlantic Coast (Argentina, South America): A Comparative View.**

**ABSTRACT:** The archaeological record from different zones of Atlantic littoral of Southern South America shows an intensive exploitation of marine resources since Middle Holocene. In this paper, the results of regional archaeological research on the coast of the Pampas are presented. These findings relate the coastal occupation to Middle-Late Holocene hunter-gatherers. The aim of this study is to evaluate the use of the Pampean seashore and the importance of coastal resources in the subsistence and the technology of Middle and Late Holocene hunter-gatherers. Taking account the South American evidence in a supra-regional scale, an occupational model of the Pampean coast, in which marine fauna had a subsidiary role (complementary to the inland resources), is proposed.

**C66-14** Jonathan HAWS (Madison, Wisconsin, U.S.A.)  
 Bryan HOCKETT (Elko, Nevada, U.S.A.)  
 Caroline FUNK (Pomona, )  
 Nuno BICHO (Faro, Portugal)  
 J. Micheael DANIELS (Laramie, Wyoming, U.S.A.)  
 Michael BENEDETTI (Wilmington, North Carolina, U.S.A.)

**Neandertals at the Beach: Late Pleistocene Coastal Settlement of Central Portugal.**

**ABSTRACT:** The emergence of coastal subsistence economies is central to models for subsistence change such as the Broad Spectrum Revolution (BSR) and other behavioral ecology models. Ethnographically known hunter-gatherers often focused settlement near the coast in strong upwelling zones and this likely occurred during the Pleistocene. During the cold periods of the Pleistocene the upwelling off Portugal intensified by orders of magnitude. Therefore, Paleolithic people should have occupied the region in order to exploit a rich diversity of coastal resources created by an intensive upwelling system during the Last Glacial.

In the 2005 field season, we began a systematic survey to locate coastal Paleolithic sites in central Portugal near the town of Nazaré. This location was chosen because a deep submarine canyon forms immediately offshore. The steep bathymetric situation means that the glacial shorelines in the Nazaré area would not have extended more than 2-5 km than present and coastal sites should exist on land. Here we report the preliminary results of the survey.

The project team has mapped the location about 50 Paleolithic sites on exposed or deflated Pleistocene surfaces along the coast. One site in particular, Mira Nascente, was found on a raised beach about 10 km north of Nazaré. This site yielded a collection of flint flakes, cores and chipping debris in a discrete stratigraphic level immediately above a layer of smoothed quartz and quartzite beach pebbles. The context of these artifacts and the extraordinary condition of the flake edges suggests a very well preserved occupation where spatially organized activities took place. The presence of Levallois flakes indicated a Middle Paleolithic occupation. An AMS radiocarbon date of 36,030 +/- 710 BP on charcoal appears to confirm the cultural attribution. The initial survey results are significant because they confirm the main hypothesis guiding the project.

## Session C67

**Tuesday 5 September 2006 / Mardi, 5 Septembre 2006**

**Room 11.02, Faculty of Law, Lisbon University  
Saale 11.02, Faculté de Droit, Université de Lisbonne**

### **Settlement dynamics and environment resources in the Paleolithic of Southwest France: The case of the Quercy region**

### **Modalités d'occupations et exploitation des milieux au Paléolithique dans le Sud-Ouest de la France : L'exemple du Quercy**

<b>Marc JARRY</b>	<i>organized by / organisé par</i> INRAP et UMR 5608 UTAH/MSH de Toulouse -) <b>marc.jarry@inrap.fr</b>
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<b>Catherine FERRIER</b>	Université de Bordeaux 1 et UMR 5199 PACEA/IPGQ - <b>c.ferrier@ipgq.u-bordeaux1.fr</b>

#### **SESSION'S ABSTRACT**

Various studies on natural environments as well as technical abilities of human groups are one of the major research criterias for Prehistoric Archaeology. This should provide better details about settlement rules, survival strategies as well as a better understanding of socio-economical choices of human groups.

The key role of the South-West of France in the research of paleolithic settlements has been proven out already. This region has been overtime impacted by continuous human settlement, hence offering an incomparable source for archaeology. Moreover, this region is made of a great variety of landscapes : from plateaus to numerous valleys and alluvial plains of the Aquitain basin, onto Pyreneans montains and foot-hills of the Massif central.

Quercy region is a typical example. As a result, a first analysis demonstrates its timely and cultural diversity. The numerous recently discovered and unpublished Paleolithic sites have justified the launch of a large joint-research program. Various studies are performed and integrated to elaborate inter- and intrasites contributions. Multitask researches are in particular about sedimentary and climatic environments, but also about oilarchaeology, typo-technology, zooarchaeology and cementochronology.

All of these build together synchronic and diachronic overviews. The results thereof provide a better knowledge about the evolution of the technical and cynegetical skills of the Paleolithic hunters-gatherers. The proposed colloquia would focus on the presentation of the results of those integrated approaches by applying them the best possible to the large South-West aera in France, and beyond. It should aim at suggesting settlement and utilisation models for the environment in the Paleolithic. Comparative analysis as well as patterning will be used.

#### **RÉSUMÉ DE LA SESSION**

La confrontation des études sur les environnements naturels et les comportements techniques des groupes humains est un objectif majeur des recherches en Archéologie Préhistorique. Elle doit permettre de percevoir plus finement la gestion des territoires et les stratégies de subsistance et à terme de mieux comprendre les choix socio-économiques des groupes humains.

L'importance du Sud-Ouest de la France concernant la recherche sur les peuplements paléolithiques n'est plus à démontrer. Cette région offre en effet une richesse archéologique incomparable,

marquée par une relative continuité des occupations humaines au cours du temps. En outre, elle constitue une entité géographique au relief contrasté : plateaux, nombreuses vallées et de larges plaines alluviales du Bassin Aquitain, reliefs des Pyrénées et des contreforts du Massif Central.

Le Quercy s'inscrit pleinement au sein de cet ensemble. Un premier bilan sur son potentiel archéologique révèle la diversité chrono-culturelle de cette région. L'abondance en gisements, couvrant tout le Paléolithique, la plupart fouillés récemment et encore largement inédits, a suscité un vaste programme de recherche collectif. Plusieurs domaines d'études sont sollicités et intégrés afin d'élaborer des contributions synthétiques intra- et inter-sites. Les approches pluridisciplinaires pétroarchéologie, la techno-typologie, l'archéozoologie et la squelettochronologie.

Cet ensemble autorise le développement d'une vision à la fois synchronique et diachronique, dont les résultats permettent une meilleure connaissance de l'évolution des comportements techniques et cynégétiques des chasseurs-cueilleurs paléolithiques.

Le présent colloque s'attachera à présenter les résultats de ces approches intégrées, en les replaçant le plus possible dans une perspective plus vaste du Sud-Ouest de la France, et au delà. Il devra tendre à proposer des modèles d'occupations et d'exploitation des milieux au cours du Paléolithique. Les contributions synthétiques seront privilégiées.

## SESSION PROGRAMME / PROGRAMME DE LA SESSION

09:00            **Opening /Ouverture**

09:10-09:30    Laurent BRUXELLES (Saint-Orens-de-Gameville, France)  
Richard CISZAK (Toulouse, France)  
Régine SIMON-COINÇON (Fontainebleau; France)

### **C67-01**

**History of landscapes and Prehistory: the contribution of knowledge of the geomorphological evolution of the Quercy region to our understanding of the Paleolithic environment.**

09:30-09:50    Bertrand KERVAZO (Périgueux, France)  
Catherine FERRIER (Talence, France)  
Anne Laure BERTHET (Sainte-Foy-la-Grande, France)  
Pascal BERTRAN (Pessac, France)  
Laurent BRUXELLES (Saint-Orens-de-Gameville, France)  
Stéphane KONIK (Atur, France)  
Farid SELLAMI (Grignon, France)  
Jean-Pierre TEXIER (Talence, France)

### **C67-02**

**The contributions of lithostratigraphy to the study of archaeological occupations in the Quercy region: the reliability of series and paleoenvironments.**

09:50-10:10    Jacques JAUBERT (Talence, France)  
Jean Jacques BAHAIN (Paris, France)  
Isabelle COUCHOUD (Talence, France)  
Nick DEBENHAM (Nottingham UK)  
Jacques ÉVIN (Lyon, France)  
Cristophe FALGUÈRE (Paris, France)  
Michel FONTUGNE (Gif-sur-Yvette, France)  
Christine OBERLIN (Lyon, Paris)  
Yves QUINIF (Mons, Belgium)  
Hélène VALLADAS (Gif-sur-Yvette, France)  
Michel ALLARD (Toulouse, France)  
Jean-Guillaume BORDES (Bordeaux, France)  
Laurence BOURGUIGNON (Pessac, France)

Jean Philip BRUGAL (Aix-en-Provence, France)  
 Jean Christophe CASTEL (Genève, Switzerland)  
 Pierre CHALARD (Toulouse, France)  
 Jean CLOTTE (Foix, France)  
 Jean Pierre GIRAUD (Dijon, France)  
 Marc JARRY (Saint-Orens-de-Gameville, France)  
 Laure-Amélie LELOUVIER (Saint-Orens-de-Gameville, France)  
 Édmée LADIER (Montauban, France)  
 Michel LORBLANCHET (Saint-Sozy, France)  
 Marie-Roger SÉRONIE-VIVIEN (Le Bousquat, France)  
 Alain TURQ (Les-Eyzies-de-Tayac, France)

**C67-03** **The Pleistocene Quercy: a region continually occupied over the past 400,000 years? Archeo-stratigraphies and radiometric dates.**

10:10-10:30 Marcel JEANNET (Aix-en-Provence, France)

**C67-04** **The contribution of micro-vertebrates to the description of Paleoenvironments.**

10:30-10:50 Jean Philip BRUGAL (Aix-en-Provence)  
 Cédric BEAUVAL (Talence, France)  
 Jean Christophe CASTEL (Genève, Switzerland)  
 Sandrine COSTAMAGNO (Toulouse, France)  
 Marie Pierre COUMONT (Aix-en-Provence, France)  
 Julia FOURNIER (Aix-en-Provence, France)  
 Magali GERBE (Aix-en-Provence, France)  
 Christophe GRIGGO (Aix-en-Provence, France)  
 Francis JUILLARD (Nougaroulet, France)  
 Delphine KUNTZ (Toulouse, France)

**C67-05** **The dynamics of mammalian populations during the Middle and Upper Pleistocene in the Quercy region.**

10:50-11:10 **Break / Pause**

11:10-11:30 Marie Pierre COUMONT (Aix-en-Provence, France)  
 Jean Philip BRUGAL (Aix-en-Provence, France)  
 Jean Christophe CASTEL (Genève, Switzerland)  
 Sandrine COSTAMAGNO (Toulouse, France)  
 Philippe FOSSE (Toulouse, France)

**C67-06** **Aven-traps with little evidence of human presence: taphonomic and anthropological characteristics.**

11:30-11:50 Jean Philip BRUGAL (Aix-en-Provence)  
 Cédric BEAUVAL (Talence, France)  
 David COCHARD (Talence, France)  
 Julia FOURNIER (Aix-en-Provence, France)  
 Magali GERBE (Aix-en-Provence, France)  
 Christophe GRIGGO (Aix-en-Provence, France)  
 Jean Luc GUADELLI (Talence, France)

**C67-07** **Strategies of meat resource exploitation during the Middle Paleolithic in the Quercy region.**

11:50-12:10 Alain TURQ (Les-Eyzies-de-Tayac, France)  
 Thierry BISMUTH (Limoges, France)  
 Laurence BOURGUIGNON (Pessac, France)  
 David COLONGE (Le Vigan, France)

Pierre Yves DEMARS (Talence, France)  
 Jean Philippe FAIVRE (Campagne, France)  
 Marc JARRY (Saint-Orens-de-Gameville, France)  
 Jacques JAUBERT (Talence, France)  
 Vincent MOURRE (Ménèrbes, France)  
 Céline THIÉBAUT (Ménèrbes, France)

**C67-088** **Lithic raw material procurement and techno-economic behavior in the Middle Paleolithic: the contribution of sites in the Quercy region.**

12:10-12:30 Jean Philippe FAIVRE (Campagne, France)  
 Thierry BISMUTH (Limoges, France)  
 Laurence BOURGUIGNON (Pessac, France)  
 David COLONGE (Le Vigan, France)  
 Marc JARRY (Saint-Orens-de-Gameville, France)  
 Jacques JAUBERT (Talence, France)  
 Vincent MOURRE (Ménèrbes, France)  
 Céline THIÉBAUT (Ménèrbes, France)  
 Alain TURQ (Les-Eyzies-de-Tayac, France)

**C67-09** **The Middle Paleolithic in the Quercy region: variability of lithic production systems and typological facies.**

12:30-12:50 Vincent MOURRE (Ménèrbes, France)  
 Cristina LEMORINI (Roma, Italy)  
 Jacques JAUBERT (Talence, France)

**C67-10** **The importance of reputed mediocre materials in the Middle Paleolithic of the Quercy region - Technological and functional analysis of the lithic industry of Coudoulous I, level 4.**

12:50-13:00 Laurence BOURGUIGNON (Pessac, France)  
 Christophe GRIGGO (Aix-en-Provence, France)  
 Julia FOURNIER (Aix-en-Provence, France)  
 Farid SELLAMI (Grignon, France)  
 Sandrine DELPECH (Cayenne, France)  
 Justicia. TERESA-MATAMORES (Pantin, France)  
 Aline EMERY-BARBIER (Nanterre, France)

**C67-11** **Level 1 of La Roquette, Puyelsi Tarn (recent excavations): seasonal Mousterian occupations specialized in the acquisition and consumption of large bovinds.**

13:00-14:30 **Lunch / Déjeuner**

14:30-15:30 François BON (Toulouse, France)  
 Jean-Guillaume BORDES (Bordeaux, France)  
 Foni LE BRUN-RICALENS (Bertrange, France)  
 André MORALA (Les-Eyzies-de-Tayac, France)  
 Patricia GUILLERMIN (Toulouse, France)  
 Caroline RENARD (Toulouse, France)  
 Sylvain DUCASSE (Toulouse, France)

**C67-12** **Material for the study of the Upper Paleolithic in the Quercy region: data relative to the Aurignacian, Gravettian, Solutrean and Badegoulian.**

- 15:30-15:50 François BON (Toulouse, France)  
Michel ALLARD (Toulouse, France)  
Jean-Guillaume BORDES (Bordeaux, France)  
Pierre CHALARD (Toulouse, France)  
Sylvain DUCASSE (Toulouse, France)  
Patricia GUILLERMIN (Toulouse, France)  
Édmée LADIER (Montauban, France)  
Mathieu LANGLAIS (Toulouse, France)  
Foni LE BRUN-RICALES (Bertrange, France)  
Laure-Amélie LELOUVIER (Saint-Orens-de-Gameville, France)  
André MORALA (Les-Eyzies-de-Tayac, France)  
Caroline RENARD (Toulouse, France)  
Alain TURQ (Les-Eyzies-de-Tayac, France)
- C67-13** **Strategies for the exploitation of territories during the Upper Paleolithic: a diachronic perspective.**
- 15:50-16:10 Sylvaine DUCASSE (Toulouse, France)  
Mathieu LANGLAIS (Toulouse, France)
- C67-14** **Badegoulian versus Magdalenian: comparison of lithic production systems. The example of the Quercy region in the European south-west.**
- 16:10-16:20 Laure-Amélie LELOUVIER (Saint-Orens-de-Gameville, France)
- C67-15** **A techno-functional approach to Upper Paleolithic tools: methods and experiments applied to pièces esquillées (splintered pieces).**
- 16:20-16:30 Michel ALLARD (Toulouse, France)
- C67-16** **25.000 years old architecture: habitat 22 of Les Peyrugues.**
- 16:30-16:45 **Break / Pause**
- 16:45-17:05 Jean Christophe CASTEL (Genève, Switzerland)  
Delphine KUNTZ (Toulouse, France)  
Christophe GRIGGO (Aix-en-Provence, France)  
Francis JUILLARD (Nougaroulet, France)
- C67-17** **Animal resource exploitation strategies during the Upper Paleolithic in the Quercy region.**
- 17:05-17:25 Michel LORBLANCHET (Saint-Sozy, France)
- C67-18** **Art and territories in the Quercy Paleolithic: an approach to the problem.**
- 17:25-17:45 Pierre Yves DEMARS (Talence, France)  
Oliver LE GALL (Talence, France)  
Hélène MARTIN (Saint-Orens-de-Gameville, France)  
Marc JARRY (Saint-Orens-de-Gameville, France)
- Seasons and prey: reflections on notions of predation and territory.**
- 17:45-18:30 **Discussion**

**ABSTRACTS / RÉSUMÉS****C67-01**

Laurent BRUXELLES (Saint-Orens-de-Gameville, France)  
 Richard CISZAK (Toulouse, France)  
 Régine SIMON-COINÇON (Fontainebleau; France)

**History of landscapes and Prehistory: the contribution of knowledge of the geomorphological evolution of the Quercy region to our understanding of the Paleolithic environment.**

**ABSTRACT:** The particular nature of the limestone plateaus of the Quercy region is a direct result of a long and complex geomorphological history. Several tens of millions of years of continental evolution has produced a superposition of karstic morphologies: ledges, depressions, dry valleys, canyons and cavities.

Numerous geological and geomorphological studies have already traced the essential points of this history. Their synthesis allows us to establish an "inventory" of the limestone plateaus at the dawn of the Quaternary. In parallel, the first results of a mapping of the forms and superficial formations clarify and complete some of these conclusions. They also provide a few milestones of the Pleistocene evolution of these topographies. In this way, on the plateau surfaces, systems of stepped terraces emphasize the breaking down of karstic morphologies just before their complete fossilization by under pulling. In the same way, the retreat of the Cretaceous surface can be evaluated based on the characteristic forms superimposed in the Jurassic limestones. Finally, study of the environmental context of some archaeological sites indicates the rhythms of this evolution by providing precise chronological reference points. The convergence of these different approaches allows us to refine our knowledge of the environment of human groups during the Paleolithic.

**C67-02**

Bertrand KERVAZO (Périgueux, France)  
 Catherine FERRIER (Talence, France)  
 Anne Laure BERTHET (Sainte-Foy-la-Grande, France)  
 Pascal BERTRAN (Pessac, France)  
 Laurent BRUXELLES (Saint-Orens-de-Gameville, France)  
 Stéphane KONIK (Atur, France)  
 Farid SELLAMI (Grignon, France)  
 Jean-Pierre TEXIER (Talence, France)

**The contributions of lithostratigraphy to the study of archaeological occupations in the Quercy region: the reliability of series and paleoenvironments.**

**ABSTRACT:** Over the past two decades, geological studies of around ten sites whose sequences cover a large part of the Paleolithic, from isotopic stage 9 to 2, have been conducted. These sites, located in a karstic landscape, are essentially distributed in the area surrounding the Dordogne, Lot and Aveyron valleys. The remains appear in sinkholes, rock shelters, caves and slope deposits. The establishment of lithostratigraphies allows identification of the succession of processes responsible for the formation and evolution of deposits. These data permit evaluation of the intensity of disturbances and thus of the reliability of the archaeological series. In addition, they provide information concerning the environments contemporary with the occupations. These latter can be studied at a regional scale (climate) or at more local scales (morphological evolution of sites) and lead to a better understanding of the nature of human occupations.

**C67-03**

Jacques JAUBERT (Talence, France)  
 Jean Jacques BAHAIN (Paris, France)  
 Isabelle COUCHOUD (Talence, France)  
 Nick DEBENHAM (Nottingham UK)  
 Jacques ÉVIN (Lyon, France)  
 Christophe FALGUÈRE (Paris, France)  
 Michel FONTUGNE (Gif-sur-Yvette, France)  
 Christine OBERLIN (Lyon, Paris)  
 Yves QUINIF (Mons, Belgium)  
 Hélène VALLADAS (Gif-sur-Yvette, France)  
 Michel ALLARD (Toulouse, France)

Jean-Guillaume BORDES (Bordeaux, France)  
 Laurence BOURGUIGNON (Pessac, France)  
 Jean Philip BRUGAL (Aix-en-Provence, France)  
 Jean Christophe CASTEL (Genève, Switzerland)  
 Pierre CHALARD (Toulouse, France)  
 Jean CLOTTE (Foix, France)  
 Jean Pierre GIRAUD (Dijon, France)  
 Marc JARRY (Saint-Orens-de-Gameville, France)  
 Laure-Amélie LELOUVIER (Saint-Orens-de-Gameville, France)  
 Édmée LADIER (Montauban, France)  
 Michel LORBLANCHET (Saint-Sozy, France)  
 Marie-Roger SÉRONIE-VIVIEN (Le Bousquat, France)  
 Alain TURQ (Les-Eyzies-de-Tayac, France)

**The Pleistocene Quercy: a region continually occupied over the past 400,000 years? Archeo-stratigraphies and radiometric dates.**

**ABSTRACT:** This colloquium provides an opportunity to integrate the ensemble of archeo-sequences available and the radiometric dates obtained by the most commonly used methods (Th/U, RPE, TL, <sup>14</sup>C etc.) within a database in order to attempt to give an age to the Paleolithic sites of the Quercy region, including the origins of the Late Glacial period. The resulting regional overview benefits from a relatively dynamic period of research over the past three decades into the earliest occupations of the region, though the contribution of salvage archaeology has remained sporadic (A20: Les Bosses).

We first present the archeo-sequences through a table constructed only on the basis of individualized stratigraphic successions. While the diachronic sequence of the later Paleolithic is generally clear, there are no (or few) archeo-sequences, strictly speaking, for the Middle Paleolithic and almost no elements concerning the Acheulean s.s. and earlier periods. The table of the principal stratigraphic sequences of the Quercy region shows that they overlap to cover a good part of the period between 0.4 Ma and 12 ka BP: Coudoulous I and II, Les Fieux, Roc de Combe, Le Piage, Les Peyrugues, Pégourié, Couzoul de Vers, Sainte-Eulalie, and the Gandil and Murat rock shelters, to name just the principal ones. The more punctual, sometimes dated, sequences of Les Bosses, Espagnac and the gorges and rock shelters of the Aveyron, along with others that are poorly known or currently under study (Les Rameaux, La Borde, Puycelsi, Mas-Viel, Combe-Cullier, etc.), fill certain gaps in the multistratified deposits preserved in the karstic context. (...)

**C67-04**

Marcel JEANNET (Aix-en-Provence, France)

**The contribution of micro-vertebrates to the description of Paleoenvironments.**

**ABSTRACT:** The characterization of paleoenvironments is most often limited to descriptions of landscapes and climates using a few adjectives and superlatives whose level of significance can vary greatly between authors and readers. In any case, used alone, these terms are insufficient for comparisons of data from different sites.

To compensate for these disadvantages, we use a relatively simple method of quantification that consists of transferring the climatic domain of a taxon, here micro-vertebrates, onto geographic domains, with reference to modern data. Each species thus contributes quantified indices for each climatic parameter: average annual temperature, the warmest or coldest month, the duration and amount of rainfall, the duration of snowfall and period of freezing, the duration of sun exposure, etc. It is thus possible to quantitatively define a stratigraphic level in climatic terms by combining the data of faunal associations. The ensemble of levels allows the construction of a curve that shows the evolution of each climatic parameter. This principal is also adapted to the biotope, permitting a precise description of landscapes.

As an example, we present an application of this method to four sites in the Lot region, from different periods of the Middle and Upper Pleistocene. These sites present long sequences and are rich in microfauna: Coudoulous I and Coudoulous II (Tour de Faure), Les Fieux (Miers) and Les Peyrugues Rock Shelter (Orniac).

We were able to reveal rather close similarities between the curves obtained through our method and the O18/O16 isotopic curves of ocean bottoms. Even closer relations were observed with the Magnetic Susceptibility curve established by Brooks B. Elwood on the same levels from

Coudoulous II. Though geographically distant, La Grande Pile, studied by G. Woillard, presents an identical pollen curve.

This approach, based on the quantification of micro-vertebrate fauna, is promising and suggests the future possibility of establishing a continental climatic curve of reference as credible as those based on ocean bottoms.

**C67-05**

Jean Philip BRUGAL (Aix-en-Provence)  
Cédric BEAUVAL (Talence, France)  
Jean Christophe CASTEL (Genève, Switzerland)  
Sandrine COSTAMAGNO (Toulouse, France)  
Marie Pierre COUMONT (Aix-en-Provence, France)  
Julia FOURNIER (Aix-en-Provence, France)  
Magali GERBE (Aix-en-Provence, France)  
Christophe GRIGGO (Aix-en-Provence, France)  
Francis JUILLARD (Nougaroulet, France)  
Delphine KUNTZ (Toulouse, France)

**The dynamics of mammalian populations during the Middle and Upper Pleistocene in the Quercy region.**

**ABSTRACT:** The Quercy is a limestone region formed of middle altitude plateaus and a well developed hydrographic system. These characteristics favor both intensive karstic processes and the existence of a mix of alluvial terraces and slope deposits that cover part of the cliff bases and adjacent valleys. These deposits and fillings constitute numerous sites, some of which contain fauna and vertebrate fossils. Underground erosion has created a high density of aven and doline type cavities, and caves and rock shelters, at different levels of the entire height of the massifs. These present favorable conditions for the preservation of bone assemblages, particularly from the Quaternary. The karstic sites yielding associations of middle to large sized mammals have three primary origins: trapping—and thus of a natural origin—or deposits related to biological agents, carnivores or prehistoric human groups. The existence of human groups is well documented as early as the Lower Paleolithic and, globally, this region presents a rich paleontological record. In this paper, we present a summary of the ensemble of Pleistocene sites (principally Middle and Upper Pleistocene) of the Quercy region. We have created a database grouping more than twenty sites, some of which have several levels and are supported by radiometric dates. This review allows us to clarify not only the particularity of mammalian (herbivore and carnivore) populations but also to discuss the evolutionary, and especially paleoecological, dynamics of associations over a period of around 350 Ka. It is thus possible to reveal the presence of certain rare taxon in the French faunal record, but also to show that this region sometimes played the role of a refuge during certain cold peaks (particularly during the last glacial maximum). Comparisons with other peripheral regions will also be made, notably concerning the last climatic cycle and attempting to demonstrate biogeographic relations. The objective of this presentation is to provide a comprehensive framework of the succession of faunal associations. This constitutes an important preliminary step in our reflections and approaches to the relations between prehistoric societies and prey species (ungulates) and competitors (carnivores), particularly in the context of subsistence activities.

**C67-06**

Marie Pierre COUMONT (Aix-en-Provence, France)  
Jean Philip BRUGAL (Aix-en-Provence, France)  
Jean Christophe CASTEL (Genève, Switzerland)  
Sandrine COSTAMAGNO (Toulouse, France)  
Philippe FOSSE (Toulouse, France)

**Aven-traps with little evidence of human presence: taphonomic and anthropological characteristics.**

**ABSTRACT:** An aven-trap is a type of karstic site in which faunal remains accumulate as a result of animals, particularly ungulates, accidentally falling into them. Past studies of the species found in aven-traps were conducted mostly from a paleontological perspective. The osseous material of these sites is often well preserved and sometimes represents true fossil populations (sensu number of individuals). They thus constitute important reference bases whose study is essential to the definition of certain species and sub-species, as well as to our knowledge of Pleistocene climatic paleoenvironments. However, their taphonomic and archeozoological aspects have been little studied.

The Quercy is a region of limestone plateaus rich in avens (or igues) containing Middle to Upper Pleistocene fossil assemblages, particularly horse, bovid and reindeer taxa. Studies of sites in this region allow us to propose a taphonomic definition of vertebrate accumulations in natural contexts. The analyses concern the states of preservation, skeletal representations and biological structures (mortality profile, social groups), of these assemblages, or populations, without the bias that can result from selections by predators, carnivores or humans. These factors can however modify osseous stocks in a relatively occasional and variable manner according to the site. Their marginal or peripheral actions also need further evaluation. It is particularly interesting to note the existence of a few lithic remains in avens. Their presence leads to the hypothesis of an original behavior by human groups, or a recuperation of meat products (e.g. Brugal & Jaubert, 1991; Diez, 1993). It is also possible that these objects were introduced into the sites naturally by gravity, implying a fortuitous association. Meanwhile, their recurrence suggests the occasional passage of humans in proximity to these specific places poorly adapted to human occupation. These hypotheses must, and will, be discussed. If a relationship is established between these two elements—natural fauna/lithic objects—it would confirm an exploitation of these avens through controlled and active scavenging.(...)

**C67-07**

Jean Philip BRUGAL (Aix-en-Provence)  
Cédric BEAUVAL (Talence, France)  
David COCHARD (Talence, France)  
Julia FOURNIER (Aix-en-Provence, France)  
Magali GERBE (Aix-en-Provence, France)  
Christophe GRIGGO (Aix-en-Provence, France)  
Jean Luc GUADELLI (Talence, France)

**Strategies of meat resource exploitation during the Middle Paleolithic in the Quercy region.**

**ABSTRACT:** capacities of humans (here Neandertal groups) to exploit animal resources, in particular for alimentary needs. The acquisition of game animals, according to their size and biological structure (age and sex), can reveal multiple strategies. Similarly, the treatment of carcasses, from their introduction into a site, their processes of consumption (alimentary and technical) and their abandon, indicate choices which, in association with related data (particularly lithic), participate in the determination of the functional and socio-economic status of human occupations. The geo-topographic dimension sometimes seems determinant. The Quercy region provides a particularly rich record for the Middle Paleolithic. In addition, it presents an interesting range of strategies used by Mousterians at varied sites in cavities and in the open-air and located in different biotopes. In an attempt to synthesize, we propose a first archeozoological inventory of subsistence behaviors that until now were only rarely studied for this period and in this contrasted geographic zone. Moreover, the Quercy region is at the junction of several large regions: to the southwest (Aquitaine Basin, Dordogne), the south (Pyrenees slope and Garonne Basin), the southeast (Languedoc-Roussillon), the east (Grands Causses and Massif Central) and the North (Limousin). We can thus propose a broadening to include other sites in the south of France, emphasizing the faunal spectrums and site categories.

**C67-08**

Alain TURQ (Les-Eyzies-de-Tayac, France)  
Thierry BISMUTH (Limoges, France)  
Laurence BOURGUIGNON (Pessac, France)  
David COLONGE (Le Vigan, France)  
Pierre Yves DEMARS (Talence, France)  
Jean Philippe FAIVRE (Campagne, France)  
Marc JARRY (Saint-Orens-de-Gameville, France)  
Jacques JAUBERT (Talence, France)  
Vincent MOURRE (Ménèrbes, France)  
Céline THIÉBAUT (Ménèrbes, France)

**Lithic raw material procurement and techno-economic behavior in the Middle Paleolithic: the contribution of sites in the Quercy region.**

**ABSTRACT:** The geography and geological history of the Quercy make it a particularly favorable region for the study of lithic raw material procurement. Situated between the Massif Central and the

gentle reliefs of the Perigord and Haut-Agenais regions, and opening onto the plains of the Aquitaine Basin, its Jurassic limestone formations contain diverse silicifications. The Middle Paleolithic sites of the Lot region, with intense and multiple occupations located not far from the large reference sites of the Perigord region, are particularly well adapted to a techno-economic approach to lithic industries. The procurement territories currently known, the principal chronological changes observed and detailed lithological analyses now allow us to address essential questions concerning human behavior. What criteria determined the selection of raw materials? What types of objects were selected for long distance transport? Can we detect the modes of production and use of transported objects? What were the modes of exploitation lithic resources located near the sites? We will attempt to respond to such questions through a few examples.

**C67-09**

Jean Philippe FAIVRE (Campagne, France)  
 Thierry BISMUTH (Limoges, France)  
 Laurence BOURGUIGNON (Pessac, France)  
 David COLONGE (Le Vigan, France)  
 Marc JARRY (Saint-Orens-de-Gameville, France)  
 Jacques JAUBERT (Talence, France)  
 Vincent MOURRE (Ménèrbes, France)  
 Céline THIÉBAUT (Ménèrbes, France)  
 Alain TURQ (Les-Eyzies-de-Tayac, France)

**The Middle Paleolithic in the Quercy region: variability of lithic production systems and typological facies.**

**ABSTRACT:** Recent typo-technological studies allow us to propose a regional synthesis of Middle Paleolithic industries between isotopic stages 9 and 3. All show the existence of a close relationship between local or close lithic resources and lithic productions. It is thus pertinent to evaluate the characteristics and potentialities of the different materials and diverse debitage and shaping systems employed. It then appears that the lithic productions utilizing materials with crystalline structures (quartz/metaquartzite) are associated with debitage methods that produce removals with very homogeneous morpho-technical characteristics (unifacial and bifacial Discoid, anvil technique debitage). Moreover, in the context of bifacial shaping (façonnage), the use of these same materials (frequently associated with others originating from diverse local alluvial formations) appears to play an important role within some industries. The lithic assemblages in flint show, according to the context, the expression of a unique technical nature (Discoid debitage) that is nonetheless variable in its modes of realization, or, in contrast, a plurality of production systems (Discoid, Levallois, bifacial shaping). In several cases, for these materials, very clear techno-economic caesuras appear to be effective. These differences emphasize the importance of the binary relationship “production mode/origins and qualities of materials”, which from a material perspective results in the recognition of operational sequences with variable degrees of spatio-temporal fractioning. These technical particularities, specific to different lithological groups, reinforce the informative richness offered by their systematic coexistence within the same industrial ensembles. From this technical substrate arise lithic industries, which may or may not be contextually recurrent, consistent with the diachronic variability of Lower and Middle Paleolithic techno-typological facies in the Quercy region. Several ensembles are thus identifiable: industries with retouched tools on flakes (notches and denticulates) associated or not with heavy tools (more or less elaborate) on cobbles, those in which scrapers dominate (Charentian facies, I.s) and finally, those characterized by the presence of bifacial pieces, most often in the form of finished products or sometimes simple sub-products of shaping activities (knapping or sharpening flakes), but never by the association of these two components.

**C67-10**

Vincent MOURRE (Ménèrbes, France)  
 Cristina LEMORINI (Roma, Italy)  
 Jacques JAUBERT (Talence, France)

**The importance of reputed mediocre materials in the Middle Paleolithic of the Quercy region - Technological and functional analysis of the lithic industry of Coudoulous I, level 4.**

**ABSTRACT:** The lithic industry of level 4 of the site of Coudoulous I (Lot region) allows us to address the question of the status of “reputed mediocre” materials in the Middle Paleolithic of the Quercy region.

We conducted technological and functional analyses of these local alluvial materials (essentially quartz and quartzite) and present their quantitative and qualitative results here for the first time.

The technological analysis revealed the coexistence of different knapping methods (Discoid debitage, anvil technique debitage) adapted to the mechanical properties of the materials and allowing the production of recurrent series of flakes that are slightly predetermined but functional. The use wear analysis was realized on a sample of 40 quartz and quartzite objects selected from those presenting potentially functional characteristics (regular edges, retouch) and showing no evident post-depositional alterations. Observations at low and high magnifications, which were completed by confrontation with an experimental reference collection, allowed the identification of use traces on the archaeological remains. These traces are mostly related to scraping activities on a resistant material (hard and semi-hard), but activities related to the cutting of a soft material were also revealed.

The ensemble of these results, replaced within a regional context, do not support the notions of “substitute materials” or “alternative materials” often advanced for the quartz and quartzite materials of the Middle Paleolithic.

**C67-11**

Laurence BOURGUIGNON (Pessac, France)  
 Christophe GRIGGO (Aix-en-Provence, France)  
 Julia FOURNIER (Aix-en-Provence, France)  
 Farid SELLAMI (Grignon, France)  
 Sandrine DELPECH (Cayenne, France)  
 Justicia. TERESA-MATAMORES (Pantin, France)  
 Aline EMERY-BARBIER (Nanterre, France)

**Level 1 of La Roquette, Puyelsi Tarn (recent excavations): seasonal Mousterian occupations specialized in the acquisition and consumption of large bovids.**

**ABSTRACT:** La Roquette, located in the Tarn department in the extreme south of the Quercy region, is a stratified, open-air site dated to the Middle Paleolithic. Recent excavations (1998 to 2001), mainly in the first level, yielded numerous, relatively well preserved faunal remains and proportionally little lithic material. This latter is characterized by the exploitation of two types of materials, local quartz and flint from around 20 kilometers away. The production modes differ for each material (Discoid on quartz and Levallois on flint), reflecting distinct techno-economic behaviors (production in situ and exportation of finished products). These two production modes seem to have been used with the objective of being operative in the acquisition and treatment of animal carcasses. Indeed, the fauna with traces of human actions (cutting and intentional fracturation for immediate or differed consumption) is dominated by bison in this level (among 4 taxa identified). Thirty-eight individuals have been identified. They are relatively young (66% of the population is less than 5 years old) and were hunted at two distinct times of the year (mid summer and the end of autumn to mid winter). The site of La Roquette thus seems to have been oriented toward seasonal activities focused on the hunting of young bison. The topographic position of the site, situated on a ledge overlooking the Audoulou Valley, likely provided Mousterian groups with a key point for the observation of migrating bison and indicates that it played a significant role in the territorial occupation strategies (residential mobility schemes) of this Mousterian group in the Quercy region.

**C67-12**

François BON (Toulouse, France)  
 Jean-Guillaume BORDES (Bordeaux, France)  
 Foni LE BRUN-RICALES (Bertrange, France)  
 André MORALA (Les-Eyzies-de-Tayac, France)  
 Patricia GUILLERMIN (Toulouse, France)  
 Caroline RENARD (Toulouse, France)  
 Sylvaine DUCASSE (Toulouse, France)

**Material for the study of the Upper Paleolithic in the Quercy region: data relative to the Aurignacian, Gravettian, Solutrean and Badegoulian.**

**ABSTRACT:** Recent excavations of several sites in the Quercy region with extensive stratigraphies, such as Le Cuzoul de Vers (J. Clottes and J.-P. Giraud), Les Fieux (F. Champagne), Gandil (E. Ladier) and Les Peyrugues (M. Allard), along with new studies and excavations of previously explored contexts, such as Le Piage (F. Champagne and R. Espitalié) and Les Battuts (J.-F. Alaux), have significantly contributed to a renewal of our knowledge of the Upper Paleolithic

in southwestern France. The contrasting ecological conditions of this region incite interrogations, in a more favorable context than others, concerning the strategies employed by the human groups of this period in the exploitation of space. For example, what role did the plateau zone play in their exploitation of the environment? Was this territory frequented only on an occasional basis for activities related in particular to hunting, or did it play a more versatile role, integrating a larger range of social and economic activities? Based on a synthesis of recent analyses of the lithic industries from these sites, replacing them in the context of raw material resources (based on detailed knowledge of the mineral sources of the Quercy region), and through first comparisons with the archeological contexts of neighboring regions (in particular, Haut-Agenais and Perigord), the contributors to this paper attempt to address these questions for each chronological period. They also provide information relative to the diachronic discussion raised by the themes presented in the following presentation.

**C67-13**

François BON (Toulouse, France)  
 Michel ALLARD (Toulouse, France)  
 Jean-Guillaume BORDES (Bordeaux, France)  
 Pierre CHALARD (Toulouse, France)  
 Sylvaine DUCASSE (Toulouse, France)  
 Patricia GUILLERMIN (Toulouse, France)  
 Édmée LADIER (Montauban, France)  
 Mathieu LANGLAIS (Toulouse, France)  
 Foni LE BRUN-RICALENS (Bertrange, France)  
 Laure-Amélie LELOUVIER (Saint-Orens-de-Gameville, France)  
 André MORALA (Les-Eyzies-de-Tayac, France)  
 Caroline RENARD (Toulouse, France)  
 Alain TURQ (Les-Eyzies-de-Tayac, France)

**Strategies for the exploitation of territories during the Upper Paleolithic: a diachronic perspective.**

**ABSTRACT:** The rich documentation offered by the Quercy region provides an opportunity to better understand certain behaviors by replacing them in a diachronic perspective covering most of the Upper Paleolithic. Though one of the objectives is to determine the status of the Quercy zone for the human groups that occupied the northern Aquitaine region, this information relates to broader interrogations concerning prehistoric human geography. Based principally on lithic industries, this reflection integrates different questions relative to the relationship between the mobility of groups and their advance planning for the fabrication of technical objects. By comparing these results in function of the different activities concerned (in particular, the fabrication of hunting tools in comparison with tools from other functional categories), this procedure attempts to shed light on certain socio-economic values and their evolution through time. Here we consider, from a diachronic perspective, the management of resources and anticipation of needs (human geography) practiced by Upper Paleolithic groups. The large cultural divisions of this period are thus compared by considering their differences and similarities not only in terms of technical skills, but also on the basis of the socio-economic choices of which they are an expression.

**C67-14**

Sylvain DUCASSE (Toulouse, France)  
 Mathieu LANGLAIS (Toulouse, France)

**Badegoulian versus Magdalenian: comparison of lithic production systems. The example of the Quercy region in the European south-west.**

**ABSTRACT:** Once named differently according to whether they were considered to be already Magdalenian (Early Magdalenian) or as an autonomous cultural entity (Badegoulian), the first post-Solutrean industries of the Quercy region have gradually gained their independence relative to the Magdalenian industries that succeeded them. The recognition and characterization, from Cantabria to the Gard region, passing by the Gironde and Quercy regions, of a Lower Magdalenian *stricto sensu* supports the hypothesis of a succession from the Badegoulian to the Lower Magdalenian and once more leads to questions concerning the relationships between these two techno-complexes. A technological approach to lithic production systems notably provides comparative data that must be integrated with data from other disciplines.

**C67-15** Laure-Amélie LELOUVIER (Saint-Orens-de-Gameville, France)

**A techno-functional approach to Upper Paleolithic tools: methods and experiments applied to pièces esquillées (splintered pieces).**

**ABSTRACT:** The objective of our research is to reflect upon the functional approach to prehistoric tools, particularly its methodological and analytical aspects. Here we have chosen to present some of these latter through an experimental protocol applied to splintered pieces including the testing of several hypotheses. Our goal is to document the potential functions of this still enigmatic tool type, as well as to attempt to respond to certain questions raised by their existence, sometimes in large numbers, in lithic assemblages of all periods of prehistory. These tests were conducted mainly in order to evaluate possible distinctions within this tool group: bipolar debitage cores or intermediary tools used on different materials.

The heterogeneity of these objects (morphology, dimensions and stigmata) indeed suggests multiple functions associated with diverse activities. Only large reference bases, coupled with technological and microwear analyses, will allow us to determine certain functional aspects of Paleolithic tools.

**C67-16** Michel ALLARD (Toulouse, France)

**25.000 years old architecture: habitat 22 of Les Peyrugues.**

**ABSTRACT:** Level 22 of Les Peyrugues is attributed to a Gravettian occupation dated from 25 000 years. This rock shelter habitat is located on a large, leveled embankment at the summit of a talus. The rock shelter was enclosed by a wall, interrupted in the middle by a passage lined with an upright monolith. This latter was raised on a pedestal of blocks and, along with the wall, seems to have reached the ceiling of the rock shelter. This very elaborate, dry-stone architecture seems to be by far the oldest currently known. It seems to be associated with diverse constructions:

- outside, two monoliths buttressed along the wall consolidate its base. A small ramp allows access to the entrance.
- inside, a hearth around which usual archaeological remains (flint, bone, cobbles, charcoal) are distributed, occupies the central part. Wedging material attests to the presence of a post that seems to have supported the extremity of a bench, probably used as a sleeping bunk in the corner of the rock shelter.

The maximum duration of occupation of this hunting refuge could not have extended over more than one warm season (around seven months).

**C67-17** Jean Christophe CASTEL (Genève, Switzerland)

Delphine KUNTZ (Toulouse, France)

Christophe GRIGGO (Aix-en-Provence, France)

Francis JUILLARD (Nougaroulet, France)

**Animal resource exploitation strategies during the Upper Paleolithic in the Quercy region.**

**ABSTRACT:** The history of prehistoric research, along with a low density of archaeological sites, explains the past rarity of studies of the Quercy region and its consequent peripheral role in our knowledge of the Paleolithic. The archeozoological information that can be obtained from pre 20<sup>th</sup> century excavations is particularly limited due to a lack of interest for organic materials other than osseous tools and body ornaments. In the central part of the Quercy region (near the Lot region), research conducted over the past 40 years is known mostly from work at sites located on the margins of the Dordogne region (Les Fieux, Le Piage), and from the work of two researchers: M.-R. Séronie-Vivien on the Gramat plateau (Pégourié, Le Sanglier) and M. Lorblanchet (Sainte-Eulalie, Gare de Conduché Cave). In the south, excavations around the site of Bruniquel complete this panorama. In current research in the heart of the Quercy region, three sites are particularly significant: Le Cuzoul de Vers, Les Peyrugues and Le Petit Cloup Barrat. The study of these sites, located near the decorated cave of Pech Merle, will contribute significantly to a renewal of our knowledge of Late Upper Paleolithic human occupation in the Quercy region, as well as in other regions with which relationships have been revealed (Charente-Périgord, Pyrénées). Meanwhile, the early Upper Paleolithic is poorly known in Quercy, except on the margins of the Dordogne region. Data from well-dated natural traps contributes to our knowledge

of paleoenvironments and, consequently, human choices. Archeozoological studies conducted in the Quercy, though still rare, are now integrated into broad, regional perspectives and global questions concerning the behavior of the last Neandertals and Cro-Magnon groups.

**C67-18** Michel LORBLANCHET (Saint-Sozy, France)

**Art and territories in the Quercy Paleolithic: an approach to the problem.**

**ABSTRACT:** Starting from current data concerning Paleolithic art in the Quercy region, the following main points will be addressed:

- 1) artistic styles and territories:
  - definition of Paleolithic artistic styles in the Quercy region;
  - problems of dating;
  - stylistic zones in space and time (differences between the Quercy and Perigord regions, variations within the Quercy region and variations between caves in the Quercy region).
- 2) Decorated caves, portable art and Upper Paleolithic habitats in the Quercy region: comparisons of the inventories and distributions of different types of sites;
  - problems of seasonality (in art and life ways);
  - chronological evolution of the relations between different site types (between habitats, decorated caves and portable art sites).

In conclusion, a definition of the problems to be solved will be proposed along with some first observations.

**C67-19** Pierre Yves DEMARS (Talence, France)  
 Oliver LE GALL (Talence, France)  
 Hélène MARTIN (Saint-Orens-de-Gameville, France)  
 Marc JARRY (Saint-Orens-de-Gameville, France)

**Seasons and prey: reflections on notions of predation and territory.**

**ABSTRACT:** The evolution of the different components of prehistoric archaeology allows us to consider the predation methods of Paleolithic hunter-fishers. Their sub-modern homologues, all nomads, move across territories according to seasonal cycles. They choose the placement of their habitats according to parameters (prey/seasons/environments) that insure easy and plentiful captures. The study of "small sites" with occupations limited in time tends to prove that Paleolithic groups made the same choices.

To qualify this seasonal aspect and predatory specialization, several tools are available: "classic" archeozoology reveals the nature of prey and elements concerning the season of capture;

sclerochronology is indispensable for direct observation of the seasons of hunting and fishing of adult animals and the pyramid of ages;

animal ethology informs us concerning animal "migratory" and "vigilance" behaviors selected by hunter-fishers in order to facilitate predation;

paleogeography and the physical and vegetal environment, near or far from the site, can give us a vision of the "landscape" in which Paleolithic groups evolved.

This non restrictive list clearly demonstrates the necessity of combining several approaches and working at the interface of several disciplines in order to understand the circumstances that determine captures. Only this approach allows us to precisely identify the predation methods of Paleolithic hunter-gatherers.

## Session C68

*Thursday , 7 September 2006 / Jeudi, 7 Septembre 2006,*

*Friday , 8 September 2006 / Vendredi, 8 Septembre 2006*

*And/ Et*

*Saturday , 9 September 2006 / Samedi, 9 Septembre 2006*

*Anfiteatre 4, Faculty of Arts, Lisbon University  
Amphithéâtre 4, Faculté de Lettres, Université de Lisbonne*

### Monumental Questions: Prehistoric Megaliths, Mounds and Enclosures

#### Questions monumentales : Mégalithes préhistoriques, tumulus et enceintes

*organized by / organisé par*

**David CALADO**  
**Douglas FRINK**

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**In col. with Session C21**

### Mounds Construction in the Americas

#### Construction de tumulus aux Amériques

*organized by / organisé par*

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### SESSION'S ABSTRACT

The development of archaeology is closely tied to research on megaliths, mounds, and enclosures. In spite of this long history, archaeology is only now beginning to provide answers to long-standing questions about the most prominent prehistoric monuments. As usual, these answers suggest new research questions. Since such monumental architecture was created

around the world, researchers from all continents are asked to address these questions, in order to make this meeting truly comparative.

Topics to be covered include:

- Methods and theories for excavation, analysis and preservation of monumental architecture and its contents
- Spatial analysis of monuments on a local, regional, or interregional scale
- Monuments and landscapes: their social, ethnic, and cultural implications
- New discoveries and resulting inferences
- Facts and fancies regarding monuments, ideology, and religion
- Burial mounds and their textiles
- Monuments, architecture, and art

The presentations include data from a systematic survey of the megaliths erected by hunter-gatherers in SW Portugal. Similarly, there will be presentations on huge North American mounds and enclosures, erected by hunter-gatherers between ca. 6000 and 2000 years ago. This includes new analyses of colourfully dyed textiles from the later monuments. The results of spatial analyses of hundreds of megalithic tombs, long-mounds, tumuli, and enclosures in North and Central Europe, including the oldest stone walls, will be offered.

## SESSION PROGRAMME / PROGRAMME DE LA SESSION

7<sup>th</sup> September 2006 / 7<sup>ème</sup> Septembre 2006

09:00            **Opening / Ouverture**

09:00-09:25    Iddir AMARA (Alger, Algeria)  
Abdelkader HEDDOUCHE (Alger, Algeria)  
Iddir SMAÏL (Alger, Algeria)

**C68-01**        **La région de Tagréra (Tassili Ouan Ahaggar, Ahaggar, Algérie)  
Représentations rupestres et monuments funéraires protohistoriques.**

09:25-09:50    Iddir AMARA (Alger, Algeria)  
C. YASSA (Alger, Algeria)

**C68-02**        **Notes on some funerary structures of the region of Tindouf ( South- south-west, Algeria).**

09:50-10:15    Judit P. BARNA ( , Hungary)  
Emília PÁSZTOR (Szazhalombatta, Hungary)

**C68-03**        **Two Neolithic Enclosures at Sormás – Török – Földek (SW-Transdanubia, Hungary) and their possible astronomical role.**

10:15-10:40    Matt BOULANGER (Essex Junction, UK)

**C68-04**        **Archaeometric Analyses of Pottery from TRB Barrows and Hilltop Enclosures in Moravia.**

10:40-11:05    David CALADO (Faro, Portugal)  
María Dolores CÂMALICH ( La Laguna, Spain)  
Dimas MARTÍN-SOCAS ( , La Laguna, Spain)  
José Miguel NIETO (Huelva, Spain)  
António DELGADO (Granada, Spain)  
Francisco NOCETE (Huelva, Spain)

Amelia RODRÍGUEZ (La Laguna, Spain)  
 Moisés BAYONA (Huelva, Spain)  
 Esther ALEX (Huelva, Spain)  
 Nuno INÁCIO (Huelva, Spain)

**C68-05** **Some Stones Can Speak! The social structure, identity and territoriality of SW Atlantic Europe complex appropriator communities reflected in their standing stones.**

11:05-11:30 Manuel CALADO (Lisboa, Portugal)

**C68-06** **Megaliths as Rock Art in the South of Portugal.**

11:30-11:55 Rosario CRUZ-AUÑÓN (Sevilla, Spain)  
 Francisco NOCETE (Huelva, Spain)  
 Juan Carlos MEJÍA (Sevilla, Spain)

**C68-07** **Ciertos aspectos funerarios en Valentina de la Concepción (Sevilla).**

11:55-12:20 Douglas S. FRINK (Essex Junction, U.S.A.)

**C68-08** **All Mounds Are Not Created Equal.**

12:20-12:45 Stanislav GRIGORIEV (Chelyabinsk, Russia)

**C68-09** **The Ural megaliths and the European tradition: chronological and cultural context.**

12:45-13:00 **Discussion**

13:00-14:30 **Lunch / Déjeuner**

14:30-14.55 Fiona HOOK (South Fremantle, Australia)  
 Ed RHODES (Canberra, Australia)

**C68-10** **Gurdadaguji stone arrangements (Australia): late Holocene aggregation locals?**

14:55-15:20 Terry HUNT (Honolulu, Haway, U.S.A.)  
 Carl LIPO (Long Beach, California, U.S.A.)

**Monumentality and ancient social organization on Rapa Nui (Easter Island).**

15:20-15:45 Raffaella KELLER (Milan, Italy)

**C68-12** **Landscape, architecture and ritual aspects of the Chalcolithic sanctuaries in alpine Lombardy (Italy).**

15:45-16:10 Jangsuk KIM (Gwangju, Korea)  
 Jaehoon HWANG (Gwangju, Korea)

**C68-13** **Masking inequality versus class distinction: Dolmens and cist tombs in the southern Korean Bronze Age.**

- 16:10-16:35 Stefan BERGH (Galway, Ireland)  
**C68-14** **Transforming a mountain into a monument - identity and place in the Irish Neolithic.**
- 16:35-17:00 José MÁRQUEZ ROMERO (Malaga, Spain)  
 Víctor JIMÉNEZ JÁIMEZ (Malaga, Spain)  
**C68-15** **Structured depositions and ditched enclosures in the late prehistory of southern Iberia (IV-III millennia BC).**
- 17:00-17:25 Terence MEADEN (Oxford, UK)  
 Di PATTISON (Oxford, UK)  
 Kate PRENDERGAST (Oxford, UK)  
**C68-16** **Neolithic rock art at the Avebury stone circles.**
- 17:25-17:50 James A. BROWN (CHIGAGO, USA)  
**C68-17** **Monumental Earthworks as Problematic Constructions in North America.**
- 17:50-18:15 Catarina OLIVEIRA (LISBON, PORTUGAL)  
 Cândido MARCIANO DA SILVA (LISBON, PORTUGAL)  
**C68-18** **Moon, Spring and Large Stones. Landscape and ritual calendar perception and symbolization.**
- 18:15-18:30 **Discussion**

**8<sup>th</sup> September 2006 / 8<sup>ème</sup> Septembre 2006**

- 09:00-09:25 Jean-Pierre MOHEN (PARIS, FRANCE)  
**C68-19** **Megalithisme et sédentarisation en Europe occidentale.**
- 09:25-09:50 Chris PEEBLES (Bloomington, Indiana, U.S.A.)  
 Staffan PETERSON (Bloomington, Indiana, U.S.A.)  
**C68-20** **From Moundville to Angel: A Comparison of the Organization of Monumental Architecture and Central Places at Two Points in Space and Time in the Mississippian World.**
- 09:50-10:15 Mário VARELA GOMES (Lisbon, Portugal)  
**C68-21** **Time and Signs. Southern Portugal megalithic art diachrony.**
- 10:15-10:40 José RAMOS (Cadiz, Spain)  
 Salvador DOMÍNGUEZ-BELLA (Cadiz, Spain)  
 Manuela PÉREZ (CADIZ, SPAIN)  
**C68-22** **The Pristine Class Society in the Atlantic Coasts of Cadiz, SW Spain (3<sup>rd</sup> and 2<sup>nd</sup> millennia BC). The conceptual framework and the archaeological evidence.**

- 10:40-11:05 Chris SCARRE (Cambridge, UK)  
**C68-23** **Megaliths, memory and the power of stones.**
- 11:05-11:30 Karl-Göran SJÖGREN (Göteborg, Sweden)  
**C68-24** **Anonymous ancestors? The Tilley/Shanks hypothesis revisited.**
- 11:30-11:55 Joe SOUNDERS (LOUISIANA, USA)  
**C68-25** **An evaluation of the social expression at Watson Brake and the Middle Archaic.**
- 11:55-12:20 Eva STENSKÖLD (Stockholm, Sweden)  
**C68-26** **Memories of a Megalithic Landscape. Mortuary Practices and Gallery Graves in Western Sweden during the Late Neolithic.**
- 12:20-12:45 Jan TUREK (Prague, Czech Republic)  
**C68-27** **Beaker barrows and the houses of dead.**
- 12:45-13:00 **Discussion**
- 13:00-14:30 **Lunch / Déjeuner**
- 14:30-14:55 Julia VASINA (Chelyabinsk, Russia)  
**C68-28** **The Megalithic Structures on Vera Island in Turgoyak Lake (Urals).**
- 14:55-15:20 Alain VIARO (GENEVA, SWITZERLAND)  
**C68-29** **Megalitism as memorials of wealth in Nias Island (Indonesia).**
- 15:20-15:45 Mark BATEMAN (Sheffield, UK)  
 David CALADO (Faro, Portugal)  
**C68-30** **The chronological determination of Megaliths by Optical Stimulated Luminescence (Tentative title)**
- 15:45-16:10 David BINNS (UK)  
**C68-31** **Images of mounds and stones: mythical reconstruction of prehistory in modern Britain**
- 16:10-16:35 Jean-Pierre PROTZEN (Berkeley, California, USA)  
**C68-32** **Stone Quarrying, cutting and Transportation in the Pre-hispanic Andes**
- 16:35-17:00 Christel BALDIA (Ohio, USA)  
**C68-34** **Small things in big places: Textiles and colors from prehistoric burial mounds in North America and Europe.**

- 17:00-17:25 Maximilian O. BALDIA (Indiana, USA)  
**C68-35** **Monumental Questions: Prehistoric Megaliths, Mounds and Enclosures of Central and Northern Europe**
- 17:25-17:50 Serge CASSEN (Nantes, France)  
 W. TORGUNAKOV (Russia)  
 P. PÉTREQUIN (France)  
 B. LASNIER (France)  
**C68-36** **“The-Teeth-Under-The-Sky”: Steles of Mountains and Exploitation of Green Stone in the Kuznetskii Alatau, Southernmost Siberia (Khakassia, Russia)**
- 17:50-18:15 Lars LARSSON (Lund, Sweden)  
**C68-37** **Approaching the dead. Social and architectural interaction reflected in a megalithic tomb**
- 18:15-18:30 **Discussion**

**9<sup>th</sup> September 2006 / 9<sup>ème</sup> Septembre 2006**

- 09:00-09:25 Francisco NOCETE (Huelva, Spain)  
**C68-38** **More Than Big Stones! Periferality and confined or resistant lineage societies in the pristine society of classes territorial framework. South-western Iberia Peninsula (2900-2000 BC)**
- 09:25-09:50 Rui PARREIRA (Faro, Portugal)  
**C68-39** **Alcalar (Algarve, Portugal): Research and museum exhibits of monumental funerary structures and the associated ceremonial areas**
- 09:50-10:15 Francisco CARRIÓN (Granada, Spain)  
 J. A. ESQUIVEL (Granada, Spain)  
 Paulo FÉLIX (Granada, Spain)  
 David GARCÍA (Granada, Spain)  
 Carmen LÓPEZ (Granada, Spain)  
 José António LOZANO (Granada, Spain)  
 Israel MELLADO (Granada, Spain)  
 Teresa MUÑIZ (Granada, Spain)  
**C68-40** **A geoarchaeological research program in the dolmenic group of Antequera (Málaga, Spain)**
- 10:15-10:40 Julia ROUSSOT-LARROQUE (Bordeaux, France)  
**C68-41** **Megaliths, mounds, enclosures...a question of frontier?**
- 10:40-13:00 **Discussion**

**ABSTRACTS / RÉSUMÉS**

**C68-01** Iddir AMARA (Alger, Algeria)  
Abdelkader HEDDOUCHE  
Iddir SMAÏL

**La région de Tagrera (Tassili Ouan Ahaggar, Ahaggar, Algérie)  
Représentations rupestres et monuments funéraires protohistoriques.**

**RÉSUMÉ:** Le site de Tagrera est situé dans le Tassili Wan Ahaggar, au sud-est de la ville de Tamanrasset. Il est placé au nord - nord ouest du Tassili Tin Meskour, entre In Abeggui et Tin Tezedjnet (carte NF-32 I-N- Azaoua au 1 : 1.000 000 - coordonnées : 21°32'/21°33'N et 06°27'/06°28'E). Tagrera est le secteur le plus fréquenté avec Youf Eheket et Tahaggart par les touristes. Le site de Tagrera s'étend sur un vaste territoire et comprend trois petites stations : Tenensi, Girafe et Chambra. Les figures rupestres sont isolées les unes des autres. Les représentations se limitent à quelques figures bovines, d'autruches et de girafes. Le style et la technique laissent apparaître une tradition culturelle saharienne. Les figures sont réalisées dans de rares abris et sur des rochers en plein-air. Les gravures et les rares peintures expriment la même chose, mais le rendu de l'image est plus réaliste à travers la peinture qu'à travers la gravure. Les figures sont attribuées à différentes phases culturelles. Les plus anciennes ont le trait piqueté, un processus qui rend la figure peu visible et les plus récentes sont martelées ou incisées. Ces figures sont homogènes par leur style et leur technique. Les recherches récentes (projet de recherche sur les monuments protohistoriques de l'Ahaggar dans leur contexte chrono-culturel) ont montré, outre les abris rupestres que nous avons aussi visiter et analyser, la présence de nombreuses constructions funéraires protohistoriques. Celles-ci témoignent d'une occupation humaine de la région au cours de l'Holocène. L'étude de leur architecture et de leur mode d'inhumation permettent de mieux comprendre leurs coutumes funéraires, la distribution géographique de ces monuments funéraires ainsi que les éventuels rapports avec les représentations rupestres. (...)

**C68-02** Iddir AMARA (Alger, Algeria)  
C. YASSA

**Notes on some funerary structures of the region of Tindouf ( South- south-west, Algeria).**

**ABSTRACT:** The region of Tindouf presents numerous archeological vestiges ( The CNRPAH mission in the region of Tindouf (South- south-west, Algeria) from 17 to 27 February 2004). The sites present several funerary monuments of different types ( Frederic (?) Lt., 1954- Megalithic monuments of the Hamada of Tindouf. IRS, T. XI., 1st semester). We can presently enumerate some of them :

- The numerous tumuli are of average height ( between 1m and 1.50 m high) . Their diameter can reach 5m. The tombs are circular, ovoid or ellipsoidal. Some of them are topped by craters. The most ordinary are made of small stones, some of them are made of big stones and others of flags.
- The built monuments appear in different types. We can see bazinas and an other type peculiar to the region ( cylindrical form topped by a cone). Bazinas are circular monuments made of big dry stones. The second type is remarkable for its architecture. It is high and wide ( height: 2m to 2.50m, diameter: 4m to 6m). It is endowed with a cone-shaped roof. Inside and throughout the opening, we noted the presence of a circular corridor taking the initial shape of the monument.

Monuments with antennas exist also in the region. They are reported practically in the whole Sahara and essentially in central Sahara. The form is ordinary. It is an ovoid tumulus equipped with two long arms reaching 30m.

**C68-04** Matt BOULANGER (Essex Junction, UK)

**Archaeometric Analyses of Pottery from TRB Barrows and Hilltop Enclosures in Moravia.**

**ABSTRACT:** The Central-European Eneolithic period is characterized by the emergence of two distinct types of archaeological sites: long mounds and wall-and-ditch enclosures. Distinct though they may be, these two site types have several commonalities. In the upper Morava Valley, groups of mounds invariably occur adjacent to enclosures, and a shared concept of monumental architecture is evident in the laid-stone wall construction evident at both sites. The proximity in space, time, and form of these site types has led to speculation concerning how they are related; yet, few researchers have provided firm data to test such propositions.

Analyses of pottery from Rmiz (a Funnel Beaker era enclosure) and the nearby Dzban mound group, provide an opportunity to examine shared aspects of ceramic manufacture, use, and disposal during the Central European Copper Age. Geochemical analysis of pottery is conducted to determine whether sherds from the sites were made from similar clay sources. Thin section petrography is used

to examine technological attributes of pottery from both sites. Both analytical methods are combined to examine if aspects of ceramic manufacture are shared between sites and to propose initial geochemical source groupings for the region

**C68-05** David CALADO (Faro, Portugal)  
 Maria Dolores CÀMALICH ( , Spain)  
 Dimas MARTÍN-SOCAS ( , Spain)  
 José Miguel NIETO (Huelva, Spain)  
 António DELGADO  
 Francisco NOCETE (Huelva, Spain)  
 Amelia RODRÍGUEZ  
 Moisés BAYONA (Huelva, Spain)  
 Esther ALEX  
 Nuno INÁCIO (Huelva, Spain)

**Some Stones Can Speak! The social structure, identity and territoriality of SW Atlantic Europe complex appropriator communities reflected in their standing stones.**

**ABSTRACT:** In the Extreme SW Atlantic Europe numerous permanent settlement sites with standing stones, decorated with recurring symbols, have been identified. Chronologically, these standing stones started to be erected before than the actually existing first evidences of cereal agriculture in the area. Moreover, the dispersion of the settlement sites, standing stones and symbols, allowed the interpretation of some patterns of social organization of the menhirs builders with an amount of evidence and detail previously unknown for a European prehistoric society.

**C68-06** Manuel CALADO (Lisboa, Portugal)

**Megaliths as Rock Art in the South of Portugal.**

**ABSTRACT:** This paper is based on the recently gathered archaeological data concerning standing stones and rock paintings and carvings, broadly contemporaneous, in the South of Portugal.

Instead of the traditional perspective, which treats those manifestations as ontologically different – though, in some occasions, tries to compare them or find specific links between them – rock art and megaliths are here considered as parts of the same complex of the Neolithic “packet”, rooted on the development of symbolic devices, and interconnected by a system of beliefs around the valorisation of the role of man against nature, and iconographically built around schematic ways of representing the human figure.

Actually, we can argue that the very concept of “megalithic art”, creating a common ground between both megaliths and rock art, implies a restrictive view, because it highlights the most obvious similarities, but hides the fact that, even when they have no carvings or paintings, standing stones are still rock art.

In some sense, they share the same similarities and differences as painting, engraving and sculpture, in modern western art.

In the Alentejo, as well as in other European prehistoric areas, carvings, paintings and standing stones are, on one hand, related with different historical contexts, but, on the other, they seem to be different adaptations to diverse geographical contexts.

Actually, standing stones keep an obvious dependence on the granite landscapes, carvings are only found on schist water eroded panels, and paintings are reduced to the quartzite rock shelters. (...)

**C68-07** Rosario CRUZ-AUÑÓN  
 Francisco NOCETE (Huelva, Spain)  
 Juan Carlos MEJÍA

**Ciertos aspectos funerarios en Valentina de la Concepción (Sevilla).**

**RESUMO:** Valencina de la Concepción resulta ser el asentamiento de mayor rango del III milenio de los hasta ahora conocidos en el Valle del Guadalquivir. Pretendemos analizar su importancia social y política a través de ciertos registros referentes al aspecto funerario ya que posibilitan apreciar diferencias de tratos a los individuos tanto por la cualidad de las tumbas, sus reutilizaciones, como por la del espacio territorial donde se inhuman. Intentaremos inferir que la preparación de un destino final se articula dentro de las desigualdades económicas y sociales generadas en el seno de esta sociedad.

**C68-08** Douglas S. FRINK (Essex Junction, U.S.A.)

**All Mounds Are Not Created Equal.**

**ABSTRACT:** Cultures worldwide utilize elevated micro-topographic landforms for settlement areas, burials, and other activities. Where such elevated areas are common, natural mounds may be used, but where natural mounds do not exist, or are unacceptable, mounds are manufactured. Understanding the relational contexts of artifacts recovered from mound contexts require that we first understand the formational processes whereby mounds are created, and the physiology of pedoturbations, both during and after occupation, that affect artifact locations. This paper will offer a preliminary look at a range of natural mounds – sand dunes from the Dry Pampas of Argentina and from the Southern United States, and Mimas, or Pimple Mounds from the South-Central United States – as well as anthropomorphic mounds from Central Europe and from the South and Northeastern United States. Soil physical and chemical data display will incorporate GIS Geovisualization of statistical graphics, three-dimensional displays, and interactivity, which combined allows intuitive visual characterizations for the wide range of mounds used by past cultures.

**C68-09**

Stanislav GRIGORIEV (Chelyabinsk, Russia)

**The Ural megaliths and the European tradition: chronological and cultural context.**

**ABSTRACT:** A series of megalithic sites have been discovered recently in the Urals. They include menhirs and alleys of menhirs, a Stonehenge-like ring (at Akhunovo), and dolmens. The largest megalithic complex, found on Vera Island in Turgoyak Lake, includes chamber- and gallery graves, a dolmen with gallery and two menhirs. With the exception of menhirs and dolmens, these structures have no analogies in Siberia and Eastern Europe. Presently we are excavating the largest megalithic feature, a chamber grave-like structure. Determination of its cultural affiliation and chronological position is hampered by repeated re-use and the fact that most artifacts have been found in disturbed layers. The most typical flint artifacts are microlithic blades and chips. The pottery belongs to the Copper Age and the Late Bronze – Early Iron Age, suggesting that the structures were built in the Eneolithic and re-used later. Thermoluminescent dating of ceramics from the megalithic and other sites on the island yield dates from the 2<sup>nd</sup> millennium uncal. BC. These young dates may be the result of secondary heating during re-use. Therefore, the sites may be of considerable antiquity. Analogies to megalithic other structures in the Urals and in Western Europe imply a construction around 3300 – 2800 cal. BC. If there is a connection with Western Europe, migration or some other relationship is likely, but the possibility of an autochthonous development cannot be excluded. Regarding social organization, megalithic sites are traditionally associated with agriculture and cattle breeding, creating possibilities for large communities. No such communities are currently known from the Urals.

**C68-10**

Fiona HOOK (South Fremantle, Australia)

Ed RHODES (Canberra, Australia)

***Gurdadaguji* stone arrangements (Australia): late Holocene aggregation locals?**

**ABSTRACT:** This paper describes the excavation, optical dating and relocation of 10 stone arrangements, comprising over 1500 individual standing stones, in the Pilbara region of northwest Western Australia. The programme was undertaken for BHP Billiton Iron Ore as part of mitigative salvage works associated with the development of the Mining Area C mine in association with the the *Innawonga Bunjima Niapili* and *Martu Idja Banyjima* Indigenous groups

The paper firstly outlines the dating and recording programme and then interprets the results suggesting that *Gurdadaguji* stone arrangements were constructed during a period of increasing population over the last millennia. During this period there is evidence from many parts of the Australian mainland, including the arid zone, that there is increasing boundedness in Indigenous populations and possibly the formation of new group identities as a means of managing growing populations. Within such a dynamic situation the need socially to articulate and renegotiate broad scale alliance and subsistence networks would have increased. In this context stone arrangements and their construction are viewed as part of a wider graphic system which was used to control and promote the exchange of information. The *Gurdadaguji* stone arrangements may be an artefact of increasing ceremonial and ritual behaviour which may have managed the pressures placed on societies from increasing populations, and to bind increasingly segmented groups in mutually supportive alliances. Here, the role of “aggregation locales” (ceremonial and ritual sites), such as the *Gurdadaguji* stone arrangements, are seen as inclusive of disparate groups in the face of what can be argued to be a period of population increase and social fragmentation. Such sites

may be symbolic of cultural forces that bind societies and people together over large distances.

**C68-11** Terry HUNT (Honolulu, Hawaii, U.S.A.)  
Carl LIPO (Long Beach, California, U.S.A.)

**Monumentality and ancient social organization on Rapa Nui (Easter Island).**

**ABSTRACT:** What do the remarkable statues and monumental structures of Easter Island tell us about ancient social organization? This remote and diminutive island saw cultural investments that included massive statue production and island-wide transport and monumental constructions (*ahu*), among other impressive cultural expressions in art and architecture. Most scholars believe that statue production centered in a large quarry with island-wide transport along a road system required a centralized authority and concomitant social organization. We evaluate this hypothesis against multiple lines of evidence for spatial-temporal patterns in monumentality. We analyze satellite images to document statue roads and use stylistic variables to construct a cultural phylogeny of the statues. We also examine complementary human biological data for the island. Our research supports a model of largely autonomous groups operating independent of any greater organizational authority. Instead, relatively small-scale groups appear to be competing for success in an environment of limited and unpredictable resources

**C68-12** Raffaella KELLER (Milan, Italy)

**Landscape, architecture and ritual aspects of the Chalcolithic sanctuaries in alpine Lombardy (Italy).**

**ABSTRACT:** In the alpine district of Lombardy (Italy), during the 2<sup>nd</sup> half 4<sup>th</sup> and the beginning of 3<sup>rd</sup> millennium BC, as recent and wide excavations and surveys show, megalithic cult and ceremonial sites with steles and menhir-boulders engraved with symbolic and naturalistic figures are founded. The new discoveries make Lombardy as one of the most interesting european areas in the atlantic, alpine and Mediterranean megalithic context.

In Valle Camonica, and in neighbouring Valtellina, this phenomenon is particularly evident, unusual and clearly allied to the exceptionally abundant manifestations of rock art present in the same area. These sites, where a systematic survey was carried out to define the parameters of territorial choice, have a special significance in the landscape of the valley and constitute an expression and consequence of the density of occupation, extending from the valley floor to high altitudes, which developed from the Late Neolithic onwards, an enduring and demonstrated possession of the territory. These open-air sanctuaries are monumental and visible from various directions, by means of *ad hoc* visual corridors created by the clearance of extensive portions of woodland by the use of fire. Characterized by engraved monoliths' alignments, architectural structures (mounds, platforms, enclosures, sometimes founded on previous wooden structures and furrows of plough) and particular ritual aspects (fires and offerings of flowers and shrubs), they formed long-lasting territorial markers and last during protohistory and sometimes till the historical age when with the arrival of Christianity, as Cemmo's excavations show, the megalithic sanctuary was dismantled and substituted by a church.

**C68-13** Jangsuk KIM (Gwangju, Korea)  
Jaehoon HWANG (Gwangju, Korea)

**Masking inequality versus class distinction: Dolmens and cist tombs in the southern Korean Bronze Age.**

**ABSTRACT:** Approximately 50,000 dolmens, dated between 10th and 4th centuries BC (Early and Middle Bronze Age), are distributed in South Korea. In the sense that construction of dolmens would have required a large-scale labor, they have been traditionally considered elite burials. However, because the number is too many and the quantity and quality of burial goods from most dolmens are very poor, dolmens are now thought to have been used for burials of not only elite but also commoners. This means that labor was mobilized even for constructing commoners' burials.

Around 5th century BC, stone (or wooden) cist tombs appeared in southwest coast and adjacent areas in the Korean Peninsula, and dolmens decreased dramatically in number or disappeared. Unlike dolmens, cist tombs were exclusive elite burials. The quantity and kinds of bronze burial goods from cist tombs were dramatically increased. Large-scale labor mobilization was now not required in constructing burials.

This change in burial system is considered to reflect an alteration of elite strategy. Although labor mobilization for their construction would have been led by elite, dolmens were not used exclusively for elite burials. Therefore, construction of dolmens and labor mobilization appear to have aimed

at masking social contradiction by stressing group identity and equality ideology. Under this political propaganda, labor mobilization by elite was located in public realm and would have been politically justified or 'naturalized'. Politically naturalized labor mobilization may have been applied implicitly to other activities such as economic appropriation. In contrast, exclusive use of cist tombs for burials and a dramatic increase in bronze burial goods in the 5th century BC suggest elite strategy changed from equality ideology to salient class distinction. While control of commoners through labor mobilization declined in size and frequency, and class distinction through exclusive access to prestige items now would have been used as the major political strategy.

**C68-14** Stefan BERGH (Galway, Ireland)

**Transforming a mountain into a monument - identity and place in the Irish Neolithic.**

**ABSTRACT:** The conspicuous Knocknarea Mountain, on the western end of the Cùil irra peninsula in Co. Sligo, Ireland, has always been an eye-catching landmark in this coastal region. The mountain formed a central part of a large scale ritual landscape in the Neolithic, dominated by a very large number of passage tombs.

This paper will discuss how the role of this mountain may have changed over time, based on the occurrence of cairns, enclosures and large scale quarrying.

**C68-15** José MÁRQUEZ ROMERO (Malaga, Spain)

Víctor JIMÉNEZ JÁIMEZ (Malaga, Spain)

**Structured depositions and ditched enclosures in the late prehistory of southern Iberia (IV-III millennia BC).**

**ABSTRACT:** The existence of structured depositions in pits and ditches during Late Prehistory has been lately recognized in the South of Iberian Peninsula. Instead, classical thesis have stressed for decades a kind of relationship between the archaeological data and hypothetical farmer villages in IV-III millennia BC. Considered as fields of "silos", these sites have also been used to support the development of an intensive agriculture in Southern Iberia since IV millennium BC. and the existence of farming surpluses subject to political control since III millennium; in short, archaeologists have sought for historical arguments to defend an early social hierarchization in Prehistory. In this work, in first place, traditional explanations are discussed, and then, unconsidered hypothesis are incorporated, such as structured deposition. Thus, recurrent behaviours in the processes of filling these pits are described, regarding them not as silos or rubbish deposits, but as deposits with complex depositional rhythms. Finally, we will emphasize the social and cultural implications of the relationship between Neolithic and Copper Age ditched enclosures and structured depositions within them, either in pits or ditches, in Monumental Landscape (IV-III millennia BC).

**C68-16** Terence MEADEN (Oxford, UK)

Di PATTISON (Oxford, UK)

Kate PRENDERGAST (Oxford, UK)

**Neolithic rock art at the Avebury stone circles.**

**ABSTRACT:** There is strong academic research on the Neolithic rock art of Ireland, Scotland and northern England which represents a major expressive medium for these cultures. This paper argues that comparable rock art traditions also existed in Neolithic Wessex in southern England, including the great Avebury stone circles and associated monuments. This paper presents sculptural and photographic evidence for developed carved and worked megaliths at Avebury. It suggests that potential meanings associated with such carvings are integral to the wider ritual and symbolic uses of the monument, and that they represent a major and hitherto unrecognised regional rock art tradition in Neolithic Britain.

**C68-18** Catarina OLIVEIRA

Cândido MARCIANO DA SILVA

**Moon, Spring and Large Stones. Landscape and ritual calendar perception and symbolization.**

**ABSTRACT:** Systematic surveys of megalithic sites, in recent decades in Central Alentejo, have resulted in the accumulation of empirical evidence suggesting good candidates for astronomical relevance, involving either the Sun or the Moon, or both.

The analysis of some of the sites is compatible with lunar observation and practices. In particular, the Megalithic Equinox appears to be related to the Spring Full Moon, and this seems to be well supported by the orientation of funerary megaliths, as a symbolic representation of resurrection, rebirth, or new life, at the onset of Spring.

It seems possible to recognise a local cultural practice, or celebration, of the equinox, by a prehistoric society "conscious of the celestial order". Further, recent surveys, following these suggestions, have resulted in the identification of several megalithic enclosures, and possible "sacred" landscape features observed from isolated menhirs, involving compatible and/or adjuvant interpretations. Additional plausibility is provided by the frequent presence of astral decorative motifs engraved on the stones.

From the evidence of a clear connection between the moon, landscape perception and ritual calendar, apparently first materialized in megalithic monuments, we start also to be sensitive to the identification of signs hidden in the collective memory of following generations across time, guided by the idea of the Moon as a symbolic representation of life.

Aware that the religious phenomenon has, at all times and places, revealed itself as an "inherited conglomerate", the present study tries to understand how man has appropriated the Moon and integrated it in magic-symbolic structures, mediating their relation with space and time, in the light of specific space-time contexts, movements of people groups, and syncretism and assimilation phenomena.

The investigation developed so far has unveiled relevant indications, not only in Central Alentejo, where the megalithic phenomena seems prominent, but also in other parts of the country, where that association - materialised in ancient places of devotion, rituals and liturgical practice - keeps significant

**C68-19**

Jean-Pierre MOHEN

**Megalithisme et sédentarisation en Europe occidentale.**

**RÉSUMÉ:** La découverte au Portugal méridional (Algarve) et les études réalisées par nos collègues portugais sur un stade mégalithique précoce, préénéolithique donc antérieur aux premières traces de graines cultivées, nous révèlent une phase ancienne qui expliquerait des ensembles mégalithiques monumentaux précoces de la façade atlantique (Portugal, Centre-Ouest et Ouest de la France) et probablement des situations mixtes plus tardives du nord de l'Europe, dans lesquels des communautés rurales et pastorales séparées auraient vécu selon des rythmes saisonniers avec des rencontres à certains moments de l'année, dans des lieux cérémoniels dont la fonction serait liée aux monuments mégalithiques.

Une importante documentation concernant les mégalithes de l'Ouest européen est maintenant disponible. Elle a été renouvelée ces vingt dernières années, à la suite de travaux de terrain de grande valeur, d'une méthodologie plus attentive aux détails architecturaux, à l'origine des matériaux de construction et des offrandes, à l'identification des restes humains et animaux, à l'organisation complexe des espaces funéraires, aux phases souvent multiples de fréquentation, aux motifs gravés, bouchardés ou peints relevés de plus en plus fréquemment sur des piliers où ils étaient passés inaperçus, aux autres structures non mégalithiques pourtant liées à ces centres cérémoniels, etc... Parce que les archéologues sont plus spécialisés mais aussi parce que les monuments mégalithiques sont mieux compris comme des expressions multiples, d'une portée temporelle, sociale, technique, spatiale, paysagère, rituelle, iconographique, etc... il est devenu nécessaire d'approfondir des synthèses qui rendent compte de l'interaction de tous ces différents facteurs tout en reconnaissant la variété des identités locales et régionales. Cette perspective pluridisciplinaire bénéficie aujourd'hui de réflexions collectives et d'une vision faisant appel au delà de l'archéologie et de l'anthropologie biologique, à des disciplines comme la géologie, la géomorphologie, la géographie humaine, la topographie, la cartographie, la chronologie fine des événements et des durées... L'objectif est de construire une paléo-histoire des territoires « mégalithiques », c'est à dire un essai de compréhension du phénomène événementiel dans son contexte humain et environnemental. (...)

**C68-20**

Chris PEEBLES (Bloomington, Indiana, U.S.A.)

Staffan PETERSON (Bloomington, Indiana, U.S.A.)

**From Moundville to Angel: A Comparison of the Organization of Monumental Architecture and Central Places at Two Points in Space and Time in the Mississippian World.**

**ABSTRACT:** Well over 100 years of sustained research on the late prehistoric period in the Black Warrior River Valley in Alabama, which included a decade of work at the Moundville site itself under the auspices of Depression Era works projects (summarized in Knight and Steponaitis. *Archaeology*

of the Moundville Chiefdom, 1998), has created a region-wide settlement model that incorporates the primate mound center, Moundville, lesser mound centers, and agricultural communities of varying size. Moundville itself, which covers approximately 75ha and contains twenty nine truncated platform mounds, shows clear internal patterning in terms of the ordered size of its mounds, a bilateral symmetry of mounds and other public structures, and significant differentiation in distribution of the production and deposition (mainly in burials) of distinctive artifacts exotic materials. The Moundville site grew rapidly from an agricultural community (beginning in A.D. 1050) to a planned ceremonial center with multiple mounds and large resident population to a necropolis with only a small resident population to silent ruins in approximately 350 years. Moundville has been described by Vernon Knight as a “diagrammatic ceremonial center,” in which the spatial structure of the built environment of the site represents the underlying social organization of the group that constructed it and lived out their social and ritual lives within it.

The Angel site, which is on the north bank of the Ohio River near Evansville, Indiana, is the northeastern most representative of what has been termed “Middle Mississippian,” a cultural-historical category that includes Moundville as a major representative. At its maximum extent, the Angel site comprised ca. 40 ha, 4 major and 7 lesser mounds, with some or all of the community enclosed within a complex set of palisades. Like Moundville, significant archaeological work has taken place at the Angel site; however, these excavations were mainly through the efforts of one man, Glenn A. Black, with the financial support and vision of another man, Eli Lilly, and in only two sustained periods of fieldwork, just before and after World War II. In all, approximately three percent of the site has been excavated, and most of these were restricted to one small parcel of land in the easternmost part of the site (Black, *Angel Site*, 2 vol, 1967). (...)

**C68-21** Mário VARELA GOMES

**Time and Signs. Southern Portugal megalithic art diachrony.**

**ABSTRACT:** The southern Portuguese megalithism is usually understood as a wide diachrony single phenomenon stretching from the early food producers polities times until the 3rd millennium BC metallurgical political societies. However, the southern Portuguese megalithic art evidences a pertinent iconographic and symbolic evolution through time.

Despite some continuities, the megalithic ideography suffered deep changes, evolving in parallel with the socio-economic societal structure thus, seemingly reflecting the superstructural changes and perception of the world by the local populations. The privileged material support for the ideological manifestations and symbolic changes are the standing stones and menhir steles. The southern Portuguese standing stones and steles evidence not just thematic variations, but also iconographic changes, associations, superimpositions and erasements, frequently creating complex palimpsests. The symbols inscribed in standing stones change through time and seem to reflect the changes in the ideological and behavioral pattern of the local communities, progressively adapting the monuments to diverse new contexts. The two major iconographic renovation periods were the 4th millennium BC, when many standing stones were anthropomorphized and turned into steles, and the 3rd millennium BC, when the Sun iconography suggestive of the great mediterranean goddess with the solar eyes, becomes wide spread. The succession of symbol sets is registered in several single standing stones, such as Pontais 1 (Silves), Cerro das Pedras (Loulé), Vale Rodrigo (Évora), Barrocal (Reguengos de Monsaraz) and in many of those which are integrated in stone circles, such as those in Almendres and Portela de Mogos (Évora).

**C68-22** José RAMOS (Cadiz, Spain)  
Salvador DOMÍNGUEZ-BELLA (Cadiz, Spain)  
Manuela PÉREZ

**The Pristine Class Society in the Atlantic Coasts of Cadiz, SW Spain (3<sup>rd</sup> and 2<sup>nd</sup> millennia BC). The conceptual framework and the archaeological evidence.**

**ABSTRACT:** The distribution pattern of the 3<sup>rd</sup> and 2<sup>nd</sup> millennia BC archaeological sites from the Cadiz Atlantic coasts is presented and the environmental conditions, natural resources, settlement typology, burial practices and exchange networks, are analysed.

The existing evidence strongly supports the hypothesis that, during the 3<sup>rd</sup> millennium BC, the social organization of the lower Guadalquivir river-valley inhabitants was characterized by the existence of social classes and political organization.

**C68-23** Chris SCARRE (Cambridge, UK)

**Megaliths, memory and the power of stones.**

**ABSTRACT:** Megalithic monuments are characterised by stones of exceptional size, which in many cases have been subject to little further shaping or finishing. The use of such stones suggests a desire to retain 'primitive' features of the blocks, such as colours and textures, that served to indicate the sources from which they had been taken. A number of recent studies have identified extraction sites, showing that megalithic blocks were often (but not always) taken from visible boulders and outcrops. These may in themselves have been considered sacred by prehistoric communities. The special powers of the stones are sometimes indicated by carved motifs which imply they were thought to have 'human' qualities. Similar significance may have been accorded to certain trees, some of which were felled and split to construct timber burial chambers, and others incorporated into timber circles. These practices suggest belief systems focused upon the manipulation of memories embedded in the landscape

**C68-24** Karl-Göran SJÖGREN (Göteborg, Sweden)

**Anonymous ancestors? The Tilley/Shanks hypothesis revisited.**

**ABSTRACT:** The purpose of this talk is to reevaluate the dominant view of Scandinavian megalithic tombs as a form of ossuaries, forming nodes in a system of secondary burial, and where living individuals were transformed into nameless parts of the collectivity of ancestors. The point of departure will be two recently excavated tombs in Falbygden, Sweden, where the bones have been recorded in detail; the passage graves at Frälsegården and Landbogården. The analyses made so far suggest that the treatment of the dead in these tombs do not fit current models of mortuary practices in megalithic tombs. Instead, whole bodies seem to have been introduced and kept intact for long periods of time. Here, individuality would be preserved, and specific genealogy would be emphasised, rather than the ideological blurring of social conflict suggested by Tilley and Shanks.

**C68-25** Joe SOUNDERS

**An evaluation of the social expression at Watson Brake and the Middle Archaic.**

**ABSTRACT:** Watson Brake is an oval 11-mound and embankment complex that dates to ca. 5400 cal BP (3450 cal BC). Located in northeast Louisiana, it is one of 13 mound sites in Louisiana that dates to >5000 BP (3050 BC). These sites are almost two thousand years older than Poverty Point. Limited research at the Middle Archaic mounds shows that the economy was centered on riverine resources, a pattern first observed at the Early Archaic Conolly site in northwest Louisiana and continued into the Late Woodland period (ca. 2700 BC/750 BC). The material culture of the Middle Archaic mound builders does not match the beauty of Watson Brake. Bland at best, fire-cracked rock is the most abundant artifact. Trade for exotic goods is non-existent. All raw material is local. Enigmatic geometric ceramic objects occur on northeast Louisiana sites (though not in south Louisiana), but their function is unknown. One distinguishing element is effigy beads and the associated lapidary industry.

Artifact composition from large mound site to small mound site is redundant. This pattern holds for mound sites vs. campsites as well. All used local material, consumed riverine resources, made beads, projectile points, and ceramic blocks. Evidence for specialization or site hierarchy is non-existent. Egalitarianism ruled?

Watson Brake, in spite of its "gray" appearance, displays a symmetry/opposition in design. The oval earthworks are centered around a natural rise in the center of the plaza. Conical Mound A on the north side is the largest mound. It was constructed in at least nine stages. Dome-shaped Mound E on the south side of the enclosure is the second largest mound. It was constructed in one stage. Embankments along the north side are multi-stage, those on the south side are single-stage. Is this symmetry/opposition an expression of social consciousness?

**C68-26** Eva STENSKÖLD (Stockholm, Sweden)

**Memories of a Megalithic Landscape. Mortuary Practices and Gallery Graves in Western Sweden during the Late Neolithic.**

**ABSTRACT:** The Gallery graves of the Late Neolithic in western Sweden are enigmatic landmarks of a mythological megalithic landscape. The prehistoric burial monuments have been interpreted in a variety of different ways in archaeological research.

In this paper I wish to present results from my research on the mortuary practices and gallery graves

of western Sweden. The gallery graves of western Sweden represent the second largest conglomeration of gallery graves in the country. It is my interpretation that the gallery graves should be regarded mainly as spatial features, used as performative spaces in the Late Neolithic society. During the Late Neolithic there is vast evidence suggesting the development and existence of a secondary burial practice. There is a multiplicity of variations, but a recurring theme is that the first burial is temporary, after which one returns to cleanse the bones which then are reinterred at a new location. The dead body, before being buried, was subjected to several different phases, ultimately aiming at dissolving the body. The different phases of the death ritual were carried out in mortuary houses and gallery graves. Gallery graves and mortuary houses reflect how materiality and place act as vehicles for the reconstruction of remembrance in Late Neolithic society.

In my discussion I will focus on a variety of morphological variables of the gallery graves. The architectural features of the gallery grave and the mortuary house are interpreted as features used in the management of space, guiding movements and corporal performances in the landscape during the Late Neolithic in western Sweden.

**Key words:** Megalithic tomb, gallery grave, Late Neolithic, performance, space, place, body, temporality, secondary burial practice

**C68-27** Jan TUREK (Prague, Czech Republic)

#### **Beaker barrows and the houses of dead.**

**ABSTRACT:** The main purpose is to discuss the question on missing evidence of barrows of the late Eneolithic Corded Ware and Bell Beaker period in Central Europe. Variety of problems of demographic representation of cemeteries, burial customs and spatial structure of funerary areas are connected to the missing barrows. The crucial aim of this paper is to emphasise the variability of late Eneolithic funerary monuments, including the discussion on burial chambers and circular ditches, yet another type of funerary construction without an earthed mound that may be described as houses of dead.

**C68-28** Julia VASINA (Chelyabinsk, Russia)

#### **The Megalithic Structures on Vera Island in Turgoyak Lake (Urals).**

**ABSTRACT:** Recently complex megalithic structures, similar Western European megalithic tombs, were found in the Southern Urals. They are located on the Island of Saint Vera in Turgoyak Lake. The nearest analogies are found in Siberia and Eastern Europe. Megalithic Structure 2 and 3 are comparable to dolmens and gallery graves. They are smaller than Structure 1, which measures 19×6 m and is oriented E – W. Structure 1 is a transept gallery grave, cut into the bedrock, and covered by a layer of turf. Several chambers are situated within the structure. Each is connected with the others by a corridor. The walls are of drywall construction and covered with megalithic capstones. In 2004-2005, two chambers were excavated and evidence of a mound was observed. The original builders cut the rock with a deviation from tectonic cracks. From this, one may infer intentional alignments of the entrances, which are oriented to the sunrise and sunset of the autumnal and vernal equinox. Additional openings may be connected to other calendar events. Thus, the megalithic structures may have functioned as tombs, housing human burials, or they had some other ritual purpose related to lunar and solar cults. Determining the cultural and chronological identity is problematic due to multiple re-use. Furthermore, both investigated chambers were robbed relatively recently. Another complication is the fact that the structures are unique, having no known local antecedents. Although flint artifacts and ceramics date to the Copper Age (4<sup>th</sup> – 3<sup>rd</sup> millennia uncal. BC) and the late Bronze Age – Early Iron Age (late 2<sup>nd</sup> millennium uncal. BC), they come from disturbed layers. Preliminary thermoluminescence analyses of ceramics from Structure 1 indicate Bronze and the Early Iron Age dates.

**C68-29** Alain VIARO

#### **Megalitism as memorials of wealth in Nias Island (Indonesia).**

**ABSTRACT:** Contrary to what is thought about prehistoric cultures, the development of megalithism in Nias was/is connected to the POWER and not to the dead. The “feasts of merit” cycle, or cycle of feast integrating the individual into the society, present different components and ceremonies. For some of the feasts, stones or human statues in stone are erected, acting as a testimony for the future generations of the wealth and the power of the person who organized and paid for the feast.