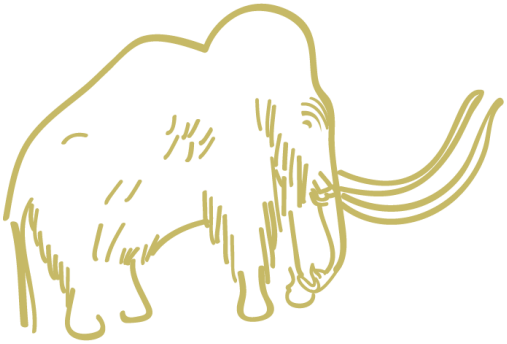

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Union Internationale
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XVIII[e] Congrès

Book of abstracts

XVIII° CONGRES UISPP PARIS JUIN 2018
18th UISPP WORLD CONGRESS, PARIS, JUNE 2018

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XVII-1. Adaptations des sociétés du paléolithique supérieur aux climats.

Le concept de culture dans le paléolithique supérieur : des processus d'adaptation des sociétés humaines à l'environnement et aux changements climatiques ?

François Djindjian * [1]

[1] Université Paris 1 Panthéon Sorbonne UMR 7041 Arscan – Université Paris 1 Panthéon Sorbonne UMR 7041 Arscan – France

Le concept de culture est une conséquence directe de l'archéologie typologique définie par Montélius au XIX◦ siècle, en nommant des assemblages typologiques identiques et en les situant dans un espace-temps connu qui leur est propre. Les noms, issus généralement des premiers sites publiés où ces assemblages ont été identifiés, sont le plus souvent restés dans la littérature, et, pour le Paléolithique supérieur, sont toujours utilisés aujourd'hui, même si leur contenu sémantique a varié dans le temps jusqu'à ne plus devenir à tort pour certains qu'une commodité d'écriture. Que signifient donc ces " cultures " ?

L'objet de cette communication est de montrer que les " cultures " du paléolithique supérieur sont des processus d'adaptations du système de chasse et de cueillette des groupes humains à un environnement donné et à ses changements climatiques. Puis de mettre en évidence les principales variables de ces systèmes : mobilité des groupes, superficie des territoires de déplacements, disponibilité des gîtes d'approvisionnement en matière première, des ressources alimentaires dans le cycle annuel, zoocénoses chassées, stratégies de gestion du territoire, saisonnalité des habitats, densité démographique.

Plusieurs processus sont mis en évidence : stabilité, différentiation, uniformisation, cloisonnement, effondrement, redéploiement, etc., dont les passages de l'un à l'autre sont liés à des variations climatiques tout en conservant une résilience du processus précédent.

Keywords: paléolithique supérieur, culture, processus, changement climatique

*Speaker

Le repeuplement post-LGM de l'Europe orientale : une adaptation des groupes humains à la fin de la dernière glaciation dans la steppe à mammouths.

Lioudmila Iakovleva * [1,2]

[1] Archéologies et Sciences de l'Antiquité (ArScAn) – Université Paris I - Panthéon-Sorbonne, CNRS : UMR7041, Université Paris X - Paris Ouest Nanterre La Défense, Université Paris 1 Panthéon-Sorbonne – Maison René Ginouvès Boîte 3 21, allée de l'université 92023 NANTERRE CEDEX, France
[2] Institut d'Archéologie de l'Académie des Sciences d'Ukraine – Ukraine

En Europe orientale, dans la grande plaine occupée par la steppe froide à mammouths, les groupes de chasseurs-cueilleurs sont venus se réinstaller vers 15 000 BP, après un abandon de ce territoire par les derniers Gravettiens vers 21 000 BP au début du dernier maximum glaciaire. Les accumulations d'os de mammouths jouent un rôle fondamental dans l'origine de ce peuplement. Leurs études montrent qu'ils sont les restes exploités par les groupes humains des carcasses d'un troupeau de mammouths mort très probablement de famine pendant l'hiver trop neigeux d'un climat dont la croissance d'humidité caractérise la fin de la glaciation. L'exploitation de ces carcasses, découvertes au moment de la fonte des neiges au début du printemps, fournit les grands ossements (crânes, mandibules, défenses, bassins, omoplates, os longs) pour la construction des cabanes de l'habitat installé à proximité immédiate, l'os frais pour l'alimentation des foyers, la matière première pour la fabrication d'outils en os (côtes, bassins) et en ivoire (défenses), et probablement également la chair congelée des mammouths. Les ressources alimentaires complémentaires sont apportées par le renne, le cheval, le bison, le mammouth et les animaux à fourrure (carnivores, rongeurs) chassés au cours de l'occupation longue de l'habitat qui couvre le cycle annuel. Des déplacements de longue distance sont consacrés à des chasses spécialisées saisonnières et à l'approvisionnement en matières premières (silex, coquillages, ambre) qui laissent les vestiges de sites de courte durée d'occupation sans structures d'habitat.

Keywords: LGM, paléolithique supérieur, climat, mammouth

*Speaker

Cultural characteristics of the habitations during the Last Glacial Maximum reflected in the discoveries made at Poiana Cireșului site (north-eastern Romania)

Elena-Cristina Nitu * [1], Carciumaru Marin *

[1], Nejma Goutas [2], Ovidiu Cirstina [3], Adrian Nicolae [1], Florin Ionut Lupu [1], Marian Leu [1]

[1] Museum of Human Evolution and Technology in Palaeolithic, "Princely Court" National Museum Târgovişte – 7 Justiţiei Street, Târgovişte 130017, Dâmboviţa County, Romania
[2] Archéologies et Sciences de l'Antiquité (ArScAn) – Université Paris I - Panthéon-Sorbonne, CNRS : UMR7041, Université Paris X - Paris Ouest Nanterre La Défense – Maison René Ginouvès Boîte 3 21, allée de l'université 92023 NANTERRE CEDEX, France
[3] "Princely Court" National Museum Târgovişte – 7 Justiţiei Street, Târgovişte 130017, Dâmboviţa County, Romania

The region of eastern Romania is rich in Upper Paleolithic settlements, most of them being located on the Bistriţa and Prut rivers valleys, and, from the cultural perspective, the majority seem to belong to a Gravettian tradition. One of the key-sites for this region is Poiana Cireşului-Piatra Neamţ, a settlement yielding four archaeological layers: one Epigravettian layer and three Gravettian ones. Preliminary analysis showed various behavior types from human communities for each layer, which reflects the cultural variability on this site, most likely a response to climate changes and environment. The first Gravettian layer is contemporary with the Last Glacial Maximum, being dated between 19.459 ± 96 and 20.154 ± 97, and has provided the richest habitation of the site. A number of adornments and art objects have turned Poiana Cireșului into an important settlement which helps understand the symbolic behaviour of Palaeolithic communities in Romania. The Gravettian I layer provided the largest number of art objects and tools made of hard animal materials from the Upper Paleolithic in Romania. At the same time, in this layer, distinct activity areas were found (butchering, antler processing, knapping, hearths and ochre areas). The way of organization of the Gravettian societies is closely related to the exploitation of the permanently dynamic and changing environment of the Upper Pleistocene. In this respect, our presentation will contain a summary of recent research and the results of the analyses made of materials found in the Gravetian I layer (lithic and osseous materials, faunal remains, art objects) in order to determine the impact of the climatic and environmental changes from the Last Glacial Maximum in this region.

*Speaker

Keywords: Upper Paleolithic, eastern Romania, Last Glacial Maximum, technology, symbolic behavior

Earliest evidence for tropical rainforest exploitation in South Asia

Oshan Wedage * [1,2,3,4], Patrick Roberts [5], Nimal Perera [6], Siran U. Daraniyagala [6], James Blinkhorn [5,7], Noel Amano [5], Andrea Picin [4,5], Alison Crowther [5], Katerina Douka [5,8], Nikos Korampas [9], Patrick Faulkner [5,10], Nicole Boivin [5], Michael D. Petraglia [5]

[1] Max Planck Institute for the Science of Human History, (MPI SHH) – Kahlaische Strasse 10, 07745 Jena,, Germany
[2] University of Sri Jayewardenepura, (usjp) – Gangodawila, Nugegoda,, Sri Lanka
[3] Government Department of Archaeology. – Sir Marcus Fernanda Mawatha, Colombo 7,, Sri Lanka
[4] Friedrich Schiller Universität Jena (FSU) – Germany
[5] Max Planck Institute for the Science of Human History, (MPI SHH) – Germany
[6] Government Department of Archaeology, – Sri Lanka
[7] University of Liverpool – United Kingdom
[8] School of Archaeology, University of Oxford – United Kingdom
[9] Office of Lifelong, The University of Edinburgh. – United Kingdom
[10] The University of Sydney – Australia

The timing and the route of dispersal of Homo sapiens out of Africa are among the most prominent debates in current palaeoanthropology. A range of recent evidence indicate the earliest expansions moved followed a southern route around the Indian Ocean rim and into Australia prior to human expansions northwards within Eurasia The expansion through this southern route necessitated adaptation to tropical rainforests, an ecological habitat interpreted by many scholars as a barrier due to the scarcity of fat- rich fauna, and carbohydrate-rich plants. In the last decade, increasing archaeological evidence has documented the use of tropical rainforest resources by early modern humans in South Asia, Southeast Asia and Melanesia. However, the exact strategies employed by early humans in these environments remains little-studied. This poster aims to present new data from the excavation carried out in 2012 at Fa-Hien Lena, a cave site previously yielding the earliest fossil evidence of modern humans in Sri Lanka (_˜33ka). Our new results, which extends the chronology of habitation back to _˜45ka, attests to the use of bipolar technology on local quartz and the production of geometric microlith and osseous projectiles. The latter appears to have been using in the specialized hunting of intermediate and small-size rainforest mammals. These animals were apparently roasted in hearths, with bones recycled as a new series of tools for projectile hunting. There is also evidence for the consumption and use of rainforest plants. Marine shell beads from the lower stratigraphic layers hint at possible social networks with coastal dwelling populations. This site provides some of the earliest detailed evidence in the world of tropical rainforest exploitation by our species.

Keywords: Homo sapiens, South Asia, Microliths, Rainforest foragers, Late Palaeolithic.

*Speaker

Hunter - gatherer adaptive responses during the post-LGM period in Greece: the case of Boila Rockshelter

Paraskevi Elefanti [1], Gilbert Marshall [1], Eleni Kotjabopoulou [2], Eugenia Adam *† [3]

[1] The M.H.Wiener Laboratory for Archaeological Science, ASCSA – 54 Souidias Street, GR- 10676 Athens, Greece
[2] Ephorate of Antiquities (EFAI) – 6, 25th March Square, 45221 Ioannina, Greece
[3] Ex-Ministry of Culture; Independent Researcher – P.O.Box 1201, 45221 Ioannina, Greece

The onset of postglacial conditions in Greece from the Pleistocene/Holocene boundary was characterised by gradual climatic amelioration, although punctuated by a short but severe downturn during the Younger Dryas between approximately 13,000 and 12,000 BP. These fluctuating environmental conditions together with possible demographic pressure had a significant impact on human subsistence and settlement strategies. These differed from region to region; for instance in southern Greece there was an expansion in diet breadth through the inclusion of small fauna and greater use of coastal and marine resources. On the other hand in north-western Greece, there appears to have been an expansion into novel areas, such as the uplands of Epirus where the targeted hunting of a more restricted range of species was undertaken. In this paper we discuss the role of Boila Rockshelter located within the Vikos Gorge, as part of a system of upland exploitation in this part of Greece during the final Pleistocene and early Holocene. Other components of this system are the late Upper Palaeolithic rockshelter of Klithi and Megalakkos located within the same gorge few kilometres to the east. Combining evidence from the chipped stone and faunal assemblages from Boila, we investigate the material and dietary context of these new adaptive strategies. As previous archaeological research undertaken in the area have suggested, the latter are characterised by regional long-distance mobility and multi-niches exploitation. We believe that Boila will contribute to a deeper understanding of inter-site variation on the local scale.

Keywords: Younger Dryas, adaptation, Boila rockshelter, Greece

*Speaker
†Corresponding author: eadam9@gmail.com

Mysterious Stones and Hidden Data on the Move: Reconnecting Art and Environment from Grotta Giovanna

Maria Rosa Iovino * [1], Daniela Zampetti * †

[1] Istituto Italiano Paleontologia Umana – Italy

Grotta Giovanna is a cave located inside the Syracuse province, in the eastern sicilian carbonatic Hyblean plateau, not at a far distance from the coastline. The discovery of this cave was due to the activity of Mr.Giulio Perotti (Commissione Grotte Eugenio Boegan, Trieste) that was interested in caves and in carsism phenomenon and to the activity of Dott.ssa Giovanna Celentano Gargallo, a researcher mainly interested in gastropods. Its archaeological deposit, after a test by Mr. Perotti, partially had been undergone stratigraphic investigation directed by Luigi Bernabò Brea and supervised by Luigi Cardini in 1967 and in 1968, within a cooperative research between the Soprintendenza ai Beni Archeologici of Siracusa and the Istituto Italiano di Paleontologia Umana. Cardini performed trench excavations in order to test and to detail the nature of the deposit. Here we discuss an interdisciplinary re-analysis of soils and of materials from deposit layers related to the epigravettian phase (12,840$\pm$100 BP) , particularly those layers where bone remains of Equus (Asinus) hydruntinus, Bos primigenius, Sus scrofa and Cervus elaphus are attested together with engraved limestone fragments, representing a rare attestation of portable art from all Sicily. Emblematic representation of apparently "de-headed" animal figures are, after previous analysis (Pianese 1968; Cardini 1971; Segre Naldini 1992) , here re-evaluated within their context. A 'posteriori' taphonomic procedure, will contribute to explain the engraved stones relationship with the supposed "in situ" occupation layer, with the flaked industry and with the fauna remains, to reconstruct environmental and past human interaction and complexity models.

Keywords: Epigravettian, Sicily, Portable Art, Interaction, Complexity

*Speaker

†Corresponding author: daniela.zampetti@uniroma1.it

la steppe et les migrations modernes en Europe

Marcel Otte * [1]

[1] Universite de Liege – Belgium

les immenses ouvertures steppiques pléistocènes ont favorisé les expansions modernes vers l'Europe à partir du continent asiatique, il ne s'agit pas de contrainte extérieure mais plutôt d'occasion favorable pour des populations extérieures toujours en mouvement dans les steppes asiatiques; l'enclenchement a été à la fois démographique et mythologique: à la recherche de nouvelles conquètes de l'esprit dans des paysages inconnus; l'origine des arts plastiques s'y trouve expliquée dans cette partie du monde

Keywords: humanité moderne steppes environement monte des chevaux

*Speaker

On the appearance of the Noaillian Gravettian in Italy

Santaniello Fabio * [1]

[1] Istituo Italiano di Paleontologia Umana (Is.I.P.U.) – Italy

In the present state of knowledge, the oldest evidences of the Noaillian Gravettian, dating about 28/27.000 years BP, have been found between Pyrenees area and Southwestern France. Instead, the few radiocarbon dates available from Noaillian sites in Italy fall around 26/25.000 years BP at the begging of the climatic changes due to the onset of LGM. As already suggested by other scholars, these data support the idea of a progressive diffusion of this *facies* towards the Italian peninsula, assuming the passage of these hunter-gather groups through the South-eastern France. However, an explanatory framework letting to understand the dynamics of the Noaillian spread in Italy is lacking. In order to test this hypothesis the entire Noaillian lithic collection from the well-known site of the Riparo Mochi (Balzi Rossi archaeological complex, Italy) has been studied by means of a technological approach. The site located at the border between France and Italy provide one of the most complete Upper Paleolithic sequences in Italy allowing to discuss the Noaillian appearance and development. The relation between raw material provenance and technical adaptations shows that the Noaillian sequence can be divided in different phases, which are the result of different site functions during the time. In order to assume a wider perspective other lithic assemblages located between the Liguro-proveçal arc and Tyrrhenian Italy are compared. Finally, a model based on the ethnographic comparisons, which takes into account also the paleoenvironmental contextualization, can be stressed. This gives important advances in our comprehension of the Noaillian Gravettian in Italy, considering migrations processes and territorial mobility of hunter-gatherer groups.

Keywords: Noaillian, Gravettian, Lithic technology, Hunter, gatherers, Mobility

*Speaker

Mammoth hunting in Central Europe – case studies of Kraków Spadzista and Milovice sites

Jarosław Wilczyński *† [1], Gary Haynes [2], Janis Klimowicz [3], György Lengyel [1], Bernadeta Kufel-Diakowska [4], Martin Oliva [5], Krzysztof Sobczyk [6], Piotr Wojtal [1]

[1] Institute of Systematics and Evolution of Animals, PAS – Sławkowska 17, 31-016 Kraków, Poland
[2] Department of Anthropology, University of Nevada – Reno, United States
[3] Desert Research Institute, Reno – United States
[4] Institute of Archaeology, Wrocław University – Szewska 48, 50-139 Wrocław, Poland
[5] Anthropos Institute, Moravian Museum – Zelný trh 6, 659 37 Brno, Czech Republic
[6] Institute of Archeaology, Jagiellonian University – Gołebia 11, 31-007 Kraków, Poland

Several mammoth bone deposits are known from Gravettian open-air sites in Central Europe. Mammoth remains from Dolní Věstonice I and II, Předmostí, Milovice, and Kraków Spadzista have been variably interpreted: as the remains of specialized mammoth hunting, as results of exploitation of mammoth bones, or as patterned scavenging of mammoths at natural death sites.
Two Late Gravettian sites, Kraków Spadzista sector B+B1 (dated 24-20 ka uncal BP) and Milovice sector G (dated 25-21 ka uncal BP), were archaeozoologically investigated further to find clues about mammoth hunting strategies of Gravettian hunter-gatherers. Although woolly mammoth is the dominant prey species in both sites, there are differences in age profiles, morphology of animals, and taphonomy. At Kraków Spadzista, the dominance of young and subadult individuals roughly reflects typical proportions in living populations. Therefore, it appears that hunters were not selective about which individual mammoths to kill, and chose prey animals randomly. At Milovice, on the other hand, adult individuals are prevalent, which suggests a hunting strategy specialized to kill individuals in specific age classes.

The mammoth remains discovered at both sites were associated with numerous lithic tools interpreted as hunting weaponry. Although both assemblages are Gravettian, their tool typologies are different. In this presentation we show the correlation between archaeological features and results of archaeozoological studies, which eventually can demonstrate mammoth hunting strategies of Central European Gravettian societies.

Acknowledgments:
The studies were partly supported by National Science Center, Poland (grant decisions No. 2015/18/E/HS3/00178 awarded to J. Wilczyński and 2015/17/B/HS3/00165 awarded to P. Wojtal).

*Speaker
†Corresponding author: jaslov@wp.pl

Keywords: Gravettian, archaeozoology, hunting implements

La fin du Paléolithique supérieur aux Balkans dans le contexte des oscillations climatiques du Tardiglaciaire

Janusz Kozlowski *† [1]

[1] Université de Cracovie (Pologne) – Poland

The paper describes the end of the Upper Palaeolithic in the Balklans in the context of Late Glacial climatic oscillations, by analysing and correlating the evolution of the toolkit of human groups, the subsistence strategies inside the annual cycle, the raw procurement and the territory travels

Keywords: Upper palaeolithic, climatic change, balkans

*Speaker
†Corresponding author: janusz.kozlowski@uj.edu.pl

XVII-2. Magdalenian Phases in Cantabria and Aquitaine: What are we talking about.

The Magdalenian sequence of El Miron Cave in the context of Northern Spain & the broader Franco-Cantabrian Region

Lawrence Straus * [1], Manuel R. González Morales *

[2]

[1] University of New Mexico (UNM) – Dept. of Anthropology, MSC01 1040 Albuquerque, NM 87131-0001, United States
[2] Instituto de Investigaciones Prehistóricas de Cantabria (Universidad de Cantabria) – Edificio Interfacultativo Avda. de los Castros, s/n E-39005 Santander Cantabria, Spain

THE MAGDALENIAN SEQUENCE OF EL MIRÓN CAVE IN THE CONTEXT OF NORTHERN SPAIN & THE BROADER FRANCO-CANTABRIAN REGION

Lawrence Guy Straus & Manuel R. González Morales[2]

Department of Anthropology, University of New Mexico, Albuquerque, NM 87131-0001 USA lstraus@unm.edu

[2]Instituto Internacional de Investigaciones Prehistóricas, Universidad de Cantabria, 39005 Santander, Spain moralesm@unican.es

In excavations directed by the authors between 1996 and 2013, El Mirón Cave, on the northern flank of the Cantabrian Cordillera in easternmost Cantabria province, yielded a long sequence of Magdalenian occupation layers. These include Initial, Lower, possible Middle, Upper and Epi- (Azilian) Magdalenian levels dated by 60 radiocarbon assays between 20-13 cal. kya. In this communication we summarize the main characteristics of some of the lithic and osseous artifact assemblages and works of portable art and personal ornaments from the various Magdalenian phases, with comparative references to other sequences in the Cantabrian Region and SW France. In addition to the industries summarized here, the El Mirón Magdalenian levels have yielded very large collections of hunted fauna (mainly red dee and ibex, plus salmon), hearth and other features, and the first human burial of Magdalenian age to be found on the Iberian Peninsula (and in physical association with rock art). Isotopic analyses of faunal and human remains and DNA and dental residue analyses of the human skeleton have provided additional important insights into climatic change, diet and genetic relationships. El Mirón adds significant details to systematization of the Magdalenian and to the long record of Late Glacial human occupation and adaptations in the northern Atlantic wing of the Franco-Cantabrian prehistoric culture area, complementing and supplementing such other historically important sequences as those of Altamira, El Castillo, El Valle, El Rascaño, El Juyo (Cantabria), La Riera/Cueto de la Mina, Las Caldas, La Vina, Llonín, Tito Bustillo (Asturias), Santimamiñe, Aitzbitarte, Ekain, and Erralla (Euskadi).

*Speaker

Keywords: Magddalenian, Cantabrian Spain, El Miron Cave, Cultural Systematization

Paléogéographie et traditions culturelles au Magdalénien moyen ancien dans le Sud-Ouest de la France : état de la question

Anthony Sécher *† [1], Mathieu Langlais [1,2]

[1] De la Préhistoire à l'Actuel : Culture, Environnement et Anthropologie (PACEA) – Université de Bordeaux, Centre National de la Recherche Scientifique : UMR5199, Ministère de la Culture et de la Communication – Université de Bordeaux Bâtiment B8 - CS50023 Allée Geoffroy Saint Hilaire 33615 PESSAC CEDEX, France
[2] SERP universitat de Barcelona – Spain

Première phase du Magdalénien dit " classique ", le Magdalénien moyen ancien (MMA ; 19,5 – 17,5 ka cal. BP) est documenté depuis la corniche cantabrique jusqu'à la Pologne. Une partie des gisements du MMA sont attribués à différents faciès, basés sur les industries lithiques et osseuses: le faciès " à lamelles scalènes ", " à navettes " et " à pointes de Lussac-Angles ". Quelles relations de contemporanéité ou d'exclusivité entretiennent ces faciès entre eux ? Le Nord du Bassin aquitain constitue une zone d'étude privilégiée, à l'interface géographique et chronologique de ces différents faciès, pour tenter de préciser cette question.
Notre étude s'est déroulée selon deux axes. Nous avons d'abord précisé le système techno-économique lithique de plusieurs archéoséquences de Gironde (Moulin-Neuf, Roc-de-Marcamps 1 et 2, Saint-Germain la Rivière et du Lot (Combe-Cullier). Puis, à partir d'un corpus actualisé de datations (dont certaines sur navettes ou pointes de Lussac-Angles), nous avons procédé à une analyse paléogéographique de marqueurs clés des différents registres archéologiques (techniques ou symboliques), afin de discuter de la structuration du MMA dans l'espace franco-cantabrique. À l'échelle du Sud-Ouest de la France, nos premiers résultats tendent à montrer une unité relative des débitages laminaires et lamellaires qui s'oppose à la régionalisation de certains traits (armatures, pratiques symboliques...). Nous avons pu mettre en évidence des objets communs à ces faciès mais aussi à d'autres sites du MMA (n'appartenant à aucun faciès définis). L'approche paléogéographique nous montre donc une grande dynamique des réseaux de circulation d'objets, de matières premières, d'idées voire de personnes au sein des différentes composantes du MMA.

Keywords: Magdalénien moyen ancien, techno, économie lithique, navettes, pointes de Lussac, Angles, lamelles scalènes, paléogéographie, SIG

*Speaker
†Corresponding author: asecher@lilo.org

Par-delà les frontières : discussion autour des "oscillations" des cadres chrono-culturels du Magdalénien entre Rhône et Danube.

Gérald Béreiziat * [1]

[1] De la Préhistoire à lÁctuel : Culture, Environnement et Anthropologie (PACEA) – Université de Bordeaux, Centre National de la Recherche Scientifique : UMR5199 – Université de Bordeaux Bâtiment B8 - CS50023 Allée Geoffroy Saint Hilaire 33615 PESSAC CEDEX, France

Depuis plusieurs années, la révision des étapes évolutives des populations magdaléniennes et l'intégration d'une double approche, temporelle et géographique, dans la définition des modèles régionaux, permettent de confronter les tendances culturelles sur une vaste bande allant de la Cantabrie à la Moravie et de s'interroger sur les notions de continuités, transitions ou ruptures entre les différentes phases. Comprendre ces étapes, c'est aussi se confronter aux contrastes environnementaux dans lesquels ces cultures se sont manifestées et à l'utilisation, par les chercheurs, d'une terminologie classificatrice différentielle d'une région à l'autre. Cette situation s'observe notamment sur un large territoire s'étendant de la vallée du Rhône au Danube. Au cœur de l'Europe occidentale, dans un espace influencé par d'importants cours d'eau et des zones montagneuses, et situé au carrefour d'expressions culturelles multiples, les cadres chrono-culturels du Tardiglaciaire établis en Allemagne du sud-ouest, en Suisse et dans l'Est de la France proposent des variations que nous souhaitons présenter et discuter à travers l'approche croisée des composantes chronologiques, environnementales, matérielles et artistiques. Une perspective qui sera, dans un deuxième temps, confrontée à la séquence atlantique.

Keywords: Magdalénien, Cadre chrono, culturel, Sud, ouest Allemagne, Suisse, Est de la France

*Speaker

New Research on the Magdalenian at Cova Rosa (Ribadesella, Asturias)

Esteban álvarez-Fernández * [1], Julian Bécares , Jesús F. Jordá-Pardo , Rodrigo Portero , David álvarez-Alonso , Miriam Andrés , Mª Teresa Aparicio , Mikelo Elorza , Sonia Gabriel , Naroa Garcia-Ibaibarriaga , Sergio Martín-Jarque , Xabier Murelaga , Aitziber Suárez-Bilbao , Jesús Tapia , Andoni Tarriño , Paloma Uzquiano

[1] Universidad de Salamanca – Facultad de Geografía e Historia. Departamento de Prehistoria, Historia Antigua y Arqueología, Universidad de Salamanca. Calle Cerrada de Serranos s/n, 37002, Salamanca, estebanalfer@hotmail.com; epanik@usal.es, Spain

Cova Rosa is an archaeological site located in Asturias, Northern Spain, excavated by Professor Francisco Jordá Cerdá in 1958 and 1959. Several researchers have published the materials from this excavation since the 1970s. In 1964, Professor Jordá Cerdá carried out a little-known dig. The results of this research are still unpublished. F. Jordá and Alejandro Gómez Fuentes excavated the deposit again from 1975 to 1979, in an area of 13m2, where they concentrated on the Magdalenian occupations. This work is being studied now thanks to his excavation logbook, and the find of the archaeological remains, which are mostly stored in the Department of Prehistory, Ancient History and Archaeology at the University of Salamanca, but also in Asturias Archaeological Museum. We present the study of the archaeological remains from the Magdalenian levels documented in the 1964 and 1975-1979 fieldworks. A first approach is made to the Magdalenian hunter-gatherers' use of firewood, by means of anthracological analysis, and faunal resources, through the study of the osseous remains of mammals and fish, and mollusc shells.

Keywords: Cova Rosa Cave, Magdalenian, Upper Pleistocene, Cantabrian Spain

*Speaker

Archéoséquence(s) et industries lithiques du sud-ouest français : un nouveau modèle atlantique entre 21 et 16 ky calBP ?

Mathieu Langlais * [1,2]

[1] de la Préhistoire à l'Actuel, Cultures, Environnement, Anthropologie (PACEA) – Université Sciences et Technologies - Bordeaux I, CNRS : UMR5199, Ministère de la Culture et de la Communication – PACEA Université Bordeaux Allée Geoffroy Saint-Hilaire CS50023 33605 Pessac cedex, France
[2] SERP universitat de Barcelona – Spain

Des recherches récentes menées sur plusieurs gisements du Magdalénien ont permis de renouveler les connaissances sur la chronologie et les évolutions techniques et économiques des chasseurs-collecteurs de la fin du Pléistocène dans le sud-ouest français. Les projets Magdatis (Pétillon et Laroulandie, coord.) et Magdaqui (Langlais, coord) parallèlement à de nouvelles opérations de terrain (Laa 2 (Pyrénées-Atlantiques, P. Dumontier coord.), Sainte-Colome (Pyrénées-Atlantiques, Pétillon coord.), Bouyssonie (Corrèze, Pesesse coord.), Peyreblanque (Ariège, Lacombe, coord.) *etc*) apportent non seulement de nouvelles données sur les industries lithiques mais permettent de préciser le cadre radiométrique et archéostratigraphique entre 21 et 16 ky calBP. La confrontation des équipements lithiques et osseux menés sur plusieurs gisements de la façade atlantique couplée à de nouvelles datations 14C ont ainsi permis de proposer un découpage en quatre temps du Magdalénien moyen et supérieur (Pétillon *et al.*, ed, 2016 ; Laroulandie *et al.*, 2017). Parallèlement, la révision de quelques séquences régionales apporte de nouveaux éléments sur l'évolution interne du Magdalénien entre 21 et 16 ky calBP (*i.e* Kuntz *et al.*, 2015 *;* Langlais *et al.*, 2015). Cette communication sera l'occasion de faire le point sur les résultats obtenus récemment à partir d'analyses pétro-techno-typologiques d'industries en silex replacées dans un cadre archéostratigraphique macro-régional. Ces résultats permettront de soumettre un modèle chronostratigraphique et culturel qui pourra être discuté au regard notamment des données connues dans l'espace franco-cantabrique.

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LAROULANDIE V., COSTAMAGNO S., LANGLAIS M., PÉTILLON JM (2017) - L'oeuf

*Speaker

ou la poule ? Retour sur le projet Magdatis " le Magdalénien de la façade atlantique face aux changements environnementaux ", *Quaternaire* 28 (2), p. 277-283.
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Keywords: Pléistocène, France, Aquitaine, Pyrénées, Magdalénien, Chronologie, Systèmes techniques, Industries lithiques, Armement, Outillage.

L'émergence du Magdalénien : rythme des changements techniques au cours du 18ème millénaire BP au Taillis des Coteaux (Antigny, Vienne, France).

Jérôme Primault * [1,2], Laurent Brou [3], Fanny Bouché [4], Cyril Catteau [4], Pascaline Gaussein [5], Annabelle Gioé , Christophe Griggo [6], Claire Houmard [7], Virginie Le Fillâtre [8], Caroline Peschaux [9]

[1] Direction Régionale des Affaires Culturelles Nouvelle Aquitaine (DRAC) – Ministère de la Culture et de la Communication – 102, grand'rue ; 86 000 Poitiers, France
[2] Archéologies et Sciences de l'Antiquité (ArScAn - ANTET) – Université Paris I - Panthéon-Sorbonne, CNRS : UMR7041, Université Paris X - Paris Ouest Nanterre La Défense – Maison René Ginouvès Boîte 3 21, allée de l'université 92023 NANTERRE CEDEX, France
[3] Centre National de Recherche Archéologique (CNRA) – Bertrange, Luxembourg
[4] ARSCAN – ARSCAN – France
[5] Préhistoire et Technologie (PréTech) – Université Paris Nanterre : UMR7055, Centre National de la Recherche Scientifique : UMR7055 – Maison René Ginouvès 21, allée de lÚniversité 92023 Nanterre Cedex, France
[6] Laboratoire EDYTEM – Université de Savoie, CNRS : UMR5204 – Pole Montagne, Campus scientifique, 73376 Le Bourget du Lac, France
[7] Laboratoire Préhistoire et technologie (CNRS UMR 7055) – Université Paris X - Paris Ouest Nanterre La Défense : EA020, CNRS : UMR7055 – 21 allée de l'Université. F-92023 NANTERRE Cedex, France
[8] PACEA – PACEA (UMR 5199) – France
[9] Archéologies et Sciences de l'Antiquité (ArScAn) – Université Paris I - Panthéon-Sorbonne, CNRS : UMR7041, Université Paris X - Paris Ouest Nanterre La Défense – Maison René Ginouvès Boîte 3 21, allée de l'université 92023 NANTERRE CEDEX, France

Ces quinze dernières années, le débat sur l'émergence du techno-complexe magdalénien a connu de profonds bouleversements, tant dans la définition de son identité technique que dans ses limites chronologiques. Au sein de ce débat, la grotte du Taillis des Coteaux, fouillée depuis 2000, conserve une séquence clé. Couvrant pratiquement tout le Paléolithique supérieur (30 / 14 500 BP), cette séquence livre notamment une vingtaine de nappes de vestiges de la fin du Dernier Maximum Glaciaire. La finesse de certains enregistrements, la richesse des assemblages archéologiques et l'ampleur des surfaces fouillées permettent de percevoir avec une acuité inédite les conditions d'émergence et de développement du Magdalénien inférieur entre 18 et 17 000 BP au sein d'une ambiance climatique marquant le passage relativement rapide du Pléniglaciaire final au Dryas ancien. Ainsi, après une série d'occupations badegouliennes datées, pour les plus récentes, vers 18 100 BP, les premiers magdaléniens occupent régulièrement la grotte du Taillis des Coteaux dès 17 800 BP et jusqu'à 16 900 BP. Chacune de ces occupations est marquée par l'implantation et l'entretien d'au moins un grand foyer. La chasse se concentre préférentiellement sur le renne et dans une moindre mesure sur le cheval, complétée par une pêche au saumon, à la

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truite et à l'ombre. Les équipements lithiques (divers types de micro-armatures) et en matières dures d'origine animale (divers types de pointes de sagaies) confirment la fonction cynégétique première de ces haltes de courtes durées.
Trois épisodes sont actuellement reconnus au sein de ce Magdalénien inférieur, marqués par des changements, mais aussi et surtout des continuités, dans les équipements et les comportements techno-économiques. Le premier épisode (17 800 / 17 600 BP) voit se mettre en place l'ensemble des fondamentaux de l'identité magdalénienne, avec une production lamellaire abondante, structurée et microlithique (dont une production sur nucléus de type Orville et/ou Rocher-de-la-Caille), des lamelles à dos bi-pointes et des outils doubles sur grandes lames, une industrie sur bois de renne obtenue par rainurage, une parure diversifiée (coquillages, os, dents) et un art gravé notamment figuratif sur industrie osseuse comme sur plaquettes calcaires. Le second épisode (17 600 / 17 100 BP) marque la disparition des micro-lamelles à dos bipointes au profit de micro-armatures à retouche marginale. L'art disparaît. Le dernier épisode (17 100 / 16 900 BP) voit réapparaître les micro-armatures à dos bipointes (et disparaître les lamelles à retouche marginale, de même que le débitage de type Orville) ainsi qu'un art gravé mobilier uniquement abstrait.
La grotte du Taillis des Coteaux confirme que les grands traits culturels qui, pour le préhistorien, fondent le Magdalénien classique, se mettent en place très tôt et, par conséquent, ne marquent pas de rupture culturelle majeure avec le Magdalénien moyen.

Keywords: Magdalénien inférieur, Taillis des Coteaux

Typological and technological evolution of the bone and antler industry between 23.5 and 14 cal ka BP in Southwest France

Jean-Marc Pétillon * [1]

[1] Travaux et recherches archéologiques sur les cultures, les espaces et les sociétés (TRACES) – CNRS : UMR5608, Université Toulouse le Mirail - Toulouse II – Maison de la Recherche, 5 Allée Antonio Machado 31058 Toulouse Cedex 9, France

Bone and antler industries have long played a key role in seriation studies of the Badegoulian and the Magdalenian. This is especially true in southwest France, a region that yielded numerous and diverse assemblages of this type of industry. In recent years, these assemblages have been the subject of many studies, usually set within wider, collective field projects or research projects. These works took into account issues of manufacturing techniques (beyond the classic typological / "index fossil" approach), stratigraphic revisions, and the direct 14C dating of specific tools, armatures and manufacturing waste. They resulted in a thorough reassessment of our perception of the Badegoulian and Magdalenian osseous technology. The aim of this paper is to give an overall picture of these results, both from the author and from other specialists, centering on the periods for which parallels with Cantabrian Spain are the most problematic - i.e., from the end of the Solutrean to the beginning of the Upper Magdalenian. The questions addressed include: (1) the role of the groove and splinter technique in bone and antler working, from its absence in the Badegoulian (23.5-21 cal ka BP) to its introduction in the Lower Magdalenian (21-19 cal ka BP) and subsequent development in the following phases; (2) the chronological variations of the Badegoulian and Magdalenian toolkits, with a focus on hunting paraphernalia as one of the most temporally diagnostic components of the equipment; (3) the correlation of these changes with coeval evolutions in lithic technology and in other parts of the material culture.

Keywords: Bone and antler technology, Radiocarbon dating, Badegoulian, Magdalenian, Southwest France

*Speaker

Le Magdalénien en moyenne vallée du Rhône : nouvelles données sur une séquence du Paléolithique supérieur récent des Gorges de l'Ardèche : la baume d'Oulen (Gard/Ardèche).

Pierre-Antoine Beauvais [*†] [1], Patricia Guillermin[‡] [1], Nicolas Teyssandier[§] [1]

[1] Travaux et recherches archéologiques sur les cultures, les espaces et les sociétés (TRACES) – Université Toulouse 2, Centre National de la Recherche Scientifique : UMR5608 – Maison de la Recherche, 5 allée Antonio Machado 31058 TOULOUSE Cedex 9, France

Les gorges de l'Ardèche sont connues comme un dense espace de peuplement humain et de circulation des groupes tout au long du Paléolithique supérieur. Elles se situent à proximité immédiate du sillon rhodanien, souvent interprété comme un espace d'échanges mais aussi de frontière à certains moments du Pléistocène récent. Ceci est particulièrement frappant au Pléniglaciaire où le Rhône partage en quelque sorte l'Europe occidentale entre deux grandes provinces culturelles : Magdalénien franco-cantabrique à l'Ouest et Epigravettien à l'Est.

Dans ce cadre, l'attribution de différents contextes archéologiques de grottes et abris aux phases chrono-culturelles du Magdalénien en moyenne vallée du Rhône est tributaire d'un héritage méthodologique calqué sur les séquences occidentales. Alors que de nouveaux espaces géographiques sont investies depuis quelques décennies (arc liguro-provençal, Massif Central), les gorges de l'Ardèche, et plus largement la moyenne vallée du Rhône, se démarquent par l'état lacunaire de la documentation archéologique, souligné en particulier par le faible nombre et la piètre résolution des dates radiocarbones.

Le phasage chronologique du Magdalénien dans la moyenne vallée du Rhône repose principalement sur les séquences datées du Magdalénien inférieur dans le Gard (Fontgrasse, Piles Loins) et du Magdalénien supérieur, connu par un corpus de sites de part et d'autre du Rhône : dans les Gorges de l'Ardèche et le Gard (le Colombier, la baume d'Oulen, la Salpétrière) ; dans le Vaucluse et les Bouches du Rhône (Chinchon I, Soubeyras, l'Adaouste). La présence du Magdalénien moyen, jadis mentionné dans les gorges de l'Ardèche, reste aujourd'hui sujette à caution. L'Epigravettien, dont la présence fugace est attestée sur la base de quelques ensembles lithiques, interroge sur les modalités de contacts et d'échanges de part et d'autre du Rhône. En résumé, force est de reconnaître que les filiations chrono-culturelles établies régionalement pour

[*]Speaker
[†]Corresponding author:
[‡]Corresponding author: p.guillermin@orgnac.com
[§]Corresponding author: teyssand@univ-tlse2.fr

la période du Tardiglaciaire trouvent leurs limites dans des contextes archéologiques souvent lacunaires qui demandent à être révisés.

La reprise de l'archéo-séquence du grand site classique de la Baume d'Oulen (Labastide de Virac-Le Garn, Gard-Ardèche) se situe dans cette dynamique de recherche. Nous présentons ici la révision d'un niveau archéologique attribué au Magdalénien supérieur en se fondant sur la reprise des collections issues des fouilles de J. Combier puis de F. Bazile confrontée aux premiers résultats obtenus depuis la reprise des fouilles en 2016. Ce travail nous conduit ensuite à brosser un premier tableau de l'état de la documentation disponible régionalement pour le Tardiglaciaire en insistant en particulier sur le phasage chrono-culturel et les comparaisons qu'il permet d'appréhender avec les séquences classiques du monde franco-cantabrique.

Keywords: Magdalénien, Tardiglaciaire, Vallée du Rhône, Industrie lithique

Le Magdalénien supérieur dans le sud de l'Aquitaine (France). Réflexions à partir des archéo-séquences de la grotte Bourrouilla (Arancou, Pyrénées-Atlantiques) et du Grand Pastou (Sorde-l'Abbaye, Landes).

Morgane Dachary *† [1,2], Jean-Claude Merlet , François-Xavier Chauvière [3,4], Frédéric Plassard [5], Aurélie Ajas [5,6], Clément Birouste [7], Aude Chevallier [7], Vincent Mistrot

[1] Travaux et recherches archéologiques sur les cultures, les espaces et les sociétés (TRACES) – Université Toulouse 2, Centre National de la Recherche Scientifique : UMR5608, Ministère de la Culture et de la Communication – Maison de la Recherche, 5 allée Antonio Machado 31058 TOULOUSE Cedex 9, France
[2] Ministère de la Culture et de la Communication (MCC) – Ministère de la Culture et de la Communication – SRA Grand Est 3 faubourg Saint-Antoine 51037 Châlons-en-Champagne, France
[3] LATENIUM – Parc et musée d'archéologie de Neuchâtel, Espace Paul Vouga, CH-2068 Hauterive, Switzerland
[4] Office du patrimoine et de l'archéologie du Canton de Neuchâtel – Rue de Tivoli 1, 2000 Neuchâtel, Switzerland
[5] UMR 5199, PACEA – Université de Bordeaux, Université de Bordeaux – France
[6] Paléotime – PACEA (UMR 5199) – France
[7] Travaux et recherches archéologiques sur les cultures, les espaces et les sociétés (TRACES) – Université Toulouse 2, Centre National de la Recherche Scientifique : UMR5608 – Maison de la Recherche, 5 allée Antonio Machado 31058 TOULOUSE Cedex 9, France

Dans le sud de l'Aquitaine, deux séquences datées du Magdalénien supérieur sont en cours de fouilles ; il s'agit de la grotte de Bourrouilla et de l'abri du Grand Pastou, distants l'un de l'autre de 9 km à vol d'oiseau.
La stratigraphie à haute résolution – tant du point de vue des assemblages archéologiques que de celui du remplissage sédimentaire – permet de percevoir l'évolution interne des équipements lithiques et osseux liés aux diverses activités pratiquées dans et en dehors de l'habitat, notamment la chasse et la pêche. La composition de la parure et, surtout, celle de l'art mobilier, traduisent aussi un changement dans les systèmes d'expression symbolique. Dans le registre iconographique, le naturalisme du Magdalénien moyen s'efface ainsi au profit d'un traitement figuratif stylistiquement différent et d'une modification des codes de représentation des motifs géométriques. L'analyse de l'exploitation des ressources alimentaires, parmi lesquelles la place du cerf et des poissons s'accroît notablement, documente les stratégies d'acquisition du gibier selon les saisons.
Les données recueillies éclairent ainsi les comportements humains développés dans la région,

*Speaker
†Corresponding author: morgane-dachary@orange.fr

pour faire face aux nouvelles conditions environnementales qui interviennent au Tardiglaciaire. Toutefois, les différences perceptibles entre les deux archéo-séquences illustrent peut-être des variations saisonnières ou des décalages chronologiques. Elles incitent à s'interroger sur la mobilité des groupes magdaléniens au sein des territoires régionaux et peuvent également être confrontées aux productions matérielles contemporaines étudiées à plus large échelle, notamment dans les Cantabres, afin de tester les modèles adaptatifs proposés pour la fin du Magdalénien dans le sud-ouest de la France et le nord-ouest de l'Espagne.

Keywords: Magdalénien, Aquitaine, archéo, séquence, Bourrouilla, Arancou, Grand Pastou

Approche des comportements techniques au Magdalénien moyen dans le Centre-Ouest de la France. L'industrie lithique de La Marche (Vienne) et de La Garenne (Indre).

false [*] , Eugénie Gauvrit-Roux [* †] [1], Sylvie Beyries [1]

[1] Culture et Environnements, Préhistoire, Antiquité, Moyen-Age (CEPAM) – Université Nice Sophia Antipolis [UNS], CNRS : UMR7264, Université Nice Sophia Antipolis (UNS) – Université Nice Sophia Antipolis Campus Saint-Jean-d'Angély - SJA3 24, avenue des Diables Bleus 06357 Nice Cedex 4, France

La variabilité culturelle du Magdalénien moyen ancien du Centre-Ouest de la France reste largement appréhendée par la typologie osseuse et les riches productions artistiques. Dans le Sud-Ouest, le Centre ou l'Est de la France, l'approche technologique occupe une place importante dans les réflexions, tandis que dans le Centre-Ouest, c'est encore peu le cas.
Nous proposons d'aborder la sphère des techniques en conjuguant l'analyse technologique et fonctionnelle de l'industrie lithique de deux gisements de cette région : La Marche (Vienne) et La Grotte Blanchard à La Garenne (Indre). Chacun de ces sites est rapporté à un faciès typologique distinct. Il s'agit, respectivement, du " Magdalénien de Lussac-Angles " et du " Magdalénien à Navettes ".

La comparaison des techniques de production et d'utilisation de l'outillage vise à lier les industries, les gestes et les artisans, pour parvenir à caractériser technologiquement et culturellement une partie des expressions régionales au début du Magdalénien moyen. La méthode choisie permet de reconstituer les chaînes opératoires depuis la production jusqu'au rejet des outils, et d'approcher au plus près une partie du système technique.
Les résultats de l'étude montrent que dans chacun des gisements, on retrouve un fonds culturel commun au Magdalénien moyen ancien, et dans le même temps, l'expression d'une variabilité des comportements techniques : dans les deux sites, les lames et les lamelles correspondent à des objectifs disjoints et ont des destinations fonctionnelles bien différentes. Les premières sont liées à la sphère domestique et les secondes à l'activité cynégétique. En revanche, pour certains procédés spécifiques, les gestes techniques divergent, en particulier pour ceux impliquant les grattoirs et les lamelles à dos.

Keywords: Magdalénien moyen, Industrie lithique, Analyse fonctionnelle, Centre, Ouest français, Techniques

[*]Speaker
[†]Corresponding author: eugenie.gauvrit-roux@cepam.cnrs.fr

La collection osseuse du Magdalénien moyen et supérieur de l'Abri de La Viña et la Grotte de Llonin (Asturies, Espagne) : sphère domestique, cynégétique et symbolique

Elsa Duarte Matías * [1], Marco De La Rasilla Vives† [1]

[1] Universidad de Oviedo [Oviedo] – Calle San Francisco, 1, 33003 Oviedo, Asturias, Spain

Dans le Magdalénien on observe l'existence de plusieurs objets osseux, quelques-uns très spécialisés comme les pointes de projectile et aussi une prolifération de l'art mobilier. Dans l'Abri de La Viña et la Grotte de Llonin on a récupéré des séries du Magdalénien moyen et supérieur. Les niveaux archéologiques ont été datés par radiocarbone et plusieurs études (stratigraphie, faune, lithique, etc.) sont en cours. Pour l'industrie osseuse, on trouve un nombre important d'objets finis tandis que le reste est faible et ainsi les chaînes opératoires sont souvent incomplètes. Ces types d'objets sont notamment des sagaies, des baguettes, des aiguilles, des harpons, des pendants et de l'art mobilier. Ils nous permettent de valoriser la représentation de chaque sphère et comment elles s'articulent dans chaque gisement. Mais aussi entre les deux sites, distanciés 100 km l'un de l'autre. La sphère symbolique s'intègre dans l'ambitus franco-cantabrique tandis que les autres sont plus versatiles, est-ce que les aspects fonctionnelles prévalent sur les culturels? Est-ce qu'il y a des similitudes entre les sites et une éventuelle complémentarité ? Est-ce qu'il y a des spécificités au niveau micro-régional ? Comment est-ce que tout cela s'imbrique avec le moyen physique et les recours disponibles ? On verra si ces collections apportent des nouveautés ou bien s'ils renforcent les tendances proposés pour ce contexte chronoculturel.

Keywords: Tardiglacier, Outillage osseux, Objets de parure, Art mobilier, Motifs décoratifs, Relations franco, cantabriques

*Speaker

†Corresponding author: mrasilla@uniovi.es

The late Magdalenian in the western Ebro Basin: a new territory for Cantabrian hunters?

Rafael Domingo * [1], Alfonso Alday *

[2], Pilar Utrilla *

[1], Lourdes Montes *

[1], Adriana Soto *

2

[1] University of Zaragoza – Spain
[2] University of Basque Country – Spain

In the NW quadrant of the Ebro Basin the first intense Prehistoric human presence does not occur until the end of Magdalenian times. Located in the Pyrenean footsteps, caves, rock-shelters and campsites suggest a new occupation of a rich environment, whose fertile natural resources increase with the Holocene onset. Being the previous human evidences very scarce until this moment, a colonization-like phenomenon has been proposed to explain this situation: the *crowded* Cantabrian region had been exhausted during the Magdalenian and hunter-gatherer groups had to seek for new exploitation territories in the inner lands. We propose a critical review of the available dataset (lithic and osseous remains, palaeoenvironmental features, locational strategies...) from a group of sites excavated in the last decades: Legunova, Abauntz, Atxoste, Martinarri, Socuevas...

Keywords: Late Magdalenian, Western Ebro Basin, new territories

*Speaker

The Archaic Magdalenian (a. k. a. Badegoulian) in Spain

Pilar Utrilla *† [1]

[1] University of Zaragoza – Spain

This communication studies lithic and osseous industries from the sites attributed to the Archaic Magdalenian in the Cantabrian Coast (Rascaño, Castillo, Río-Lloseta, Cueto de la Mina, Riera, Llonín, Cova Rosa, Mirón, Caldas and Aitzbitarte) and compares them to others belonging to the Mediterranean basins (Parpalló, Volcán de Faro, Gato-2). We meditate about its diffusion East-North through the Ebro Valley if we consider the C14 dates. We argue the existence of different *facies* based on the presence or not of some significant tools such as raclettes, single-bevelled sagaies decorated with spikes patterns, pseudoexcise engraving in curve motifs... We also propose some chronological phases, such as the classic Magdalenian 0 characterised by coarse tools that precedes Magdalenian I and appears well documented in some Cantabrian sites (i. e. Mirón cave). We will discuss the opportunity of adopting the term "Badegoulian" for what we have been calling early phases of the Magdalenian and, if so, if we must apply it in a restricted or an ample way.

Keywords: Archaic Magdalenien, Badegulian, Spain

*Speaker
†Corresponding author: utrilla@unizar.es

Les relations Cantabres/Pyrénées/Dordogne dans l'art magdalénien: une révision à la lumière des nouvelles découvertes

Rivero Olivia * [1], Carole Fritz , Diego Gárate *

, Gilles Tosello

[1] Universidad de Salamanca – Spain

Les fouilles archéologiques menées dans la vallée du Nalón dans les années 1980 ont livré des niveaux attribués au Magdalénien moyen avec des objets d'art semblables à ceux connus sur le versant nord des Pyrénées (Fortea et al., 1989).
Les similitudes constatées également dans l'art pariétal (Leroi-Gourhan, 1965 ; Sieveking, 1979), ont été décrites et analysées dans plusieurs synthèses qui mettent l'accent sur l'unité culturelle des Cantabres et du piémont pyrénéen ainsi que la Dordogne entre 14 000 et 13 300 BP (Fortea, 1990; Fortea et al. 2004; Fritz et al. 2007; Sauvet et al. 2008; Bégou'en et al. 2009; Rivero, 2015).

Récemment, de nouvelles données provenant de la Région cantabrique (Garate et al. 2016, 2017) ont confirmé l'existence de ces liens privilégiés mais ces découvertes majeures nous permettent aussi de les nuancer, en distinguant des éléments partagés dans un large réseau et d'autres qui se diffusent sur une échelle plus réduite.
Une nouvelle approche basée sur la distribution spatiale de ces éléments nous permet d'établir l'existence de sous-groupes qui pourraient avoir une identité spécifique à l'intérieur de cette unité culturelle élargie.

Keywords: Magdalénien, Région Cantabrique, Pyrénées, Dordogne, Art paléolithique

*Speaker

The Magdalenian sequence of Coímbre cave (Asturias, Northern Iberia), from 20.7 to 14.2 Ka BP

David álvarez-Alonso * [1], José Yravedra [2], Esteban álvarez-Fernández [3], María De Andrés-Herrero [4], Arantza Aranburu [5], Martin Arriolabengoa [5], Alvaro Arrizabalaga [6], Pilar Carral [7], Mikelo Elorza [8], Sonia Gabriel [9], Eneko Iriarte-Avilés [10], Mª José Iriarte-Chiapusso [11], Jesús F. Jordá-Pardo [12], Carmen Sesé [13], Paloma Uzquiano [14]

[1] Dpto. Prehistoria y Arqueología. UNED-Asturias – Gijón, Asturias, Spain
[2] Dpto. Prehistoria. UCM – Spain
[3] Departamento de Prehistoria, Historia Antigua y Arqueología, Universidad de Salamanca – Spain
[4] Institute of Prehistoric Archaeology. University of Cologne / Neanderthal Museum. – Germany
[5] Departamento de Mineralogía y Petrología. Universidad del País Vasco – Spain
[6] Área de Prehistoria, Facultad de Letras - Universidad del País Vasco – Spain
[7] Departamento de Geología y Geoquímica. Universidad Autónoma de Madrid – Spain
[8] Sociedad de Ciencias Aranzadi – Spain
[9] Laboratório de Arqueociências. Direcção Geral do Património Cultural y EnvArch – CIBIO-InBIO – Portugal
[10] Laboratorio de Evolución Humana. Universidad de Burgos – Spain
[11] Área de Prehistoria, Facultad de Letras - Universidad del País Vasco. IKERBASQUE – Spain
[12] Laboratorio de Estudios Paleolíticos, Dpto. de Prehistoria y Arqueología, UNED – Spain
[13] Museo Nacional de Ciencias Naturales. Consejo Superior de Investigaciones Científicas. – Spain
[14] UNED – Spain

Coímbre cave is located in the small valley of Besnes river, tributary of Cares river, in a medium-higher mountain are in the central-western Cantabria (Northern Iberian Península). The landscape in the surroundings of the cave, situated in an interior valley but near to the current coast in a low altitude, can be described as a mountainous environment where valleys, small hills and steep mountains with high slopes are integrated, which confer a relative variety of ecosystems to this area. Coímbre contains an important archaeological site divided in two different areas. B Area, is the farthest from the entrance, and is the place where took place the excavations carried out to date, between 2008 and 2012.
Coímbre B shows a complete and very interesting Magdalenian sequence (with Lower, Middle and Upper Magdalenian levels), and a gravettian level, that converts this cave in one of the biggest habitat areas in Western Cantabria. Its rich set of bone industries, mobiliar art and ornaments, provide key information that shows the connections between this area, and the Pyrenees and the southwestern of Aquitaine.

Moreover, Coímbre cave presents an interesting set of Magdalenian engravings, located in different places of the cavity, both in open and accessible areas, and in narrower and inaccessible

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places, which clearly define two different symbolic spaces
This work presents the results of the study of Magdalenian occupations in Coímbre, after the end of the excavations in B Area, and its chronostratigraphic sequence for the Cantabrian Magdalenian, which has the interest of being one of the most recently excavated and most complete sequence in terms of its variety of levels and chronology, ranging from the Archaic to the Upper Magdalenian.

Keywords: Coímbre, Magdalenian, Upper Pleistocene, Cantabrian Spain

Les occupations magdaléniennes de " La Croix de Bagneux " à Mareuil-sur-Cher (Loir-et-Cher) : premiers résultats et perspectives palethnographiques

Raphaël Angevin *† [1], Elisa Caron-Laviolette *

[2], Fiona Kildea [2], Ludovic Mevel [2]

[1] UMR 7041 - ArScAn (VEPMO) – CNRS : UMR7041 – France
[2] UMR 7041 - ArScAn (Ethnologie préhistorique) – CNRS : UMR7041 – France

Le gisement de " La Croix-de-Bagneux " (Mareuil-sur-Cher, Loir-et-Cher) a révélé, en contexte préventif, l'une des séquences les plus complètes du Paléolithique récent de la moitié nord de la France. Réputé pour ses occupations multiples de l'Aurignacien et du Gravettien, il a également livré plusieurs niveaux rapportés au Badegoulien, au Magdalénien inférieur et, en l'état, à des phases indéterminées du Magdalénien classique (moyen ou supérieur). Compte tenu de ces incertitudes, il est apparu qu'une analyse approfondie des industries lithiques provenant des Locus 16 et 17 serait en mesure d'élucider certains comportements techno-économiques de leurs occupants et d'éclaircir la position chrono-stratigraphique de ces ensembles. La présente contribution se propose d'exposer les résultats préliminaires de ces investigations, poursuivies dans le cadre du projet collectif de recherche sur le Paléolithique final et le Mésolithique dans le Bassin parisien (dir. L. Mevel et S. Griselin).

Keywords: Magdalenian, La Croix de Bagneux, Mareuil sur Cher, Loir et Cher, Lithic Technology, Palethnology

*Speaker
†Corresponding author: raphael.angevin@culture.gouv.fr

Let's talk about Badegoulian and its relation to other contemporaneous Iberian cultural traditions: Reconsidering the issue of the LGM cultural mosaic in the light of new data from Pégourié cave (Lot, France) and les Harpons rockshelter (Haute-Garonne, France).

Sylvain Ducasse *† [1], Caroline Renard *

[2], François Xavier Chauvière *

[3], Jean-Marc Pétillon *

[4]

[1] De la Préhistoire à l'Actuel, Cultures, Environnement, Anthropologie (PACEA) – CNRS : UMR5199, Université de Bordeaux (Bordeaux, France) – Université Bordeaux, Bâtiment B8, Allée Geoffroy Saint-Hilaire, CS 50023, 33615 PESSAC Cedex, France

[2] Travaux et recherches archéologiques sur les cultures, les espaces et les sociétés (TRACES) – CNRS : UMR5608, Université de Toulouse Jean-Jaurès – Maison De La Recherche, 5 Allée Antonio Machado, 31058 TOULOUSE Cedex 9, France

[3] Office et musée d'archéologie de Neuchâtel, Laténium – Espace Paul Vouga, 2068 Hauterive, Switzerland

[4] Travaux et recherches archéologiques sur les cultures, les espaces et les sociétés (TRACES) – CNRS : UMR5608, Université Toulouse le Mirail - Toulouse II – Maison de la Recherche, 5 Allée Antonio Machado 31058 Toulouse Cedex 9, France

From a regionalized Solutrean substratum, the evolving trajectories of the contemporary Last Glacial Maximum (LGM) societies in southwestern Europe remains controversial. While in the Aquitaine Basin it is for a long time accepted that Badegoulian technical traditions succeeds the Upper Solutrean ones around 23 cal ka BP, two coexisting and opposite models are proposed for the Iberian Peninsula. Whereas one suggest that Badegoulian industries were developed at the same time as in France, defining a kind of "globalization" phenomenon, the other defends the classical hypothesis of a persistence of Solutrean traditions until about 20 cal ka BP, implying the existence of a cultural mosaic from the Parisian Basin to the far south of the Iberian

*Speaker

†Corresponding author: sylvain.ducasse@u-bordeaux.fr

Peninsula.
In any case, beyond the issue of typo-technological definition and cultural attribution of the LGM assemblages in this area, several elements indicate that southwestern France was related to Cantabrian Spain during this time frame, specially (1) the typo-technological and chronological framework of the Pyrenean Upper Solutrean considered similar to the Vasco-Cantabrian one (i. e. same tool-kits and comparable young 14C ages up to 20 cal ka BP) and (2) the large geographic spread of specific Badegoulian osseous objects as decorated antler pieces using "pseudo-excise" technique at least from Dordogne to Asturias around 21 cal ka BP.

Recent research led in southwestern France as part of the *"SaM"* project has recently focused on these two specific aspects since they were essentially based on arguable data from old excavations and/or problematic archaeostratigraphic contexts. The interdisciplinary reassessment of Les Harpons rockshelter (well known for its concave base point-yielding Upper Solutrean level) and the Badegoulian sequence of Pégourié cave (characterized by the presence of "pseudo-excise" technique) allows us to reconsider the issue of the LGM cultural mosaic. After testing the homogeneity of this two assemblages through a critical assessment of the lithic and osseous equipment (including inter-layers refitting) and updating the radiometric framework through the direct dating of several characteristic antler pieces (tools and/or waste products), these studies confirm: (1) a same age for the end of Upper Solutrean between Aquitaine Basin and Pyrenees; (2) the existence of raclette-yielding Badegoulian in the Pyrenees since 23 cal ka BP and (3) the Badegoulian age of "pseudo-excise" technique at Pégourié despite the strong cultural heterogeneity of the assemblage.
Beyond a regional interest these results shed new light on southwestern Europe cultural geography during the LGM, allowing us to indirectly address the issue of the "Iberian Badegoulian" hypothesis.

Keywords: Badegoulian, Upper Solutrean, Southwest France, lithic industries, osseous industries, direct 14C dating, Cultural Geography

XVII-3. Palaeolithic and Mesolithic dwellings and occupation floor structures.

Mesolithic wood tar production place? Possible dwelling and a complex of the stone structures from Paliwodzizna 29 site, Golub-Dobrzyń commune (central Poland)

Grzegorz Osipowicz *† [1]

[1] Nicolaus Copernicus University, Institute of Archaeology (IA NCU) – Institute of Archaeology Nicolaus Copernicus University Szosa Bydgoska 44/48 street 87-100 Toruń, Poland

During the excavation carried out at the Mesolithic site Paliwodzizna 29 (central Poland), a number of stone structures has been discovered, with a characteristic suggesting cultural origin and possible connection to the process of wood tar production. This was initially indicated by the presence of tarry substance on many of the stones found, a relatively large amount of charcoals in the features, but also in the layer around them. Among the discovered artefacts were also pyrites, undoubtedly imported in the area of the site. In the context of one of the stone structures, an object with a layer of burned and slagged pine wood was discovered, which -as is suggested by its structure- may be the remains of the kiln's input. This hypothesis is validated by the preliminary results of the chemical studies carried out (EDX, GC-MS). On the entire area Mesolithic artefacts has been found. In addition, for a burnt piece of wood which was found between the stones in one of the objects, an early boreal 14C date was obtained. In the center of the complex, the area cleared of stones was identified, which, as indicated by the multifaceted analysis conducted, may constitute a residue on the residential structure, probably shallow pithouse. In the presentation I will discuss the different aspects of the discovered complex, particularly the characteristic of the reconstructed dwelling (in the context of other constructions of this type from the region), as well as the functional origins of the identified stone structures (in the light of the interdisciplinary analysis conducted so far). The work was funded by the scientific project from the National Science Center (NCN) in Cracow (Poland) no. 2016/23/B/HS3/00689.

Keywords: wood tar, Mesolithic, dwelling, use, wear, KDE, Poland

*Speaker

†Corresponding author: grezegor@umk.pl

First flotation results from a new circular mammoth bone structure at Kostenki 11, Russian Federation

Alexander Pryor *† [1], Alexander Dudin [2], David Beresford-Jones [3], John Hoffecker [4], Clive Gamble [5]

[1] Department of Archaeology, University of Exeter – United Kingdom
[2] The State Archaeology Museum Reserve at Kostenki – Russia
[3] Division of Archaeology, University of Cambridge – United Kingdom
[4] Institute of Arctic and Alpine Research, University of Colorado – United States
[5] Department of Archaeology, University of Southampton – United Kingdom

Circular mammoth bone features associated with late Upper Palaeolithic artefact assemblages are found widely across eastern Europe after c.22kya. These features are characterised by a concentrated ring of mammoth bones several metres in diameter, and almost invariably surrounded by a series of large pits interpreted variously as evidence for food storage, bone fuel storage, rubbish disposal, or simply quarries for loess used in construction of the dwellings. The circular features themselves are widely considered to be the remains of dwellings, offering shelter during long full-glacial winter seasons or possibly year round.
One of the best-known sites to have mammoth bone features is Kostenki 11, located on the Don River near Voronezh, on the eastern margin of the Central Russian Upland. Two such structures were discovered there during excavations of the 1950s and 1960s, the first of which was preserved *in situ* in the State Archaeological Museum-Preserve at Kostenki. In 2013, A.E. Dudin recommenced survey work at the site and in 2014, a new mammoth bone feature was discovered, located near the museum building. Three further excavation seasons followed in 2015–2017, exposing a well-preserved circular mammoth-bone structure partially surrounded by at least three large pits.

We report here on the first results of a program of flotation carried out during the 2015 excavation season: the first time such a method has been systematically applied to both the interior occupation surface and the pits surrounding the same circular mammoth bone feature. The aims of this program were to:

- Recover ancient plant or other organic remains, including evidence of plant foods, for study in an on-going Leverhulme-funded project considering Palaeolithic food storage
- Investigate the fuel choices made at the site regarding the burning of wood and/or bone

*Speaker
†Corresponding author:

- Recover evidence that might be useful in identifying activity areas within the site, including lithic microdebitage and other cultural remains, so as to understand better site function.

Accordingly, nine sampling locations were chosen, including six sondages within the mammoth bone circle and three bulk sampling locations from inside the pits surrounding the structure (totalling 125 litres of floated sediments). The resulting charcoal and heavy residue assemblages yield new data that we use in this paper to characterise the activities that took place at the site.

Keywords: Mammoth bone circles, dwellings, flotation, charcoal

Les structures d'habitat en os de mammouths du site paléolithique de Gontsy (Ukraine) : étude préliminaire

Lioudmila Iakovleva * [2,1], François Djindjian * † [3], Anne Marie Moigne * ‡ [4]

[2] Institut d'Archéologie de l'Académie des Sciences d'Ukraine – Ukraine
[1] Archéologies et Sciences de l'Antiquité (ArScAn) – Université Paris I - Panthéon-Sorbonne, CNRS : UMR7041, Université Paris X - Paris Ouest Nanterre La Défense, Université Paris 1 Panthéon-Sorbonne – Maison René Ginouvès Boîte 3 21, allée de l'université 92023 NANTERRE CEDEX, France
[3] Université Paris 1 Panthéon Sorbonne UMR 7041 Arscan – Université Paris 1 Panthéon Sorbonne UMR 7041 Arscan – France
[4] Moigne (MNHN CERP Tautavel) – MNHN CERP Tauitavel – France

Les fouilles du site paléolithique à cabanes en os de mammouths de Gontsy (Ukraine) ont permis de découvrir six constructions (dites cabanes) en os de mammouths. La première (n○1) fut découverte par Scherbakivski en 1915. Les cinq autres (n○2 à 6) ont été découvertes lors de fouilles franco-ukrainiennes en cours depuis 1993. Les cabanes n○3, n○4, n○5 et n○6 sont conservées en place sous un grand hangar de protection. La présente communication fournit une étude préliminaire de la localisation de ces cabanes dans l'habitat, de leurs dimensions, de leur architecture et fournit un inventaire provisoire de leurs ossements.

Keywords: mammouth, cabanes, Europe orientale, paléolithique supérieur

*Speaker
†Corresponding author: francois.djindjian@wanadoo.fr
‡Corresponding author: anne-marie.moigne@cerptautavel.com

La cabane n○ 1 et les structures d'habitat de Mézine (Ukraine). Etude détaillée d'après les archives de l'Institut d'Archéologie (NAS Ukraine)

Lioudmila Iakovleva * [1,2]

[1] Archéologies et Sciences de l'Antiquité (ArScAn) – Université Paris I - Panthéon-Sorbonne, CNRS : UMR7041, Université Paris X - Paris Ouest Nanterre La Défense, Université Paris 1 Panthéon-Sorbonne – Maison René Ginouvès Boîte 3 21, allée de l'université 92023 NANTERRE CEDEX, France
[2] Institut d'Archéologie de l'Académie des Sciences d'Ukraine – Ukraine

La présente communication fait l'analyse comparative des informations des anciennes fouilles du début du XX○ et de la cabane n○1 de Mézine, découverte et fouillée par I.A. Shovkoplass en 1954-55, d'après les documents de fouilles conservées dans les archives de l'Institut d'Archéologie (NAS Ukraine).

Keywords: Mezine, cabane en os de mammouths, paléolithique supérieur, Europe orientale

*Speaker

Who lived in the Mammoth Bone Dwellings?

Konstantin Gavrilov *† [1]

[1] Institute of Archaeology of Russian Academy of Sciences (IA RAS) – Dm. Ulyanov str. 19, Moscow 117036, Russia

The presentation is devoted to the problems associated with the interpretation of the so called Mammoth Bone Dwellings and the question of its origin. These objects are the result of development of a specific Gravettian and Epigravettian traditions in the Central and Eastern Europe. It can be traced according data on the spatial structure of the Mammoth Bones objects from Milovice 1, Khotylevo 2, and Pushkari I sites. Big constructions made of mammoth bones, which traditionally were described as Anosovo-Mezin type of dwellings, illustrate the final stage of these traditions. The analysis of mammoth bones' taphonomy and features of its spatial distribution in the considered objects allows us to conclude that both peripheral and central parts of the constructions were recorded in the undisturbed conditions. That is, these objects are not necessarily the result of the destruction of roof and walls as it is traditionally considered. On the basis of results of the comparative analysis there is a doubt of that these constructions were dwellings. In the author's view, there are grounds to suggest a connection between Anosovo-Mezin Dwellings and religious ideas that existed in the Upper Palaeolithic communities of Central and Eastern Europe.

Keywords: Eastern and Central Europe, Mammoth Bone Dwellings, Eastern Gravettian, Eastern Epigravettian

*Speaker
†Corresponding author:

Assessing an occupation floor - the Krems-Wachtberg case

Marc Haendel * [1]

[1] Austrian Academy of Sciences; Institute for Oriental and European Archaeology (OREA) – Hollandstrasse 11-13; 1010 Vienna, Austria

Ten years of excavations at the Gravettian open-air site Krems-Wachtberg in east Austria have revealed the well-preserved remains of an occupation floor with a range of intact evident structures. Most important of these are a large hearth with associated pits and two burials, a double and a single burial of infants. A functional connection between these main features is given by evidence for the modification of colour pigments in the hearth and the utilisation of the modified pigments in the burials. The production of mobile art using ceramic technology is also connected to the hearth where not only production debris was found, but also part of a zoomorphic figurine which was recovered from beneath a flat stones that had been placed as part of a pavement at the hearth's base. Because there were practically no other finds beneath this stone pavement it could be interpreted as an act of structured deposition. Although direct evidence for the occurrence of a dwelling is not substantiated, the circumstance that a sedimentologically distinct occupation layer is preserved in a limited area around a central hearth and truncated on all sides by a superincumbent layer with relocated archaeological material, may be considered sufficient for hypothesizing a habitation structure. On another level of interpretation, however, it cannot be excluded that the occupation floor at Krems-Wachtberg in its entirety is more connected to burial ritual rather than to everyday life. In any case, it can be stated that the occupation horizon is characterised by a high diversity of activities providing distinct spatial patterns.

Keywords: occupation floor, evident structures, hearth, burials, mobile art, dwelling

*Speaker

Elements de construction des cabanes en os de mammouth du site de Judinovo : resultats des campagnes de fouille 2013-2015

Gennady Khlopachev * [1]

[1] Département d'Archéologie, Musée d'Anthropologie et d'Ethnographie (Kunstkamera) de l'Académie des Sciences de Russie (RAS) – 3 Quai Universitetskaia, 199034 Saint-Petersbourg, Russia

Le site paleolithique de Yudinovo se trouve sur la rive droite de la riviere Soudost, un affluent droit de la Desna qui se jette dans le Dnepr au sud-ouest du village de Judinovo (région Bryansk, Russie). Il s'agit d'un site majeur pour le Paleolithique superieur de la Desna afin d'etudier les groupes de tradition timonovsko-judinovskoj Le site est compose de deux couches culturelles. La couche inférieure est datee par radiocarbon entre 15 000 et 13 500 ans B.P.,tandis que la couche supérieure est datee entre 12 500 et 12 000 ans B.P. Cinq "cabanes" ont ete decouvertes dans la couche inferieure. Elles etaient construites en os des mammouths. Lors des fouilles de 2013 a 2015, nous avons pu preciser l'organisation de la cabane 5. Decouverte en 1967, elle n'avait pas ete fouillee integralement. Nous avons donc concentre notre recherche sur le secteur sud-est de cette habitation. Trois cranes de mammouths y ont ete decouverts : ils appartenaient à des animaux de taille moyenne. Ils etaient organises en arc de cercle, l'os frontal oriente vers le centre de la cabane et les alveoles plantees dans le sol grace a l'amenagement de petites fosses. Pour stabiliser les cranes, du sediment etait place entre la surface de la fosse et l'os. Nous avons egalement mis evidence des elements de construction inedits entre les cranes 2 et 3. Des vertebres de mammouth etaient empilees sur trois rangees de 70 cm de long, ce qui cree un effet de "mur" entre les cranes. Entre ces rangees de vertebres, de fines couches de sediment ont ete apportees pour faire la jonction. Des pendentifs en coquilles de la Mer Noire ainsi que des sagaies et des baguette richement ornees y ont ete decouverts.

Keywords: Paleolithique superieur, site de Yudinovo, cabanes en os des mammouths

*Speaker

Correlation of structural features of the third layer of the multilayered site Kamennaya Balka 3

Anton Simonenko *† [1]

[1] Anton Simonenko – Moscow State University, Russia

The correlation of different structural features, which have clear borders and are separated in the plan (well-defined concentrations) lying in one stratigraphic position and chronologically close, is one of the actual problems of Palaeolithic archaeology. Given the identity of the technological and typological characteristics of the flint material, the question is whether or no to consider such habitation features as the remains of one settlement, or evidence of two or three visits (at the same place with intervals of one or two seasons) of several groups of hunters? Working with the materials of the 3rd layer of the Late Palaeolithic site Kamennaya Balka 3, the aim was to compare the different characteristics of two well-defined concentrations in order to establish their singularity or diversity. The data of microstratigraphy, spatial analysis of various remains and objects both within each concentration and the entire area of the third layer with the binding of radiocarbon dating, technological and lithic analysis, refitting connections - having analyzed the available information on this source (the third layer), the question of the correlation of structural features was not finally resolved. Is it enough to rejoin a nucleus from the first concentration and eight blades from the second to make a conclusion about the coincidence of these features? What data can make this conclusion more reliable? The question of the correlation of structural features within the layer is source-specific: if it is proved that we are dealing with the remains of one settlement, it is possible to raise the question of the layout of the settlement, the identification of zones associated with various activities, etc. In the opposite case, it is necessary to operate on the data for each concentration (structural feature), without combining them into one array.

Keywords: Upper Palaeolithic, spatial analysis, structural feature, refitting connections

*Speaker

†Corresponding author: antoshka-sm@yandex.ru

Earth-dwellings and occupation floor structures in the context of Kostenki-Avdeevo culture.

Sergey Lev * [1]

[1] Institute of Archaeology RAS (IA RAS) – Stone Age Department, Institute of Archaeology RAS, St. Dm. Ulianov, 19, Moscow, 117036, Russia, Russia

The typical site of Kostenki-Avdeevo culture looks like an oval-shaped area with a central row of hearths and large number of different features, including storage pits, cash-pits, etc. But the simultaneous (or not) functioning of different features need to be proved in each case. An average area of such a camp is about 800 sq. m, number of hearths varies from five to eight. Large elongated pits (about ten per site) classified as an "earth-dwelling" (poluzemlyanka), are interpreted as small semi-subterranean dwellings. They surround this area characterized by the increase of cultural deposits thickness in its central part. Their entrances are oriented towards the line of hearths, they have their own living floors clearly marked with ocher spot at the bottom. Beyond the rear part of earth-dwellings the intensity of cultural deposits visibly decreases (from 40 cm near the central hearths up to 5-1 cm). Such sites as Kostenki 1, layer 1 and Avdeevo contain two complexes of this type each. They were excavated for a long time period starting from 1930-th by different researches with diverse methodological approaches. The original approach of Zaraysk site researches was to detect occupation levels on the multilayer site Zaraysk A. The idea was to identify the real level of inhabitation for each cultural layer. Absence of sterile interlayers made this task a bit complicated. Though a number of methods were used, including stratigraphic and spatial analysis, geomorphological and pollen analysis, AMS, C14 dating and cryo-stratigraphic method (based on interstratification of frost-wedge formations and artificial profound features). The frost formations contain features ("cryo-stratigraphic markers") that permit assignment of the cultural remains to specific occupation episodes. The vertical distribution of cultural remains at Zaraysk A was subdivided into several levels representing separate occupation episodes or, in other words, stratified living floors. Two of them were identified as typical Kostenki-Avdeevo living structure. Excavations of 2016-2017 added two new sites (Zaraysk E, F) of the same type that gives a wide perspective for future investigations with applying of modern methodological approaches.

Keywords: The Eastern Gravettian, Kostenki, Avdeevo culture, dwellings, occupation floor structures

*Speaker

Kostenky 4: the houses, the spatial organisation and the problem of two sub-horizons

Maria Jeltova * [1,2]

[1] Institut d'histoire de la culture matérielle de l'Académie des sciences de Russie (IHCM RAS) – 191186 St-Petersburg Dvortsovaya nab. 18, Russie, Russia
[2] Institut d'histoire de la culture matérielle de l'Académie des sciences de Russie (IHMC RAS) – 191186 St-Petersburg, Dvortsovaya nab. 18, Russie, Russia

Kostenky 4: the houses, the spatial organisation and the problem of two sub-horizons Kostenki 4 (Alexandrovskaya the site) has a special place among the Upper Palaeolithic sites in the Kostenky-Borshchevo area. This site lies in the deposits of the first fluvial terrace of the Don, occupying the lowest position amond all Kostenky sites. The available 14C dates assign the site to a chronological group dating from 21 000 - 23 000 BP (none calibrated). The Site was discovered by Sergey N. Zamyatnin in 1927. In 1937/1938, 1953 and 1959 the excavation were continued by A.N.Rogachev (he whole excavated area was approximately 922 m^2). There were discovered an extremely interesting settlement remains, which have consisted of two long dwellings sunk into the ground at a slight angle to each other and 17-20m apart. The length of the south dwelling is 34m and that of the north one 23m: both of them are 5.5m wide. The average depth is 20-40cm neatly up against the side and the end of the north dwelling there are two rounded dwellings sunk into the upper horizon: each of these is 6 metres in diameter and has a hearth at its centre. This feature, together with the fact that both horizons are rather shallow with virtually the same depth as the sunken dwelling, while there is no sterile layer between the horizons, have made it very difficult to establish the lay-out of the settlement. Between the round dwellings a merging of two horizons different in colour has been observed and also an increase in the total thickness of the cultural layer. In some places clearly distinct layers stood out covering over the cultural layer or underneath it. The idea of there being two horizons of settlement of different date came to A.N.Rogachev after a considerable amount of time had elapsed since the excavations. In his first publication dating from 1940, Rogachev supplied a reconstruction of the settlement consisting of a single picture, for which various arguments were provided. Later, when he had reassessed certain factors – the most important of which was the different characters of the lithic industry – Rogachev drew the conclusion that the groups of dwellings belonged to different periods in time and to different cultures. Naturally, such a position requires proof. In this case, it was decided to resort to spatial analysis to solve the problem.

Keywords: Upper Palaeolithic sites, dwellings, sub, horizons, reconstruction of the settlement

*Speaker

Trenčianske Bohuslavice – Gravettian hunter-gatherer campsite in the light of 2017 excavations

Jarosław Wilczyński *† [1], Ondrej žaár [2], Adrián Nemergu [3], György Lengyel [4]

[1] Institute of Systematics and Evolution of Animals, Polish Academy of Sciences – Poland
[2] PAMARCH private Limited company – Štefánikova trieda 4/7, 949 01 Nitra, Slovakia
[3] Institute of Archaeology, SAS – Akademická 2, 949 21 Nitra, Slovakia
[4] Institute of Systematics and Evolution of Animals, PAS – Sławkowska 17, 31-016 Kraków, Poland

Trenčianske Bohuslavice site has been known since the 1960s after the excavations of J. Bárta, who discovered archaeological assemblage including knapped lithic tools, perforated pendants made of small pebble and numerous animal remains from three different areas (A, B, and C). The abundancy of the discovered materialmakes this site one of the emblematic localities of the Middle Upper Palaeolithic of Slovakia. The uniqueness of this archaeological record is the co-appearance of bifacial leaf points and Gravettian armature made up of backed artifacts. In 2017, our team conducted fieldworks at areas A and B. The two areas yielded different archaeological materials. In area A the archaeological finds were found in the context of a hearth surrounded by small pit holes, whereas in area B wooden construction residues were discovered. This poster will present in details the recently discovered dwelling structures, and shed new light on the spatial organization of Gravettian hunter-gatherer campsites in eastern central Europe.
Acknowledgments:
The studies were partly supported by National Science Center, Poland (grant decisions No. 2015/18/E/HS3/00178 awarded to J. Wilczyński).

Keywords: Upper Palaeolithic, dwelling structures

*Speaker
†Corresponding author: jaslov@wp.pl

Hunter-gatherers' dwelling structures in Iberia: A state of the art

Pablo Arias * [1], Miguel Fano [2], Ontañón Roberto [3]

[1] Instituto Internacional de Investigaciones Prehistóricas de Cantabria, Universidad de Cantabria (UC) – Spain
[2] Universidad de La Rioja – Spain
[3] Instituto Internacional de Investigaciones Prehistóricas de Cantrabria [Santander] (IIIPC) – Edificio Interfacultativo Avda. de los Castros,s/n Tel. 942 202090 E-39005 Santander Cantabria, Spain

The Iberian Peninsula is one of the classic areas for the study of the Palaeolithic and the Mesolithic of western Europe. Hundreds of sites have been studied since the mid nineteenth century, including some world references, such as Altamira, Atapuerca, El Castillo, El Parpaló or the Muge shell middens. Yet the information on dwelling structures is comparatively scarce. Only a few sites have provided remains of huts, and even evident latent structures are relatively rare.
In this communication, the causes of this situation are discussed, and the available information is assessed. We will also provide a detailed analysis of the information obtained in the last years, particularly in the exceptional site of La Garma, where a series of well-preserved Magdalenian constructions made of large fragments of spelaeothems, have been found inside a cave. We describe in detail those features and discuss their function.

We also present the preliminary results of a recent project aiming to the location of Mesolithic settlement structures in northern Spain. This research has permitted to find an open-air structure, dating to the seventh millennium cal BC, in the vicinity of a cave containing a Mesolithic shell midden. This suggests that the hypothesis that part of the Asturian shell middens in caves and rockshelters might be interpreted as refusal areas associated to hunter-gatherers camps nearby may be correct.

Keywords: Iberian Peninsula, dwelling structures, Paleolithic, Mesolithic

*Speaker

Mira EUP dwelling : features and interpretations

Vadim Stepanchuk * [1]

[1] Institute of Archaeology of The National Ukrainian Academy of Sciences (IANASU) – 12, Geroyiv Stalingrada av., Kyiv, 04210, Ukraine, Ukraine

Situated in Dnieper valley, in the central part of the continental Ukraine, the site of Mira yields two, very well preserved, Palaeolithic occupation levels, possessing features of living floors. The uppermost layer I, presenting long-term seasonal occupation, is dated to between 32,000 and 31,000 cal BP. Layer I contains EUP assemblage combining the technological and morphological features of local Middle and Upper Palaeolithic. Layer I includes a number of various objects, like pits, hearths, accumulations etc. Remains of sub-circular surface dwelling construction with area of about 14.5 sq.m were recognized in the uppermost layer due to numerous postholes and specific characteristics of living floor. Microstratigraphical and spatial features allow recognizing of two distinct construction elements, namely the external irregular spherical contour and the inscribed slightly asymmetrical rectangular contour. An entrance, associated with four ashy lenses of likely smoke hearths, was recognized oriented toward a river channel. This outer, close to the entrance, zone of construction provides numerous flints, in particular, flint tools, thousands tiny debris and waste-flakes of tool resharpening and reshaping, as well as bone ornaments and ornamented bone pieces, and also a fragment of decidious human tooth. On the contrary, the practically free of lithics though containing plenty of burned material, back segment of construction, likely separated from the outer zone by a special partition, was likely served as a sleeping zone. Summarizing, it is possible to conclude about recovery of remains of permanent carcass surface cylindrical dwelling, that found analogies in ethnographical records. Keeping in mind the age and geographical position we deal with the most early instance of complicate surface dwelling construction known in steppe area of the East European plain.

Keywords: Upper Palaeolithic, dwelling, Eastern Europe

*Speaker

Mesolithic habitat structures at open-air sites in Villena (Alicante, Southeastern Spain): Current investigations and research perspectives

Gómez-Puche Magdalena *† [1], Ana Polo-Diaz [1], Jose Rabuñal-Gayo [1], Jose Cañadilla [2], Marco A. Esquembre [3], Javier Fernández-López De Pablo [4]

[1] Institut Català de Paleoecologia Humana i Evolució Social (IPHES) – Spain
[2] Universidad Nacional de Educación a Distancia (UNED) – Spain
[3] ARPA Patrimonio – Spain
[4] IPHES (IPHES) – Spain

In the Iberian Mediterranean region the formation of open-air Mesolithic archaeological sites is subjected to the action of different accumulation processes and a variety of taphonomic dynamics, which result in most cases in a very partial preservation of occupation surfaces within broader palimpsest deposits. In this scenario the identification of Mesolithic features represents a unique opportunity to address simultaneously the analysis of specific stratigraphic contexts and the individualization of occupation events.
In this paper we present the state of the art regarding current inter-disciplinary research on habitat features at the open-air Mesolithic sites of Arenal de la Virgen and Casa Corona. Over the past 10 years, our investigations have provided a significant record of Early and Late Mesolithic habitat structures, most of them combustion features, discovered over the course of 3 different phases of fieldwork and post-excavation research. Between 2006-2007, the first excavations at the Arenal de la Virgen site allowed the recognition of a combustion area dated to the Early Mesolithic associated to a lithic scatter and anthropogenic accumulations of land snails. The results obtained marked the directions of subsequent research in the area investigated setting the grounds for the recognition of archaeological and sedimentary features.

Between 2008-2014 rescue excavations conducted at Casa Corona uncovered a multi-component open-air site, with occupational evidences from the Early Mesolithic to the Chacolithic periods. Subsequent post-excavation research consisted on morpho-metric descriptions, the study of archaeological components and the implementation of a radiocarbon dating program, which allowed a preliminary identification of 16 Mesolithic combustion structures.

Finally, during the third phase 2016-2017, new fieldwork undertaken at Casa Corona and Arenal de la Virgen sites in the context of the research project Paleodem (ERC-CoG-2015 Ref. 683018) has considerably expanded the excavated surface and the number of archaeological features. During this phase the implementation of specific excavation and sampling protocols has played

*Speaker
†Corresponding author: mgomez@iphes.cat

a key role in our research. A range of geoarchaeological (e.g. stratigraphy, micromorphology, pedology) and archaeobotanical analyses (e.g. charcoal and seeds) are currently in progress in order to clarify key behavioural and palaeoenvironmental aspects at both sites.

This contribution summarizes the variability of Mesolithic combustion features and related occupation surfaces at both sites on the basis of field descriptions, artefactual evidences, sedimentary composition and radiocarbon dating. Data currently available allow us to provide a preliminary characterization of site structure and activity areas during the Early Holocene in the investigated area.

Keywords: Mesolithic, open, air sites, combustion structures, Iberian Peninsula

Dwellings and workspaces at Strandv'agen, 5600-5000 cal BC

Fredrik Molin * [1], Sara Gummesson *

[2]

[1] National Historical Museums, Sweden – Sweden
[2] Osteoarchaeological Research Laboratory, Stockholm University – Sweden

The poster aims to present aspects of two well documented post-built dwellings from the Late Mesolithic site Strandv'agen in Motala, eastern Central Sweden.
Ten post-built dwellings have been excavated in Motala. Several of the structures had preserved floor layers and formed together with adjacent kitchen areas, with hearths, cooking-pits and other features, clear delimited household units. Dwellings were typically round-oval in shape; c. 8×5.5 m, and with a similar idea of the spatial arrangement of indoor space as well as outdoor activity areas. The majority have been dated between 5600 and 5000 cal BC and several units are interpreted as contemporary to each other. All were located along the shore of river Motala Str'om and connected to activity areas and workspaces, as well as coeval ritual remains and burials.

Lithic debitage from the dwellings show that quartz technology was characterized by bipolar reduction and the production of varied types of flakes, but also of a well-developed microblade industry with diagnostic remains of cores in flint and mylonitic quartz. Microblades were mainly deposited in connection to indoor hearths and entrances and mostly found as segments, representing the process of mounting lithic inserts into slotted bone points and daggers, of which several were found at the site. Inside of one house were microscopic lumps of processed resin made from birch bark detected, intended as glue for the inserts. A concentration of larger kneaded lumps of resin was also found deposited in the refuse layer along the shoreline.
The distribution of faunal remains illustrates clear patterns of intra-site organization as well as the utilization of faunal resources at the site. Apart from fish and stationary fish-traps the remains exhibit species utilized such as red deer, roe deer, moose and wild boar. Bones of these animals were also utilized as raw material for bone tool production. Remains of dog, beaver and mustelids testify to fur-bearing animals. Both dwellings also exhibited small parts of broken and fragmented bone tools. As with lithics, broken tools were mainly deposited adjacent to hearths or entrances. Outside of the dwellings were delimited workspaces or craft areas identified, in form of knapping floors consisting of both lithics and debris from osseous craft. The bone craft seems mainly to have been geared at the production of bone points, both slotted points for hunting and barbed points for fishing.

*Speaker

Keywords: dwellings, Mesolithic, household units, intra site organization, osseous craft

Mesolithic Dwellings – Physical Structures or Optimal Spatial Syntax Features

Ole Grøn * [1]

[1] Department of Geosciences and Natural Resource Management, University of Copenhagen (IGN) – Øster Voldgade 10, 1250 Copenhagen K, Denmark

This paper investigates on the basis of archaeological and ethnoarchaeological data two sides of the Mesolithic dwellings. On the one hand, their role as physical structures protecting their inhabitants against cold, wind and rain, is considered. On the other hand, their role as spatial syntax features increasing the practical usefulness of the dwelling spaces considerably as well as reducing the risk of conflicts in their households, is outlined. On the basis of these two approaches to the Mesolithic dwellings the relation between them is discussed with regard to which of the two is the most important. This discussion takes its starting point in Lord Raglan's old statement, that the physical structure is the least important

Keywords: Mesolithic, Dwellings, Spatial Syntax, Social Psychology, Proxemics

*Speaker

The site of Recy – Saint-Martin-sur-le-Pré 'le Mont Grenier – Parc de Référence' (Marne Department, France): a Mesolithic Pit Site

Nathalie Achard-Corompt * [1]

[1] Institut National de Recherches Archéologiques Préventives (INRAP) – INRAP – France

Excavations carried out by the INRAP over an area of 7.81 ha at Recy – Saint-Martin-sur-le-Pré (Marne, France) in 2013 and 2014 have revealed the presence of 280 Mesolithic pits. The site is situated on the right bank of the Marne, downstream from the city of Châlons-en-Champagne in the Marne department. The pit features are located mid-slope in sandy loam soils. Thirty-four pits yielded a lithic assemblage dominated by blade/bladelet products and projectile points and seventeen others produced roe deer, aurochs and/or wild boar remains. The chronological attribution of the pits primarily depends on 123 radiocarbon dates obtained from wood charcoal sampled from the bases of the pits and from faunal remains within the fills. Seven main morphologies have been identified: the corpus is dominated by circular-plan pits with a cylindrical profile and flat base (type 1), which in 35% of the cases display a posthole-type feature cut into the base. The pits are arranged in four principal groups forming NW-SE alignments that are relatively dense and regular. The longest can be traced over a distance of 328 m and extends beyond the excavated area. These groups consist of a single type of pit or a combination of several types. 137 U-, V-, W- and Y-shaped pits (*Schlitzgruben*), mainly dating to the Neolithic, occur adjacent to the Mesolithic pits. This contribution will primarily focus on the dating, morphology and the groups made up of Mesolithic features.

Keywords: Mesolithic, pits, typology, radiocarbon dates, pit complex.

*Speaker

Typical living structures of Kamennaya Balka sites

Ekaterina Vinogradova *† [1], Natalia Leonova [1]

[1] History Faculty of Moscow State Lomonosov University (History faculty of MSU) – Lomonosovsky prospect, 27/4, Moscow, 119992, Russian Federation, Russia

The 2-nd cultural layer of Kamennaya Balka II is the biggest settlement of the sites of amennobalkovskaya Upper Palaeolithic culture, which is located in the North Azov Sea region. It represents remains of a long-term settlement (a basic site) dated within 15000-16000 BP uncal. Several living structures (housing estates) were traced in the settlement of layer 2, their inner organization is alike those found at Kamennay Balka I (monocultural with 2-nd cultural layer of Kamennaya Balka II).
This communication introduces the features of typical site structure and probably the model of housing estates in the system of the region Upper Palaeolithic settlements.

A living place typical for the Kamennaya Balka sites may look like: about 20-30 sq.m. oval of the plan plot having clear spatial borders in distribution of the finds. Apparently the clear borders were determined by the presence of the barrier which is proved by correspondingly located holes with bones dug into them, serving as fortified supports for central posts and small posts at the edges. Along the long axis of this plot or in its central part there are several hearths. As a rule, around the hearths there are concentrated various zones characterized by the intense using of different groups of tools, although there are hearths with only kitchen garbage around them. Most probably, such oval plot represents the remains of a light surface dwelling.

Besides housing structures, there were wide working zones, which were separated from living zone. Components and types of finds are different at living and work areas. The percent of tools and their shatters is much higher at living areas and usually there are less signs of stone splitting. Furthermore bones' fragments are smaller.

At least 7 such living places were traced in the settlement of layer 2. Some of them were existed at the same time, and it confirms with facts of refitting works. Also the refitting data demonstrate close ties between manufacturing centers and hearth plots in the dwellings.
We find the obtained model of the dwelling complex especially important that it permits us to speak about definite house-building tradition in the system of the region settlement. Besides, the presence of dwelling units with stable planning tradition at the sites of the Kamennaya Balka culture may be the evidence of relatively stable settled lifestyle of the population.

*Speaker
†Corresponding author: vinogradovae@mail.ru

Keywords: Eastern epigravettien, North Black Sea region, Kamennaya Balka, site structure, dwellings

XVII-4. The Upper Palaeolithic research in Central and Eastern Europe.

Mammoth Killers and Mammoth Scavengers in the Upper Paleolithic of Central Europe

Gary Haynes *† [1], Janis Klimowicz [2], Piotr Wojtal [3], Jarosław Wilczyński [3]

[1] University of Nevada - Reno (Emeritus) (UNR) – 1664 N. Virginia St. Reno, Nevada 89557 USA, United States
[2] Desert Research Institute (Retired) (DRI) – United States
[3] Institute of Systematics and Evolution of Animals, Polish Academy of Sciences – Poland

Upper Paleolithic faunal assemblages in Central Europe are sometimes dominated by bones and teeth of woolly mammoths (*Mammuthus primigenius*). Notably higher numbers of mammoths are found in some Gravettian sites than in others. However, mortality profiles may differ; some profiles appear dominated by juvenile mammoths, and some are dominated by post-adolescent mammoths. Part of the variability probably reflects climatic conditions either before or during the creation of the bone assemblages. Two factors – unstable climatic conditions and opportunistic human hunting – contributed to the largest multiple-mammoth assemblages. In this poster, we compare Upper Paleolithic data to records of modern elephant-bone site characteristics which distinguish carcasses killed by humans from carcasses scavenged by humans or carnivores some time after the death of the elephants. The aim is to interpret the origins of multiple-mammoth assemblages in Upper Paleolithic sites. Studies of modern proboscidean carcasses have shown they are processed to different degrees by human killers – from very full to very light utilization – and therefore traces of human actions such as cut marks expectably vary a great deal. Freshly killed and meat-stripped proboscideans which are utilized fully have relatively shallow cut marks on long limb bones (LLBs) and also may have abundant scraping marks if bones were recovered for use as raw materials; carnivores which scavenge the remains may create gnaw damage that is mostly restricted to epiphyses which were unfused to diaphyses. In contrast, bones from proboscidean carcasses utilized very lightly have few or no identifiable cut marks or scraping marks on LLB diaphyses, and modifications made by scavenging carnivores tend to be more extensive. When humans encounter carcasses after the soft tissue has begun to decay (known as "ripening"), they may try to recover bones to use as raw materials or as fuel for cooking or heating fires, creating few shallow cutmarks only on or near LLB epiphyses. These and other characteristics of multi-animal bone sites can provide potentially valuable clues about human and carnivore interactions with mammoths in prehistory.

Keywords: Gravettian, Mammoths, Human Hunting, Unstable Climate

*Speaker
†Corresponding author: gahaynes@unr.edu

The middle of the road: the early Upper Palaeolithic of the Carpathian Basin

Wei Chu * [1]

[1] University of Cologne – Institut für Ur- und Frühgeschichte Universität zu Köln
Bernhard-Feilchenfeld-Straße 11, Raum 6.12 SFB 806 - Our Way to Europe, Germany

Content (350 to 500 words)
Early dated modern human remains Aurignacian lithic assemblages and artifacts (c. 42 ka cal BP) along the Danube catchment have been put forward as evidence that the river was an important conduit for modern humans during their initial dispersal(s) into Europe. Central to this model is the Carpathian Basin, a region in Central European with unique geology and climate (c. 300k sq km) through which the Middle Danube flows.

Still, the role of the Carpathian Basin in early modern human migrations is poorly understood as the region's early Upper Paleolithic sites have not been verified and tested alongside the more extensive surrounding archeological record. Current archeological research along the Danube catchment has been limited to specific regions such as the surrounding highlands while little is known from the Basin itself. Additionally, although a greater emphasis on collection reexamination, site formation processes and redating efforts has helped to clarify erroneous sites in the region, many findspots remain poorly understood while others with single and multiple layers are only just being identified/reexcavated. There is also surprisingly little debate among archeologists concerning topographic and paleoclimatic variability of the Middle Danube that could have influenced modern human migration.
To evaluate this, data from the Carpathian Basin (CB), are compiled to explore the possible expansion of the early Upper Paleolithic from Southeastern Europe into Central Europe. Known sites are positioned within a broad synchronic perspective of modern human subsistence in the CB across a varied spatial, climatic and environmental context. This paper then presents results from new Aurignacian sites excavations at in the Carpathian Basin and integrates their new data into the existing frameworks of the earliest occupation of Europe.

Keywords: early Upper Palaeolithic, Aurignacian, Middle Danube

*Speaker

Les occupations de plein air du Paléolithique supérieur à la périphérie des Carpates roumaines

Alain Tuffreau * [1], Roxana Dobrescu , Sanda Balescu

[1] Halma, UMR 8164, Université de Lille – Université de Lille, Université de Lille – 59655 Villeneuve d'Ascq cedex, France

Les sédiments éoliens et les dépôts de versant observables à la périphérie des Carpates roumaines (Moldavie roumaine, Plaine du Danube, Banat, bassins de l'Oas et de Baia Mare) recèlent de nombreux témoignages d'occupations humaines remontant aux MIS 3 et 2. Les pièces lithiques sont attribuables à différents techno-complexes de la fin du Paléolithique moyen et du Paléolithique supérieur. Leur interprétation s'avère parfois délicate, surtout lorsqu'il s'agit de matériaux provenant de fouilles anciennes. Les restes de mammifères ne sont conservés qu'en Moldavie roumaine. Les enregistrements limono-sableux des collines subcarpatiques et les séquences loessiques bordant la vallée du Prut sont particulièrement développés avec des séquences archéologiques comprenant de nombreux niveaux souvent bien individualisés (vallée de la Bistriţa et gisements de Mitoc-Malu Galben et Ripiceni-Izvor). Dans le sud-ouest (Banat) et le nord-ouest (bassins de l'Oas et de Baia Mare) de la Roumanie, la faible épaisseur des dépôts du Pléistocène supérieur et des phénomènes taphomiques affectent la distribution verticale du matériel archéologique et, parfois, l'homogénéité des séries lithiques. L'interprétation de la datation des sédiments pour établir l'âge des ensembles lithiques y est souvent délicate. Les analyses techno-typologiques du matériel lithique et la détermination de la provenance des matières premières minérales exogènes permettent d'individualiser des ensembles régionaux bien différenciés : Moldavie roumaine avec, pour le Gravettien, des connexions sur le flanc oriental des Carpates, le long de la plaine du Prut jusqu'au bas Danube ; Banat et la Plaine roumaine avec des industries aurignaciennes anciennes qui sont en relation avec l'Europe Centrale (en suivant la vallée du Danube), nord-ouest avec pour l'Aurignacien et le Gravettien des matières premières provenant de Transcarpatie, du nord-est de la Hongrie, de la Slovaquie orientale et du sud de la Pologne. Des précisions seront présentées pour des sites clefs dans chaque région : Ciuperceni et Vădastra (le sud), Boineşti (le nord-ouest), Lespezi, Buda et Ripiceni-Izvor (Moldavie roumaine).

Keywords: Paléolithique supérieur, Roumanie, gisements de plein air, loess

*Speaker

Epigones of Gravettian in the area north of Sudetes: case study from the site Sowin 7, SW Poland

Andrzej Wisniewski *† [1], Marcin Chlon‡ , Bernadeta Kufel-Diakowska§ , Zofia Rozok¶

[1] Institute of Archaeology, University of Wroclaw – Szewska 48, 50-139 Wroclaw, Poland

Despite the long tradition of research on Gravettian settlement in Central Europe there are still some questions left open. Little is known about period and strategies of occupation of upland areas located north of central European mountains during the late phase of LGM. In the light of new data, it seems that the mechanism of occupation of these territories varies depending on the potential of a given geocomplex. If a territory was abundant in adequate resources, it could have been exploited in more complex way. Based on the data obtained during the long-lasted research of archaeological site Sowin 7, authors of this paper explore the subject of chronology and activity of Epigravettian hunters and gatherers. This work has been financially supported by National Centre of Science (no project UMO-2014/13/B/HS3/04906).

The site is situated between the valleys of the Nysa Klodzka and the Ścinawa Niemodlińska river in south-western part of Poland. This area is a fragment of a vast, denudational plain. The Epigravettian materials occurred in fine sands, overlying sediments of glacial origin which were covered with a layer of sand of aeolian origin. At the top of mentioned sands the Magdalenian assemblage occurred. OSL dating of sediments in which the Epigravettian assemblage was located, indicates that occupation took place between 17 ka and 16 ka BP.

The reconstruction of site formation processes indicates that remains of occupation were covered by aeolian sediments very quickly. What is important is the fact that the very good preservation allowed us to define direction and area of human activity. At site Sowin 7 at least two functional zones can be discerned. The first one contains waste from a blank production. The second one besides traces of debitage manufacture also contain artefacts connected with the production, use and maintenance of formal and expedient tools. Armatures retooling was important part of the activity. Microscopic study of retouched tools from the second zone indicate a wide scope of activities. Taking into consideration all the above data it seems that site Sowin 7 functioned within a foraging zone abundant in necessary resources such as games, flints and other rocks, as well as source of water and wood.

*Speaker
†Corresponding author:
‡Corresponding author: marcinchlon@gmail.com
§Corresponding author: bernadeta.kufel-diakowska@uwr.edu.pl
¶Corresponding author: zofia.rozok@uwr.edu.pl

Keywords: Epigravettian, Silesia, chronology, technology, behaviour, mobility

Brno-Štýřice III Paleolithic site – a microwear approach to the recognition function of the lithic tools

Katarzyna Pyżewicz *† [1], Zdeňka Nerudová * ‡ [2]

[1] Instytut Archeologii, Uniwersytet im. A. Mickiewicza, Poznań, – ul. Umultowska 89D, 61-614, Poland
[2] 2Centre for Cultural Anthropology, Moravian Museum – Zelný trh 6, Brno 659 37, Czech Republic

From the Epigravettian site (LUP) Brno-Štýřice III (Nerudová, 2016) have been analysed lithic pieces, classified as tools as well as pieces with macroscopic traces of marginal – discontinuous – retouch. A total of 187 artefacts have been microscopically analysed by K. Pyżewicz. As a result of the studies we noticed the different types of use-wear traces on the 57 of them. Many of artefacts are covered with the shiny patina, which is the worst postpositional factor influencing the quality of the use-wear analysis. These ones which are covered with whitish patina are better to analyse. But on the surfaces of some lithics we can recognize using traces. These traces are associated mainly with animal carcass treatment (tools were usually used for cutting or scraping). There are some traces which are the result of hide processing, butchering activities or bone/antler processing. Use-wear traces which have been recognized are located mainly along unretouched edges. We also noticed some traces associated with plant (10 pieces) or wood (1 piece) processing. Recognized use-wear traces are located mainly along unretouched edges or around the negatives of burin spalls. From the technological point of view are very important also technological observations on the artefacts: in many cases are visible the traces of using the stone (mineral) hammer for retouching and knapping.

The spatial distribution of the artefacts with the use-wear traces correspond with the settlement density. Characters and intensity of the use-wear traces fit well not only with the faunal remains (Roblíčková et al., 2015) at the site but also with the palynological and anthracological analyses (Nerudová et al., 2016). These results can be comparable with the other LUP sites, for example in Poland (Pyzewicz, 2015).

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*Speaker
†Corresponding author: kpyzewicz@gmail.com
‡Corresponding author: znerudova@mzm.cz

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Keywords: Central Europe, Upper Palaeolithic, Epigravettian

Gravettian hunters among bones – an inside look at hunter-gatherers everyday life in Central Europe

Piotr Wojtal *† [1], Jarosław Wilczyński‡ [1]

[1] Institute of Systematics and Evolution of Animals, Polish Academy of Sciences – Sławkowska 17, 31-016 Kraków, Poland

Zooarchaeological studies of animal remains from Czech Republic, Poland, and Slovakia provide insight into human life in Central Europe _˜30-20,000 years ago. Our research has involved analyses of bone assemblages from seven sites: Dolní Věstonice I and II, Pavlov I and II, Kraków Spadzista, Jaksice II, and Moravany Lopata. The large numbers of excavated animal remains in these sites were possibly accumulated during relatively long periods of human occupation. The sites may have been often re-occupied for months, or even years.

The large Central European Gravettian sites have characteristic features. One is the presence of carnivores (e.g., wolves, wolverines, foxes), which reflects the importance of them in the life of Gravettian hunters in Central Europe. These mammals provided not only hides, but also raw materials for tool production and ornaments. An important feature in Moravian sites is the presence of cut marks made during the dismembering of different carnivore taxa, including small (foxes), medium (wolves, wolverines), and large (bears, cave lions), indicating these mammals were also a source of food for Gravettian people. A significant attribute of Gravettian hunter-gatherer life was the hunting of the largest and most dangerous carnivores, bears and cave lions. The presence of these animals at many Gravettian sites shows that the hunting was not incidental but commonplace and intentional.Another important feature of Central European Gravettian sites is the presence of large accumulations of mammoth remains located close to hunter-gatherer camps. One possible explanation for such thick accumulations is they are a result of many episodes of site cleaning after carcass processing. As well, the mammoth bones could have had different practical uses, such as fuel for camp fires. The last important characteristic we discuss is an apparent trend towards specialization in hunting, which can be observed in late Gravettian localities. Clear examples are the sites Kraków Spadzista, Milovice I, and Moravany Lopata, where bones of mammoth and reindeer dominate the osteological assemblages, and certainly had been the main targets of late Gravettian hunter-gatherers.

Acknowledgments:

The studies were partly supported by National Science Center, Poland (grant decisions No. DEC-2011/01/B/ST10/06889 and 2015/17/B/HS3/00165 awarded to P. Wojtal)

*Speaker

†Corresponding author: wojtal@isez.pan.krakow.pl

‡Corresponding author: wilczynski@isez.pan.krakow.pl

Keywords: Upper Palaeolithic, Gravettian, Zooarchaeology, hunting sepcialization

Langmahdhalde, a new Magdalenian rock shelter in the Lone Valley of southwestern Germany

Nicholas Conard * [1], Ilona Gold [2], Gillian Wong [2]

[1] Université de Tubingen (Département de Préhistoire) – Universität Tübingen Ur- und Frühgeschichte und Archäologie des Mittelalters Burgsteige 11 72070 Tübingen, Germany
[2] Eberhard Karls Universität Tübingen – Germany

Southwestern Germany with its research tradition extending back to the 1860s is often viewed as one of the best studied regions of the European Magdalenian. Recent work by Taller, Conard and colleagues has led to major publications on the Magdalenian horizons at Hohle Fels in the Ach Valley that provide an up-to-date assessment of the Magdalenian of the region. Additionally, a team from the University of T́ubingen has discovered a new Magdalenian rock shelter at Langmahdhalde in the Lone Valley north of Ulm. We conducted excavations at the site in 2016 and 2017, and additional field seasons are planned. Langmahdhalde preserves at least three combustion features, abundant lithic artifacts, a rich assemblage of microvertebrates and a modest assemblage of macrofauna including organic artifacts. This paper presents the state of our ongoing research on the site and points to the its great potential for advancing our knowledge of the Magdalenian of southwestern Germany.

Keywords: Magdalenian, Swabin Jura, Settlement Dynamics

*Speaker

The cultural dynamics of Upper Paleolithic to the East of the Carpathians reflected by the characteristics of the Bistriţa Valley settlements (Romania), with special focus on the inhabitations from Poiana Cireşului site

Elena-Cristina Nitu * [1], Carciumaru Marin *

[1], Nejma Goutas *

[2], Ovidiu Cirstina *

[3], Adrian Nicolae *

[1], Florin Ionut Lupu *

[1], Marian Leu *

1

[1] Museum of Human Evolution and Technology in Palaeolithic, "Princely Court" National Museum Târgovişte – 7 Justiţiei Street, Târgovişte 130017, Dâmboviţa County, Romania
[2] Archéologies et Sciences de l'Antiquité (ArScAn) – Université Paris I - Panthéon-Sorbonne, CNRS : UMR7041, Université Paris X - Paris Ouest Nanterre La Défense – Maison René Ginouvès Boîte 3 21, allée de l'université 92023 NANTERRE CEDEX, France
[3] "Princely Court" National Museum Târgovişte – 7 Justiţiei Street, Târgovişte 130017, Dâmboviţa County, Romania

Most of the Upper Paleolithic settlements in Romania are found East of the Carpathian Mountains, on the Bistriţa and Prut rivers valleys, and, from the cultural perspective, most of them seem to belong to a Gravettian tradition. 22 settlements were described on the Bistriţa river alone, even though not all of them have been equally studied. One of the key-sites for this region is Poiana Cireşului-Piatra Neamţ, where several research campaigns have been carried out recently. The research in this site revealed four archaeological layers: one Epigravettian layer and three Gravettian ones, separated by thick sterile layers. Chronologically, three inhabitations

*Speaker

overlap almost the entire Gravettian development period, thus covering a wide time frame before and after the Last Glacial Maximum. The richest cultural layer (Gravettian I) is dated to between 19,459 ± 96 B.P. (ER 12.162) (23.24 kacal BP) and 20,154 ± 97 B.P. (ER 12,163) (24,096 kacal BP) and yielded over 15,000 lithic materials, numerous osteological remains, anorganic material industry and mobiliary art objects. The second Gravettian layer is dated to 25,135 ± 150 B.P. (Beta Analytic 244,072), and provided several hundred lithic materials. The oldest habitation, the third Gravettian layer, is dated to between 25,760 ± 160 BP (Beta Analytic 244073) and 27,321 ± 234 BP (ER 11859) (31,969 cal BP) and yielded lithic material, fauna remains, large combustion structures and adornment items, represented by 48 perforated gastropods shells. Preliminary analysis showed various behavior types of human communities for each layer, which reflects the cultural variability on this site, most likely a response to climate changes and environment. The presentation will include a synthesis of the cultural characteristics of each inhabitation from Poiana Cireșului site, revealed through the analyses carried out on the lithic and osteological material, as well as on the adornments and art objects.

Keywords: Upper Paleolithic, East of the Carpathians, technology, cultural dynamics

From LGM to Magdalenian: Technological and typological insights from Vilshofen-Kuffing

Amira Adaileh * [1]

[1] Institut für Ur- und Frühgeschichte, Friedrich-Alexander-Universität Erlangen-Nürnberg – Kochstraße 4/18 91054 Erlangen, Germany

The open-air site of Vilshofen-Kuffing is situated in south eastern Bavaria, close to the Danube valley. Typological and technological characteristics of this surface collection suggest a palimpsest of two distinct temporal components. On the one hand there is evidence of the middle Magdalenian (Magdalenian III after H. Breuil) as indicated for instance by the presence of lithic triangles (triangle scalène). On the other hand, a number of features seem to be in accordance with an occupation during the Last Glacial Maximum (LGM), such as characteristic methods of bladelet production and specific tool types as carinated pieces, star-shaped perforators and nosed end scrapers. Located at the Danube Valley, probably one of the most important axes of communication during the palaeolithic period, Vilshofen-Kuffing is a key site for understanding differences, but also similarities, in terms of technology and typology between Western, Central and Eastern European LGM and Magdalenian sites. This talk thus presents a technological and typological case study from Central Europe and compares the results with selected evidence from Western, Central and Eastern Europe.

Keywords: Magdalenian, Last Glacial Maximum, Typology, Technology, Central Europe

*Speaker

Zooarchaeological record of the last hunter-gatherers of the steppe region of Eastern Europe

Keiko Kitagawa * [1,2], Marie-Anne Julien [1], Alexander Bessudnov [3], Alexander Bessudnov [4], Oleksandra Krotova [5], Florent Rivals [6,7,8], Mikhail Sablin [9], Marylène Patou-Mathis [1]

[1] Muséum National d'Histoire Naturelle (MNHN) – CNRS : UMR7194, Muséum National d'Histoire Naturelle (MNHN) – Institut de Paléontologie Humaine 1, rue René Panhard 75013 Paris, France
[2] Department of Early Prehistory and Quaternary Ecology, Institute of Pre- and Protohistory and Medieval Archeology, University of Tübingen – Germany
[3] Institute for the History of Material Culture, Russian Academy of Sciences – Russia
[4] P.P. Semenov – Tyan-Shanskii Lipetsk State Pedagogical University – Russia
[5] Institute of Archaeology, National Ukrainian Academy of Science – Ukraine
[6] Institució Catalana de Recerca i Estudis Avançats (ICREA) – Spain
[7] Institut Català de Paleoecologia Humana i Evolució Social (IPHES) – Spain
[8] Area de Prehistoria, Universitat Rovira i Virgili – Spain
[9] Zoological Institute, Russian Academy of Sciences – Russia

The steppe region of Eastern Europe during the Pleistocene refers to the southern area of the Eastern European Plain where the grass flora was more ubiquitous than the tundra flora and marked by a rare presence of large megafauna (i.e. mammoths and rhinoceroses). Here, we summarize the recent zooarchaeological record from the southern steppe region of Eastern Europe from the Epigravettian period (20,000-˙10,000BP). We will also present an application of complementary analytical approaches to the study of animal remains with the aim to reconstruct the duration of the accumulation and seasonality of the site occupations. The archaeological sites reveal the presence of several open air sites with abundant faunal remains, calling into question the settlement system and mobility patterns of hunter-gatherers. Ultimately, an overview of the large regional or pan regional patterns will help us connect the isolated sites and contribute to the general knowledge concerning the last phases in the evolution of the Eurasian hunter-gatherers.

Keywords: Epigravettian, subsistence practices, zooarchaeology, steppe, stable isotope, usewear

*Speaker

Upper Gravettian site cluster in Lubná (Czech Republic)

Petr šída * [1]

[1] Archaeological institute of Academy of Sciences in Brno – Czech Republic

First excavated Palaeolithic site of Bohemia was Lubná I, where J. Kušta in 1890 excavated part of cultural layer. A further at least seven sites (Lubná II to VIII) were discovered in its vicinity over a course of time, making the Lubná area provide the richest site cluster in Bohemia. Lubná II fully excavated in 1933 was the first excavation of "modern" type with complete documentation making planigraphy anaylysis possible. In 60th two sites were excavated by S. Vencl (Lubná III and IV). Theese were destructed by solifluction and therefore planigraphy analysis is not possible to be done. Both sites still remain unpublished. In 2012 small trench on site VI was excavated by author. Central hearth of well preserved and finds-rich site similar to Lubna II was explored. Remaining sites (V, VII and VIII) are known from small surface assemblages. For comparison of Lubná sites we can deal with almost 4000 chipped artefacts. The largest one is Lubná III with 1442 artefacts; second largest is assemblage of Lubná II site with 952 artefacts. Lubná IV with 566 artefacts and Lubná I with 431 artefacts are following. Smallest assemblages come from sites Lubná VI and VIII (250 and 64 artefacts).

Dominating raw material are silicites of glacigenous sediments coming from north (Silesia and Saxony). In small amount we can find quartzites of north western Bohemia and Bavarian plattensilex.

All sites have very low amount of cores, and that present on sites are at high stage of exploitation. Microchips, flakes and burin spalls demonstrate the blades and tools production on sites. Tool composition is typical for gravettian with gravettian points and micro points, domination of burins and with numerous microlits. Kostenki points are missing. Specific is presence of typical pavlovian microliths – triangle and segments.
Art objects are almost missing – the only one piece is small pendant made of mammoth tusk coming from Lubná II. Reindeer is dominating in all faunal assemblages evaluated until now. This comes together with high elevation of sites coming to more than 350 m a.s.l. Reindeer teeth show us summer period of occupation. The Lubná sites seems to be summer short time hunting camps cpecialised on reindeer hunting. It is the only place in Bohemia where several stations are located in a such small area. All sites belong to Upper Gravettian period dated to 25 to 21 ky BP.

Keywords: gravettian, Central Europe, site cluster

*Speaker

Industries of the end of Upper Palaeolithic in the Northern Caucasus and the south of Russian plain

Liubov Golovanova * [1], Vladimir Doronichev [1], Ekaterina Doronicheva [1], Andrey Nedomolkin [2]

[1] ANO Laboratory of Prehistory – St.Petersburg, Russia
[2] National Museum of Adygeya Republic – Maikop, Russia

In the south-eastern Russian plain, the complex of Upper Paleolithic sites in Kamennaya Balka is studied since the mid-20th century (Gvozdover, 1967; Leonova, 1994; Leonova et al., 2015). The first investigator of these industries, M. Gvozdover noted their similarity with the Imeretian Upper Paleolithic culture in western Caucasus. The similarity was noted in the presence of backed micro-blades, micro-points, end-scrapers, burins, and pieces esquilees. For many years, scholars working in Kamennaya Balka (Leonova, 1994; Leonova et al., 2015) made comparisons between assemblages of the Imeretian culture in western Caucasus and Kamennobalkovskaya culture in the northern cost of the Sea of Azov.

Modern research of the industries dated to the final of Upper Palaeolithic in the northwestern Caucasus (Golovanova, Doronichev, 2012; Golovanova et al, 2014) allow us to conclude that the industry is characterized by a highly developed bladelet technology. A detailed analysis of micro-blade knapping technology in Mezmaiskaya, layer 1-3 allows us to draw a preliminary conclusion that metric characteristics of bladelets from the upper horizons of layer 1-3 are most similar to experimental bladelets, which were struck using the hand pressure technique (Nedomolkin, 2017). This study suggests the early appearance of the hand pressure technique in the region at about 16-15 kyr. The composition of tool set in the industry is characterized by a combination of straight-backed bladelet points typical for the European Gravettian and Epi-Gravettian, geometric microliths similar to those that are widespread in the Epipalaeolithic industries of the Near East, a specific for the industry Imeretian shouldered points, as well as the industry produces a rich assortment of bone tools and personal ornaments. We propose the old term "Imeretian culture" may be applied to this Epipalaeolithic industry type.

Materials of sites dated to the final of Upper Palaeolithic in the northwestern Caucasus are currently published in sufficient detail (Golovanova et al., 2014). Preliminary publications of some categories of tool inventory in the sites of Kamennobalkovskaya culture are also avilable (Vinogradova 2011, 2017; Vinogradova, Leonova, 2011). These data not only allow us to make conclusions about numerous analogies between the Epipalaeolithic industry of northwestern Caucasus and Kamennobalkovskaya sites of the southern Russian plain, but also note some important differences between these roughly contemporaneous industries.

*Speaker

Keywords: final Upper Palaeolithic, Epipalaeolithic, Epigravettian, Northern Caucasus, the south of Russian plain

Musical instruments in Molodovo V site (Western Ukraine, Upper Paleolithic)

Darya Kozhevnikova * , Ekaterina Bocharova , Lbova Liudmila [1], Pavel Volkov

[1] Novosibirsk State University, Institute of Archaeology and Ethnography SB RAS (NSU, IAET) – Pirogova str. 2, 630090 Novosibirsk, Russia

Musical behavior is a significant component of symbolic behavior characterizing the cultural complex of Homo sapiens [Mellars, 2005]. Bone flutes and whistles found at Early Aurignacian sites in Europe are evidences of permanent musical traditions about 40000 BP [Morley, 2003]. The flutes were discovered during excavations of Molodovo V site (Western Ukraine (fig. 1)), and they are similar to Upper Paleolithic musical instruments in Europe and dating ˜ 17–12 ka BP. The investigations of this artifact were based on principles of morphological, technological, typological studies, use-wear analysis, experiments, spatial analysis and association with archaeological and chronological contexts. The flute is made of a corn of European reindeer, its length is 211.29 mm, distal ring diameter – 13.02, this of proximal ring – 9.09, central part diameter – 13.54 mm. Eight holes are found on the flute: five ones at one side (side A) and three ones at the other side (side B) (fig. 2, 3). At the surface accidental supposed cut marks and – at the proximal end of the item – supposed slicing marks are detected. The body cavity is pulled out with an elongated thing, and its diameter is approximately 4 mm. Two holes at the side B are made with one-sided drilling (supposedly, bow drill, with drill round more than 180○). At the side A the hole 3 is worth mentioning as a separate point, which was made presumably with well drilling. The edges of the fourth hole are destroyed, but the hole shape is an indirect evidence suggesting that it was made by pressing-through rather than drilling.

Apart from the flute, two more items have been discovered at Molodovo V. They have been described in field documentation as flutes [Logbook of Dnestrovskaya expedition trip for the 1954. P. 79] However, for the moment the items have been lost.

The evidences of the existence of musical instruments in the Paleolithic times could indicate highly developed cultural forms based on symbolic communications [Mellars, 2005].
In the studies of the Paleolithic age, four possible options for playing instruments of that type have been identified: longitudinal or transverse, block flute, and a special injection method [Morley, 2003; Knochenklang, 2000]. Most of currently detected artifacts with channel belong to a group of aerophones with holes for a finger.

Keywords: Upper Paleolithic, musical behavior, musical instruments, flute, Molodovo V

*Speaker

Palaeoenvironmental context of the Late Glacial Upper Palaeolithic sequence from Kůlna Cave (Moravian Karst, Czech Republic) using stable isotope analysis

Hazel Reade * [1], Sonja Grimm [2], Petr Neruda [3], Martina Roblíčková [3], Zdeňka Nerudová [4], Jennifer Tripp [1], Sophy Charlton [5], Rhiannon Stevens [1]

[1] UCL Institute of Archaeology – 31-34 Gordon Square, London WC1H 0PY, United Kingdom
[2] Centre for Baltic and Scandinavian Archaeology (ZBSA) – Stiftung Schleswig-Holsteinische Landesmuseen Schloss Gottorf, Schlossinsel 1, D-24837 Schleswig, Germany, Germany
[3] Moravian Museum, Anthropos Institute (MZM) – Zelný trh 6, Brno, Czech Republic
[4] Moravian Museum, Centre for Cultural Anthropology (MZM) – Zelný trh 6, Brno, Czech Republic
[5] The Natural History Museum [London] – United Kingdom

Kůlna Cave is situated on the northern edge of the Moravian Karst at a topographic boundary between a karstic and open landscape. The site is remarkable for its deep stratigraphy and large quantity of Pleistocene archaeological and faunal remains, ranging from the Middle Palaeolithic (layer 14) to the Epimagdalenian/Mesolithic (layer 3) (Valoch, 1988). Here we focus on the Late Glacial Magdalenian and Epimagdalenian from layers 6 to 3, across which a gradual development of lithic industries is observed.
Recent investigations at the site have refined our chronological understanding of the Kůlna Cave sequence (Nerudová and Neruda, 2014). Magdalenian activity is now known to have initiated during the latter part of Greenland Stadial 2, and may have persisted into the early part of the Late Glacial Interstadial (GI-1e/Bølling), thus spanning a significant global climatic transition. Epimagdalenian activity appears chronologically distinct from the Magdalenian occurring during the latter part of the Late Glacial Interstadial (GI-1abc/Allerød), and possibly terminating with the onset of Greenland Stadial 1 (Younger Dryas). While some material from layer 3 suggests sporadic Mesolithic activities during the early Holocene (Preboreal), our data from this layer is restricted to specimens known to be of Epimagdalenian age.

Here we discuss the palaeoenvironmental context of Magdalenian and Epimagdalenian activity in the Kůlna Cave vicinity, building upon previous work that demonstrated the potential of applying stable isotope analysis to this assemblage (Nerudová et al., 2014). A multi-isotope approach is applied to key herbivore prey species (reindeer, red deer, horse, elk, and aurochs) to infer habitat change, local landscape evolution and ecological context of the human activity in the area.

*Speaker

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Keywords: Magdalenian, stable isotope, Czech Republic, Lateglacial, fauna, environment

New results of the 2013-1016 fieldwork at Mitoc-Malu Galben, Romania

Pierre Noiret *† [1], Chirica Vasile [2], Timothée Libois [1], George Bodi [3], Tansy Branscombe [4], William Murphree [4], Freddy Damblon [5], Paul Haesaerts [5], Marjolein Bosch [6], Philip Nigst *

[7]

[1] Service de Prehistoire, Universite de Liege – Belgium
[2] Institut d'Archeologie de iASI (IAI) – Romania
[3] Institut d'Archeologie de iASI (IAI) – Romania
[4] University of Cambridge (UK) (CAM) – Division of Archaeology Department of Archaeology and Anthropology University of Cambridge Downing Street Cambridge CB2 3DZ, United Kingdom
[5] IRSNB – Belgium
[6] McDonald Institute for Archaeological Research, University of Cambridge – United Kingdom
[7] University of Cambridge (UK) (CAM) – Division of Archaeology Department of Archaeology and Anthropology University of Cambridge Downing Street Cambridge CB2 3DZ, United Kingdom

The impact of changing climate on Upper Palaeolithic humans is a heavily debated topic and key to understand variability and change in Upper Palaeolithic material culture. To contribute to a better understanding of the timing and environmental context of changes in material culture, we need to focus on archaeological sites with a long sequence, secure climatic context, and abundant archaeology. In Eastern Europe, one of these sites is Mitoc-Malu Galben (Romania) with a semi-continuous loess-paleosol record from _˜32 to 20 ka uncal BP. Embedded in this sequence are multiple Aurignacian and Gravettian archaeological horizons. Between 2013 and 2016 a international team re-excavated the site and focused on small excavations using high-resolution excavation and documentation methods and applied an interdisciplinary approach to the analysis of the materials and their context. Here, we present our new results focusing on the lithic technology of two Aurignacinan and two Gravettian archaeological horizons. In particular, we present an Aurignacian assemblage which is securely dated to 27.8 ka uncal BP (Greenland Interstadial 5), and discuss implications of this evidence in a regional context.

Acknowledgements:

Pierre Noiret: Fonds spéciaux pour la recherche 2013 et 2016, Université de Liège.

Philip R. Nigst : European Commission (FP7 Marie Curie Career Integration Grant 'NEMO-ADAP', grant n○322261).
Marjolein D. Bosch : H2020 Marie Sklodowska-Curie fellowship (project: EU-BEADS, project n○656325).

*Speaker
†Corresponding author: pnoiret@ulg.ac.be

Keywords: Upper Palaeolithic, Aurignacian, Gravettian, Mitoc, Malu Galben, MIS3, MIS2, lithic technology, chronostratigraphy

The woolly mammoth in Upper Palaeolithic occupations in the Dniester valley: Zooarchaeological analyzes of the faunal remains of the upper level of Climăuţi II (Republic of Moldova)

Laëtitia Demay *† [1,2], Theodor Obad [3], Sergei Covalenco [4], Pierre Noiret [1]

[1] Service de Préhistoire, Université de Liège – Place du 20-Août, 7 4000 Liège, Belgium
[2] Histoire naturelle de lḾomme préhistorique (HNHP) – Museum National d'Histoire Naturelle, Université de Perpignan Via Domitia, Centre National de la Recherche Scientifique : UMR7194 – Institut de Paléontologie Humaine 1, rue René Panhard 75013 Paris, France
[3] Institute of Zoology, Academy of Sciences of Moldova – Moldova
[4] Institute of Cultural Heritage, Academy of Sciences of Moldova – Moldova

The site of Climăuţi II is located on a promontory on the right bank of the Middle Dniester in the Republic of Moldova. It was excavated from 1989, under the direction of I. Borziac. This site has delivered two paleolithic cultural layers. The upper layer delivered many archaeological remains relied to the first part of the upper Pleniglacial (between 20 500 and 20 000 BP). The lithic industry is rich, dominated by scrapers, chisels and blades, and presents epi-Aurignacian characters. The faunal spectrum, previously identified by T. Obadă and A. David, is relatively small, dominated by the woolly mammoth. Moreover, the ivory was used as a mobilar support, to make many pieces. This site has been interpreted as a relatively long-term camp. The pseudo-contemporary sites of the Dniester valley are generally dominated by relatively short-term occupations in association with the exploitation of the reindeer. The site of Climăuţi II seems to be an exception. The objective here is to present zooarchaeological analyzes of this assemblage, including palaeontological, taphonomic and palethnographic data. The identification of the population profiles (age groups, sex), the skeletal representation and the agents that could have intervened within this assembly make it possible to highlight the methods of conservation of the assembly, as well as the modes of acquisition and use of fauna, particularly woolly mammoths by human groups. In addition, these results bring new data on the status of the mammoth, which has been little apprehended in the extracarpatic zone of the East European Plain.

Keywords: Zooarchaeology, Climăuţi, Dniester valley, Upper Palaeolithic, Mammoth exploitation, Moldova

*Speaker
†Corresponding author: Laetitia.Demay@student.uliege.be

The Late Gravettian site of Kostʹenki 21/III, Russia: interpreting intra-site spatial patterning using lithic and faunal evidence

Natasha Reynolds *† [1], Mietje Germonpré [2], Alexander Bessudnov [3], Mikhail Sablin [4]

[1] De la Préhistoire à lÁctuel : Culture, Environnement et Anthropologie (PACEA) – Université de Bordeaux, Centre National de la Recherche Scientifique : UMR5199 – Université de Bordeaux Bâtiment B8 - CS50023 Allée Geoffroy Saint Hilaire 33615 PESSAC CEDEX, France

[2] Department of Palaeontology, Royal Belgian Institute of Natural Sciences – Vautierstraat 29, 1000 Brussel, Belgium

[3] Institute for the History of Material Culture (IIMK) – Dvortsovaia nab. 18, 191186 Saint Petersburg, Russia

[4] Zoological Institute RAS – Universitetskaia nab. 1, 199034 Saint Petersburg, Russia

The site of Kostʹenki 21 (also known as Gmelin or Gmelinskaia) is located on the very edge of the Don river at Kostʹenki-Borshchʹevo (Voronezh Oblast, Russia). The main archaeological horizon, Layer III, is dated to ca. 23,000–21,000 14C BP (ca. 27,500–24,500 cal BP) and contained six concentrations of archaeological material, most of which have been interpreted as the remains of dwelling structures. A substantial Gravettian lithic assemblage was found. Clear differences in the lithic typology of the six concentrations can be used to separate them into two groups: the southern group, with small shouldered points, and the northern group, with Anosovka points. This division is mirrored in the faunal assemblage, with hare remains being strongly associated with the southern group only. There are also other differences in faunal species representation between the two groups, as well as differences in the mortality profiles of mammoth. The patterning has usually been attributed to differences in the activities carried out in the two areas. However, a very clear separation is also seen between the two groups in the degree of patination of flint artefacts, with possible implications for the interpretation of the spatial patterning. Here, we present the results of study of the lithic and faunal assemblages, discuss comparisons with other contemporary sites in Eastern Europe, and suggest some possible interpretations. The results have implications for our understanding of the chronocultural framework of late Mid Upper Palaeolithic Eastern Europe, our knowledge of variation in Palaeolithic subsistence strategies, and for the study of intra-site spatial patterning at hunter-gatherer sites.

Keywords: Gravettian, Mid Upper Palaeolithic, Russia, Kostenki, spatial analysis, dwelling structures, lithics, zooarchaeology, fauna, canids, mammoth, flint patination

*Speaker

†Corresponding author: natasha.reynolds@u-bordeaux.fr

Upper Palaeolithic environments in the loess plain of Central and East Europe. Contribution of charcoal and pollen records

Freddy Damblon *† [1], Paul Haesaerts [1], Vasile Chirica [2], Larissa Koulakovska [3], Andrei Sinitsyn [4], Philip Nigst [5]

[1] Institut Royal des Sciences Naturelles de Belgique (IRSNB) – Rue Vautier, 29 B-1000 Bruxelles, Belgium
[2] Institut d'Archeologie de iASI (IAI) – Romania
[3] National Academy of Science of Ukraine, Institute of Archaeology – Kiev, Ukraine
[4] Institute of the History of Material Culture, Russian Academy of Sciences – St-Petersburg, Russia
[5] University of Cambridge (UK) (CAM) – Division of Archaeology Department of Archaeology and Anthropology University of Cambridge Downing Street Cambridge CB2 3DZ, United Kingdom

From Austria to Central Russia, several long loess sequences provided detailed paleoclimatic records for the period covering the middle and upper Pleniglacial. The high frequency of well-identified charcoal helped establish a precise and reliable chronology of the climate events for these periods in the continental area.
The reconstruction of paleo-environment of the Upper Palaeolithics in the loess area are based on pedostratigraphy and paleobiologic studies (pollen, charcoal, wood, bones, shells). When pollen records provide a regional picture of the landscapes, the presence of charcoal testifies to local and regional origin of the taxa and plays a main role in the physical identification of refuge areas for arboreal species during the Last Glacial.
In the loess of Central and Eastern Europe, paleobiologic data lead to recognize the predominance of steppe and steppe meadow environments and to detect the persistence of eurythermic and boreal trees in connection with the wet biotopes and streams. The extension of these populations fluctuated following the changes in the climate. Several hundred analyses of charcoal in this area have highlight no malacophyllous tree species of tempered character for the periods under consideration. On the contrary, the few fragments of these proved to be intrusive from Holocene material.

Keywords: Upper Palaeolithic, charcoal, pollen, 14C dates, refuges

*Speaker
†Corresponding author: Freddy.Damblon@naturalsciences.be

Consumption of brain, meat and marrow from large canids at the Gravettian Předmostí site, Czech Republic

Martina Galetova [1], Mietje Germonpré *† [2], Jimenez Elodie-Laure [2], Bocherens Hervé [3], Martine Van Den Broeck5 [4]

[1] Musée morave – Czech Republic
[2] Operational Direction "Earth and History of Life", Royal Belgian Institute of Natural Sciences, Vautierstraat 29, 1000 Brussel, Belgium – Belgium
[3] Department of Geosciences, Biogeology, University of Tübingen, Germany – Germany
[4] Department of Morphology, Faculty of Veterinary Medicine, Ghent University, 9820 Merelbeke – Belgium

Předmostí is part of a series of large Gravettian open-air sites located in Central Europe characterized by distinctive lithic tools, and by the presence of osseous implements, human and animal representations and by large quantities of mammoth remains. At Předmostí, the mammal assemblage is dominated by mammoth and large canids. Several studies pointed out that the staple food of the Gravettian peoples from Předmostí was based on mammoth. Here, we examine whether the large canid assemblage presents evidence of butchery by humans. Furthermore, through detailing the osteometry of the long bones that were modified by humans we try to describe their size as "dog-like" or "wolf-like". Certain manipulations of the canid remains suggest that a portion of this assemblage was likely consumed by the Gravettian people of Předmostí, possibly during ritual events. Other modifications of the canid remains can be related to tool making. The handlings of these bodies and bones further allude to the existence of a specific relationship between humans and large canids during the Gravettian. Just a few canid bones were gnawed by carnivores that apparently did not have easy access to the canid remains deposited at the site.

Keywords: action humaine, large canids, gravettian, Předmostí, Moravia

*Speaker
†Corresponding author: mietje.germonpre@naturalsciences.be

The revision of the Gravettian sequence in the Kostenki-Borshchevo locality in the river Don basin (Russia)

Sergey Lisitsyn * [1]

[1] Institute for the History of Material Culture, Russian Academy of Sciences (IHMC, RAS) – 191186, Dvortsovaya nab., 18, S-Petersbourg, Russia, Russia

Almost half of the multilayer Upper Palaeolithic sites in the Kostenki-Borshchevo locality (KBL) comprise cultural layers of the Gravettian. Most of the Gravettian sites were settlements with thick cultural layers and planographic features rich in osseous and ivory artifacts and also in art objects.
Previously published reviews of the KBL Gravettian were mainly focused on the most exciting assemblages such as Kostenki-Avdeyevo culture sites (the Eastern Gravettian sensu stricto: Kostenki 1/I, Kostenki 13, Kostenki 14/I and Kostenki 18). These became main objects of comparison with the other Gravettian sites within the framework of chronology and typology. Therefore the pattern of the KBL Gravettian yielded a two-phase periodization. The elder phase was thought to be presented by Kostenki 8/II (Telmanskaya site) containing the microlithic inventory dated back to 27 kyr BP uncal. The recent phase comprised the above mentioned Eastern Gravettian sites and the relatively synchronous but typologically particular assemblages Kostenki 4, Kostenki 9, Kostenki 11/II and Kostenki 21/III with the dates 14C 23-21 kyr BP uncal. altogether being in accordance with the late Gravettian.

New data on the archaeology and absolute chronology obtained from the recent investigations of the sites Kostenki 4, Kostenki 8, Kostenki 9, Kostenki 21, Borshchevo 5 enabled to detail the Gravettian sequence and also to integrate the local cultures into general european taxonomy. The main advance was achieved in defining of the middle Gravettian phase newly dated 25-24 kyr BP uncal. (sites Kostenki 4, Kostenki 9 and Borshchevo 5). This cultural complex was associated with the Pavlovian being determined by tools typology and in particular by the series of stone items treated with polishing.
It was proposed that along with Kostenki-Avdeyevo culture the latest phase comprised Gmelin assemblage (site Kostenki 21/III) as the local final Gravettian formerly conjoined together with Anosovka assemblage (Kostenki 11/II). The latter has been attributed to the non-Gravettian and more likely to the 'Proto-Magdalenian'. Thus, the Gravettian technocomplex in the KBL acquired a three-part sequence of the early (27-25 kyr BP uncal.), middle (25-24 kyr BP uncal.) and late (23-21 kyr BP uncal.) phases becoming in accordance with the coincident periodization in Central Europe.

*Speaker

Keywords: The Upper Palaeolithic, the Gravettian, periodization, chronology

XVII-6. The supply of lithic raw materials during the upper Palaeolithic of Eurasia. Traditional approaches and contributions of Archaeometry.

Diachronic Trends in Occupation Intensity of the Epipaleolithic Site of Neve David (Mount Carmel, Israel): A Multi-proxy Approach

Cheng Liu *† [1], Ron Shimelmitz [1], Reuven Yeshurun [1], Dani Nadel [1]

[1] Zinman Institute of Archaeology, University of Haifa – Mt. Carmel, Haifa 3498838, Israel, Israel

The shift from mobile hunting-gathering lifeways to sedentism has been a major research topic for more than a century, and the Natufian culture (ca. 15,000-11,600 cal. BP) has been commonly recognized as the earliest sedentary or semi-sedentary society in the Levant. Historically, the remarkably rich Natufian material remains, combined with certain research biases, turned this culture into a somewhat "scene-stealer" in the big picture of the Levantine Epipaleolithic sequence. However, data from earlier Epipaleolithic sites continuously suggest a more complex scenario. Neve David (ND), a key site of the Middle Epipaleolithic Geometric Kebaran entity (ca. 18,000-15,000 cal. BP) located in Mount Carmel (Israel), is now under renewed excavations. Here, we use the ND lithic assemblage from a meter-deep section, totaling 6,085 pieces without counting debris, to explore diachronic trends in occupation intensity. Drawing upon the classical theoretical frameworks of cultural transmission and technological organization, we employed four main indices as proxies: 1) lithic volumetric density, 2) burnt artifacts volumetric density, 3) microlith shape variation, and 4) tool/blank ratio. Three of the four indices indicate a general trend of increasing occupation intensity in ND through time, while the fourth (tool/blank ratio) does not provide a clear-cut trend, the reason for which will also be briefly discussed in our paper. Despite inherent archaeological sampling biases, we suggest that our results may indicate the summed human staying time at ND was gradually increasing during the depositional time of this section. Meanwhile, the high-resolution dating and related geoarchaeological studies are also in progress, which will help us understand the site formation process and thereby setting a limit on the level of generalization of our results.

Keywords: Site Occupation Intensity, Lithic Assemblages, Neve David, Levantine Epipaleolithic

*Speaker

†Corresponding author: raylc1996@outlook.com

How long did they stay? – Reflections on a multi-phased hearth at Krems-Wachtberg

Marc Haendel * [1]

[1] Austrian Academy of Sciences; Institute for Oriental and European Archaeology (OREA) – Hollandstrasse 11-13; 1010 Vienna, Austria

Well-known for the discovery of infant burials, the Krems-Wachtberg 2005-2015 excavations provided a wealth of data. Of major importance is the exposure of an occupation layer which connects the burials to other activities conserved in evident structures such as pits and hearths. The finding offers important insights into life and death at a Pavlovian campsite more than 30,000 years ago. But does it also give information about the timespan of its use? Obviously the duration of specific occupations cannot be determined by relative or absolute dating approaches. Dendrochronology only states that wood which grew within a certain timespan was burnt in a specific context and can therefore rather be used as a proxy to establish chronological relations between different occupations. Assessing occupation span from the mere quantity of remains is problematic as we never know how much is missing. Besides, it depends on the, also unknown, group size. In case of the Krems-Wachtberg occupation layer, evidence for seasonality unfortunately is sparse. In fact, it consists of a single specimen only and points to spring. Better suitable for an assessment are diversity of activities and stratigraphic resolution. The first does not allow for determining a specific timespan but rather comparative inter-site assessments in general. Of higher relevance here is however the differentiating and spatial organisation of these activities. Stratigraphic resolution is best represented in the centrally located multi-phased hearth. It can be reconstructed that a fire burnt at least three times and was put out at least twice. Considering hard facts only the occupation span therefore did not exceed one season and was not shorter than a few days. From a more integrated perspective, however, the lower end of the potential time span hardly accounts for the high diversity of activities, or a plausible reason why the fire was not kept burning under the periglacial conditions in a spring more than 30,000 years ago.

Keywords: multi, phased hearth, occupation span, spatial organisation, diversity of activities

*Speaker

Investigating the "trees" to better see the "forest": navigating local-level detail at the Aurignacian open-air campsite of Régismont-le-Haut

Lars Anderson * [1], Mathieu Lejay *

[1], Romain Mensan [2], François Bon [1]

[1] UMR5608 TRACES Université de Toulouse 2 (UMR5608) – PRES Université de Toulouse – Maison de la recherche, 5 rue A.-Machado, 31058 Toulouse, France
[2] UMR5608 TRACES (UMR5608) – PRES Université de Toulouse – Maison de la recherche, 5 rue A.-Machado, 31058 Toulouse, France

Barring rare yet insightful cases, the Palaeolithic record of human behaviour is constructed using less than optimal datasets where controlling for both time and space is difficult, and the situation is all the more dire for earlier periods. The result can be problematic; we attempt to discuss models of social organization of pre- and early modern *Homo* using time-averaged palimpsestual deposits while all the same underlining the fact that the resolution of our data is rarely adapted to the scale of the questions we ask of it. Some have argued that embracing time-averaged methods to measure long-term evolutionary change is particularly adapted to our archaeological datasets, yet this would severely limit the types of questions we can ask and render those few instances, where sites are spatially conserved, merely anecdotal. It is our contention that such "anecdotes" provide significant insight into the daily activities of prehistoric hunter-gatherers, and when we are able to better control for time in such sites, they can be used to nuance the treatment of our biased record.
Here we investigate one insightful example, the open-air campsite of Régismont-le-Haut. Attributed to the Aurignacian technocomplex, Régismont is one of the rare instances of a spatially conserved site in the early phase of the modern human occupation of Europe; most open-air "sites" are simply surface scatters, and rock-shelter contexts can make the investigation of spatial organization all the more complicated. Régismont is also unique in that it contains 30 fire-related structures of various complexity dispersed over a surface of at least 400 m2, distributed between two perpendicular palaeochannels.

Contemporaneity between the various structures is not a given, thus much recent work at Régismont has been geared towards controlling for the passage of time via the use of inter-fireplace refits. A presentation of inter-fireplace refits, and the degree to which such a linking of technical gestures in space and time can provide a basis for synchrony, will be provided along with other lines of evidence (geomorphological, geoarchaeological, functional). A brief discussion of the general organization of activities within the different *loci* of the camp will follow. While

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this will not allow us to necessarily discuss distinctions between private and public social spaces, we will be able to grossly distinguish between domestic and task-oriented areas. Finally, we will briefly investigate the spatial organization of what appears to be the central domestic unit of Régismont, the constellation of structures around hearth 12-16. Refits, degrees of technical know-how, general lithic distributions, fire structure typology, as well as distributions of other materials, will all be called upon to paint a picture of the organization of activities around several linked hearths at the heart of the site.
Through a final reflection on how focusing on the "trees" can help understand the "forest" we will attempt to determine the utility of such local-level insight at a broader scale.

Keywords: Aurignacian, spatial organization, lithic refits, fire structures

Neanderthal intra-site spatial patterns and social dynamics: What are we talking about?

Romagnoli Francesca * [1], Vaquero Manuel , Bargalló Amelia , Maria Gema Chacon [2], Bruno Gómez De Soler

[1] Universidad Autónoma de Madrid (UAM) – Ciudad Universitaria de Cantoblanco · 28049 Madrid, Spain
[2] IPHES – Zona Educacional 4 - Campus Sescelades URV (Edifici W3) 43007 - TARRAGONA, Spain

The intra-site spatial patterns of lithic artefacts and their density are traditionally used in Prehistory as proxies for activity areas and social organisation of past human groups. This approach allows identifying domestic units, inferring number of co-resident, understanding site function and duration of occupation. These topics are especially interesting when looking at communities of archaic humans and investigating their behavioural variability, traditions, and complexity. The problem is that too often in Prehistory we are comparing data that are not at the same scale or are not the result of similar behaviour. In this presentation, we will focus on two main features that strongly affect the social interpretation of spatial data: the 3D spatial scale of analysis, and the temporal scale of analysis. These features upset the visibility of events and the identification of changes at short-scale of analysis, with important implications in the understanding of adaptive behaviour and long-term cultural dynamics. Looking at the spatial data with a high-resolution approach at Abric Romaní Middle Palaeolithic site, we could investigate how the spatial and temporal scale of analysis affect the archaeological interpretation. At the same time, a long-lasting interdisciplinary research allowed us to enlarge knowledge of behavioural diversity in Neanderthals in terms of use of living space, technological costs, economic strategies, and shared knowledge. We will present results of our researches through case studies along the stratigraphic sequence showing how our approach has changed our vision of Neanderthal variability.

Keywords: Intra, site spatial analysis, gesotatistics, archaeostratigraphy, Middle Palaeolithic, lithic technology, refits

*Speaker

Fireside ghost stories: (re)introducing faunal analysis into the spatial organization of the Aurignacian open-air site of Régismont-le-Haut

Maria Joana Gabucio *† [1], Lars Anderson [2], Mathieu Lejay [2], François Baleux [2], Sandrine Costamagno [2], Nicolas Poirier [2], Romain Mensan [2], François Bon [2,3]

[1] Independet researcher – Spain
[2] Travaux et recherches archéologiques sur les cultures, les espaces et les sociétés (TRACES) – Université Toulouse 2, Centre National de la Recherche Scientifique : UMR5608 – Maison de la Recherche, 5 allée Antonio Machado 31058 TOULOUSE Cedex 9, France
[3] Centre de recherche français à Jérusalem (UMIFRE 7 - USR 3132) – Israel

One could argue that an exploration of daily activities is a necessary step for the reconstruction of past hunter-gatherer lifeways – the detail of the former constitutes essential building blocks for the latter. Most classic sites are, however, rock-shelters, whose palimpsestual nature impedes such high-resolution questioning, forcing us to think in terms of general trends during "time-averaged" slices. Open-air sites, whose assemblages can sometimes be narrowed down to one or a few occupations, offer a way to circumvent such resolution problems. Yet even in cases where such spatial analysis is possible (systematic piece plotting, presence of latent and/or apparent structures...), faunal remains are often absent or poorly preserved. Consequently, those that do exist are usually ignored in spatial studies, or treated summarily, despite the potential wealth of taphonomic and zooarchaeological information they could provide.

Régismont-le-Haut is an Aurignacian open-air site situated in the Languedoc region of France. Its single archaeological level contains abundant materials (lithics, bones, colouring materials, shells...) and structural elements (combustion structures, limestone blocks), whose spatial organisation is very well preserved. The excavated area is divided into two *loci*, which seem to be contemporaneous - possibly related to a single occupation - and functionally complimentary: *locus* 1 appears to be a domestic area (multifunctional hearth-related areas) and *locus* 2 a task area (specialized activity areas, first stages of certain *chaînes opératoires*).
Here we present the analysis of faunal remains from sector 56, placed in *locus* 1. In spite of the relatively poor faunal preservation, 799 bone remains were coordinated and recovered. These were analysed according to types of bone tissue and taphonomic alterations (both anthropogenical and natural), in addition to their identification. It was also possible, using detailed field data, to retrieve coordinates, dimensions and orientations of 930 bones that were too poorly preserved to be recovered. These data were used to conduct a complete spatial analysis, including archeostratigraphical and planimetric analysis (scatter plots, density maps and spatial grid

*Speaker
†Corresponding author: mj.gabucio@gmail.com

analysis), as well as the application of geospatial statistics (Ripley's K and Kij functions, Besag's L function, *k-means* analysis...). The results will be compared with those obtained from other archaeological materials. Our main aim is to contribute to the general spatial interpretation of the site, at the moment developed primarily on lithics, hearths and colouring materials. In turn, this work will help us understand the important role faunal remains can play in the spatio-temporal study of open-air deposits.

Keywords: Aurignacian, open, air site, Régismont, le, Haut, intra, site spatial analysis, faunal remains

Management of habitation spaces during Middle Magdalenian. A comparative study of levels from Las Caldas cave

Paula Ortega-Martínez *† [1], Mª Soledad Corchón [2]

[1] MONREPOS Archaeological Research Centre and Museum for Human Behavioural Evolution
Römisch-Germanisches Zentralmuseum Mainz (RGZM) – Germany
[2] Universidad de Salamanca – Spain

Traditionally Palaeolithic researches have been based on the study of material objects and rock art. But occupational contexts -cave, rockshelter or open air site- cannot be understood as simple containers of materials. Spatial dynamics, management of living space and even landscape, respond to a tradition and ideas reflected in cultural identity. This research proposes the characterization of Middle Magdalenian social groups through their social organization on the habitat space.

Magdalenian is a well-documented period in the Nalon Basin. This is a region widely occupied from the end of the Pleistocene until the Holocene, proved with the large concentration of Palaeolithic sites: more than 20 caves and rock shelters occupied between the Early Upper Paleolithic and Final Paleolithic. Although the Middle Magdalenian was a brilliant period, it is scarce in levels in Cantabrian region with the exception of Las Caldas cave. Specifically, Las Caldas cave preserves the complete Magdalenian sequence (17 levels) dated between 15 000 and 12500 BP.: the four lower ones correspond to the Lower Magdalenian (XIII-XI). Extending over level X, there is an extensive Middle Magdalenian sequence (IX to IV), a level of transitional characteristics (III), and another five from the Upper and Final Magdalenian in Chamber II (II to I and -I to -III). Analyses considered here are focused on Middle Magdalenian layers (VI-IX) and they are based on another carried out in IX layer (Corchón et al 2016). This is a large sedimentary stratum (60 to 70 cm thick) deposited on a very cold and wet stage (GS-2). The fauna includes cold steppes species hunted, also represented in the portable Art (*Rangifer tarandus*, *mammutus primigenius*, *Coelodonta antiquitatis*) (Corchon 1997). The presence of different layers and a wide stratigraphy confirms the reiterated occupation of this site during ca. 13600 BP

The identification and characterization of the areas of activity documented on the occupation soils let us recognize the custom activities by statistical and GIS methodologies and interpret a functionality. In addition, a comparative analysis of different layers allows us to identify and discern the uses of the spaces in each activity carried out in the site, and also the change processes in this management of the space across the sequence. This space management is undoubtedly more complicated to perceive in small spaces. The patterns of social behavior indicated in larger contexts are constrained in some caves or rockshelter. The habitation space available in Las Caldas cave, barely 12 m2, and the dimensions of the concentrations of materials allows us to recover old axioms on the individual's spatiality and reflect on the social dynamics of the

*Speaker
†Corresponding author: paulaortegamtnez@gmail.com

groups that occupied the cavity. Also, the differences in the concentrations along the sequence let us to reflect on social and group patterns in Middle Magdalenian. In this sense, the concept of space and the dynamics of management habitation space allow us to delve into the defining features of the societies that occupied the landscape of Cantabrian region during the Middle Magdalenian.

Keywords: Living floors, activities, spatiality, Middle Magdalenian, Las Caldas cave

Ethno-archaeological approach to social norms in Hunter-Fisher-Gatherer societies: testing the explanatory potential of intra-site analysis with two Yamana huts (Tierra del Fuego, Argentina)

Albert García-Piquer * [1], Jordi Estévez [1]

[1] Departament de Prehistòria, Universitat Autònoma de Barcelona ((UAB)) – Edifici B Facultat de Filosofia i Lletres 08193 Bellaterra (Barcelona), Spain

Despite few proposals, research in Prehistoric Hunter-Gatherer Societies (HGS) has traditionally considered social norms as archaeologically invisible or as a fertile ground for speculation. However, according to the study of modern HGS, social norms related to division of labour or social asymmetries could materialize in ideological items and in the funeral record but also in the arrangement of different social spaces. Recent studies have shown the potential of intra-site analysis in combination with use-wear and refitting analysis for making proposals about spatial organization in Upper Palaeolithic and Mesolithic sites, but there is still much to explore on the ability of spatial analysis to archeologically reconstruct intra-site social relationships.

In order to test the explanatory potential and level of resolution of spatial and geostatistical methods an ethnoarchaeological approach was been developed. Emphasis is placed on Tunel VII and Lanashuaia shell middens, located in the northern coast of the Beagle Channel (Tierra del Fuego, Argentina) and interpreted in both cases as Yamana settlements. Archaeological work was carried out between 1989 and 2005 in the framework of several Spanish-Argentine projects. Ten short successive occupations episodes have been detected at Túnel VII. On the contrary, Lanashuaia, located 60 km east of the former, is the result of probably one longer occupation episode associated with the exploitation of a stranded whale. Ethnographic literature describes the Yamana as high-nomadic groups with strict gendered division of labour that intensively exploited the littoral resources.

Ethnographic and archaeological data from Yamana society were contrasted to propose significant associations between production and consumption activities and the spatial distribution of their waste and debris. Particular emphasis was placed on engendered-division of productive and social reproductive activities. These concrete *social* categories - which refer to the production and consumption values- were subsequently used to identify qualitative and quantitative trends at Túnel VII and Lanashuaia. Methods applied included 3D modelling; fine-grained micro-stratigraphic analysis; refitting analysis of archaeozoological remains and graph theory; and geostatistics, particularly interpolation techniques. Results are encouraging, revealing continuities and discontinuities at the intra- as well as at the inter-site level. Moreover, they state that is possible to detect social-division of space in the archaeological record by means of appropriate methodology. More comparative studies about the use of space by different ethnographic

*Speaker

HGS might allow us to generate hypothesis and build strong interpretative models than can be later applied to the study of the European Upper Palaeolithic and Mesolithic record.

Keywords: Tierra del Fuego, Hunter Gatherers, Social Organization, Sexual division of labour, Intrasite analysis, Modelling

Settlements and houses of Kostenky: different kinds of the constructions and organizations of spaces

Maria Jeltova * [1]

[1] Institut d'histoire de la culture matérielle de l'Académie des sciences de Russie (IHCM RAS) – 191186 St-Petersburg Dvortsovaya nab. 18, Russie, Russia

The Kostenki-Borshchevo area is approximately 40 km south of Voronezh on the steep and high west bank of the Don, which is intersected by ancient deep (up to 100 m) and wide gullies in an area which has been settled since time immemorial and up to the present day. There is no need to explain in detail why this area is so important for world-wide research into the Palaeolithic period: these unique sites are well-known to anyone studying the Stone Age. Twenty six sites are concentrated in a relatively small area, which relate to different cultures and stages within the Upper Palaeolithic. Most of the sites are multilayered, so there are about sixty sites in general. Study of these sites has yielded up a wide spectrum of lithic industries, an extremely rich range of art works and it has also demonstrated diversity in methods of adaptation to the environment, manifesting firstly and foremost in the various traditions of house-building and organization for the structure of settlements. The rests of houses were found at eleven of twenty one sites of Kostenky. And there are different kinds of houses. Also, diferent kinds of burials were found on the five sites. In some cases, there are constractions of the tombs were related to dwellings structurally (for example on Kostenky 2 and 15). But for example, the connection of burial with any cultural layer on the site Kostenky 14 is not clear.

Keywords: Spatiality, ephemeral vs. long, term / repeated occupation, palimpsest, structures and features, architecture, 'communal' vs. 'personal'/'private' space.

*Speaker

The Living Structures of Neanderthals: a True Enigma

Jan Kolen *† [1]

[1] Universiteit Leiden [Leiden] – P.O. Box 9500 2300 RA Leiden, Netherlands

Now it increasingly becomes clear that Neanderthals' environmental tolerance was large and flexible, enabling habitation under semiarid (Mediterranean), wet (marine) and cold (subarctic) conditions, it must be assumed that Neanderthals must have developed effective and sustainable strategies for finding and organising shelter. However, this does not necessarily mean that Neanderthals performed comparable forms of architecture as recent and present-day hunter-gatherers and fisher communities living under similar conditions. From an ethnographical and historical perspective, recurrently used and roof-covered dwelling structures with a clear ordering of internal and external space, either transportable or spatially fixed, provide the generally accepted model for archaeological inference and explanation. Many Neanderthal sites indeed contain patterned, circular or semi-circular structures that remind of this model. Several of these have long taphonomic histories that may indicate (partial) post-depositional origins. Others, like at Arcy-sur-Cure, Les Canalettes and Bruniquel, reflect convincing examples of structured use of space that are nonetheless enigmatic from a conventional perspective on human architecture and dwelling.

Apart from the fact that the ethnographic dwelling model should be convincingly supported empirically in the case of Neanderthals, it should be realized that dwelling in recent and present-day societies relates to complex spatial, social and cultural notions, as well as cognitive schemata that may not have been shared by Neanderthals. Therefore, in this paper, we explore alternative frameworks for understanding patterned structures at Middle Palaeolithic sites, emphasizing idiosyncracies in Neanderthals' uses of landscape, space and place. The question will be raised when in human history the first roof-covered dwelling constructions may have appeared and why, and what characterised human architecture before that time. Our contribution builds further upon a paper that was published earlier by one of us (Kolen 1999) by discussing recent discoveries, adding new theoretical insights and exploring the Middle to Upper Palaeolithic transition from the perspective outlined.

Literature: Kolen, J., 1999: Hominids without Homes. On the nature of Middle Palaeolithic settlement in Europe, in: W. Roebroeks & C. Gamble (eds.), *The Middle Palaeolithic Occupation of Europe*, Leiden University Press, Leiden, pp. 139-175.

Keywords: Neanderthal, dwelling

*Speaker

†Corresponding author: j.c.a.kolen@arch.leidenuniv.nl

The use and organization of communal space at the late Magdalenian site of G'onnersdorf, Central Rhineland Germany.

Olaf Joris * [1], Frank Moseler† [2], Martin Street‡ [2], Elaine Turner [1]

[1] MONREPOS Archaeological Research Centre and Museum for Human Behavioural Evolution – Schloss Monrepos, 56567 Neuwied, Germany
[2] MONREPOS Archaeological Research Centre and Museum for Human Behavioural Evolution – Schloss Monrepos, Germany

The late Magdalenian site of G'onnersdorf, excavated over a total surface of 687 m^2 during the late 1960's to the mid 1970's, provides well-documented evident and latent spatial structures in high resolution. Since its discovery, the site serves as an archetype for the spatial structure and organization of Late Upper Palaeolithic open-air settlement. Over the last 50 years, however, the overall interpretation of the site has constantly undergone changes on various scales. The most recent studies shed new light on the social organisation of the site and lead to a substantial re-interpretation of its spatial organisation.
Settlement remains at the site were found in the form of accumulations (K-#) of diverse categories of finds of different spatial extent, in particular, arrangements of stone blocks and plaquettes. Initially, these concentrations were interpreted as ground plans of dwellings. The larger of these concentrations (concentrations K-I, K-IIa) were interpreted as "yaranga"- or ger-like dwellings, the smaller concentrations as resembling tepee like constructions.

Structural shelters, however, need to fulfil in general the demands required for constructional statics, especially with regard to distributing roof weight evenly over the sides. As a consequence, roof-covered features should be characterized by specific constructional frameworks, most likely of geometrical and/or symmetrical properties, as can be argued for K-IV based on the arrangement of larger rocks. On the contrary, refits between rocks within the larger concentration document a highly dynamic history of their use, extending across areas of more than 50 m^2. They illustrate in an intriguing way the complexity of activities carried out here over lengthy periods of time using different materials which became more and more fragmented through time. Moreover, static elements are absent in these concentrations, which are dominated by domestic activities related to butchery and carcass processing, and other tasks that appeared at more or less regular time-intervals. The spatial patterning of different exogenous lithic raw materials implies that these areas were commonly used by individuals which came here from different regions. The distribution of art and symbols within these areas of the site implies their being embedded within daily-life activities.

In contrast, the northernmost concentration K-IV must be regarded as a tent-construction with

*Speaker
†Corresponding author: moseler@rgzm.de
‡Corresponding author: street@rgzm.de

a rectangular ground plan. The interior was largely kept clean from any debris-producing activities and is interpreted as an area to withdraw and rest – evidence that complements the communal use of the larger concentrations.

Keywords: evident structures, architecture, static elements vs. dynamic re, arrangements, refits, domestic areas, communal space.

XVII-5. Use and Social Organization of Space: The Palaeolithic Origins of Human Spatiality.

First data on the characterization of siliceous raw materials and the catchment areas from Cova de les Malladetes (Barx, Valencia)

Aleix Eixea * [1], Alvaro Martínez-Alfaro , Miguel Angel Bel , Clodoaldo Roldán , Sonia Murcia , Maria Isabel Dias , Maria Isabel Prudêncio , Rosa Marques , Alfred Sanchis , Valentín Villaverde

[1] Institut Català de Paleoecologia Humana i Evolució Social (IPHES) – Zona Educacional 4, Campus Sescelades URV (Edifici W3) 43007 Tarragona, Spain

The purpose of this communication is to present the preliminary results of raw materials and catchment areas from the new excavations carried out in Cova de les Malladetes. The cavity has a wide stratigraphic sequence that goes from the Aurignacian (without having reached the base) to the Neolithic period but our interest is focused on the part belonging to the Upper Palaeolithic. In relation to the raw materials used, the studies have not gone beyond simple and vague descriptions so it was necessary to study the new materials obtained and a review of the previous campaigns of the 40s and 70s. Currently, except for some case studies, investigations about siliceous resources exploited during prehistoric times in the Valencian region are still scarce and, generally, they did not employ methods which go deeply into the provenance characteristics.

Within a new program of prospections that we are carrying out in the central area of the Mediterranean Iberia, we include data from this site as well as others belonging to Upper and Middle Palaeolithic such as Cova Matutano, Cova Fosca, El Pinar, Abrigo de la Quebrada, Las Fuentes, Cova Negra, Petxina, Cova del Parpalló, Cova de les Calaveres, Cova de les Cendres or Ratlla del Bubo which also serve as a comparative framework. All of them are related to the outcrops found. To this first step of prospecting and macroscopic samples description, we add the analysis of both petrographic (petrographic microscopy and XRD) and geochemical analyses (ED-XRF and INAA).

The results show an outstanding component of local and semi-local catchment, but without forgetting the interesting presence of allochthones types that demonstrates long lithic raw material circulation and a high human mobility in the central region of Mediterranean Iberia during the Upper Palaeolithic.

Keywords: Raw materials, Catchment areas, Prospections, Iberian Peninsula, Upper Palaeolithic

*Speaker

From the Lower Danube to the Middle Prut and across the Carpathians; long distance raw materials transfers during the Upper Palaeolithic

Alexandru Ciornei* [1], Alain Tuffreau † [2], Roxana Dobrescu [3], Izabela Mariş [4]

[1] Institute of Archaeology Vasile Parvan – str. Henri Coandă n 11, 010667, Bucarest, Russia
[2] Halma, UMR 8164, Université de Lille – Université de Lille, Université de Lille – 59655 Villeneuve d'Ascq cedex, France
[3] Intitute of Archaeology Vasile Parvan, Bucharest – str. Henri Coandă n 11, 010667, Bucarest, Romania, Romania
[4] Faculty of Geology and Geophysics, University of Bucharest – Bucharest, Sector 5, 36-46 Mihail Kogalniceanu Blvd, 050107, Romania

From the Lower Danube to the Middle Prut and across the Carpathians: long-distance raw material transfers during the Upper Palaeolithic

Alexandru CIORNEI - "Vasile Pârvan" Institute of Archaeology, Bucharest

Alain TUFFREAU – Halma, UMR 8164, Université de Lille, France

Roxana DOBRESCU - "Vasile Pârvan" Institute of Archaeology, Bucharest

Izabela MARIŞ - Faculty of Geology and Geophysics, University of Bucharest

In Romania, the possible connections between many Upper Palaeolithic sites have been (and still are) discussed mainly in cultural (typology, technology) and chronostratigraphic terms. Building on the current state of research and the growing body of data regarding the lithic raw materials, this study tests the possible connection of different multi-layered Upper Palaeolithic sites (Aurignacian, Gravettian and Epigravettian assemblages) through exotic lithic raw materials (long distance transfers) across different regions of present-day Romania: Giurgiu-*Malu Roșu* (Giurgiu county), Lapoș-*Poiana Roman* (Prahova county), Cremenea-Sita Buzăului-*Malu Dinu Buzea* (Covasna county), Ceahlău-*Dârțu* (Neamț county), Ceahlău-*Podiș* (Neamț county), Ceahlău-*Cetățica* (Neamț county), Bistricioara-*Lutărie* (Neamț county), Piatra Neamț-*Poiana Cireșului* (Neamț county), Lespezi-*Lutărie* (Bacău county), Topile-*Dealu Catargii* (Iași county), Movileni-Helești-*În Răzășie* (Iași county), Ripiceni-*La Izvor* (Botoșani county), Mitoc-*Valea Izvorului* (Botoșani county), Bușag-*Coasta Bușagului* (Maramureș county), Remetea-*Șomoș I* (Satu Mare county), Boinești-*Coasta Boineștilor* (Satu Mare county). The studied materials come from the collections of the "Vasile Pârvan" Institute of Archaeology. The exotic raw materials were visually identified, while characterization, comparison and confirmation was done

*Corresponding author: eualex1984@gmail.com
†Speaker

through microscopic analysis in thin sections. Criteria relating to the techno-economic patterns of procurement were also recorded. The main raw materials tracked were the famous "Balkan flint" (an Upper Cretaceous flint from the Lower Danube region), the Kriva Reka type of Ludogorie chert (a Lower Cretaceous chert from the Lower Danube region), the "Prut flint" (an Upper Cretaceous flint from the Middle Prut Valley), the "Audia Black Shale" (a Lower Cretaceous siliceous shale from the Eastern Carpathians Flysch), the "Menilite" (actually comprising two types of Paleogene cherts from the Eastern Carpathians Flysch), the "jaspers" and "chalcedonies" (hydrothermal siliceous rocks associated with the Neogene volcanics from the North-Western Romania), and other siliceous materials of unknown non-local origin. The Lower Danube chert types were identified at Lapoș and Cremenea-Sita Buzăului, in sites from the Lower and Middle Bistrița Valley, reaching the Middle Prut and North-Western Romania. The "Prut flint" was identified in sites from the Lower and Middle Bistrița Valley, but also at Cremenea-Sita Buzăului and sites from the North-Western Romania. The raw materials from the Eastern Carpathians Flysch were identified in Southern Romania, on the Middle Prut Valley, but also in sites from the North-Western Romania. The siliceous rocks from North-Western Romania were found in sites from the Lower Bistrița Valley, Middle Prut Valley and at Lapoș. The "Prut flint" and the North-Western siliceous rocks haven't reached the Lower Danube, while in sites from the Lower and Middle Bistrița Valley raw materials from all three areas were identified. Thus with the maximum spread of the exotic raw materials attained during the Gravettian and Epigravettian time periods, Bistrița Valley could be considered a connecting pathway between the Upper Palaeolithic sites from these regions of Romania.

Keywords: Upper Palaeolithic, Romania, Eastern Carparthians, Prut Valley, Lower Danube, lithic raw materials

Gestion et détermination du silex aux niveaux magdalénien et solutréen de la grotte de El Cierro (Ribadesella, Asturies, Espagne)

Sergio Martín-Jarque * [1], Andoni Tarriño [2], David álvarez-Alonso [3], María De Andrés-Herrero [4], Julian Bécares [1], Jesús Jordá Pardo [3], Esteban álvarez-Fernández [1]

[1] Universidad de Salamanca – Spain
[2] CENIEH – Spain
[3] UNED – Spain
[4] Universität zu Köln – Germany

La grotte de El Cierro (Fresnu, Ribadesella, Asturies) possède l'une des séquences stratigrafiques les plus importantes de la Préhistoire de la Région Cantabrique. Dans lesquelles ont été documentées plusieurs périodes d'occupation, depuis le Moustérien jusqu'au Mésolithique, en incluant l'Aurignacien, le Gravettien, le Solutréen, le Magdalénien et l'Azilien. Dans cette communication, se présentent les premiers résultats de l'analyse des matières premières lithiques en général et du silex en particulier, des niveaux datant du Magdalénien inférieur (niveaux F, G et G1) et du Solutréen supérieur (niveaux H1 et H2). Ce matériel archéologique provient des campagnes de fouilles des années 1977-79 (fouilles dirigées par F. Jordá-Cerdá et A. Gómez-Fuentes) et celles faites par une équipe du Département de Préhistoire, Histoire Antique et Archéologie de l'Université de Salamanca en 2016. La classification des pièces a été basée sur leurs caractères texturales, fondamentalement avec loupe binoculaire, pour l'ensemble du matériel lithique avec une collection de référence de différentes matières premières déposées dans le département mentionné. Pour la détermination du silex, ont été sélectionnés des échantillons pour leur étude au travers de microscope pétrographique et DRX. Sont prédominantes les matières premières collectées dans l'environnement immédiat du gisement, donc locales, parmi lesquelles se distinguent le quartzite, la radiolarite rouge et le dénommé *chert* noir. Sont aussi présents différents types de silex, tant de domaine asturien (Piloña, Piedramuelle), comme provenant de sources d'approvisionnement éloignées (Monte Picota) et très éloignées (Flysch).

Keywords: Archéologie, Préhistoire, Paléolithique supérieur, Région Cantabrique, Matières premières lithiques, Pétrographie et Minéralogie

*Speaker

Étude multi-méthode d'un traceur lithologique pyrénéen et sa présence dans le Magdalénien de la Cova del Parco (Lleida, Espagne) et l'Abri de Forcas I (Huesca, Espagne)

Marta Sánchez De La Torre *† [1,2,3], François-Xavier Le Bourdonnec [1], Bernard Gratuze [4], Stéphan Dubernet [1], Xavier Mangado [3], Pilar Utrilla [2], Josep Maria Fullola [3]

[1] Institut de Recherches sur les Archéomatériaux - Centre de Recherche en Physique Appliquée à l'Archéologie (IRAMAT-CRP2A) – université Bordeaux Montaigne, Centre National de la Recherche Scientifique : UMR5060 – Maison de l'Archéologie. Esplanade des Antilles. 33607 Pessac cedex, France
[2] PPVE - Universidad de Zaragoza – C/ Pedro Cerbuna 12. 50009 Zaragoza, Spain
[3] SERP - Universitat de Barcelona – C/ Montalegre 6-8. 08001 Barcelona, Spain
[4] Institut de Recherche sur les Archéomatériaux - Centre Ernest Babelon (IRAMAT-CEB) – Université d'Orléans, Centre national de la recherche scientifique - CNRS (France) : UMR5060 – 3D rue de la Férrollerie. 45071 Orléan, France

Au cours de ces dernières années un intense travail de terrain a été fait sur la Chaîne Pyrénéenne, avec le but de déterminer les gîtes à silexutilisés potentiellement par les groups humains préhistoriques (Sánchez de la Torre, 2015). Dans le cadre de ces études, notre attention a été focalisé sur un type de silex qui semble avoir circulé sur quelques centaines de kilomètres pendant le Paléolithique supérieur : les silex du type Montgaillard-Montsaunès. Ce type de silex, formé dans un contexte sédimentaire marin, affleure dans le versant nord des Pyrénées centrales, en trois gîtes appartenant à deux formations du Crétacé supérieur : les flysch marneux du Campanien-Maastrichtien (gîtes de Buala et Montsaunès) et les flysch gris du Cénomanien Moyen et Turonien (gîte de Montgaillard).
Après avoir écarté dans un premier, par des travaux de terrain, d'autres sources possibles appartenant à ces formations, l'objectif de ce travail a été d'établir des différences entre les gîtes de Buala, Montsaunès et Montgaillard, selon diverses échelles d'analyse. Dans un second temps, nous avons analysé les silex marins apparus dans les niveaux magdaléniens de deux sites du versant sud pyrénéen : la Cova del Parco et l'Abri de Forcas I, pour essayer de mettre en relation les silex archéologiques avec les gîtes à silex du versant nord pyrénéen.
La caractérisation texturale et micropaléontologique à la loupe binoculaire n'est pas suffisante pour répondre précisément à cette question. Nous avons donc mené des analyses géochimiques par *Energy Dispersive X-Ray Fluorescence* (ED-XRF), *Laser Ablation-Inductively Coupled Plasma-Mass Spectrometry* (LA-ICP-MS) et *Particle Induced X-Ray Emission* (PIXE) afin de rechercher des signatures utilisables pour la provenance de la matière première. Les résultats nous ont per-

*Speaker
†Corresponding author: marta.sanchez-de-la-torre@u-bordeaux-montaigne.fr

mis de connecter les silex archéologiques de la Cova del Parco et l'Abri de Forcas I avec des gîtes à silex.

Keywords: silex, archéopétrologie, géochimie, ED, XRF, LA, ICP, MS, Magdalénien, Pyrénées

Taphonomic method and modular database to establish the origin of flints of the Middle Gravettian of La Picardie (Bossay-sur-Claise, Indre-et-Loire, France)

Vincent Delvigne * [1,2], Paul Fernandes [3,4], Christophe Tufféry [5], Jean-Paul Raynal [3,6], Laurent Klaric [7]

[1] de la Préhistoire à l'Actuel, Cultures, Environnement, Anthropologie (PACEA) – Université Sciences et Technologies - Bordeaux I, CNRS : UMR5199, Ministère de la Culture et de la Communication – Bâtiment B8 Université Bordeaux 1 Avenue des Facultés 33405 TALENCE CEDEX, France
[2] Service de Préhistoire, Université de Liège – place du XX aout, 4000 Liège, Belgium
[3] UMR - 5199 PACEA, Université de Bordeaux – CNRS : UMR5199 – bâtiment B18, Allée Geoffroy Saint-Hilaire, 33615 Pessac Cedex, France
[4] SARL Paléotime – pas de tutelle – 6173 rue Jean Séraphin Achard Picard, 38350 Villard-de-Lans, France
[5] INRAP – INRAP – Direction Scientifique et Technique, 121 rue d'Alésia, CS 20007, 75685 Paris Cedex 14, France
[6] Department of Human Evolution, Max Planck Institute for Evolutionary Anthropology – Deutscher Platz 6, 04103 Leipzig, Germany
[7] UMR 7055 – Préhistoire et Technologie, Maison Archéologie Ethnologie – CNRS : UMR7055 – 1 allée de l'Université, 92023 Nanterre Cedex, France

For several years, interdisciplinary collective research projects (PCR) have enabled the design and use of a descriptive database of the main flints marker in southern and central France, associated with their primary and secondary deposits. Collected data come from a prospecting form describing the flint formation and from a modular database divided into different observation grids constituting the complete identity card of each type of flint. By their spatial attributes, these different data are linked to a shape file of formations with flints, themselves digitized with *ArcGIS* and *QGis* on the basis of a harmonized protocol building on several layers of the WebMapService (WMS) *Infoterre* of the *BRGM* . Today, the sharing of this data is making possible through the use of the *ArcGisOnLine*platform (AGOL) meeting the needs of the various users concerned.

Applied to archaeological series, this database which take into account the concept of evolutionary chain of flints, extend to prehistory the reasoning on the relationship between silicites and their environments. According to the same criteria as those defined for the geological samples (petrology and alterology forms), it allows to reconstruct the route traveled by the flint before its collection by the prehistoric humans and, by the addition of a taphonomic form, decrypts the post-depositional flint evolution that serves to decipher the intensity and chronology of the mechanisms likely to have taken part in deposit sedimentogenesis.

In terms of paleogeography, which is the whole point of this approach, the accuracy of the petro-archaeological analysis is not anecdotal. We have found that only quantity, diversity (genetic

*Speaker

and gitologic) and the way in which materials from coherent spaces are introduced into the archaeological sites makes it possible to discuss their method of acquisition and thus to approach, through the management of space and the relationship to territories, the organization of prehistoric societies. The results from the application of this method and the use of the database are presented for a sample of particular materials coming from the Middle Gravettian series of la Picardie (Bossay-sur-Claise, Indre-et-Loire , La France).

Keywords: Petroarchaeology, taphonomy, Middle Gravettian, database

Validity and value of naturalist criteria for the determination of lithic raw material: the example of the Aurignacian sequence from Caminade (Dordogne, France)

Solene Caux * [1], Jean-Guillaume Bordes [1]

[1] PACEA (de la Préhistoire à l'Actuel : Culture, Environnement, Anthropologie) – Université de Bordeaux (Bordeaux, France), CNRS : UMR5199, Ministère de la Culture et de la Communication – UMR 5199 PACEA Université de Bordeaux Bâtiment B8 Allée Geoffroy Saint Hilaire CS 50023 33615 PESSAC CEDEX, France

From the beginning of petroarchaeology and with the major advances of analyses methodologies like mineralogy and geochemistry, the naturalist criteria used for long time by prehistorians have been mainly shelved. Color, texture, macroscopic zonations, etc. have no direct correspondence within methodologies from geosciences. Determination based on naturalist criteria have been then questioned and / or excluded by modern petroarchaeologists. This method is however still widely used by prehistorians as its very easy realization mainly based on macroscopic observation make possible to study thousands of pieces that means a whole archaeological collection. Despite of these facts, the validity of this method has never been tested. What are then the true limits of the determination of raw material in archaeological contexts based on naturalist criteria? In order to starting this broad debate, we first present here the preliminary results of a pilot study. We make an experimental collection of geological flint samples from different identified origins from France. We start a blind-test asking several colleagues to determine the origin or at least to group together the samples from the same theoretical source, and to detail their criteria. Based on the first results of this study, we discuss the validity of naturalist criteria for the determination of these types of flints. In a second time, we use the aurignacian sequence of Caminade as a practical case study of archaeological context where the naturalist criteria were used for sourcing determination. We discuss then the validity and the value of this method and finally we approach the question of articulation between the different analyses and methodologies in petroarchaeology.

Keywords: lithic raw materials, naturalist criteria, macroscopic observation, Blind, test, Aurignacian

*Speaker

New fashions, new cherts: the emergence of Evaporitic varieties in the Ebro Basin

Rafael Domingo * [1], Luis Miguel García-Simón , Lourdes Montes [1], Alfonso Alday [2]

[1] University of Zaragoza – Spain
[2] University of Basque Country – Spain

The Ebro Basin is one of the richest regions for the exploitation of siliceous raw materials in SW Europe. In the central plains massive quantities of good-quality Neogene chert (Monegros variety) are easily available both in primary and secondary position. As a matter of fact, it was intensely exploited in prehistoric times, but also in recent periods when industrial-scale gunflint production took place. This chert was employed since the Paleolithic to knap selected tools (burins, projectile points) in distant contexts where not-so-good local varieties were exploited for common lithic elements. But in the central territory of the Ebro Basin, sometimes in the very locations where Monegros chert appears, there is another variety whose exploitation only start in the Early Neolithic: the Evaporitic chert. More tenacious than the Monegros type, it was frequently exploited to obtain blades that eventually were transformed in the characteristic double-bevelled geometric microliths that became fashionable at the same time than the first examples of pottery. The frequent thermal treatment that those blades and microliths present suggests that Evaporitic chert was chosen by prehistoric knappers for its good response to pressure retouch after that treatment. This communication presents the results of an experimental protocol that tries to discern if, as supposed, Evaporitic cherts are better than Monegros chert for making double-bevelled microliths from heated blades.

Keywords: Ebro Basin, Lithic raw materials, Evaporitic chert, Experimentation, Heat treatment, Double, bevelled microliths

*Speaker

Procurement and exploitation of lithic raw materials in the Paleolithic of the Central Caucasus

Ekaterina Doronicheva * [1], M. Steven Shackley [2], Marianna Kulkova [3], Elena Odinokova [4]

[1] ANO Laboratory of Prehistory – St.Petersburg, Russia
[2] Geoarchaeological XRF Laboratory, Department of Anthropology, University of California, Berkeley – United States
[3] Herzen State University – St.Petersburg, nab. Moyki 48/12, Russia
[4] Herzen State University – St.Petersburg, Russia

Strategies employed by Middle Palaeolithic (MP) Neanderthals and Upper Palaeolithic (UP) humans to acquire lithic raw materials often play a key role in assessing human movements through the landscape, contacts with neighbouring groups, and cognitive abilities. The north-central Caucasus – located between the highest volcanic mountain peaks of Europe – Elbrus (5642 m asl) and Kazbek (5034 m asl) – is notable as producing the only obsidian source known in the Northern Caucasus. The source (called Baksan or Zayukovo) is located north-east of Elbrus in the Baksan river valley (Terek river basin). Since the mid 1950s, several groups of researchers undertook attempts to find Paleolithic sites in the region. However, only three stratified sites, Sosruko and Alebastroviy Zavod rockshelters excavated in 1955-1957 (Zamiatnin, Akritas, 1957a; 1957b), and Badynoko rockshelter, which was investigated in 2004 (Zenin, Orlova, 2006; Seletsky et al., 2017), provide evidence of human settling in the Baksan river valley during the terminal Pleistocene and early Holocene. The Middle Paleolithic sites are known in neighbouring areas, such as those found during the 1950–1960s in small surface localities in the north-eastern Caucasus (Liubin, Beliaeva, 2001) and in Weasel Cave, located in the Gizeldon river (Terek River upper basin), at the border with north-eastern Caucasus (Hidjrati et al., 2003).

Our field surveys in 2016 discovered the first stratified Middle Palaeolithic site in the Baksan obsidian region. The site, Saradj-chuko Grotto, is located in the Saradj-chuko River valley (a tributary of the Baksan River), and approximately 6 km from known obsidian sources. Technical-typological peculiarities allow us to define the industry as Levallois-laminar Mousterian. The Levallois and laminar characteristics, and the absence of bifacial backed knives differ the Mousterian industry of Saradj-chuko from the Eastern Micoquian industry of the north-western Caucasus (Kuban River basin) and find analogs among the Mousterian industries known in the north-eastern Caucasus (Terek River basin) and southern Caucasus. Here we present data on lithic raw material exploitation, obtained from petrography and geochemical analyses, and studies of archaeological collections from MP (Saradj-chuko Grotto) and UP (Sosruko Rockshelter) sites in the region. Regional flint and obsidian outcrops were examined by us during special field surveys in 2016-2017. In the result, we identified in the region several outcrops and alluvial placers of flints having grey, pink, and black color. The flint, which we

*Speaker

discovered in primary outcrops, occurs in the Jurassic and Cretaceous limestone. Since 2016, we have started to collect an etalon source collection (lithotheque) of flints from the north-central Caucasus, and performed over 60 petrography and 40 geochemical analyses of flint samples from this region.

The study shows significant differences in raw material strategies applied by UP humans and MP Neanderthals. Raw material characteristics, such as quality, morphology, and availability contributed to differences in acquisition, procurement, transportation and use of stone at the Paleolithic sites in the Central Caucasus. Also, results of our studies of lithic raw materials, especially obsidians, suggest not only local cultural interactions within the region, but also some contacts with the Northern and Southern Caucasus. Our studies indicate that obsidian from the Baksan source occurs in MP layers in Mezmaiskaya Cave, located in the north-western Caucasus, _˜250 km to west from the source, and that the Baksan obsidian source was a centre of attraction for both MP Neanderthals and UP modern humans (Doronicheva, Shackley, 2014). This obsidian transportation points to contacts between the populations of the north-western and north-central Caucasus, but the nature of these relationships remains to be determined.

The research was funded by the Russian Scientific Foundation grant for the research project 17-78-20082, "Human-nature interaction in the Past in the Central Caucasus: dynamics of environmental change and technological innovations, and subsistence strategies".

Keywords: lithic raw materials, raw materials sourcing, obsidian, petrography, geochemistry, Middle and Upper Paleolithic, Central Caucasus.

The stone raw materials in El Pirulejo (Priego de Córdoba, Spain). The case of level 5.

Isabel Cánovas Calle* [1], María D. Simón-Vallejo [1], Lydia Calle Román † [1], Victoria Aranda Sánchez [1], Andoni Tarriño Vinagre [2], Rubén Parrilla Giráldez [1], Francisco Jimenez Espejo [3], Miguel Cortés Sánchez [1]

[1] Tellus. Prehistoria y Arqueología en el sur de Iberia. Universidad de Sevilla. (TellUS) – Spain
[2] Centro Nacional de Investigación en Evolución Humana (CENIEH) – Spain
[3] Japan Agency for Marine-Earth Science and Technology (JAMSTEC)YokosukaJapan – Japan

In this paper we present the results about the raw materials studies of the Late Pleistocene deposit of El Pirulejo and includes the knapped lithic industries and other types of stone supports used for diverse functionalities. Among the former, the chert suppose the 97% of the raw material used in lithic tools manufacturing processes. Likewise, we analyze the rest of the stone supports documented in the sequence of the deposit. The diversity of raw materials and the variety of documented functionalities support the idea that the site was a central element for the hunter-gatherer communities that used the central zone of the Subbaetic mountain ranges and the Guadalquivir basin, mainly Magdalenian.

Keywords: El Pirulejo, raw materials, functionalities, central zone, Subbaetic.

*Corresponding author: isacanovasc@gmail.com
†Speaker

Moving stones about: petrographic insights on the Paleolithic groups of inland Galicia (NW Spain).

Arturo De Lombera-Hermida * [1], Xose Pedro Rodríguez-Álvarez [2], Oscar Lantes [3], Bruno Gómez De Soler [4], Elsa Duarte [5], Marco De La Rasilla Vives [5], Augusto Pérez-Alberti [6], Ramón Fábregas-Valcarce [7]

[1] Grupo de Estudos para a Prehistoria do Noroeste. Arqueoloxía, Antigüidade e Territorio (GEPN-AAT), Dpto. Historia, Universidade de Santiago de Compostela, (GEPN-AAT (USC)) – Dpto. Historia, Universidade de Santiago de Compostela, Pz. Universidade nº1, 15782 Santiago de Compostela, Spain., Spain
[2] Institut Català de Paleoecologia Humana i Evolució Social, URV, Tarragone (IPHES) – Spain
[3] Unidade de Arqueometría. RIAIDT. Universidade de Santiago de Compostela (RIAIDT, USC) – Spain
[4] Institut Català de Paleoecologia Humana i Evolució Social, URV (IPHES) – Spain
[5] Área de Prehistoria, Universidad de Oviedo (UO) – Spain
[6] Departamento d Xeografía. Universidade de Santiago de Compostela (USC) – Spain
[7] Grupo de Estudos para a Prehistoria do Noroeste. Arqueoloxía, Antigüidade e Territorio, USC (GEPN-AAT (USC)) – Spain

Chert is traditionally considered the main lithological marker for the analysis of Paleolithic territories. Thus, in those regions like Galicia where that is scarce resource, petrographic analyses are not too common either. Moreover, local raw materials (quartz and quartzite, mainly) have not received much attention from the researchers.
The petrographic and technological study of the Solutrean lithic assemblage from Valverde (Monforte de Lemos, Galicia) led us to attempt the definition of the catchment areas and management strategies concerning the autochthonous and allochthonous lithic resources. To that purpose, several petrographic analyses were conducted (XRD, FXR, etc.) on the quarzites coming from primary and secondary deposits in the Monforte de Lemos Basin and a sample from the archaeological artefacts.

The analysis of those local raw materials allows us to identify a structured and organized management of the lithological resources according to their technological needs and the reduction sequences that were followed. Lastly, the few artefacts made on chert give us an opportunity to assess the socioeconomic territories of the Galician Solutrean groups and the eventual existence of long distance exchanges.

Keywords: Lithic technology, Quartzite, Solutrean, NW Iberia

*Speaker

Towards a library of raw ferruginous and manganous rocks: challenges to source coloring rocks used during the Prehistory

Emilie Chalmin *† [1], Hélène Salomon‡ [2], Jean-Victor Pradeau [3], Julien Monney [2], Claire Chanteraud [2]

[1] Environnements, Dynamiques et Territoires de la Montagne (EDYTEM) – Université Savoie Mont Blanc, Centre National de la Recherche Scientifique : UMR5204, Ministère de la Culture et de la Communication, Ministère de la Culture et de la Communication – Université Savoie Mont-Blanc, Campus scientifique, 73376 Le Bourget du Lac cedex, France
[2] Environnements, Dynamiques et Territoires de la Montagne (EDYTEM) – Université Savoie Mont Blanc, Centre National de la Recherche Scientifique : UMR5204 – Université de Savoie, Campus scientifique, 73376 Le Bourget du Lac cedex, France
[3] UMR 7264 CEPAM – Université de Nice Sophia-Antipolis – France

From 300 ky, prehistoric people have used pigmentaceous rocks. If the activities related to the so called "pigment" uses are difficult to describe, it is principally due to the mode of utilization. In fact, these mineral resources were mainly ground to powder, which irremediably destroyed the structure of the initial rock, and blur the informations concerning the selection of the raw coloring materials, the techniques of transformation implemented and, at least, the utilizations.
In order to overcome this critical situation, we focus on the supply. This initial step of analysis will benefit to a better understanding of:

- the **past mineral landscape** and the economical areas in which diverse prehistoric people settled, transported goods and changed through times,

- the **choice of raw coloring materials** compared to, in one hand, the other geological coloring materials that were available, and, in the other hand, the other resources collected, such as flakable rocks (*Réseau des Lithothèques*).

- the **main sensitive criteria** of these choices, i.e. visual and mechanical criteria, which have connections with technical preoccupations during the transformation process of the raw rocks by grinding, heating and mixing, and finally may elucidate the utilizations.

In this view, we are currently building a library of natural coloring materials. The main issue is to establish a relevant ID card for each geological deposit taking into account the geological dynamics. As for flakable resources and based on existing methodology, we conduct systematic surveys and documentations of the iron and manganese oxide (hydroxide) containing deposits.

*Speaker
†Corresponding author: emilie.chalmin-aljanabi@univ-smb.fr
‡Corresponding author: helene.salomon@univ-smb.fr

We collect information at different scales: petrography, mineralogy and geochemisty in order to find the geological **fingerprints** which could be used to differentiate the geomaterials and to compare with diverse archaeological remains coming from the prehistoric sites, including coloring fragments, residues on tools and paintings/drawings.

The first step of this library called "pigmentothèque" has been initiated between the Ardèche and Gard valleys (south-east of France), considering the high potential of ferruginous deposits in various contrasted geological environments and the closeness with numerous prehistoric settlements and rock art sites.

Keywords: pigment, ferruginous rock, supply, petrography, mineralogy, geochemistry

Siliceous raw materials and supply source areas in the Palaeolithic sites of Sima de las Palomas de Teba and Cueva de Ardales, Málaga, Spain

Salvador Domínguez-Bella *† [1], Serafin Becerra , Lidia Cabello , Gerd-Christian Weniger [2], Jose Ramos-Muñoz [3], Pedro Cantalejo-Duarte [4], Yvonne Tafelmaier

[1] 1Grupo HUM 440. Universidad de Cádiz – Spain
[2] Neanderthal Museum – Talstraße 300, 40822 Mettmann, Germany
[3] Departamento de Historia, Geografía y Filosofia, Universidad de Cádiz – Avda. Gómez Ulla s.n, Cádiz, Spain
[4] Centro de la Prehistoria/Cueva de Ardales – Avda. de Málaga, nº 1. 29550 Ardales (Málaga), Spain

For more than a decade we have been working on the characterization of the siliceous raw materials used by Palaeolithic hunter-gatherer societies in the Guadalteba and Turón valleys (province of Málaga, Spain). These studies have been completed in recent years by a geoarchaeological prospecting, which aimed to determine the possible source areas of the rocks used in the Prehistory of the Guadalteba region.
In the framework of a General Research Project, three excavation campaigns have been carried out in the karst deposits of Sima de las Palomas de Teba and Cueva de Ardales; in these interventions an important archaeological record has been generated. In this sense, from an interdisciplinary relationship between archaeology and geology we have developed a series of petrological techniques with which we have been able to characterize the flint or other rocks obtained in the outcrops of the framework territory, as well as the raw materials of the mentioned archaeological sites in which the lithic products were made.

Now we provide the first stratigraphic distribution data of the raw materials in both excavations, as well as a comparison of the siliceous rocks used in each site in the different chronological phases. It is a research focused on obtaining data of a social and economic nature through the geoarchaeological analysis of materials, which means we have to advance in the understanding of the strategies for supply of raw materials from these societies. In this way, we propose a possible model in which we consider aspects such as the access routes and the distance to the source areas.
These data will be correlated, in a study that is being developed, with the technological analysis of the lithic industry in order to reconstruct all areas of production by the hunter-gatherer societies in the Guadalteba and Turon valleys.

*Speaker
†Corresponding author: salvador.dominguez@uca.es

Keywords: geoarchaeology, petrography, land use

Raw material procurement at Abrigo do Poço Rockshelter (Central Portugal)

Telmo Pereira * [1], Eduardo Paixão , João Marreiros , David Nora , Joana Pereira

[1] Interdisciplinary Center for Archaeology and Evolution of Human Behaviour (ICArEHB) – Faculdade das Ciências Humanas e Sociais. Universidade do Algarve. Campus de Gambelas 8005-139 (Faro, Portugal)., Portugal

Abrigo do Poço is a rock shelter located in the karstic canyon of Ribeira das Chitas at the basin of the River Lis (Central Portugal). The site has a sequence starting from the 8.2 ka Event to, at least, the LGM. Despite the multiple available resources in the vicinities, the main activity during the Upper Paleolithic seems to have been the exploitation of a small chert outcrop located right above it. This outcrop extends in patches though the vicinities due to the combination of tectonic activity and fluvial erosion that results in multiple the canyons. Interestingly, the outcrop closer to the site is one where the chert is less expressive.
The chert from this site has different colors, patterns and textures due to internal variability and to external agents (tectonic, patina).
Here we present the macroscopic and geochemical characteristics of this outcrop through the valley and discuss the issue of potential misleading of interpretation when only one of these approaches is used.

Keywords: Chert, Lis valley, outcrops, internal variability

*Speaker

Apports de la pétrographie des craies du Bassin parisien à la détermination géographique des matières premières lithiques préhistoriques.

Gabriel Teurquety * [1], Alain Giosa [1], Christophe Petit [1]

[1] Archéologies et Sciences de l'Antiquité (ArScAn) – UMR 7041 - Archélogies Ennnementales – Maison de l'Archéologie et de l'Ethnologie 21 allée de l'Université, 92000 Nanterre, France

La détermination précise de l'origine gîtologique des matériaux pour la confection des outils en silex permet d'aborder la question de la mobilité des sociétés nomades du Paléolithique supérieur.
Les formations crayeuses du Bassin parisien, qui occupent un cinquième de la surface de la France métropolitaine, ont été une ressource de silex très importante. L'origine géographique de certaines de ces matières premières a bien été identifiée, comme c'est le cas du silex du Grand-Pressigny. Il a été retrouvé sur les sites archéologiques dans la région proche des affleurements mais également à plusieurs centaines de kilomètres des gîtes. L'origine de certains types de silex reconnus dans le corpus archéologique du Bassin parisien reste toutefois inconnue. Pour répondre à cette interrogation, nous avons entrepris de synthétiser les données géologiques disponibles pour le Bassin parisien dans son intégralité. En effet, les silex formés par épigénie ont la même composition en éléments figurés (fossiles, éléments détritiques terrigènes) que la craie dont ils dérivent ; il est alors possible de comparer les contenus pétrographiques et paléontologiques des silex à ceux des craies du Crétacé supérieur ; dès lors, une localisation plus ou moins précise des gîtes exploités pour la réalisation des outils en silex peut être proposée.
Les données pétrographiques de la craie sont issues d'un dépouillement systématique des notices géologiques. Traitées au moyen d'analyses statistiques multivariées, elles ont permis de construire un modèle paléogéographique propre aux craies du Bassin parisien. Cette méthode peut permettre de proposer une provenance pour certaines pièces archéologiques, de provenances jusqu'alors inconnues.

Keywords: Matières premières, silex, Bassin parisien, pétrographie, craie, base de données, statistiques

*Speaker

Towards a library of raw ferruginous and manganous rocks: challenges to source coloring rocks used during the Prehistory

Emilie Chalmin *† [1], Hélène Salomon‡ [2], Jean-Victor Pradeau [3], Julien Monney [2], Claire Chanteraud [2]

[1] Environnements, Dynamiques et Territoires de la Montagne (EDYTEM) – Université Savoie Mont Blanc, Centre National de la Recherche Scientifique : UMR5204, Ministère de la Culture et de la Communication – Université Savoie Mont-Blanc, Campus scientifique, 73376 Le Bourget du Lac cedex, France

[2] Environnements, Dynamiques et Territoires de la Montagne (EDYTEM) – Université Savoie Mont Blanc, Centre National de la Recherche Scientifique : UMR5204 – Université de Savoie, Campus scientifique, 73376 Le Bourget du Lac cedex, France

[3] UMR 7264 CEPAM – Université de Nice Sophia-Antipolis – France

From 300 ky, prehistoric people have used pigmentaceous rocks. If the activities related to the so called "pigment" uses are difficult to describe, it is principally due to the mode of utilization. In fact, these mineral resources were mainly ground to powder, which irremediably destroyed the structure of the initial rock, and blur the informations concerning the selection of the raw coloring materials, the techniques of transformation implemented and, at least, the utilizations.
In order to overcome this critical situation, we focus on the supply. This initial step of analysis will benefit to a better understanding of:

- the **past mineral landscape** and the economical areas in which diverse prehistoric people settled transported goods and changed through times,

- the **choice of raw coloring materials** compared to, in one hand, the other geological coloring materials that were available, and, in the other hand, the other resources collected, such as flakable rocks (*Réseau des Lithothèques*).

- the **main sensitive criteria** of these choices, i.e. visual and mechanical criteria, which have connections with technical preoccupations during the transformation process of the raw rocks by grinding, heating and mixing, and finally may elucidate the utilizations.

In this view, we are currently building a library of natural coloring materials. The main issue is to establish a relevant ID card for each geological deposit taking into account the geological dynamics. As for flakable resources and based on existing methodology, we conduct systematic surveys and documentations of the iron and manganese oxide (hydroxide) containing deposits.

*Speaker
†Corresponding author: emilie.chalmin-aljanabi@univ-smb.fr
‡Corresponding author: helene.salomon@univ-smb.fr

We collect information at different scales: petrography, mineralogy and geochemisty in order to find the geological **fingerprints** which could be used to differentiate the geomaterials and to compare with diverse archaeological remains coming from the Paleolithic sites, including coloring fragments, residues on tools and paintings/drawings.

The first step of this library called "pigmentothèque" has been initiated between the Ardèche and Gard valleys (south-east of France), considering the high potential of ferruginous deposits in various contrasted geological environments and the closeness with numerous prehistoric settlements and Paleolithic rock art sites. Comparison and discussion could be done firstly with the collection of colored and coloring matter artefacts from the " Grotte aux points " and from the " Abri des Pêcheurs " (Ardèche), currently studied.

Keywords: coloring matter, supply, geological deposit, pigment, ferruginous rock

XVII-7. Crossed views of the Aurignacian: Levantine and Western Europe comparison.

The Levantine Aurignacian in context

Anna Belfer-Cohen *† [1], Adrian Goring-Morris * ‡ [1]

[1] Institute of Archaeology (The Hebrew University of Jerusalem) – Jerusalem 91905, Israel

The 'Levantine Aurignacian' cultural entity is a unique phenomenon in the Upper Palaeolithic sequence of Southwest Asia, as it appears to represent a relatively brief and geographically restricted intrusion from outside the region. This (relatively late in the history of research) explanation of an 'Aurignacian' presence in the Levant endeavored to resolve the many incongruities observed in the local Upper Palaeolithic sequence. The dominance of the Eurocentric paradigm of an Aurignacian entity, portraying the advent of modern humans replacing the endemic Neanderthals throughout the Old World ignored the available data, which clearly indicated that Levantine Upper Palaeolithic trajectories differ from those of Western Europe.
Once the chrono-stratigraphic context of the Levantine Aurignacian was clarified, reflecting a different status from that observed in Europe, there arose many questions regarding its relationship with other early UP entities in the Levant, especially the Ahmarian. The latter appears to be of autochthonous derivation, emerging from local, Initial Upper Palaeolithic facies. Coevally, similarities of various attributes (i.e. lithic and organic techno-typology, and symbolling) between the Levantine Aurignacian and at least some of the west European Aurignacian facies (and, sporadically, in intervening regions) contribute to the discourse of what constitutes a prehistoric cultural 'entity', and tracing the likely origins of the entity in the Levant.

Do the similarities actually reflect the huge distances that small groups of highly mobile Upper Palaeolithic foragers appear to have traversed? Did, at least some, of the similar elements indicate a spread of ideas and technological innovations? New data raise fascinating possibilities for re-examining some of these issues.

Keywords: Levantine Aurignacian, Ahmarian, origins, dispersal, cultural entity

*Speaker
†Corresponding author: anna.belfer-cohen@mail.huji.ac.il
‡Corresponding author: nigel.goring-morris@mail.huji.ac.il

Lithic industries from Ksar' Akil (Lebanon) layers XIII-XI: outliers within the Levantine Aurignacian framework?

Sylvain Soriano *† [1]

[1] ArScAn / AnTET – CNRS : UMR7041 – Maison Archéologie et Ethnologie, 21 allée de l'Université 92000 Nanterre, France

Lithic industries recovered from layers XIII-XI (1937-1938 excavation) at Ksar' Akil, namely Levantine Aurignacian A in L. Copeland succession (1975) or Upper Paleolithic phase 3 from C.A. Bergman (1987) are a matter of debates since several decades. Depending on the criteria these industries, the earliest from the EUP sequence at Ksar' Akil, were considered to be Aurignacian or on the contrary closer to the Ahmarian or even neither of them, thus falling outside the *Two tradition model*. According to C.A. Bergman (2003, p. 194), the taxonomical status of these blade(let) based industries is still very much in limbo. This unsolved question hampers any attempt to determine the relationship between these industries and the following ones. Typological and technological comparisons will be developed with the aim to determine whether these industries could be linked to the Aurignacian tradition. Results from recent 14C AMS dating performed on samples from Ksar' Akil including layers XIII-XI by Douka et al. (2013) and Bosch et al. (2015) will be discussed with reference to the broader levantine IUP/EUP chronological framework.

Keywords: Levantine Aurignacian, Ksar Akil, Lithic industry, Technology, Chronology

*Speaker
†Corresponding author:

Adaptive variability in the earliest Aurignacian of Western Europe – The Proto- & early Aurignacian revisited.

Yvonne Tafelmaier *† [1], álvaro Arrizabalaga [2], Joaquim Soler [3], Narcís Soler [3], Aritza Villaluenga [4], Gerd-Christian Weniger [5,6]

[1] University of Tübingen, Institute for Early Prehistory and Quaternary Ecology – Burgsteige 11 72070 Tübingen, Germany
[2] Research Team on Prehistory (IT-633-13). Universidad del País Vasco (UPV/EHU) – Facultad de Letras. Tomas y Valiente s/n. 01006 Vitoria, Spain
[3] Àrea de Prehistòria, Departament d'Història i Història de l'Art, Universitat de Girona – Plaça Ferrater Mora 1, 17071 Girona, Spain
[4] Universidad del Pais Vasco – Spain
[5] Neanderthal Museum – Talstrasse 300 40822 Mettmann, Germany
[6] Institute of Prehistoric Archaeology, University of Cologne – Weyertal 125 50931 Cologne, Germany

Recent studies of lithic and zooarchaeological assemblages of the earliest Aurignacian appearances have provided a more detailed picture of adaptation processes among hunter-gatherers of this time period.
Without doubt the standardized and highly variable bladelet and microblade production plays a key role within these technological systems. While for quite a long time Protoaurignacian and early Aurignacian assemblages have been understood as chronologically and culturally distinct testimonies of the same technocomplex, different studies have recently questioned the straightforward differentiation of both postulated phases on the basis of techno-typological criteria (Sitlivy et al. 2014; Tafelmaier 2015; Falcucci & Peresani 2016; Bataille et al. 2017; Tafelmaier 2017).

Furthermore, zooarchaeological and taphonomic analyses of ancient collections under current paradigms, in combination with techno-economic and chrono-cultural data have provided new data to understand anatomically modern human's adaptation to South-western European Early Upper Palaeolithic environments (Villaluenga et al., 2012; Villaluenga, 2016; Villaluenga et al., 2016).

In this presentation empiric data on lithic techno-typological variability and zooarchaeological remains of Proto- & early Aurignacian assemblages of Northern Spain, Labeko Koba, Ekain and Arbreda, will be presented. Special focus will be given to a diachronic view on variability of laminar production and hunting strategies. Moreover, attention will be drawn to the typological variability within the considered assemblages, which subsequently will be contextualized within a supraregional perspective.

Based on the empiric results, it has been proposed to interpret earliest Aurignacian assem-

*Speaker
†Corresponding author:

blages, including Proto- as well as early Aurignacian inventories, as more complex adaptive manifestations drawing upon a common technological repertoire (Tafelmaier 2017).

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Keywords: Aurignacian, lithic technology, adaptation, modern human dispersal

Accounting for Economic Investment in Aurignacian Ornaments: the view from Southwestern Europe and implications for models of human behavioural evolution

Claire Heckel * [1,2]

[1] Division of Anthropology/Richard Gilder Graduate School, American Museum of Natural History - AMNH (US) (AMNH) – Central Park West at 79th Street New York, NY 10024, United States
[2] Travaux et Recherches Archéologiques sur les Cultures, les Espaces et les Sociétés UMR 5608 T.R.A.C.E.S, Université de Toulouse - Jean Jaurès (UMR 5608 TRACES) – UMR 5608 - TRACES – 5 allées Antonio Machado F-31058 Toulouse Cedex 9, France

The place of the Aurignacian in the trajectory of human behavioural evolution has undergone significant reappraisal in the last 30 years; the period is no longer considered to mark the advent of the symbolic archaeological record and modern behaviour more generally, but it nonetheless constitutes a record of astonishing richness, variety, and innovation. Shifting perspectives on the nature and pace of behavioural evolution in the past two decades have also presented the opportunity for closer examinations of discontinuity and variety *within* the Aurignacian. As elements of Aurignacian material culture that are inherently bound to issues of identity and social organization, personal ornaments invite re-examination with attention to variation within the Aurignacian over time and space, and comparison with ornamental assemblages in the Levantine and African prehistoric records. This paper presents a critical overview of the ornament record of the Aurignacian in the regions of Vasco-Cantabrian Spain, Aquitaine, and the Central Latin Arc (from Catalonia to Liguria), with particular attention to issues of economic investment in the acquisition of raw materials and the transformation of preforms into ornaments. With a few noteworthy exceptions, the record of Aurignacian personal adornment is in fact marked by considerable intersite variability and is most often comprised of small assemblages of minimally modified, locally available natural objects (primarily shells and teeth). In this region, intensified ornament production arises in the Early Aurignacian in Aquitaine and corresponds with similar patterns in the areas of osseous and lithic technology, with expanded networks of artefact and raw-material circulation, and with evidence for more systematic and regimented management of resources and labour. Close attention to context-specific choices of raw-material selection and manufacturing processes (chaînes opératoires) reveal: 1) greater continuity in practices of adornment between the Aurignacian and preceding periods in the Levant and Africa; 2) substantial connections between local subsistence practices and ornamental assemblages in most cases; and 3) the role of expanded social networks in driving periodic intensification of investment in ornament production. In closing, it is suggested that a common vocabulary for describing levels of economic investment in discussions of prehistoric ornaments would be of great utility, especially in interregional and diachronic comparisons.

*Speaker

Keywords: Aurignacian, aurignacien, ornaments, parure, southwestern Europe, production organisation

Early Aurignacian phantoms at the Iberian NE. The short occupation patterns from Cova Foradada and Balma de la Griera (Tarragona, Spain).

Juan Morales *† [1], Artur Cebrià [1], Aitor Burguet-Coca [2,3], Gala García-Argudo [1], Juan Fernández-Marchena [1], Antonio Rodríguez-Hidalgo [4], María Soto [5], José-Miguel Tejero [1,6], Josep Maria Fullola [1]

[1] Universitat de Barcelona, Dpt. d'Història i Arqueología, Secció de Prehistòria (UB) – C/Montalegre 6-8, 08001 Barcelona, Spain
[2] Institut Català de Paleoecologia Humana i Evolució Social (IPHES) – Zona Educacional 4 - Campus Sescelades URV (Edifici W3) 43007 - TARRAGONA, Spain
[3] Universitat Rovira i Virgili (URV) – 43007 Tarragona, Spain
[4] Universidad Complutense de Madrid [Madrid] (UCM) – Avda. de Séneca, 2, Ciudad Universitaria, 28040 Madrid, Spain
[5] University of Calgary (UofC) – 2500 University Dr NW Calgary, Alberta, T2N 1N4, Canada
[6] Centre National de la Recherche Cientifique, UMR 7401 - ArScAn - Equipe Ethnologie préhistorique (CNRS) – Université Paris Nanterre – Maison René Ginouvès UMR 7041 21 allée de l'université F 92023 NANTERRE cedex, France

The first phases of the Aurignacian at the north-east of the Iberian Peninsula have played a significant role in the discussion about the tempo and mode of *Homo sapiens* spread across Europe and the disappearance of indigenous Neanderthal populations. Ages from classical sites such as Abric Romaní and l'Arbreda have been in the debate for decades but the absence of new sites and data left them as isolated spots in a large territory. Recently, the discovery of the Middle-to-Upper Paleolithic site of Cova Foradada provided new stratigraphic evidences of human presence in the territory during the 40-to-30 kyrs cal. period, including Early Aurignacian occupations. At the same time, the ongoing excavations at the neighbor site of La Griera also allowed to document a stratigraphic layer dating back to 35 kyrs cal BP. Both sites display an occupational pattern clearly characterized by a very low intensity anthropic impact. The scarcity of cultural remains and other activity indicators such as anthropized fauna are common traits and seems to draw a regional pattern of low site re-occupation. This pattern can be aprioristically related with a territory where low demography and/or very high mobility dynamics are dominant, complicating the archaeological visibility of human activity and being in concordance with the general absence of evidences documented so far. In this paper we will present for the first time the ongoing studies at Cova Foradada Layer III and La Griera Layer IIb and discuss about the possible significances of the very-short occupation pattern documented.

*Speaker
†Corresponding author: jignacio.morales@gmail.com

Keywords: Upper Palaeolithic, Aurignacian, Iberian Peninsula, Cova Foradada, La Griera

Sudden, fast and epochal: The Neanderthal/Anatomically Modern Human Transition in Northwestern Italy.

false [*] , Fabio Negrino [*] [†] [1], Julien Riel-Salvatore [*] [‡]

[1] Dipartimento di Antichità, Filosofia e Storia, Università degli Studi di Genova (DAFIST) – Italy

The timing and spatiotemporal patterning of Neanderthal disappearance and of the contemporary dispersal in Europe of Anatomically Modern Human (AMH) remains at the center of a very heated debate focusing on sites that provide clear evidence of overlap between the two human species (or sub-species) and their respective cultural expressions. Detailed taphonomic revision have forced a rejection of alleged Châtelperronian/Aurignacian interstratifications (El Pendo, Roc-de-Combe, Le Piage and Grotte des Fées), and that the "Transition" is now only documented by sudden and clear replacements indicated by superimposed distinct technocomplexes, or by transitional aspects (e.g., Chatelperronian and Uluzzian) or, finally, by possible clues of direct contact between Neandertals and AMHs (e.g., Grotte du Renne, at Arcy sur Cure).
Liguria is one of the most intriguing European regions with evidence of the N/AMH Transition, being located along the corridor that links the Protoaurignacian in Italy and France. Two sites, Riparo Bombrini and Riparo Mochi, both located in the famed archaeological area of the Balzi Rossi, not far from the Italian-French border, have yielded an archaeological record that documents the dynamics of the biocultural change that took place in Liguria around 42-40 ky cal B.P.

Excavation at Riparo Bombrini clearly show Mousterian levels superimposed by deposits containing Protoaurignacian material, separated by a stratigraphic paraconformity, possibly an erosional surface. No "sterile" units are documented and artefacts are present in all units, though they vary in intensity. As such, we can observe a gradual decrease in artefact densities from the deepest levels to the higher ones in the Mousterian deposits, which suggest a population decrease in the region or, at the very least, shifting site-use strategies. This decrease is accompanied by a climatic trend towards a colder and drier environment is also testified by fauna, microfauna, pollens and micromorphological features. The paraconformity marks the disappearance of Neandertals and the superimposed unit yields only Protoaurignacian material, along with a deciduous AMH incisor. Hundreds of bladelets (including Dufour bladelets) manufactured on exotic lithotypes acquired over a very wide territory stretching from the Rhone Valley to the Adriatic Sea, as well as personal ornaments and abundant red ochre testify the final replacement of the Mousterian by a new intrusive culture.
In liguria, the Mousterian/Protoaurignacian Transition therefore appears to be sudden, fast and epochal and took place, tentatively, during a more temperate climatic oscillation coinciding with

[*]Speaker
[†]Corresponding author: fabio.negrino@unige.it
[‡]Corresponding author: julien.riel-salvatore@umontreal.ca

the paraconformity, meaning it remains archeologically invisible. On this basis, we can propose that a gradual disappearance of Neanderthal groups on a regional level was followed by the arrival of the first AMHs associated with the Protoaurignacian industry. The absence of a sterile layer at Riparo Bombrini fills in the picture first given by Riparo Mochi, where a stratigraphic gap nonetheless marks the passage between the Middle and Upper Palaeolithic.

Keywords: Mousterian Protoaurignacian Transition Italy

Testing technological definitions: a critical assessment of the Protoaurignacian at Fumane Cave

Armando Falcucci *† [1], Nicholas Conard [1], Marco Peresani [2]

[1] University of Tübingen, Department of Early Prehistory and Quaternary Ecology – Schloss Hohentübingen, D-72070 Tübingen, Germany
[2] University of Ferrara, Dipartimento di Studi Umanistici, Sezione di Scienze Preistoriche e Antropologiche – Corso Ercole I d'Este, 32, I-44100 Ferrara, Italy

The Aurignacian is considered the result of the spread of Anatomically Modern Humans (AMHs) into Europe. To trace this migration route, the techno-complexes which are said to represent the precursors of the classic Aurignacian, like the Protoaurignacian and the Kozarnikian, have at times been assigned to the Early Ahmarian of the Near East. According to some scholars, the Early Aurignacian would have then evolved out of the Protoaurignacian as response of AMHs to the deterioration of the environment at the onset of the Heinrich event 4 (HE4). However, this theory is questioned by the manifestation of the Early Aurignacian prior to HE4 in Central Europe. From an archaeological perspective, it is arguable that all of these studies are based on one assumption: The Protoaurignacian and the Early Aurignacian are two clearly distinct techno-complexes on both typological and technological grounds. In the past few years, a growing number of studies have been published, highlighting a greater technological variability of the earliest manifestations of the Aurignacian. Lithic assemblages with features that are said to characterize the Protoaurignacian are found together with Early Aurignacian implements, hence discouraging the direct application of the model developed in southwestern France.
Here, we present a study on the lithic technology from layers A2-A1 and D6-D3 at Fumane Cave. Layers A2-A1 contain one of the best known and richest Protoaurignacian assemblages of the Italian Peninsula, while layers D6-D3 contain an Aurignacian s.l. industry that has never been described in detail. We performed an extensive analysis of the lithics recovered from these layers to assess whether the Protoaurignacian is technologically well-defined, if the organization of its lithic production differs from the Early Aurignacian as commonly defined, and finally if layers D6-D3 differ significantly from A2-A1. We achieved this by combining two approaches: reduction sequence and attribute analysis.

Overall, our results show that bladelets are the first goal of production in both assemblages. Bladelets do not originate from reduced blade cores, but from a broad range of independent and simultaneous reduction strategies. One implication is that the technological trait that is said to define the Protoaurignacian, the "continuum opératoire", has been over-emphasized. Additional data based on carinated technology and retouched bladelets imply that this techno-complex shares a common technological background with the Early Aurignacian, although quantitative differences are noticeable. Finally, the similarities between A2-A1 and D6-D3 suggest that the

*Speaker
†Corresponding author: armando.falcucci@ifu.uni-tuebingen.de

Aurignacian model as postulated in southwestern France is not applicable to our case study. Careful investigations carried out on a regional scale are the only way to clarify the relationships between human groups that inhabited Europe at the onset of the Upper Paleolithic.

Keywords: Protoaurignacian, Early Aurignacian, Lithic Technology, Early Upper Paleolithic

The Levantine Aurignacian: A view from Manot Cave, Western Galilee, Israel

Ofer Marder * [1,2]

[1] Marder Ofer – Rachsim 28 Zur Hadassa, Israel
[2] Ofer Marder – Department of Bible, Archaeology and the Ancient Near East, Ben-Gurion University of the Negev, PO Box 653, Beer-Sheva 8410501, Israel. the Negev, PO Box 653, Beer-Sheva 8410501, Israel., Israel

The Upper Paleolithic period marks the establishment of modern humans, and their colonization of Eurasia. In the Levant, the Upper Paleolithic is divided into three chronological phases (Initial, Early and Late), each containing several cultural entities. The Aurignacian have long been considered the main entity in the Early Upper Paleolithic (EUP) of Europe. In the Levant, however, data on the Levantine Aurignacian is limited because sites containing well-described assemblages are few, in most cases representing restricted occupations. Techno-typological differences within and between assemblages are poorly defined and so is the chronological time span.

Eight excavation seasons (2010-2017) at Manot Cave, western Galilee, Israel, have revealed an impressive EUP sequence, ca. 2 m thick. The site presents remarkable preservation of cultural remains, containing rich flint and faunal assemblages, ash and charcoal remains, bone tools and mollusk shells. Thus far ten archaeological layers (Area E Layers I-X and Area I Layer 1-5) were attributed to the Aurignacian *sensu lato*. Preliminary analyses and field observations indicated diachronic and synchronic variation in the lithic assemblage, combustion feature morphology and archaeological material density which enables dividing the Aurignacian sensu lato into at least two discrete phases. In this report we will present the data accumulated on the Aurignacian of Manot and try place it in a border context of the Levantine Aurignacian as well as in the framework of the European Aurignacian.

Keywords: Aurignacian, Upper Paleolithic, Levant, Manot Cave, Israel

*Speaker

Aurignacian organic technology at Vogelherd from the Swabian Jura

Keiko Kitagawa * [1,2], Nicholas Conard [3,4]

[1] Muséum National d'Histoire Naturelle (MNHN) – CNRS : UMR7194, Muséum National d'Histoire Naturelle (MNHN) – Institut de Paléontologie Humaine 1, rue René Panhard 75013 Paris, France
[2] Ur- und Frühgeschichte und Archäologie des Mittelalters, Eberhard-Karls-Universität Tübingen – Germany
[3] Department of Early Prehistory and Quaternary Ecology, Institute of Pre- and Protohistory and Medieval Archeology, University of Tübingen – Schloß Hohentübingen Burgsteige 11 72070 Tübingen, Germany
[4] Senckenberg Centre for Human Evolution and Palaeoenvironment, University of Tübingen – Germany

Vogelherd is one of the important sites in the Aurignacian world. This cave is unique within the Swabian Jura and Central Europe for the richness of artifacts, abundance of megafauna and prominent presence of symbolic artifacts in the form of animal figurines, personal ornaments, and musical instruments. Re-excavation between 2005 and 2012 of the back dirt from Riek's excavation in 1931 greatly augmented the body of the artifacts available for study. Here, we will provide preliminary results from our analysis of organic technology, which we define as tools made from antler, bone, ivory, and teeth. The most common tools are hunting implements, most notably antler points. Among the points that are complete or have proximal ends, most are classified to split-based types. Such prevalence is linked to the abundance of the reindeer and shed antlers on the landscape, and the presence of this type fossil shows a clear cultural link to nearby caves in the Swabian Jura and other sites from Europe and western Asia. The most common bone tools include retouchers and smoothers (*lissoirs*). The latter are typically made from ribs of mammoth size, which concurs with the previous studies of the material. While mammoth remains were abundant on site, the use of ivory as tools is rare compared to ivory finds, which are linked to the production of personal ornaments. Altogether the assemblage of Aurignacian organic tools from Vogelherd attests to the importance of the site for hunting and domestic activities alongside ritual or symbolic activities reflected by the exceptional array of artworks recovered at the site.

Keywords: Aurignacian, organic technology, Swabian Jura, hunting, domestic activity, symbolism, mammoth

*Speaker

Redefining the Levantine Aurignacian occupation of Sefunim Cave, Israel

Andrew Kandel * [1], Jamie Clark [2,3], David Friesem [4,5], Ron Shimelmitz [5,6]

[1] Heidelberg Academy of Sciences and Humanities (HAW) – The Role of Culture in Early Expansions of Humans (ROCEEH), Rümelinstr. 23, 72070 Tübingen, Germany
[2] Department of Anthropology, University of Alaska Fairbanks – 303 Tanana Loop, Fairbanks, AK, 99775-7720, United States
[3] Institute for Archaeological Sciences, University of Tübingen – Rümelinstr. 23, 72070, Tübingen, Germany
[4] McDonald Institute for Archaeological Research, University of Cambridge – Downing Street, Cambridge, CB2 3ER, United Kingdom
[5] Zinman Institute of Archaeology, University of Haifa – Mount Carmel, 3498838, Haifa, Israel
[6] David Yellin Academic College of Education – 7 Maagal Beit Hamidrash St., Jerusalem, Israel

Excavations at Sefunim Cave, Mount Carmel, Israel, during the 1960s by A. Ronen established the site as an important reference point for studying the Levantine Aurignacian in the Levant. Our recent excavations at the cave re-examine the Upper Paleolithic sequence and provide a new look at the level termed Levantine Aurignacian. The archaeological manifestation of the Levantine Aurignacian is commonly assumed to represent a wave of immigration into the Levant of the Aurignacian complex which spread over large parts of Eurasia. The stratigraphic sequence at Sefunim shows a succession of occupations from the base of Middle Paleolithic archaeological horizon (AH) VII, through the early Upper Paleolithic AH V, the late Upper Paleolithic AH IV, and the Epipaleolithic AH III-II. Here we focus on AH V which dates between 35-30,000 cal BP based on charcoal and shell. AH V is 20-40 cm thick and rich in flint tools, bones and shell beads, along with other elements of material culture such as ocher, antler fragments and massive stone choppers. Micro-geoarchaeological analysis of sediments from this layer show elevated concentration of ash, burnt bone and burnt shell. The study of stone artifacts shows typical Aurignacian tool forms. Well represented are burins and thick scrapers, which are often nosed or carinated. Some blades show a flat and intrusive modification, often termed "Aurignacian retouch". The total number of faunal specimens identified to date is _˜840, with ungulates accounting for 93% of the NISP; however, a number of other taxa are present, including birds, small carnivores and tortoise. Gazelle (n=380) and fallow deer (n=164) predominate, indicating a particular focus on these species. Antler and bone tools with single points are the most frequent form, although one artifact, likely of antler, is a bi-point. Alongside numerous ochre pieces, the presence of shell artifacts is notable. Although the newly excavated shell assemblage comes from a relatively small area, it now represents one of the largest collections from this period in the Levant. A single gastropod species, *Columbella rustica*, predominates, followed by the scaphopod *Antalis* sp. Together these taxa comprise about 85% of the shells. While this set of behaviors, with regard to lithic technology, bone tools, shell beads and use of fire, supports the attribution of AH V to the Levantine Aurignacian, the varying character

*Speaker

along the entire sequence is significant, as it sheds light on the nature of change between the early and late Upper Paleolithic.

Keywords: Israel, Upper Paleolithic, Levantine Aurignacian, lithic artifacts, faunal analysis, shell beads, microgeoarchaeology

Examining the place of the Swabian Jura within the Aurignacian world

Nicholas Conard * [1], Guido Bataille [2], Ewa Dutkiewicz [2], Keiko Kitagawa [2], Christopher Miller [2], Sibylle Wolf [2], Michael Bolus [2]

[1] Université de Tubingen (Département de Préhistoire) – Universität Tübingen Ur- und Frühgeschichte und Archäologie des Mittelalters Burgsteige 11 72070 Tübingen, Germany
[2] Eberhard Karls Universität Tübingen – Germany

Since the initial excavation of Aurignacian finds at Bockstein Cave in the Lone Valley in the late 19th century, each generation of researchers has made important contributions to our understanding of the Aurignacian of the Swabian Jura, southwestern Germany. Excavations since the late 1990s have yielded new results from Hohle Fels, Geißenkl'osterle and Vogelherd and reexamination of previous collections has helped to complete a clear picture of many aspects of the Swabian Aurignacian. While open-air sites are rare, the region's caves have yielded many rich and well preserved assemblages that provide a wealth of useful contextual information about the lifeways of the makers of the Aurignacian.
Here we review the current state of research and touch upon the cultural and chronostratigraphy of the region as reflected in the key sites of the Ach, Lone and Lauchert valleys. This paper examines the excellent record of lithic artifacts and diverse classes of organic artifacts to consider both what are regionally unique and inter-regionally unifying elements of the Aurignacian. This exceptional record of numerous classes of cultural remains represents one of the key sources of information on this phase of the early Upper Palaeolithic. These results help to define the place of the Swabian Jura in the Aurignacian world.

Keywords: Aurignacian, Swabian Jura, Cultural Stratigraphy

*Speaker

THE AURIGNACIAN IN THE IBERIAN MEDITERRANEAN CENTRAL REGION

Valentín Villaverde* [1], Alfred Sanshis† [2], Ernestina Badal García‡ [1], Miguel ángel Bel§ [1], M. Mercè Bergadà¶ [3], Aleix Eixea‖ [1,4], Pere Guillem** [5], álvaro Marínez Alfaro ††‡‡ [1], Rafael Martínez Valle [5], Carmen María Martínez-Varea [1], Manuel Pérez Ripoll [1], Cristina Real ††

[1], Dídac Roman [3]

[1] Universitat de València. Departament de Prehistòria, Arqueologia i Història Antiga. – Spain
[2] Museu de Prehistòria de València. Servei d'Investigació Prehistòrica – Spain
[3] Departament de Prehistòria, Història Antiga i Arqueologia. Universitat de Barcelona (SERP) – Spain
[4] Institut Català de Paleoecologia Humana i Evolució Social (IPHES) – Spain
[5] Àrea d' Arqueologia i Paleontologia de l'Institut Valencià de Conservacoó i Restauració de Bens Culturals – Spain

The lower levels of the Cova de les Cendres (XVIC, XVID and XVII) and the Cova de les Malladetes (XII, XIII and XIV), from the excavations carried out in the last years (2015 to 2017), have provided substantial information to clarify the early upper Palaeolithic in the Iberian Mediterranean central region.
In both cases, the Aurignacian levels are underlying a rich and prolonged Gravettian, and they have well-defined typological characteristics and faunal data that make it possible to characterize this phase and the occupation processes of the two deposits. Bering in mind that there is not many sets which have provided information of hunting activities and subsistence in the Mediterranean context. Cendres and Malladetes are two cavities, which although they are located at a short distance (about 40 km), inhabit different environment. While Cova de les Malladetes is located more than 600 metres above sea level, in the Monduber massif, Cova de les Cendres opens to the coastal plain, just 50 metres above sea level.

In the light of the results provided by the study of the lithic industry and the faunal remains

*Corresponding author: valentin.villaverde@uv.es
†Corresponding author: alfred.sanchis@dival.es
‡Corresponding author: Ernestina.Badal@uv.es
§Corresponding author: Miguel.bel@uv.es
¶Corresponding author: bergada@ub.edu
‖Corresponding author: aeixea@iphes.cat
**Corresponding author: guillem_per@gva.es
††Speaker
‡‡Corresponding author: alvaro.martinez-alfaro@uv.es
Corresponding author: rafval@gva.es
Corresponding author: Carmen.M.Martinez@uv.es
Corresponding author: Manuel.Perez@uv.es
Corresponding author: didac.roman@uv.es

of both sites, and the new dates obtained in Malladetes and Cendres, we evaluate the chronological framework of the Iberian Mediterranean Aurignacian. Moreover this new data allows us to compare with other Aurignacian evidences in that same geographic frame, and to define the processes of interactions between human groups and carnivores and raptors during that period.

Another aspect of special interest in our communication is the assessment of paleoenvironmental conditions, through the study of anthracological remains, the microfauna and birds documented, and the consideration of the conditions of levels formation
On the other hand, the study of the ornament objects documented in the archaeological sites of the central Iberian Mediterranean region allows us to propose the existence of a well-defined cultural territory for that period.

Keywords: Aurignacian, Mediterranean Spain, Upper Palaeolithic

A closer look at lithic variability in the Aurignacian of the Swabian Jura

Guido Bataille *† [1], Nicholas J. Conard [1,2], Michael Bolus [3]

[1] Department for Early Prehistory and Quaternary Ecology, University of Tübingen – Germany
[2] Senckenberg Center for Human Evolution and Paleoenvironment at Tübingen – Germany
[3] Heidelberg Academy of Sciences and Humanities, Research Center 'The role of culture in early expansions of humans' at University of Tübingen – Germany

The Sawbian Jura in Southwestern Germany exhibits stratified cave-sites with Aurignacian horizons dating between _˜44 and 36 ka calBP (Conard & Bolus, 2008; Higham et al., 2012). Actual investigations of Aurignacian horizons from Hohle Fels and Geißenkl´osterle Caves, both situated in the Ach Valley, a tributary of the Danube, suggest technological variability in bladelet production (Bataille & Conard, 2016). While the assemblages from Hohle Fels are characterized by bladelet production from burin cores the assemblages from Geißenkl´osterle are characterized by bladelet production from carinated endscraper-cores and regular cores. Nevertheless, Geissenkl´osterle and Hohle Fels assemblages show qualitative similarities among the cores and tools (Conard & Bolus, 2006; Bataille & Conard, 2016). Although the assemblages of bladelet cores from Hohle Fels IV and IIIa partially resemble western European assemblages of Roc-de-Combe sub-type, they share typological similarities and the same age as Geißenkl´osterle AH II and III, which were interpreted belonging to the early Aurignacian (Teyssandier et al. 2006). Furthermore, the high number of lamellar burin spalls, occasionally showing unilaterally retouch, the specific use traces on lamellar blanks, as well as the lack of Dufour bladelets suggests a functional interpretation of the artefact composition of Hohle Fels AH IV. Based on the chronostratigraphy of Geißenkl´osterle and Hohle Fels, we examine the strengths and weaknesses of chronological, cultural and functional explanations for the lithic variability of the Swabian Aurignacian.

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*Speaker
†Corresponding author: guido.bataille@ifu.uni-tuebingen.de

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Keywords: Aurignacian, lithic technology, bladelet production, functional variability

Taphonomic study of Aurignacian levels from Cova de les Cendres (Alicante, Spain) and assessment of their contact with the Gravettian

Miguel Angel Bel *† [1], Alvaro Martínez-Alfaro [1], M. Mercè Bergadà [2], Dídac Roman [2], Cristina Real [1], Valentín Villaverde [1]

[1] Universitat de València. Departament de Prehistòria, Arqueologia i Història Antiga. Av. Blasco Ibañez 28, 46010 Valencia, Spain. PREMEDOC – Spain
[2] SERP. Departament de Prehistoria, Historia Antiga i Arqueologia. Universitat de Barcelona. C/ Montalegre 6-8, 08001 Barcelona, Spain. – Spain

Cova de les Cendres presents evidences of human occupation during Upper Palaeolithic, with Aurignacian, Gravettian, Solutrean and Magdalenian levels. The lowest levels of the sequence (XVIC and XVID) are related to Aurignacian and dated between 30,780 and 35,340 cal. BP. Over these there are three levels (XV, XVIA and XVIB) with Gravettian ascription and dated between 24,640 and 31,000 cal. BP.
The lowest level of those ascribed to Gravettian, XVIB, has 340 lithic remains (without counting chips) of which 61 are retouched tools. Aurignacian levels present less quantity of evidences: XVIC comprises 158 lithic remains of which 23 are retouched and XVID presents 12 remains of which 3 are retouched.

In this communication we focus on the taphonomic study of these levels based on the archaeostratigraphic analysis and detailed refitting study of lithic material. Moreover, we take into account the sedimentological and stratigraphic characteristics, concentrating the attention on formation processes of different units and on the degree of influence on the integrity or postdepositional alterations of the assemblages. In order to know if the position of some lithic remains is consequence of postdepositional action, we assess the particularities of each lithic assemblage: on the one hand in unit XVIB backed tools represent 31.1% of the retouched material, whereas these are not documented in Aurignacian levels; on the other hand there are some specific tools typically ascribed to Aurignacian that appears in level XVIB, of Gravettian ascription.
Finally these results are compared with others from different Mediterranean sites, with the aim to establish the coherence of data from lower Gravettian level of Cendres (XVIB) and the entity of alteration processes detected from taphonomic study and refitting. Moreover we assess the possibilities offered by the methodology used.

Keywords: Formation processes, Lithic taphonomy, Micromorphology, Aurignacian, Early Upper

*Speaker
†Corresponding author: miguel.bel@uv.es

Perspectives on the Early Upper Paleolithic in the Zagros Mountains

Damien Flas * [1], Nicolas Zwyns *

[1] Université de Liège (ULiège) – Service de Préhistoire Place du XX août, 7 (bât. A1) B-4000 Liège, Belgium

The term "Baradostian" was proposed in the 1960's to identify a group of Early Upper Paleolithic assemblages found in the Zagros Mountains. Since then, it has been the subject of an increasing number of studies including new excavations, dating programs and re-assessments of previously known lithic assemblages. The accumulated body of work seems to revolve around a restricted number of anthropological questions among which we selected two. First, scholars tend to emphasize similarities between the Zagros and coeval techno-complexes from the Middle-East and from Europe such as the (Proto-)Aurignacian and the Early Ahmarian and discuss scenarios of population dispersals. Second, recent analyses have discussed issues related to the origins of the Baradostian phenomenon (namely the potential connections with the regional Mousterian) and its geographical diversity (differences with the so-called 'Rostamian'). We note that new research on the Early Upper Paleolithic of neighboring regions (Levant, Southern Caucasus and Central Asia) provides key-elements for a better understanding of the cultural environment surrounding the Baradostian. Here, we discuss some the above-mentioned issue with the hope that it will help clarifying the status of the Baradostian and more specifically, its relations with the Easternmost Aurignacian-like assemblages.

Keywords: Aurignacian, Baradostian, Zagros, lithic industry

*Speaker

The Aurignacian in North-West Europe

Damien Flas * [1]

[1] Université de Liège (ULiège) – Service de Préhistoire Place du XX août, 7 (bât. A1) B-4000 Liège, Belgium

North-West Europe yielded a rich Aurignacian record, especially in the caves of the Meuse River basin. These Aurignacian assemblages have been mostly excavated during the pioneer phase of prehistoric archaeology and seem difficult to integrate to the broader picture of the Western Europe Aurignacian because of the weaknesses of the contextual data. However, recent studies and new excavations yielded new data that permit to propose some sketchy conclusions about the chrono-cultural sequence of the Aurignacian in North-West Europe and to question the similarities and differences observed with the richer and better-established Aurignacian record of South-West Europe.

Keywords: Aurignacian, North, West Europe, Belgium, lithic industry

*Speaker

The Aurignacian in the south of the Iberian Peninsula. Current Issue.

Miguel Cortés Sánchez* [1], María D. Simón-Vallejo [1], José A. Riquelme Cantal [2], Lydia Calle Román † [1], Victoria Aranda Sánchez [1], Isabel Cánovas Calle [1], Arturo Morales Muñiz [3], Francisco Jimenez Espejo [4], Carlos Odriozola [1,5], Rubén Parrilla Giráldez [1]

[1] Tellus. Prehistoria y Arqueología en el sur de Iberia. Universidad de Sevilla. (TellUS) – Spain
[2] Universidad de Córdoba (UCO) – Spain
[3] Laboratorio de Zooarqueología, Departamento de BiologíaUniversidad Autónoma de MadridMadridSpain – Spain
[4] Japan Agency for Marine-Earth Science and Technology (JAMSTEC)YokosukaJapan – Japan
[5] Dpto. de Prehistoria y Arqueología. Universidad de Sevilla – Spain

Until relatively recently, the deposits with Aurignacian occupations in southern Iberian were very scarce. As a result, some authors maintained the Middle Palaeolithic occupation idea until very advanced moments of the Last Maximum Glacial. This
panorama has been changing in recent years due to the fact that some of the supposed Middle Palaeolithic levels were re-dated with more refined systems. The results have aged most of them.

Likewise, sites such as Bajondillo Cave and, lesser extent, others located in the SW extreme of Europe, present clear indications of the presence of Early Upper Palaeolithic technocomplex.

Consequently, a model of human-cultural substitution between the Middle and Upper Palaeolithic has been stabilized with a much shorter period of coexistence.

In this work we will present a current issue about chronological and palaeoenvironmental aspects of the section of the sequence that illustrates in Bajondillo Cave the Middle and Upper Palaeolithic transit. Likewise, we will present an updated assessment of the technological, functional and economic studies of the aurignacian levels.
Finally, we will present a new site that points the presence of the Aurignacian towards inland areas of High Andalusia.

Keywords: Aurignacian, Bajondillo, Middle, Upper transition, Andalusia

*Corresponding author: mcortes@us.es
†Speaker

The Aurignacian toolkit. 15 years of traceological analysis on Aurignacian collections from Western Europe.

Joseba Ríos-Garaizar * [1], Iluminada Ortega [2]

[1] Centro Nacional de Investigaciones de la Evolución Humana (CENIEH) – CENIEH (Centro Nacional de Investigación de la Evolución Humana), Paseo de Atapuerca s/n, 09004 Burgos, Spain., Spain
[2] Institut National de Recherches Archeologiques Preventives (INRAP) – Institut national de recherches archéologiques préventives – 7, rue de Madrid75008 Paris, France

The Aurignacian is characterized by the appearance and development of certain tool types like backed bladelets, on blade end/scrapers or burins. Certain other types that characterized the Chatelperronian are absent, like big stone weapon tips, and new bone tools, like sagaies appear and generalize during the Aurignacian. Also, during the Aurignacian, we witness a real development of symbolic behavior with the generalization of ornaments and art. All these changes suggest that we are facing a completely new cultural complex with new technological necessities.
Our hypothesis is that these new situations demand new tools to be accomplished, but this must be demonstrated through use-wear analyses. In the last 15 years we have analyzed several collections from western Europe, most of them in Dordogne (Barbas III, Les Garris, Vieux Coutets, etc.), SW France (Ituritz, Brassempouy) and northern Iberian Peninsula (Aitzbitarte, Labeko Koba). These analyses suggest that most of the characteristics of the Aurignacian, in terms of use wear, develop already in the Protoaurignacian: multicomposite hunting weapons; link between end-scrapers/hide and burins/bone-antler). Also we observe particular situations like the existence of tools dedicated to the production of ornaments; tools submitted to particular use-rules like the big blades from Barbas III; or the dual nature (tools/cores) of carinated end-scrapers. All these features linked with others like the high standardization of toolkits (Bon 2002), the existence of expert productions (Ortega et al. 2006), or the long distance transport of certain tool types, like the Bergeracois (Fernandes et al. 2012), suggest that the lithic production and use played an important role in the complex societies of the Aurignacian.

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Keywords: Aurignacian, use wear, France, Spain

An engraved rock object from Manot Cave

Omry Barzilai *† , Israel Hershkovitz *

[1], José-Miguel Tejero [2,3], Mira Bar Matthews , Ron Lavi , Avner Ayalon [4], Amos Frumkin , Avshalom Karasik [5], Ofer Marder [6]

[1] Dan David Center for Human Evolution and Biohistory Research, Sackler Faculty of Medicine, Tel Aviv University [Tel Aviv] – Tel Aviv, Israel
[2] Universitat de Barcelona (UB) – Gran Via de les Corts Catalanes, 585, 08007 Barcelona, Spain
[3] Centre National de la Recherche Cientifique, UMR 7401 - ArScAn - Equipe Ethnologie préhistorique (CNRS) – Université Paris Nanterre, Université Paris Nanterre – Maison René Ginouvès UMR 7041 21 allée de l'université F 92023 NANTERRE cedex, France
[4] Geological Survey of Israel, Jerusalem, Israel – Israel
[5] Israel Antiquity Authorities – Jerusalem, Israel
[6] Ben-Gurion University of the Negev – Israel

The Upper Palaeolithic material cultures of central and western Europe are well known for their symbolic manifestations that include magnificent rock art, impressive anthropomorphic figurines and mobile art objects on ivory and other raw material like bone, antler, and stone slabs, and decorated ornaments. The Upper Paleolithic of the Levant, on the other hand, is significantly less rich, and exhibits a limited repertoire of symbolic expressions that correspond only to the Levantine Aurignacian. Among the common manifestations are of portable incised and notched bones and stone objects.
Ongoing excavations at Manot Cave, Israel, have exposed well preserved Levantine Aurignacian contexts that are securely dated to 38-34 Ka. The Aurignacian at Manot is characterized by typical flint assemblages, bone and antler objects, perforated shells, as well as portable art objects.

One of the most exceptional finds discovered at Manot is a non-portable engraved stone that was found at the back part of the cave next to cave wall. The engraved stone bear a three-dimensional geometric pattern that faced the cave center.
In this talk we will present results of the pattern that imply these depressions were made by hominids, most likely Aurignacian. The contextual setting of the stone suggests it may have been used for ritual purposes.

Keywords: Levant, Aurignacian, engraved stone

*Speaker
†Corresponding author: omryster@gmail.com

The early Proto-Aurignacian of Riparo Mochi (Balzi Rossi, Italy): a techno-functional analysis.

Stefano Grimaldi * [1,2]

[1] Università di Trento (unitn) – via T.Gar 14, 38122, Trento, Italy
[2] Istituto Italiano di Paleontologia Umana (Is.I.P.U.) – Italy

A techno-functional analysis of the early proto-aurignacian lithic assemblage coming from the Riparo Mochi (Mochi rockshelter, Balzi Rossi, Italy) is presented. Despite of being one of the most important site in the western Mediterranean region, the Riparo Mochi evidence still remains poorly known; here, for the first time, the early Proto-Aurignacian lithic assemblage - currently the earliest Upper Palaeolithic dated evidence in Italy - is studied from different perspectives: raw material procurement, typology, technology, and function. Results allow to suggest a settlement/mobility model suitable for a large territory ranging from southern France to central Italy.

Keywords: Early Proto, Aurignacian, Riparo Mochi, Balzi Rossi, Mobility

*Speaker

The Levantine Aurignacian in the Mediterranean Woodlands and Arid Marginal Zones: A Discussion of Upper Paleolithic Cultures in Relation to the Sequence at Ksar Akil, Lebanon

Christopher Bergman *† [1], John Williams *

[2]

[1] AECOM – United States
[2] University of Colorado Denver – United States

The Ksar Akil rockshelter is located 10 km northeast of Beirut adjacent to the coastal plain in the foothills of the Lebanon Mountain range, and has been the focus of several different excavations throughout the 20th century. A Paleolithic sequence stretching from the Middle to Upper Paleolithic was revealed in 23 meters of deposits, making this site one of the most important in the region for discussing these periods. Our paper will discuss the various manifestations of what has been called "Levantine Aurignacian" throughout the Levant, from the Mediterranean Woodlands down to the arid marginal zones, using the sequence at Ksar Akil as a reference and comparison. A new classification of the Upper Paleolithic sequence at Ksar Akil is proposed, based on independent studies of collections housed in London, England and Cambridge, Massachusetts, which seeks to provide clarity to the Ksar Akil sequence specifically and regional developments in general.

Keywords: Aurignacian, Levantine Aurignacian, Ksar Akil, Lebanon

*Speaker
†Corresponding author: christopher.bergman@aecom.com

The Rostamian sequence at Ghar-e Boof and its implications for the beginnings of the Upper Paleolithic in Iran

Nicholas J. Conard *† [1,2], Mohsen Zeidi * ‡ [2]

[1] Department of Early Prehistory and Quaternary Ecology, University of Tübingen, Schloss Hohentübingen, 72070 Tübingen, Germany – Germany
[2] University of Tübingen, Senckenberg Centre for Human Evolution and Paleoenvironment, Schloss Hohentübingen, 72070 Tübingen, Germany – Germany

The 2005 survey of the T́ubingen Iranian Stone Age Research Project (TISARP) identified the small cave of Ghar-e Boof at the Yagheh Sangar Pass separating the two parts of the Dasht-e Rostam Plain in Fars Province, Iran as a promising site for study. In 2006 and 2007 the TISARP team excavated a portion of the site and documented rich Upper Paleolithic horizons that Conard and Ghasidian (2011) used together with survey finds (Heydari-Guran 2014) from scores of sites to define the Rostamian cultural taxonomic entity of the early Upper Paleolithic. The Rostamian dates between ca. 35 and 41 ka cal. BP. Ghasidian (2014) then presented the assemblages from Ghar-e Boof in more detail in a monographic publication of her doctoral research. The Rostamian is characterized by a diminutive bladelet assemblage with abundant small platform cores made from chert cobbles from the local river drainages. The assemblages from Ghar-e Boof and the sites studied in the TISARP survey show clear characteristics that distinguish them from both the Baradostian and what has at times been referred to as the Zagros Aurignacian, (Ghasidian et al. 2017).
In 2015 and 2017 the TISARP team returned to Ghar-e Boof with the goal of examining the base of the Upper Paleolithic sequence and to determine if the site preserves a cultural stratigraphic sequence from the Middle Paleolithic. The new phase of excavation documented assemblages from the base of the Rostamian as well as a long stratigraphic sequence with very low find densities that originates from sporadic use of the site during the Middle Paleolithic. This paper examines the question of whether or not temporal trends can be identified within the Rostamian. Additionally, we will examine the stratigraphic observations at the top of the Middle Paleolithic layers and the base of the Rostamian to address the cultural and demographic dynamics at the beginning of the Upper Paleolithic

Keywords: Upper Palaeolithic, Ghar, e Boof, Iran, Rostamian

*Speaker
†Corresponding author: nicholas.conard@uni-tuebingen.de
‡Corresponding author: mohsen.zeidi@ifu.uni-tuebingen.de

The Levantine Aurignacian: A view from Manot Cave, Western Galilee, Israel

Ofer Marder *† [1,2], Talia Abulafia [2], Daniella Bar-Yosef Mayer [3,4,5], Francesco Berna [6], Elisabetta Boaretto [7], Valentina Caracuta [8], Lauren Davis [2], Mae Goder-Goldberger [2], Israel Herskovitz [3,9,10], Ron Lavi [11], Mayan Shemer [12], José-Miguel Tejero * ‡ [13,14], Reuven Yeshurun [15], Omry Barzilai * § [16,17]

[1] Ben-Gurion University of the Negev – Israel
[2] Department of Bible, Archaeology and the Ancient Near East, Ben-Gurion University of the Negev, PO Box 653, Beer-Sheva 8410501, Israel – Israel
[3] The Steinhardt Museum of Natural History, Tel Aviv University, PO Box 39040, Tel Aviv 6997801, Israel – Israel
[4] 3Institute of Archaeology, Tel Aviv University, PO Box 39040, Tel Aviv 6997801, Israel – Israel
[5] Peabody Museum of Archaeology and Ethnology, Harvard University, CambridgeMA02138, U.S.A – United States
[6] Department of Archaeology, Simon Fraser University, 8888 University Drive, Burnaby, British Columbia V5A 1S6, Canada – Canada
[7] Max Planck-Weizmann Center for Integrative Archaeology and Anthropology, DANGOOR Research Accelerator Mass Spectrometry Laboratory, Weizmann Institute of Science, Rehovot 7610001, Israel – Israel
[8] Laboratory of Archaeobotany and Palaeoecology, University of Salento, Lecce 73100, Italy – Italy
[9] Department of Anatomy and Anthropology, Sackler Faculty of medicine – Israel
[10] The Dan David Center for Human Evolution and Biohistory Research, Sackler Faculty of Medicine – Israel
[11] 8 Dan Street, Modi'in 7173161, Israel – Israel
[12] Archaeological Research Department, Israel Antiquities Authority, POB 586, Jerusalem 91004, Israel – Israel
[13] Centre National de la Recherche Cientifique, UMR 7401 - ArScAn - Equipe Ethnologie préhistorique (CNRS) – Université Paris Nanterre – Maison René Ginouvès UMR 7041 21 allée de l'université F 92023 NANTERRE cedex, France
[14] Seminari d'Estudis I Recerques Prehistòriques, Universitat de Barcelona, 08001 Barcelona, Spain – Spain
[15] University of Haifa [Haifa] (HAI) – 199 Aba Khoushy Ave.Mount Carmel, Haifa, Israel
[16] Israel Antiquities Authority – Israel
[17] Weizmann-Max Planck Centre for Integrative Archaeology and Anthropology – Israel

The Upper Paleolithic period marks the establishment of modern humans and their colonization of Eurasia. In the Levant, the Upper Paleolithic is divided into three chronological phases (Initial, Early and Late), each containing several cultural entities. The Aurignacian have long been considered the main entity in the Early Upper Paleolithic (EUP) of Europe. In the Levant,

*Speaker
†Corresponding author: mardero@bgu.ac.il
‡Corresponding author: jose-miguel.tejero@mae.cnrs.fr
§Corresponding author: omry@israntique.org.il

however, data on the Levantine Aurignacian is limited because sites containing well-described assemblages are few, in most cases representing restricted occupations. Techno-typological differences within and between assemblages are poorly defined and so is the chronological time span.
Eight excavation seasons (2010-2017) at Manot Cave, western Galilee, Israel, have revealed an impressive EUP sequence, ca. 2 m thick. The site presents remarkable preservation of cultural remains, containing rich flint and faunal assemblages, ash and charcoal remains, bone and antler tools, personal ornaments and mollusc shells. Thus far ten archaeological layers (Area E Layers I-X and Area I Layer 1-5) were attributed to the Aurignacian *sensu lato*. Preliminary analyses and field observations indicated diachronic and synchronic variation in the lithic assemblage, combustion feature morphology and archaeological material density which enables dividing the Aurignacian *sensu lato* into at least two discrete phases. In this report, we will present the data accumulated on the Aurignacian of Manot and try to place it in a border context of the Levantine Aurignacian as well as in the framework of the European Aurignacian.

Keywords: Upper Palaeolithic, Levantine Aurignacian, Manot Cave, Israel

L'Aurignacien européen est venu d'Asie Centrale

Marcel Otte *† [1]

[1] Université de Liège – 7, Place du XX Août, Bât. A1 – 4000 LIÈGE (Belgique) – Belgium

Entre Zagros et Altaí, les industries à lamelles apparaissent très tôt, et, associées aux hommes modernes en Iran. Leur diffusion occidentale s'est faite au nord de la Mer noire et par-dessus la Mer Caspienne alors exondée, via les aires steppiques méridionales. La diffusion au Levant s'est faite vers la même époque qu'en Europe, à partir du nord dans les montagnes vers le bassin de l'Euphrate. Les origines ultimes sont donc les mêmes en Europe et au Levant, à partir d'un centre asiatique extérieur qui va influencer les deux aires simultanément. L'aire levantine a été en contact également avec le bassin du Nil, mais selon des processus complètement autonomes, et probablement antérieurs à l'Aurignacien. Le territoire européen connait une histoire totalement différente à la fois de celle du Levant et de celle de l'Afrique. L'essentiel de sa population comme de ses traditions paléolithiques est naturellement lié au vaste continent asiatique, juste en étroite continuité géographique et aligné sur les mêmes latitudes: c'est la zone des steppes immenses aux vastes réservoirs démographiques. Tout porte à croire qu'il s'agit là des premières véritables populations indo-européennes

Keywords: Paléolithique supérieur, Aurignacien

*Speaker
†Corresponding author: marcel.otte@ulg.ac.be

(Re)defining our terms: An updated regional and chronological synthesis of the Aurignacian technocomplex in South-Western France

Lars Anderson * [1], Nicolas Teyssandier *

[1], Jean-Guillaume Bordes [2], Laurent Chiotti [3], Damien Flas [4], Alexandre Michel [5,6], Christian Normand [1], Marie-Cécile Soulier [7], Elise Tartar [8]

[1] Travaux et recherches archéologiques sur les cultures, les espaces et les sociétés (TRACES) – Université Toulouse 2, Centre National de la Recherche Scientifique : UMR5608 – Maison de la Recherche, 5 allée Antonio Machado 31058 TOULOUSE Cedex 9, France

[2] PACEA (de la Préhistoire à l'Actuel : Culture, Environnement, Anthropologie) – Université de Bordeaux (Bordeaux, France), CNRS : UMR5199, Ministère de la Culture et de la Communication – UMR 5199 PACEA Université de Bordeaux Bâtiment B8 Allée Geoffroy Saint Hilaire CS 50023 33615 PESSAC CEDEX, France

[3] Muséum national d'Histoire naturelle (MNHN) – Ministère de l'Enseignement Supérieur et de la Recherche Scientifique, Ministère de l'écologie de l'Energie, du Développement durable et de l'Aménagement du territoire – abri Pataud 20 rue du Moyen-Âge 24620 Les Eyzies-de-Tayac France, France

[4] Service de Prehistoire, Universite de Liege – Belgium

[5] de la Préhistoire à l'Actuel, Cultures, Environnement, Anthropologie (PACEA) – Conseil départemental de la Dordogne – Bâtiment B8 Université Bordeaux 1 Avenue des Facultés 33405 TALENCE CEDEX, France

[6] Conseil départemental de la Dordogne, Service de l'archéologie (SAD) – Conseil départemental de la Dordogne – Conseil départemental de la Dordogne, Direction de l'éducation et de la culture, Pôle patrimoine, Service de l'Archéologie, 2 rue Paul-Louis Courier, CS 11200, 24019 Périgueux Cedex, France

[7] Travaux et recherches archéologiques sur les cultures, les espaces et les sociétés (TRACES) – CNRS : UMR5608, Université Toulouse le Mirail - Toulouse II – Maison de la Recherche, 5 Allée Antonio Machado 31058 Toulouse Cedex 9, France

[8] Archéologies et Sciences de lÁntiquité (ArScAn) – Université Panthéon-Sorbonne, Université Paris Nanterre, Ministère de la Culture et de la Communication, Centre National de la Recherche Scientifique : UMR7041 – Maison René Ginouvès Boîte 3 21, allée de lúniversité 92023 NANTERRE CEDEX, France

It has become a truism to say that the Aurignacian (*lato sensu*) is synonymous with the arrival of modern humans in Europe, despite the fact that evidence is accumulating to question this idea. Putting the role of the different transitional industries aside for the time being, there exists significant debate concerning "which Aurignacians?", "when?", and most notoriously "where first?". These simple questions have complex answers, around which many models

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have been proposed to explain how modern humans expanded throughout Europe. Yet multiple traditions of research, crossed with competing models, have resulted in disagreements on what constitutes an Aurignacian assemblage, and whether internal variation is synchronic or diachronic. Our aim here is to weigh in on the debate regarding our definitions of the Aurignacian and its internal variability; if we are not in agreement as to what constitutes the phenomenon itself, it cannot be used effectively in any discussion, regardless of the argument one is trying to make.

Two facts must be established before we can discuss the Aurignacian's internal variability. First, it is, at least at some moments in its chronology, a Pan-European phenomenon extending into limited regions of South-Western Asia. Second, it lasts, in some regions, nearly ten thousand years. These two assertions mean that regional and chronological variability *is to be expected*. As such, we should not be surprised if regional chronologies show both similarities and differences; the Aurignacian is neither monolithic in time nor space. Such variation is, in fact, expected under Clark's (1978) original definition of a technocomplex.

Here we will present an updated synthesis of *chronological variability* in the Aurignacian technocomplex as viewed through its *regionalized manifestations* in South-Western France. This synthesis will integrate recent work linking lithic and osseous technical systems, as well as data on faunal and territory exploitation throughout the Protoaurignacian, Early Aurignacian, and Recent Aurignacian. We will conclude with a brief discussion on what differing regional chronological sequences possibly represent.

Clarke, D. (1978). Analytical archaeology. London: Methuen (2nd edition).

Keywords: Aurignacian, South, Western France, Chronology, Regional perspectives, technical systems

XVII-8. Economy and mobility during the Early Upper Paleolithic: articulating technical systems within geographical spaces.

Mobility and land-use in the Upper Palaeolithic of the Levant

Hannah Parow-Souchon [*†] [1]

[1] LVR-Amt für Bodendenkmalpflege im Rheinland (LVR-ABR) – Endenicher Str. 133 53115 Bonn, Germany

The PhD thesis, of which the final results shall be presented, is concerned with the reconstruction of Late Pleistocene settlement dynamics and mobility in the Southern Levant. A dataset is used spanning the timeframe from the Early Ahmarian to the beginning of the Epipalaeolithic. The spatial distribution of the sites in relation to environmental conditions and resources (water and raw material) is evaluated in the context of the spatial distribution of Pleistocene sediments. A statistical evaluation of environmental factors which significantly explain the variability in the dataset shall be given and particularities in site locality choice for the different cultural units highlighted. Furthermore, an attempt is made to separate discrete functional units of sites through the evaluation of the representation of the reduction sequences preserved on site, the working time, the diversity of the tool assemblages as well as indications for curational activities. In general, the Upper Palaeolithic of the Levant is characterised by a stable residential mobility system adapted to the patchy but abundant distribution of resources. Only at the beginning and end of the analysed timeframe a specialisation of the inventories is notable. A stable use of the environment can be contrasted to a highly dynamic cultural development.

Keywords: Upper Palaeolithic, Mobility, Environmental reconstruction, land, use, resource exploitation

[*]Speaker
[†]Corresponding author: h.parow@gmx.de

Relationships between Gravettian lithic and artistic traditions in Eastern and Central Europe

Natasha Reynolds *† [1]

[1] UMR 5199 PACEA – PACEA (UMR 5199) – Université de Bordeaux Bâtiment B8 Allée Geoffroy Saint Hilaire CS 50023 33615 PESSAC CEDEX, France

The presence of female figures ("Venus figurines") in Gravettian sites from across Europe has frequently been invoked in arguments concerning the nature of social structures during this time period. In particular, the figures have been seen as evidence for the existence of open social networks. In sites in Central and Eastern Europe female figures have been found at numerous Late Gravettian open-air sites. These sites often provide much better archaeological information than many of the highly problematic cave sites in Western Europe where Gravettian female figures have been found. In Central and Eastern Europe the figures are often found in association with shouldered points and other key lithic types, which do not seem to be found further west. The association between these artistic and lithic elements has contributed to the definition of key cultural taxonomic units such as the "Kostenki-Avdeevo Culture", "Kostenki-Willendorfian" and so on. However, the range of variation seen among the lithic assemblages found in association with female figures in Eastern and Central Europe has not always been fully appreciated. Problems with the dating of assemblages and the contexts of individual artefacts at some sites also pose significant challenges. The relationships between lithic and artistic traditions in this part of the archaeological record are more complex than often assumed, and can provide surprising insights into social structures and chronocultural variation in the European Mid Upper Palaeolithic. Here, I present an overview of these relationships based especially on data from the study of backed lithic assemblages in Eastern and Central Europe. I also briefly discuss the theoretical importance of these results for Upper Palaeolithic archaeology more widely.

Keywords: Gravettian, Russia, lithics, female figures, Eastern Europe, Central Europe, Kostenki

*Speaker
†Corresponding author:

Contribution to the definition of the Protoaurignacian: the comparison of archaeological materials from Dufour, Le Piage and le Bois de Milhac (France)

Jean-Guillaume Bordes * [1], Manon Desvignes , Francois Bon [2], Solene Caux * † [1]

[1] PACEA (de la Préhistoire à l'Actuel : Culture, Environnement, Anthropologie) – Université de Bordeaux (Bordeaux, France), CNRS : UMR5199, Ministère de la Culture et de la Communication – UMR 5199 PACEA Université de Bordeaux Bâtiment B8 Allée Geoffroy Saint Hilaire CS 50023 33615 PESSAC CEDEX, France

[2] Travaux et recherches archéologiques sur les cultures, les espaces et les sociétés (TRACES) – Université Toulouse 2, Centre National de la Recherche Scientifique : UMR5608 – Maison de la Recherche, 5 allée Antonio Machado 31058 TOULOUSE Cedex 9, France

Protoaurignacian was first defined by G. Laplace decades ago and then revisit for the years 2000s. It is now widely recognized as part of the main techno-complexes that testify to the beginning of the Upper Palaeolithic from Europe and Near and Middle East. Until now most of the studies have been focused on typological, technological and morphometrical analyses of retouched bladelets, in order to compare material from Europe and the Levantine corridor. The hypothesis of Ahmarian origin for Protoaurignacian that supports the migration wave of Anatomically Modern Human from Africa is still based almost only on typo-technological comparison. Moreover in Occidental Europe, links between Protoaurignacian and the techno-complexes that are before and after in stratigraphy are still widely misunderstood. Finally, Protoaurignacian remains poorly described regarding articulations between its different technical systems: what about the territorial organization, the significance of different ornaments types or nomadism ways? We would like here to participate to the characterization of this techno-complex in South-Western France before considering cross-regional comparisons. We will based our analyse on three sites: Dufour, the eponym site of "Dufour bladelet", as well as le Piage that is currently excavated and present a rich archeostratigraphy including protoaurigancian level, and le Bois de Milhac that has been recently excavated and has delivered for its main sector lithic industry, faunal remains and ornaments exclusively related to Protoaurignacian. First we present the comparison of lithic industries from these three sites, discuting commonalities and differences. Based on both petroarcheaological and typo-technological analyses, we discuss economy and territory and georessources management. Secondly, we cross these results with other technical systems including data from archeozoology and ornaments studies. We then raise the issue of the anthropological signification of these technical and material characteristics.

*Speaker

†Corresponding author: solene.caux@gmail.com

Keywords: Protoaurignacian, lithic industry, techno, economy, territory

Local and inter-site organisation of graphic, plastic and corporal representations in the Aurignacian of the Vézère Valley

Randall White * [1], Romain Mensan [2], William Rendu [3], Raphaëlle Bourrillon [4]

[1] Center for the Study of Human Origins, New York University (CSHO) – 25 Waverly Place, New York, NY 10003, United States
[2] UMR5608 TRACES (UMR5608) – PRES Université de Toulouse – Maison de la recherche, 5 rue A.-Machado, 31058 Toulouse, France
[3] De la Préhistoire à lÁctuel: Cultures, Environnement, Anthropologie (PACEA) – Université Sciences et Technologies - Bordeaux 1, Ministère de la Culture et de la Communication, Centre National de la Recherche Scientifique : UMR5199 – Bâtiment B8 Université Bordeaux 1 Avenue des Facultés 33405 TALENCE CEDEX, France
[4] Centre Cartailhac, MSHS Toulouse (CREAP) – CNRS : USR3414 – 5, allée Antonio Machado, 31058 Toulouse Cedex, France

Recent excavations at classic Aurignacian sites, combined with the study of archival records, long-forgotten museum collections and even backdirt, contribute precious new data to an understanding of chronology, geographic variation, subjects, techniques and socio-spatial context of the earliest graphic, plastic and corporal representations in SW France. The sites concerned (Castanet, Blanchard, Cellier, La Souquette) are prolific sources of EUP material representations.
Our goal is to understand the cultural logic, chronology, spatial structure and regional organization that underly the construction of meaningful forms. The chronology of material representation in the Vézère sites is conditioned by poorly understood taphonomic factors that we believe have removed much of the Aurignacian record in the period from ca. 41KY to 38ky BP (cal). Most art- and ornament-bearing Aurignacian levels are situated on bare, previously unoccupied bedrock platforms. Either there were never earlier EUP occupations in the Vézère or they were washed out of the shelters in the region prior to the art-rich Early Aurignacian installation.

We reveal important inter-site and inter-level variation in representational objects and graphic subjects. Forty-six new engraved, painted or otherwise modified limestone blocks from Castanet, Blanchard, La Souquette and Cellier alter significantly the proportions of previously known represented subjects (including three woolly mammoths from Cellier) on a site-specific and regional scale.

Images and ornaments seem to have been quotidian in context, associated with all the debris of daily life, rather than being restricted to "sanctuaries" or specialized "ritual places." The Early Aurignacians lived with images on the ceiling above their heads and walked on surfaces containing abandoned or lost personal ornaments and bi-products of their production. New

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cementum data show a strong and coherent seasonal signal (winter) for Abri Castanet and La Souquette.

Production and use of formed beads are spatially organized within sites. Unfinished production stages and whole beads cluster together adjacent to fireplaces. Moreover, the construction and use of personal ornaments rely on a highly construed economy of raw materials, often acquired from great distance: marine shells, talc, ivory and mammalian teeth.
The abundance at some of these sites of heat-treated colorants such as hematite and goethite (14kg at Abri Blanchard alone) may reflect painting activities, however they are shown to be entangled with techniques for abrasion aimed at producing lustrous surfaces on bone, ivory and soft stone objects.

Keywords: Aurignacian, Vézère Valley, Regional organisation, Graphic representation, Personal ornaments

Functions and issues of Maldidier cave inside networks of places during the Early Upper Palaeolithic in South-Western France

Solene Caux *† [1], Koren Abanozian , Jean-Baptiste Mallye [2], Jean-Christophe Castel , David Cochard , Nejma Goutas [3], Jean-Marc Elalouf [4,5], François Lacrampe-Cuyaubère , Arnaud Lenoble [6], Xavier Muth , Solange Rigaud , Myriam Boudadi-Maligne

[1] PACEA (de la Préhistoire à l'Actuel : Culture, Environnement, Anthropologie) – Université de Bordeaux (Bordeaux, France), CNRS : UMR5199, Ministère de la Culture et de la Communication – UMR 5199 PACEA Université de Bordeaux Bâtiment B8 Allée Geoffroy Saint Hilaire CS 50023 33615 PESSAC CEDEX, France

[2] PACEA (UMR 5199) – CNRS : UMR5199, Université de Bordeaux (Bordeaux, France) – France

[3] Archéologies et Sciences de l'Antiquité (ArScAn) – Université Paris I - Panthéon-Sorbonne, CNRS : UMR7041, Université Paris X - Paris Ouest Nanterre La Défense – Maison René Ginouvès Boîte 3 21, allée de l'université 92023 NANTERRE CEDEX, France

[4] Institute for Integrative Biology of the Cell (I2BC) – CEA, CNRS, Université Paris-Sud, Université Paris-Saclay, 91198 Gif-sur-Yvette cedex – France

[5] UMR7206 – Muséum National d'Histoire Naturelle, Département Homme et Environnement, CNRS UMR7206, Musée de l'Homme, 17 place du Trocadéro et du 11 novembre, 75116 Paris – France

[6] De la Préhistoire à lÁctuel : Culture, Environnement et Anthropologie (PACEA) – Université de Bordeaux, Centre National de la Recherche Scientifique : UMR5199 – Université de Bordeaux Bâtiment B8 - CS50023 Allée Geoffroy Saint Hilaire 33615 PESSAC CEDEX, France

Territories of Palaeolithic groups could be approached like networks linking key-places inside geographical space. The best known types of archaeological sites are habitat sites in cave or under rock shelters, raw materials collect points and hunting camps that are most of the time one single event record. Maldidier cave (Dordogne) seems to present however a very particular profile concerning anthropic occupations that does not fall within one of the previous types. It is a small cavity opened on the Dordogne valley. Several excavation seasons have been conducted and typical materials from Aurignacian and Gravettian have been collected. Thanks to the last excavations (directed by M. Boudadi-Maligne and J.-B. Mallye) and the study of the previous material we have now a better understanding of the different occupations occurring during the Early Upper Palaeolithic. We present here the results of the lithic industry study. The assemblage is very particular regarding both the typology and the techno-economy and this observation constitutes then the base of our discussion. Several pieces could be considered as part of specific knapping method and then testify of different phases of Aurignacian and Gravettian. These very artefacts however do not fit perfectly with typological definitions ("grattoir Caminade" with questionable direct retouch, intermediate "Caminade" or "Roc-de-Combe" bladelet clearly coming however from "burin busqué" production...). These pieces lead a few

*Speaker

†Corresponding author: solene.caux@gmail.com

questions: What about the variability recovered by typological definitions? And what about the chrono-cultural diagnostic we realize based on these types? Moreover, it seems that only a small part of knapping sequences is realized in the cave whatever the method for both Aurignacian and Gravettian. How this segmentation of the "chaine opératoire" is integrated inside the global socio-economy of these groups and what the functions of Maldidier cave in the different networks of places during the Early Upper Palaeolithic? Comparing the results of lithic study with the analyses carried out on the other artefacts from the cave we discuss the complexity of activities and individuals at Maldidier. Finally, we situate the site inside geographical space and networks of places known for Aurignacian and Gravettian and we discuss about the functions of Maldidier cave at regional scale and over time during the Early Upper Palaeolithic.

Keywords: Maldidier Cave, Aurignacian, Gravettian, Function of site, lithic industry

Mobility and human ecology in the Early Upper Paleoltihic of Liguria

Julien Riel-Salvatore * [1], Fabio Negrino†

[1] Université de Montréal (UdeM) – 2900 Boulevard Edouard-Montpetit, Montréal, QC H3T 1J4, Canada

The region of Liguria in NW Italy is yielding an increasingly fine-grained record of human adaptation during the Early Upper Paleolithic. The important series of sites from the Balzi Rossi, especially Riparo Bombrini and Riparo Mochi, provide an empirical anchor for an up-to-date and empirically grounded discussion of human ecology and mobility strategies in the region during that period. Broadening the scope to include other sites from the rest of the Liguro-Provencal arc allows us to properly situate the detailed patterns identified at the Balzi Rossi in terms of the broader regional socio-ecological systems to which they belonged. We combine lithic, paleoenvironmental and faunal records in order to present a through reconstruction of what made the EUP, and in particular the Proto-Aurignacian technocomplex, such a successful and resilient cultural adaptations to the challenges faced by modern human foragers in the latter half of OIS 3. We emphasize that a central element of this success seems to have been grounded in the ability to maintain links, social and otherwise, with distant regions for a variety of reasons, and that human demographic patterns at the time were reconfigured dramatically relative to what had characterized the human occupation of the region so far. Drawing on the specific record of Riparo Bombrini, we illustrate these trends with examples drawn from mobility and lithic production strategies, lithic raw material procurement, the wide range of raw materials exploited to manufacture personal ornaments, the breatdh of bead-making techniques and subsistence patterns. Having properly inserted them into their paleoecological framework, this study concludes with some thoughts exploring the roots of these behaviors and their long-term impact for the human ecology and niche construction in the area.

Keywords: Early Upper Paleolithic, Aurignacian, Liguria, Italy, Proto, Aurignacian, mobility, lithic technology

*Speaker

†Corresponding author: fabio.negrino@unige.it

L'acquisition des matières premières siliceuses durant les phases récentes de l'Aurignacien dans le nord du Bassin d'Aquitaine

Alexandre Michel * [1,2]

[1] Conseil départemental de la Dordogne, Service de l'archéologie (SAD) – Conseil départemental de la Dordogne – Conseil départemental de la Dordogne, Direction de l'éducation et de la culture, Pôle patrimoine, Service de l'Archéologie, 2 rue Paul-Louis Courier, CS 11200, 24019 Périgueux Cedex, France

[2] de la Préhistoire à l'Actuel, Cultures, Environnement, Anthropologie (PACEA) – Conseil départemental de la Dordogne – Bâtiment B8 Université Bordeaux 1 Avenue des Facultés 33405 TALENCE CEDEX, France

Depuis plusieurs années maintenant, différentes études se sont succédés qui ont permis de mieux caractériser et cartographier les différences sources de matières premières siliceuses présentent sur le territoire français et notamment le bassin Aquitain. Ces données ont été mise à profit afin de proposer des modèles territoriaux et économiques concernant la gestion des ressources minérales siliceuses notamment par les groupes paléolithiques. A ce titre, l'Aurignacien a largement bénéficié de ces analyses, et nombreuses sont les données concernant les ressources minérales exploités durant cette période. Cependant, l'essentiel des études récentes se sont focalisées sur les phases anciennes de ce techno-complexe, même s'il est à noter qu'un renouveau est intervenu ces dernières années. Nous proposons donc, dans le cadre de cette communication, de faire un bilan concernant l'acquisition et la gestion des ressources minérales durant les phases récentes de l'Aurignacien, sur un territoire limité au sud-ouest de la France, et plus particulièrement sur une zone comprenant le Lot, la Dordogne et les Charentes. Nous nous intéressons ici principalement à la phase récente à burins busqués pour laquelle nous aborderons plusieurs points, basé sur l'étude de plusieurs sites fouillés aussi bien anciennement que plus récemment. Nous traiterons d'une part des territoires d'acquisition des ressources siliceuses, et d'autres part de l'économie des matières premières et du mode d'introduction des matériaux extra locaux. Enfin, nous proposerons une synthèse à l'échelle du techno-complexe afin de déterminer les différences et les points communs entre ces différents moments de l'Aurignacien.

Keywords: Aurignacien, Aquitaine, territoire, gestion et économie des matières premières, anticipation des besoins

*Speaker

The Châtelperronian and Aurignacian occupation of Southern Burgundy and adjacent regions (France)

Harald Floss *† [1], Christian Hoyer [1], Heike Würschem [1], Hannes Wegeng [1]

[1] Eberhard Karls Universität Tübingen – Geschwister-Scholl-Platz 72074 Tübingen, Germany

Southern Burgundy is well known for its extensive Paleolithic occupation from the Middle Paleolithic to the end of the Paleolithic.
In this talk we would like to focus on the occupation of this region during the Châtelperronian and the Aurignacian under the aspect of its special paleogeographical situation resulting in the easternmost extension of the Châtelperronian in contrast with the relative proximity of very old Aurignacian sites, eg. of the Swabian Jura.

We will oppose our results concerning these two Early Upper Paleolithic technocomplexes, among others, relating to the spatial use of the landscape, the consistency of place and the usage of different lithic raw materials. Also, the question of the existence of a Protoaurignacian in the region shall be discussed.

Not least the question of the implantation of sites in the landscape will be outlined on the basis of two of the major sites in the region, the Grotte des Fées at Châtelperron (dep. Allier) and the Grottes de la Verpillière at Germolles (dep. Saône-et-Loire).

The Grotte de la Verpillière I was first discovered and excavated in 1868, its assemblage was used by Henri Breuil in the famous *bataille aurignacienne* to support his positioning of the Aurignacian at the very beginning of the Upper Palaeolithic. Later, Henri Delporte compared the Châtelperronian of Germolles to that of the Grotte des Fées complex in the eponym site of Châtelperron (Allier). Having been discovered in the middle of the 19th century, Châtelperron shares with the Grotte de la Verpillière I not only its long history of research along with the stratigraphic difficulties tied to it, but also its very similar positioning in the landscape.
Our analyses are based on a newly revision of the lithic inventory from old collections of Châtelperronian and Aurignacian sites, as well as our continuing fieldwork and recent excavations.

Keywords: Châtelperronian, Aurignacian, Southern Burgundy, lithic raw materials, landscape use

*Speaker
†Corresponding author: harald.floss@uni-tuebingen.de

Diversité des comportements techniques et cynégétiques au Gravettien récent : nouvelles données sur l'abri des Peyrugues (Orniac, Lot)

Elise Cormareche * [1,2]

[1] UMR 7041, ArScAn, équipe AnTET – UMR 7041 ArScAn - AnTET – France
[2] Paléotime – Société Paléotime – France

Malgré la reconnaissance d'une unité culturelle paneuropéenne principalement définie à partir d'une approche typologique (notamment présence de pointes à dos) ainsi que sur les traditions artistique et symbolique (comme les " Vénus "), le Gravettien est considéré comme une " culture-mosaïque ". Une multitude d'expressions technologiques sont observées tout au long de cette période de près de 8000 ans et sur un vaste territoire, de l'Atlantique à l'Oural. Alors qu'actuellement 4 principaux faciès sont reconnus (ancien, moyen, récent et final), la variabilité des comportements observés s'exprime aussi bien inter qu'intra-faciès. Quelle est sa signification ? A l'échelle du site, est-elle chronologique, culturelle, fonctionnelle ou environnementale ? Qu'en est-il à l'échelle régionale et extrarégionale ? Mais également, comment cette variabilité s'articule-t-elle avec la transmission des connaissances et savoir-faire sous-tendue par le caractère unitaire du Gravettien longtemps défendu ?
En prenant l'exemple de la deuxième moitié du Gravettien, et plus particulièrement sa phase récente pour laquelle une importante variabilité des systèmes techniques est attestée, notre recherche propose d'interroger les différents facteurs qui peuvent influencer l'évolution des systèmes techniques et la diversité des comportements à l'échelle inter-régionale.

L'étude en cours se base sur 4 sites archéologiques : L'abri Pataud (Les Eyzies-de-Tayac, Dordogne), le Taillis des Coteaux (Antigny, Vienne), le Blot (Cerzat, Haute-Loire) et l'abri des Peyrugues (Orniac, Lot). L'exemple de ce dernier permet d'apporter de nouveaux éléments de discussion sur la variabilité interne du Gravettien récent.

L'étude des stratégies techno-économiques de P. Guillermin et A. Morala étaye l'existence de sous-phases au sein du Gravettien récent. En effet, l'abri des Peyrugues livre deux niveaux (C22 et C20) stratifiés attribués au Gravettien récent et séparés par une couche stérile pour lesquels les comportements techno-économique sont distincts, contrairement à la vocation du site, ainsi qu'au contexte environnemental. Une évolution pouvant correspondre à l'existence de sous-phases a donc été observée. Toutefois, les mécanismes et facteurs permettant de comprendre le passage entre ces deux sous-phases restent questionnés (Klaric *et al.,* 2009 ; Guillermin et Morala, 2013).
Le réexamen de cette série lithique, en particulier au travers d'une étude fine des armatures

*Speaker

lithiques, de leur variabilité et des différentes chaines opératoires permet d'apporter de nouveaux éléments pour décrire ces variations et interroger les facteurs de changement.

Keywords: gravettien, variabilité, technologie lithique, armature