

Hugo Obermaier-Gesellschaft

für Erforschung des Eiszeitalters und der Steinzeit e.V.



57th Annual Meeting in Heidenheim

7th – 11th of April, 2015

Hugo Obermaier Society
for Quaternary Research and Archaeology of the Stone Age



Hugo Obermaier-Gesellschaft
für Erforschung des Eiszeitalters und der Steinzeit e.V.

57th Annual Meeting in Heidenheim

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In cooperation with



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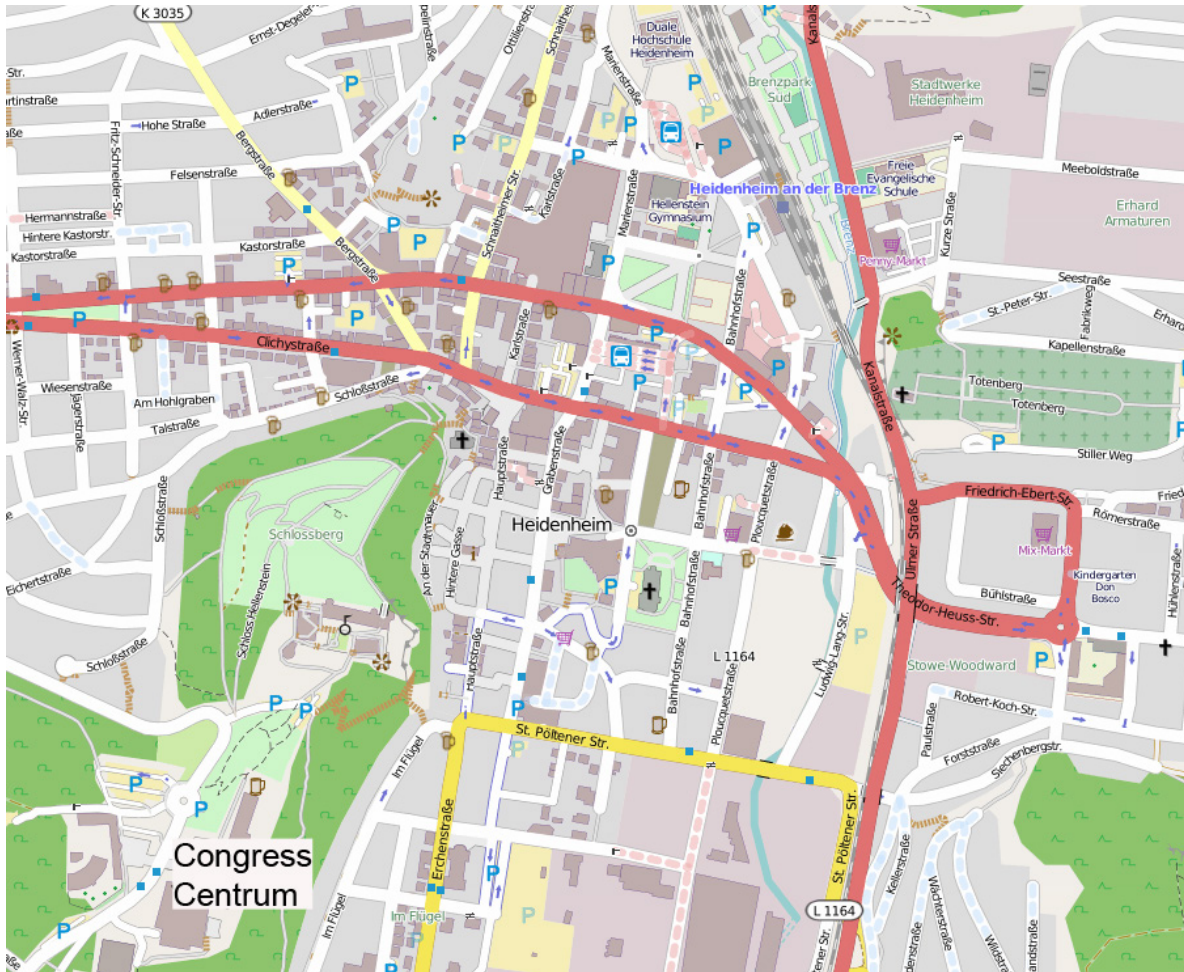
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(Map Source: <http://www.locations-hdh.de>)

Further information concerning the Hugo Obermaier Society (Weitere Informationen)

www.obermaier-gesellschaft.de

Links related to the excursion (Links zur Exkursion)

Archäopark Vogelherd:
 Urgeschichtliches Museum Blaubeuren:
 Verschiedene Fundplätze:

<http://www.archaeopark-vogelherd.de>
<http://www.urmu.de>
<http://www.geopark-alb.de/de/index.php>

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c/o Institut für Ur- und Frühgeschichte, Kochstr. 4/18, D-91054 Erlangen



57th Annual Meeting in Heidenheim

At the invitation of the

University of Tübingen, Institute of Prehistory, Early History and Medieval
Archaeology and the Förderverein Eiszeitkunst im Lonetal e.V.

*Conference venue: Congress Centrum Heidenheim
Hugo-Rupf-Platz 1, 89522 Heidenheim*

Tuesday, April 7th

- 12:00 Opening of the conference office at the Congress Centrum Heidenheim
- 14:00 Beginning of the meeting, welcome by the mayor Bernhard Ilg, the board
of the Förderverein Eiszeitkunst e.V. and the president of the Hugo
Obermaier Society
- 14:20 – 16:20 Oral Presentations
- 16:45 – 18:45 Poster-Session
- 18:45 Reception in the Congress Centrum, music by Six-Pack (Jazz) until 21:00h
- 19:30 Guided tour in Schloss Hellenstein (Exhibition on the Heidenschmiede) and
the site by Prof. N. J. Conard Ph.D

Wednesday, April 8th

- 08.30 – 12:30 Oral Presentations
- 14:00 – 18:00 Oral Presentations „Symbolic communication and modern culture“
- 19:00 Public evening lecture, Prof. N. J. Conard Ph.D. at the city hall of Heidenheim
- 20:30 Gala dinner at the Konzerthaus Heidenheim. Music by Christian Vaida on
the historic grand piano until 22:30h, then Quasi Musici until 1:00h.

Thursday, April 9th

- 08.30 – 12.30 Oral Presentations „Symbolic communication and modern culture“
- 14.00 – 17.45 Oral Presentations
- 18:15 Society's annual general meeting
- 20:30 Get-together and dinner

Friday, April 10th

Excursion A:

Sites in the Lone valley: Museum Ulm, Börslingen, Bockstein, Hohlenstein, Archäopark Vogelherd. Reception at the Archäopark Vogelherd (sponsored by the city of Niederstotzingen)

Saturday, April 11th

Excursion B:

Sites in the Ach valley: Urgeschichtliches Museum Blaubeuren, Brillenhöhle, Geißenklösterle, Hohle Fels

Tuesday, April 7th

12:00 **Conference office opens**

14:00 **Opening of the congress**

Welcome notes by the mayor Bernhard Ilg, the board of the Förderverein Eiszeitkunst e.V. and the president of the Hugo Obermaier Society

Reports on Lower and Middle Palaeolithic

14:20 – 14:40 *Liane Giemsch*
Makuyuni: Acheulean sites from the Lake Manyara, Northern Tanzania

14:40 – 15:00 *Jordi Serangeli, K. Felix Hillgruber & Nicholas J. Conard*
Lithic technology and landuse during the Middle Pleistocene in Schöningen

15:00 – 15:20 *Jens Axel Frick & Harald Floss*
Grotte de la Verpillière II, a Late Middle Paleolithic reference site in southern Burgundy

15:20 – 15:40 *María Gema Chacón, Delphine Vettesse, Camille Daujeard, Florent Rivals, Paul Fernandes, Anne Pike-Tay, Rosalia Gallotti, Bruce Hardy & Marie-Hélène Moncel*
Dissecting palimpsests and events of activity through lithic and faunal refits in karst systems during the Middle Paleolithic: the layer 4 of the Maras rockshelter (Ardèche, France)

15:40 – 16:00 *Camille Jéquier, Davide Delpiano, Juan Manuel López-García, Giuseppe Lembo, Alessandra Livraghi, Marija Obradović, Matteo Romandini & Marco Peresani*
First report from the excavations at the De Nadale Cave, a single layered Mousterian site in the North of Italy

16:00 – 16:20 *Zsolt Mester*
Leaf-shaped tools of the Middle and Upper Palaeolithic in Hungary: a technological approach

- Coffee break -

16:45 **Opening of the Poster Session**

18:45 **Reception in the Congress Centrum**, music by Six-Pack (Jazz) until 21:00h

19:30 **Guided tour in Schloss Hellenstein** (Exhibition on the Heidenschmiede) and the site by Prof. N. J. Conard Ph.D

Wednesday, April 8th

Reports on Middle and Upper Palaeolithic

- 08:30 – 08:50 *Davide Delpiano, Marco Peresani & Andreas Pastoors*
Reconstructing skill and operational sequences from flake refittings. A view on Discoid technology
- 08:50 – 09:10 *Patrick Schmidt*
How can lithic heat treatment in the South African MSA be an indicator of modernity?
- 09:10 – 09:30 *Daniel Richter, Philip Klinger, Paul van den Bogaard & Ludwig Zöller*
New ages for the human remains from Wannen. A 'classical' Neanderthal and human remains as symbol?
- 09:30 – 09:50 *Christoph Wißing, Isabelle Crevecoeur, Mietje Germonpré, Johannes Krause, Yuichi Naito, Cosimo Posth, Hélène Rougier, Patrick Semal & Hervé Bocherens*
Insight from stable isotopes into the ecology of late Neandertals and early anatomically modern humans (AMH) in North-West Europe
- 09:50 – 10:10 *C. Posth, C. Wißing, D. Drucker, K. Kitagawa, K. Wehrberger, C.-J. Kind, H. Bocherens, K. Harvati, N. J. Conard & J. Krause*
Biomolecular investigation of Paleolithic and Mesolithic human remains from the Swabian Jura (South-West Germany)

- Coffee break -

- 10:30 – 10:45 *Hannah Parow-Souchon*
The Wadi Sabra – a contextual approach to the Palaeolithic landscape
- 10:45 – 11:00 *Ine Leonard*
Reading the Stones. Modelling the Early Aurignacian Archaeological Landscape of the Banat (SW-Romania)
- 11:00 – 11:20 *Luc Moreau, Guido Heinz, Anja Cramer, Michael Brandl, Oliver Schmitsberger & Christine Neugebauer-Maresch*
Stratzing-Galgenberg in its lithic landscape: Difficulty of terrain as a relevant proxy for objectifying mobility patterns and economic behaviour in the Aurignacian of the Middle Danube region
- 11:20 – 11:40 *María de Andrés-Herrero, Daniel Becker, Christian Willmes, Georg Bareth & Gerd-Christian Weniger*
Upper Palaeolithic mobility patterns and territoriality in Western Cantabria using Least Cost Path Analysis
- 11:40 – 11:55 *Andrei Sinitsyn*
Aesthetic subsystems in the context of Upper Paleolithic cultural unities: East European perspectives
- 11:55 – 12:10 *Julia Blumenröther*
The Mäanderhöhle – Analyses of palaeolithic cave art in Bavaria
- 12:10 – 12:30 *Andreas Pastoors & Tilman Lenssen-Erz*
Tracking in Caves – Deciphering the context of cave art by reading Pleistocene footprints with indigenous knowledge

- Lunch break -

**„Symbolic communication and modern culture“
Global perspectives**

- 14:00 – 14:20 *Francesco d’Errico*
The earliest instances of symbolic material culture
- 14:20 – 14:40 *Lyn Wadley*
Early Symbolic Communication in the Middle Stone Age of South Africa
- 14:40 – 15:00 *Akira Ono*
Northeast Asian record of early symbolic behavior
- 15:00 – 15:20 *Marco Peresani*
What the Southern European record tells us about the evolution of symbolic culture

Environment, subsistence and technology

- 15:20 – 15:40 *Sandrine Costamagno & Marie-Cécile Soulier*
Beyond food : The animal exploitation in the Early Upper Paleolithic

- Coffee break -

- 16:10 – 16:30 *Britt M. Starkovich, Susanne C. Münzel, Keiko Kitagawa, Petra Krönneck, Simone Riehl, Dorothee G. Drucker & Nicholas J. Conard*
Environment and subsistence during the Swabian Aurignacian
- 16:30 – 16:50 *Michael Bolus, Jeeyun Chang & Nicholas J. Conard*
Lithic and organic technology during the Swabian Aurignacian and their implications for testing models of cultural innovation during the early Upper Paleolithic
- 16:50 – 17:10 *Guido Bataille*
Mechanisms of the Early Upper Paleolithic occurrence and consolidation in Eastern Europe. The Crimean and Kostenki example
- 17:10 – 17:30 *Yvonne Tafelmaier*
“Trapped in terms” - the Proto-Aurignacian and early Aurignacian of Northern Spain”
- 17:30 – 17:50 Discussion part 1
- 19:00 **Public evening lecture, Prof. N. J. Conard Ph.D. at the city hall of Heidenheim**
The Swabian Aurignacian and its implications for population dynamics and cultural evolution
- 20:30 Gala dinner at the **Konzerthaus Heidenheim**. Music by Christian Vaida on the historic grand piano until 22:30h, then Quasi Musici until 1:00h.

Thursday, April 9th

„Symbolic communication and modern culture“ The early record of personal ornaments, art and music

- 8:30 – 8:50 *Laure Dayet*
Early production and use of pigments: theory versus facts
- 8:50 – 9:10 *Marian Vanhaeren, Wulf Schiefenhövel, Nicolas Antunes & Francesco d’Errico*
Personal ornaments and group identity during the Early Upper Palaeolithic
- 9:10 – 9:30 *Sibylle Wolf & Claire Heckel*
Early Aurignacian Personal ornaments of southwestern Germany and southwestern France: commonalities and differences
- 9:30 – 9:50 *Harald Floss & Shumon T. Hussain*
Substantiating the saltationist view of Aurignacian emergence in Central and Western Europe: a reassessment of qualitative and quantitative arguments
- 9:50 – 10:10 *Randall White & Raphaëlle Bourrillon*
“Aurignacian graphic and plastic expression in Southwest France: context, dating and inter-regional comparisons”

- Coffee break -

- 10:30 – 10:50 *Walpurga Antl-Weiser*
Symbolic expressions of early modern humans – a comparison between Aurignacian and Gravettian symbolic objects
- 10:50 – 11:10 *Claus-Joachim Kind & Kurt Wehrberger*
The Lion Man from Stadel Cave and his significance for the Swabian Aurignacian
- 11:10 – 11:30 *Ewa Dutkiewicz*
Markings and symbols - the fully developed symbolic behavior
- 11:30 – 11:50 *Susanne Münzel, Maria Malina, Anna Friederike Potengowski & Nicholas J. Conard*
Discovery and Soundscape of Musical instruments of the Swabian Aurignacian
- 11:50 – 12:10 *Gary Tomlinson*
Music and Early Symbolic Communication
- 12:10 – 12:30 Discussion part 2

- Lunch break -

Reports on Middle and Upper Palaeolithic and Mesolithic

- 14:00 – 14:20 *Stephan M. Heidenreich, Conny Meister & Claus-Joachim Kind*
“Caves with the oldest Ice Age art” – On the Way to UNESCO World Heritage
- 14:20 – 14:40 *Judy Y. Chang*
The lithic technology and social-economic context at Vogelherd IV and V
- 14:40 – 15:00 *Martin Oliva*
Symbolic communication through mammoth bones
- 15:00 – 15:20 *Hervé Bocherens, Dorothee G. Drucker, Mietje Germonpré, Martina Lázníková-Galetová, Mikhail V. Sablin, Andrew W. Kandel, Verena Schuenemann, Olaf Thalmann & Johannes Krause*
Morphological, ecological and genetic characterization of Pleistocene wolves and Palaeolithic dogs in the Gravettian of Předmostí I (Czech Republic)
- 15:20 – 15:40 *Zdeňka Nerudová, Petr Neruda, Nela Doláková & Jan Novák*
Štýřice III (Brno District) - A contribution towards understanding the Epigravettian Environment

- Coffee break -

- 16:10 – 16:30 *Nadine Huber & Harald Floss*
Painted limestones from the Magdalenian of the Klausenhöhlen (near Essing, Bavaria)
- 16:30 – 16:50 *Jeanne Marie Geiling, Lisa M. Fontes, Ana Belen Marín-Arroyo, Lawrence Guy Straus & Manuel R. González Morales*
Distinguishing Drop Zones: Lithic and Faunal Perspectives on Lower Magdalenian Activity Areas in El Mirón Cave, Cantabria, Spain
- 16:50 – 17:10 *Dorothee G. Drucker, Nicholas J. Conard, Katerina Harvati, Cosimo Posth, Johannes Krause & Hervé Bocherens*
Isotopic evidence of aquatic resource consumption in the Swabian Jura during the Late-Glacial interstadial
- 17:10 – 17:30 *Clemens Pasda*
Very modern cultures - New results of research on the late Upper and Late Palaeolithic in Central Germany
- 17:30 – 17:50 *Florian Sauer*
Organic Resource Management in the Late Palaeolithic of North-Eastern Bavaria. Geomorphology-Based Modelling of Potential Biodiversity for Catchment Analysis
- 17:50 – 18:05 *Tina K. Jahnke, Markus Siegeris, Stefan Wettengl & Elisabeth Noack*
Zigeunerfels: First results of recent investigations into the lithic and faunal remains

18:15 **Society's annual general meeting**

20:30 **Get-together and dinner**

Poster presentation

Thomas Albert

Flint artefacts from the northern section of the Late Magdalenian open-air site of Bad Kösen-Lengefeld, Saxony-Anhalt

Manuel Alcaraz-Castaño & Gerd-Christian Weniger

Testing population hiatuses in the Late Pleistocene of Central Iberia: a geoarchaeological approach

D. Álvarez-Alonso, J. Yravedra, A. Arrizabalaga, J. F. Jordá Pardo, E. Álvarez-Fernández, M. de Andrés-Herrero, M. Elorza, S. Gabriel, García-Díez, D. Garrido, M. M. J. Iriarte Chiapusso, J. Rojo, C. Sesé, P. Uzquiano, T. Aparicio, M. Arriolabengoa, A. Calvo, P. Carral, R. Domingo, I. Elorrieta, V. Estaca, O. Fuente, M. García-Madariaga, E. García-Sánchez, E. Iriarte Avilés, P. López-Cisneros, M. Meléndez, J. Tapia, A. Tarriño, G. J. Tranco, A. M. Valles, M de Andrés-Chain, D. Ballesteros, D. Cabanes, A. Moreno, D. Rodrigo & R. Obeso

The Upper Palaeolithic record of Coímbre Cave (Asturias, northern Spain). A symbolic place, a place for living

Àngel Blanco-Lapaz, Maria Saña & Ferran Antolín

Management of fish resources in a lacustrine site in the Early Neolithic in NE Iberian Peninsula

Viviane Bolin & Gerd-Christian Weniger

Rock Art and Mobile Art as Cultural Marker in the Solutrean and Magdalenian of the Iberian Peninsula

Knut Bretzke

The Paleolithic record in the central region of Sharjah (UAE) and conclusions about hominin settlement dynamics in Southern Arabia

Norbert Buchinger & Thomas Einwögerer

Ice age hunters in Gösing at the Wagram

H. Floss, S. Fröhle & S. Wettengl

New investigations on palaeolithic open-air sites in Southwestern Germany

Liane Giemsch, Susanne C. Feine, Kurt W. Alt, Qiaomei Fu, Corina Knipper, Johannes Krause, Sarah Lacy, Olaf Nehlich, Constanze Niess, Svante Pääbo, Alfred Pawlik, Michael P. Richards, Verena Schünemann, Martin Street, Olaf Thalmann, Johann Tinnies, Erik Trinkaus & Ralf W. Schmitz

Interdisciplinary investigations of the late glacial double burial from Bonn-Oberkassel

Marc Händel, Vera M. F. Hammer & Ulrich Simon

Colourful horizons – assessing the variety of colour pigments processed and applied at the Pavlovian site Krems-Wachtberg

Klaus Herkert

New insights into raw material use patterns in the Early Upper Paleolithic of Saint-Martin-sous-Montaigu (southern Burgundy, France)

Thomas Hess, Susanne Münzel, Andreas Taller & Nicholas J. Conard

Late Magdalenian hunter-gatherers at the rock shelter site Helga-Abri in Ach Valley

Magdalena Krajcarz, Maciej T. Krajcarz, Teresa Madeyska, Piotr Wojtal, Bolesław Ginter, Paweł Valde-Nowak, Krzysztof Sobczyk, Damian Stefański, Mirosław Zajac, Katarzyna Zarzecka-Szubińska & Bridget Alex
New radiocarbon dating of animal bones from Ciemna Cave – a Micoquian site in Poland

Mojdeh Lajmiri, Nicholas J. Conard, M. Zeidi, M. Bolus & P. Schmidt
Detecting heat treatment among the Aceramic Neolithic artifacts from Chogha Golan; Iran

M. Menéndez, D. Álvarez-Alonso, M. de Andrés-Herrero, E. García-Sánchez, J. F. Jordá Pardo, M. Kehl, J. Rojo & G-Ch. Weniger
La Güelga Cave (Northern Iberia): An archaeological sequence from the late Upper Pleistocene

Susanne C. Münzel, Dorothee G. Drucker, Christophe Cupillard & Hervé Bocherens
Cave Bear Exploitation by Neanderthals and Modern Humans The Cases of Casamène (French Jura) and Hohle Fels (Swabian Jura)

Susanne C. Münzel, Peter Heinzelmann & Berrin Cep
Heidenschmiede, a Middle Palaeolithic Rock Shelter in Heidenheim. Fauna and Lithics re-visited

Susanne C. Münzel, Sibylle Wolf, Marius Achtelek, Svenja Arlt, Julia Becher, Luca Brunke, Johanna Klett, Anne Kremmer, Josephine Krönke, Antje Langer Ria Litzenberg, Anna-Katharina Loy, Anna-Franziska Mandt, Jacqueline Alice Mena, Ullrich Ochs, Annika Rebentisch, Benjamin Schürch, Noora Taipale, Hannes Wegeng, Hannes Wiedmann, Heike Würschem, Teresa Zahoransky, Max Zerrer & Petra Krönneck
Chaîne opératoire of Molly, an Indian elephant from the Wilhelma in Stuttgart – Bad Cannstatt. Results of a workshop in Blaubeuren on the processing of Proboscidian ribs as raw material for tools.

Martin Nadler
A newly discovered statue-menhir from north-western Middle Franconia – Bavaria's oldest „large-scale“ sculpture

Volker Neubeck & Clemens Pasda
Alpine archaeology: research on caribou hunting near glaciers and snow patches in West Greenland

Sarah Ranlett
Culture, Material and Choice: Conceptualizing Rare Raw Materials in the French Upper Palaeolithic

Sara E. Rhodes, Britt M. Starkovich & Nicholas J. Conard
Climate and site formation in the Paleolithic Ach Valley: proposed analysis of microfauna from Geißenklösterle cave

Carlos Sánchez-Hernández, Florent Rivals, Ruth Blasco & Jordi Rosell
Estimating Neanderthal seasonality: Application of tooth mesowear and microwear to the Middle Palaeolithic levels from Portel-Ouest (France) and Teixoneres (Spain)

Adeline Schebesch
See me. Feel me. Read me. An experimental approach to reading the body language of the oldest anthropomorphic figurines

Markus Siegeris, Wolfgang Burkert & Harald Floss
Lithic raw material sources of the Swabian Jura

Martin Street & Birgit Gehlen
New AMS dating results for Bedburg-Königshoven aurochs (*Bos primigenius*)

Sebastian Szyja

Backed bladelets from the Magdalenian open air site of Bad Kösen-Lengefeld

Noora Taipale & Veerle Rots

Stone tool hafting and use in the European Upper Palaeolithic: the first results of the analysis of Gravettian tools from Hohle Fels

Andreas Teller, Boris Gasparyan & Andrew W. Kandel

Latest results from Aghitu-3 Cave, an Early Upper Paleolithic Cave site in the Southern Armenian Highlands

M.J. Walker, D. Anesin, D. E. Angelucci, A. Avilés-Fernández, F. Berna, A. T. Buitrago López, Y. Fernández-Jalvo, M. Haber-Uriarte, M. López-Martínez, A. López-Jiménez, I. Martín Lerma, J. Ortega-Rodríguez, S.E. Rhodes, D. Richter, T. Rodríguez-Estrella, J-L Schwenninger, & A.R. Skinner

Playing with Fire: Evidence of fire at the late Early Pleistocene Palaeolithic site of Cueva Negra del Estrecho del Río Quípar (Caravaca de la Cruz, Murcia, Spain)

M.J. Walker, M.V. López-Martínez, M. Haber-Uriarte, A. López-Jiménez, J. S. Carrión-García, A. Avilés-Fernández, A.T. Buitrago López, J. García-Torres, I. Martín Lerma & J. Ortega-Rodríguez,
Neanderthal attention to the dead at Sima de las Palomas del Cabezo Gordo (Murcia, Spain)

Thomas Weber

Attribute analysis of flakes from stone inventories: a valuable method also for the Upper Palaeolithic periods in Europe?

Abstracts of Reports and Posters

Thomas Albert

Flint artefacts from the northern section of the Late Magdalenian open-air site of Bad Kösen-Lengefeld, Saxony-Anhalt

The open-air site of Bad Kösen-Lengefeld was discovered in 1954 by V. Töpfer, W. Matthias and F. Waih. It is situated in southern Saxony-Anhalt, near the Thuringian border, on a terrace of the left bank of the Saale river. After a survey campaign in 2008, conducted by the Institute of Prehistoric Archaeology at the University of Cologne (J. Richter & T. Uthmeier), excavations started in 2009 in a joint project of the State Office for Heritage Management and Archaeology, the Institute of Prehistoric Archaeology in Cologne and the Institute of Prehistoric Archaeology in Erlangen. To date, the typological spectrum of the finds speaks in favour of an attribution to the Late Magdalenian. The poster presents results of a Master's thesis, finished in early 2014 at the Institute of Prehistoric Archaeology in Erlangen, which investigated the northern section of the site with an excavated area of 48.5 m². During the conduct of this study, this was the only area where the underlying, archaeologically sterile loess was reached. The lithic artefacts were distributed between several well preserved features, such as distinct structures of local limestone slabs. Several observations suggest some low-energy post-depositional movements, which, however, seem to have influenced the spatial distribution of the artefacts in only a minor way.

The artefacts are made from local, low-quality baltic flint, transported by glacial activities. Roughly 1600 pieces were analysed, 16% of which have been modified. The lithic analysis focused on the "chaîne opératoire" and the spatial distribution of the lithic artefacts. All stages of core-reduction were performed on-site, which is attested by the occurrence of unmodified cortical flakes, crested blades, core tablets and blanks. The modification of the latter is proven by burin spalls and discards of the production of backed bladelets.

Regarding the spatial distribution, almost all artefact classes are distributed similarly over the investigated area. The majority of the blanks and most of the tools are concentrated within and around the two largest features located in the eastern part of the excavated area. They form the main artefact concentration. The sole exception are borers, which occur mainly in the central part of the excavated area between features made of limestone and quartz pebbles.

The toolkit mainly consists of hunting- and prey-processing-gear. Together with the preserved faunal material (mainly horse), this suggests, that the site is a palimpsest of several hunting/butchering events. Repeated visits of the site are also indicated by the composition of the so-called "Feature II". This structure measures about 2 m² in size and is built from several layers of limestone slabs; traces of soot at its base and vitrified patches of soil on its top indicate the use of fire. Between these layers, small toolkits – being mainly the remains of retooling and rehafting activities – have been found. The repeated alternation of layers of slabs with small lithic inventories points to several stays at the site. A "rings and sectors-analysis" suggests an open-air location of Feature II and does not indicate the existence of dwellings in the northern section of Bad Kösen-Lengefeld. With regard to the composition of the lithic and faunal assemblage, the site blends in well with the cluster of closely spaced Magdalenian sites already known in this region.

✉ *Thomas Albert — archaeologie.albert@gmx.de*

Manuel Alcaraz-Castaño & Gerd-Christian Weniger

Testing population hiatuses in the Late Pleistocene of Central Iberia: a geoarchaeological approach

For years, it has been assumed that a population hiatus existed in Central Iberia from the Late Middle Palaeolithic to the final stages of the Upper Palaeolithic. This has been traditionally explained as a consequence of the harsh ecological conditions of the Spanish plateau during

the Last Glaciation, until the retreat of the Last Glacial Maximum. However, models on population dynamics in this area are probably biased by the poor quantity and quality of data available, especially for the Upper Palaeolithic. In fact, recent data coming from the South-East foothills of the Iberian Central Range (Northwest of Guadalajara province) and the Madrid basin have questioned the classic interpretations.

According to these new data, still scarce and preliminary, we have devised a project aimed to investigate the temporal and geographic extent of the alleged Late Pleistocene cultural gap in Central Iberia. Our project comprises new field and laboratory geoarchaeological works on 3 palaeolithic sites located in Northern Guadalajara. These are the rock shelters of Peña Cabra (Middle Paleolithic) and Peña Capón (Upper Palaeolithic) and Los Casares cave (Middle Palaeolithic). A first field campaign in Los Casares cave was conducted in September 2014, and successive field and lab works in the other 2 sites will be developed during 2015 and 2016.

Our methodological framework includes the study of site formation processes (micromorphology and sedimentology), chronometric dating (^{14}C , OSL and U/Th), palynological, anthracological and phytolith analyses, zooarchaeology and taphonomy, and lithic technology. Put together, these methods will allow us to investigate human-environment interactions in the area, and eventually the nature and extent of the alleged Late Pleistocene human gap in terms of the relations between population dynamics and climatic and environmental variations.

Our main working hypothesis considers the existence of population breakdowns in Central Iberia, but also of possible ecological refugia in some areas, even during cold stages.

Our research is developed in the context of a Marie Curie (IEF) fellowship (FP7-PEOPLE-2013-IEF, Project number: 628179), and is also associated to the CRC 806 'Our way to Europe' (C1 Project). A large number of scholars are involved, coming mainly from the Neanderthal Museum and the University of Cologne, but also from Spanish centers, such as the University of Alcalá (Madrid).

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The Upper Palaeolithic record of Coímbre Cave (Asturias, northern Spain). A symbolic place, a place for living

Coímbre cave (135 meters asl) is located on the southwestern slope of Mount Pendendo (532 m), in the small valley of Besnes river, tributary of Cares river, in a medium-higher mountain area in the central-western Cantabria –northern Iberian Peninsula- (Álvarez-Alonso *et al.*, 2009; 2013b). 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 (Álvarez-Alonso *et al.*, 2009, 2011, 2013a, 2013b).

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, mobilier art and ornaments, provide key information that shows the connections between this area, the Pyrenees and the south-west 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 places, which clearly define two different symbolic spaces. All this artistic expressions belong to the Magdalenian, and it is possible to establish a division between a set of engravings framed in the first stages of this period (the most abundant and remote); and a more limited set of engravings, in which stand out a block with a engraving of a bison with a deep trace of more than one meter long, that belongs to the recent Magdalenian.

This work presents the preliminary results of the analysis of Magdalenian occupations in Coímbre, after the end of the excavations in B Area, and the study of its rock art, shaping this site as one of the most important places of Magdalenian human activities in western Cantabria.

References:

- Álvarez Alonso, D., Yravedra, J., Arrizabalaga, A., Jordá Pardo, J. F. Y Heredia, N. (2009): "La cueva de Coímbre (Peñamellera Alta, Asturias, España): su yacimiento arqueológico y su santuario rupestre. Un estado de la cuestión en 2008". *Munibe*, 60: 139-155
- Álvarez Alonso, D., Arrizabalaga, A., Jordá Pardo, J. F. E Yravedra, J. (2011): "La secuencia estratigráfica magdaleniense de la cueva de Coímbre (Peñamellera Alta, Asturias, España)" *Férvendes*, 7: 57-64
- Álvarez Alonso, D., Yravedra, J., Andrés Herrero, M. De., Arrizabalaga, A., Jordá Pardo, J. F. Y Rojo, J. (2013a): "La secuencia cronoestratigráfica del Paleolítico superior de la cueva de Coímbre (Asturias, España)". En Baena, R., Fernández, J. J. y Geurrero, I. (eds.): *El Cuaternario Ibérico. Investigación en el siglo XXI*. Actas de la VIII reunión de Cuaternario Ibérico: 83-86
- Álvarez Alonso, D., Yravedra, J., Arrizabalaga, A. Y Jordá Pardo, J. F. (2013b): "Excavaciones arqueológicas en la cueva de Coímbre (Besnes, peñamellera Alta). Campañas 2008-2012". *Excavaciones arqueológicas en Asturias 2007-2012*: 109-120

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Upper Palaeolithic mobility patterns and territoriality in Western Cantabria using Least Cost Path Analysis

The aim of this research is to study mobility patterns and territoriality of hunter-gatherer groups during different periods of the Upper Palaeolithic by generating least cost paths (LCPs). LCPs provide us with information concerning the easy to travel routes in the landscape. They can be crosschecked with site distribution and the accessibility of sites. The geographical and geological conditions of the Cantabrian area support the use of LCPs since there is a hilly relief that has not been affected by substantial changes since the end of the Pleistocene. Most of the known Upper Palaeolithic sites are located in caves, and especially in the Cantabrian area, most of the sites are situated in narrow karstic valleys (Risetto, 2012). The LCPs are based on walking time and cost distance modelling (Tobler 1993; White & Barber, 2012; Whitley & Hicks, 2003). We test possible relationships between the LCPs and the distribution of known Upper Palaeolithic settlements. Generating a network of LCPs allows us to identify the most suitable routes and probably the best accessible areas (Llobera *et al*, 2011; Verhagen, 2010).

We test if multicomponent sites lie in highly accessible places in the landscape. Our working hypotheses is that accessibility plays a major role for repeated occupations. We also check relationships between single component sites and LCPs. Our approach gives insight into settlement and mobility patterns of hunter-gatherers between different cultural periods of the Upper Palaeolithic. Combined with data from raw material procurement LCPs are a promising tool to understand spatial behavior of hunter-gatherer groups.

References:

- Howey, M. C., (2007): Using multi-criteria cost surface analysis to explore past regional landscapes: a case study of ritual activity and social interaction in Michigan, AD 1200–1600. *Journal of Archaeological Science* 34, 1830–1846.
- Llobera, M.; Fábrega-Àlvarez, P.; Parcero-Oubina, C. (2011): “Order in movement: a GIS approach to accessibility”. *Journal of Archaeological Science* 38, 843–851.
- Risetto, J. D. (2012): “Using Least cost path analysis to reinterpret Late Upper Palaeolithic Procurement in Northern Spain” in White, D. A. & Surface-Evans, L (eds.) *Least Cost Analysis of Social Landscapes. Archaeological case studies*, 11-31.
- Tobler, W., (1993): *Three presentations on geographical analysis and modeling*. Technical Report, National Center for Geographic Information and Analysis, Santa Barbara und California.
- Verhagen, P. (2010): “On the road to nowhere? Least cost paths, accessibility and the predictive modelling perspective”, in Contreras, F.; Farjas, M.; Melero, F. J. (eds.), *Proceedings on the 38th Annual Conference on Computer Applications and Quantitative Methods in Archaeology*, 383-387.
- White, D. A., Barber, S. B., (2012): “Geospatial modeling of pedestrian transportation networks: a case study from precolumbian Oaxaca, Mexico”. *Journal of Archaeological Science* 39, 2684–2696.
- Whitley, T. G.; Hicks, L. M. (2003): “A Geographic Information Systems approach to understanding potential prehistoric and historic travel corridors”. *Southeastern Archaeology* 22, 77–91.

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Walpurga Antl-Weiser

Symbolic expressions of early modern humans – a comparison between Aurignacian and Gravettian symbolic objects

The presentation distinguishes between the traces of symbolic acts such as funerals and rituals and symbolic objects like personal ornaments, animal – und human figurines as well as decorated objects and paintings. Apart from a precis of traces of symbolic acts in Aurignacian and Gravettian sites the presentation focuses on the nature and geographic distribution of symbolic objects with a special focus on Central Europe. Human representations together with animal figurines will be regarded under the aspect of symbolic unities with regional characteristics and possibly supra-regional similarities. In this respect Aurignacian and Gravettian assemblages will be compared.

Within the mental concept of each period we realize clear differences between Aurignacian, and Gravettian representations. Apart from the general impression of motion and power in Aurignacian figurines and reliefs there seem to be rather different human figurines. Compared with the Aurignacian, the data base concerning Gravettian figurines is not only bigger but also more complex. It consists of a variety of phenomena which can be observed from France to Russia. Formal types of representations can be distinguished but there are also regional varieties and even within a region different individual styles are recognizable. This reflects a personal interpretation of an idea probably spread all over Europe. Regional centres and continuities/discontinuities will be discussed.

Aurignacian types of personal ornaments and their regional distribution are compared to

Gravettian types with a special view to Central Europe. Another aspect concerns personal ornaments as possible indicators of group identities. Personal ornaments from two layers of the Gravettian site of Grub/Kranawetberg, Lower Austria, are presented as one example for the individual choice of a local group. Despite of numerous sites with personal ornaments our evidence is still fragmentary, witness the sites Krems/Wachtberg and Grub/Kranawetberg in Lower Austria, which completely changed our view of Palaeolithic personal ornaments in Austria. Compared to the Aurignacian, the Gravettian ornaments use the same raw materials apart from regional deviations. Some types are shared by both industries and others are typical for either Aurignacian or Gravettian.

Combining all aspects of symbolic behaviour in different geographic unities will help to evaluate individual behaviour of groups versus the influence of widespread contacts. It is very likely that thus we can find the clearest differences between Aurignacian and Gravettian.

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Guido Bataille

Mechanisms of the Early Upper Paleolithic occurrence and consolidation in Eastern Europe. The Crimean and Kostenki example

This presentation addresses the major factors that appear to have triggered the Middle to Upper Palaeolithic (MUP) transition in Eastern Europe. The factors under study were first identified in Crimean and Kostenki example cases (Bataille 2015), but continued studies show that these factors are closely connected with some quite specific, indeed fundamental, adaptive mechanisms. In combination, these factors and mechanisms provide a new conceptual framework for understanding the MUP-transition.

The transitional phase becomes archaeologically visible and is initialized by the intrusion of Early Upper Palaeolithic industries sharing a common adaptive base. This adaptive base is indicated by the production of standardized lamellar microliths (carinated-, burin- and regular core-technology) in connection with the regular use of organic points (*adaptive group 2*). In that context, the occurrence of industries showing functional and technological similarities with the Eastern Micoquian *sensu lato* (*adaptive group 1*) is interpreted as the result of a reactive transformation of the Middle Palaeolithic adaptive systems in connection with a northward spatial spread of the respective industries. As adaptive base such industries share a shift in production towards standardized foliates (biconvex technology) related with a predominating flake production (Streletskaya related industries). All those techno-typological innovations of the Early Upper Palaeolithic are connected with the swift colonization of the weakly populated and uninhabited regions of the Russian Plain. At the same time Upper Palaeolithic groups skip populated areas, as the Crimean Mountainous region, during the earliest phases of the Upper Palaeolithic onset, probably in order to avoid nutritional competition.

A detailed comparison of the Crimean and the Kostenki early Upper Palaeolithic provides evidence that the disappearance of the Middle Palaeolithic and the earliest occurrence of the Upper Palaeolithic are inter-dependent processes. It is concluded that, (a) the Aurignacian technocomplex is the most appropriate adaptive system shared by different regional and chronological collectives. Although clearly indicated by the widespread distribution of early Aurignacian industries (e.g. Higham et al. 2012; Nigst et al. 2014), this model contradicts unilinear demic diffusion models (e.g. Mellars 2004; Otte 2007; Müller et al. 2011; Banks et al. 2013). Moreover, (b) the Aurignacian technocomplex is both capable of replacement and of absorption of other adaptive systems, as illustrated by the Crimean Middle Palaeolithic and the Streletskaya *sensu lato* (*adaptive group 2*). Thus, although the Aurignacian obviously marks the successful establishment and consolidation of the Upper Palaeolithic way of adaptation, this is not due to its (often assumed) cultural unity, but rather to its highly adaptive capabilities. This can be recognized on many levels, but most important is the observation that – next to the many existing typological and regional variants – the actually fundamental technological concepts of the Aurignacian are both regionally widely-shared, as well as temporally long-sustained (*Model of adaptive continuity*). These two major properties of the Aurignacian can only be understood due to the existence of long-standing

and geographically large-scale networks, by which the system can share, maintain and re-distribute the many different social entities, and by which the system may also undergo transformation or adaptation (*Model of recurrent multilineal information transfer*).

References:

- Banks, W. E., D'Errico, F. & Zilhão, J. (2013). Human–climate interaction during the Early Upper Paleolithic: testing the hypothesis of an adaptive shift between the Proto-Aurignacian and the Early Aurignacian. *Journal of Human Evolution* 64 (1), 39-55.
- Bataille, G. (2015). *Der Übergang vom Mittel- zum Jungpaläolithikum auf der Halbinsel Krim und in der Kostenki-Borshchevo-Region am Mittel-Don – Adaptionstrategien spät-mittelpaläolithischer und früh-jungpaläolithischer Gruppen*. Dissertationsschrift, Universität zu Köln.
- Higham, T. F. G., Basell, L., Jacobi, R., Wood, R., Bronk Ramsey, Ch. & Conard, N. J. (2012). Testing models for the beginnings of the Aurignacian and the advent of figurative art and music: The radiocarbon chronology of Geißenklösterle. *Journal of Human Evolution* 62, 664–676.
- Mellars, P. (2004). Neanderthals and the modern human colonization of Europe. *Nature* 432, 461-465.
- Müller, U. C., Pross, J., Tzedakis, P. C., Gamble, C., Kotthoff, U., Schmiedl, G., Wulf, S. & Christanis, K. (2011). The role of climate in the spread of modern humans into Europe. *Quaternary Science Review* 30, 273-279.
- Nigst, P. R., Haesaerts, P., Damblon, F., Frank-Fellner, C., Mallol, C., Viola, B., Göttinger, M., Niven, L., Trnka, G. & Hublin, J.-J. (2014). Early modern human settlement of Europe north of the Alps occurred 43,500 years ago in a cold steppe-type environment. PNAS, www.pnas.org/cgi/doi/10.1073/pnas.1412201111, 1-6.
- Otte, M. (2007). Arguments for Population Movement of Anatomically Modern Humans from Central Asia to Europe. In: Mellars, P., Boyle, K., Bar-Yosef, O. & Stringer, C. (Eds.). *Rethinking the human revolution. New behavioural and biological perspectives on the origin and dispersal of modern humans*, McDonald Institute for Archaeological Research, Cambridge, 359-366.

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Management of fish resources in a lacustrine site in the Early Neolithic in NE Iberian Peninsula

The Early Neolithic site of La Draga (Banyoles, NE Iberian Peninsula) represents an exceptional example of lacustrine settlement. As important characteristics, this site is relevant because the archaeological layer stayed partly under the water table until present times, thus allowing a good preservation of wood and other organic remains. A continued occupation of the settlement during ca. 300 years has been demonstrated. However, two phases of occupation with distinctive con-structive traditions have been observed: Phase I (5324-4977 cal BC) and Phase II (5210-4796 cal BC).

We present a preliminary ichthyoarchaeological study of the fish remains, which have been recovered during the 2010-2011 excavation campaign using a microsieving process (wash-over technique) in sector D, levels VII and VIII (both belonging to Phase I). This particular technique has enabled the recovery of fish remains which otherwise would have been very difficult to recover.

To date a hundred of remains have been analysed and two species of freshwater fishes have been classified, *Anguilla anguilla* and *Squalius cephalus*. Both species have been studied from a taxonomic, taphonomic and resource management point of view to improve the knowledge about the fish as a food resource for farming societies.

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The Mäanderhöhle – Analyses of palaeolithic cave art in Bavaria

Palaeolithic cave art is known from Western Europe (France, Spain, Italy), Romania and the Urals. How come that there isn't any cave art in Germany? Since the beginning of the 20th century there have been occasional hints of cave art in Germany, mainly in the German Jura areas. Besides sites containing movable art, especially from the Swabian Alb region and Franconian Alb region, there are more and more hints of cave art. We know of a piece of limestone with a black painted angle that could have chipped off of walls in the *Geissenklösterle* in the Swabian Alb region and was found in a layer from the Aurignacien (CONARD – FLOSS 2001). Additionally there are engraved walls in caves in the Altmühltal region in Bavaria that we know of. However so far the age of the engravings haven't been confirmed, yet. The most prominent examples are the *Kleines Schulerloch* (BIRKNER 1938) and the *Kastlhänghöhle* (BOHMERS 1939). The *Mäanderhöhle*, which was discovered in the north of Bavaria in 1991, has become part of a list of places with possible cave art.

There have been two campaigns (2013/2014) as part of the recently founded "AG Mäanderhöhle" in order to do scientific research to solve the questions of possible age, actual origin and genuineness of the supposed engravings. These findings have been presented in a Masters Thesis of the Institut für Ur- und Frühgeschichte of the Friedrich-Alexander-Universität Erlangen-Nürnberg. The *Mäanderhöhle* is 75 meters long and 12 meters below surface. The central part is named "chapel" and has an area of the size of 3 meters by 5 meters. The traces that are described as lines have originally been interpreted as engravings. These lines are exclusively on so-called cave clouds, a special speleothem, which hints at a phreatic development of the *Mäanderhöhle*. At one place an image was discovered that has been crucial for the age determination. According to the discoverer, the images depict women of the "Typ Gönnersdorf" (BOSINSKI 2011). In Bavaria there is only one example of this type. In *Hohlenstein* near Ederheim a piece of limestone with engravings of women of the "Typ Gönnersdorf" was found (FREUND 1963).

However after an examination it has become clear that at least 80% of the lines were not engravings and most likely do not have anthropogenic origin. The Institute for Ur- und Frühgeschichte in Erlangen in cooperation with the Neanderthal-Museum in Mettmann conducted various analyses in order to develop a scientific concept, a so-called catalogue of criteria for palaeolithic engravings and other possibilities of origin. In 2013 photographic documentaries, typological and morphological analysis and 3D scans of various locations with lines had been conducted. In 2014 these works were completed and enlarged with microscopic analyses of selected lines.

References:

Birkner, F. (1938): Die erste altsteinzeitliche Felszeichnung in Deutschland, BVbl 15, 59-64.

Bohmers, A. (1939): Die Felszeichnung in der Kastlhänghöhle, Germania 23, 39-40.

Bosinski, G. (2011): Femmes sans tête. Une icône culturelle dans l'Europe de la fin de L'ère glaciaire. Paris.

Conard, N. – Floss, H. (2001): Malerei in der Eiszeitkunst des Süddeutsch-Schweizerischen Jura, in: Müller-Beck, H. – Conard, N. – Schürle, W. (Hrsg.): Eiszeit im süddeutsch-schweizerischen Jura. Anfänge der Kunst. Konrad Theiss Verlag GmbH Stuttgart.

Freund, G. (1963): Die ältere und mittlere Steinzeit in Bayern. Jahresberichte der Bayerischen Bodendenkmalpflege 4.

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Morphological, ecological and genetic characterization of Pleistocene wolves and Palaeolithic dogs in the Gravettian of Předmostí I (Czech Republic)

Palaeolithic dogs have been recognized in European sites before the LGM based on the morphological differences of their skull and lower jaw when compared to Pleistocene wolves (Germonpré et al., 2009; 2012, in press). Furthermore, carbon and nitrogen isotopic composition of their bone collagen in Předmostí I, where both types of large canids occur in large numbers, showed clear dietary differences: Palaeolithic dogs fed essentially on reindeer, while coeval wolves were more diverse in their prey choice, including high amounts of mammoth in their diet (Bocherens et al. in press). The genetic analysis of the mitochondrial DNA of these canids shows that Pleistocene wolves and Palaeolithic dogs from Předmostí belong to different haplogroups, and that Palaeolithic dogs are not genetically related to post-LGM wolves and modern dogs (Thalmann et al., 2013). Interestingly, other pre-LGM Palaeolithic dogs from Belgium and Russia are genetically close to the Palaeolithic dogs from Předmostí I, and are closer genetically to pre-LGM wolves than to any of the post-LGM canids. Therefore all these Palaeolithic dogs may correspond to an early wolf domestication process that came to an end sometime before the LGM. Combining the information yielded by the different fields of research will allow us to provide an integrated understanding of the genesis and the role of these Palaeolithic dogs in early Upper Palaeolithic societies in Eurasia.

References:

- Bocherens, H., Drucker, D.G., Germonpré, M., Lázničková-Galetová, M., Naito, Y., Wissing, C., Brůžek, J., Oliva, M., in press. Reconstruction of the Gravettian food-web at Předmostí I using isotopic tracking of bone collagen. *Quaternary International* doi: 10.1016/j.quaint.2014.09.044.
- Germonpré, M., Sablin, M.V., Stevens, R.E., Hedges, R.E.M., Hofreiter, M., Stiller, M., Després, V.R., 2009. Fossil dogs and wolves from Palaeolithic sites in Belgium, the Ukraine and Russia: osteometry, ancient DNA and stable isotopes. *Journal of Archaeological Science* 36: 473-490.
- Germonpré, M., Lázničková-Galetová, M., Sablin, M.V., 2012. Palaeolithic dog skulls at the Předmostí site, the Czech Republic. *Journal of Archaeological Science* 39: 184-202.
- Germonpré, M., Lázničková-Galetová, M., Losey, R.J., Rääkkönen, J., Sablin, M.V., in press. Large canids at the Gravettian Předmostí site, Czech Republic: The mandible. *Quaternary International* doi: 10.1016/j.quaint.2014.07.012.
- Thalmann, O., Shapiro, B., Cui, P., Schuenemann, V. J., Sawyer, S.K., Greenfield, D.L., Germonpré, M.B., Sablin, M.V., López-Giráldez, F., Domingo-Roura, X., Napierala, H., Uerpman, H-P., Loponte, D.M., Acosta, A.A., Giemsch, L., Schmitz, R.W., Worthington, B., Buikstra, J.E., Druzhkova, A., Graphodatsky, A.S., Ovodov, N.D., Wahlberg, N., Freedman, A.H., Schweizer, R.M., Koepfli, K.-P., Leonard, J.A., Meyer, M., Krause, J., Pääbo, S., Green, R.E., Wayne, R.K., 2013. Complete mitochondrial genomes of ancient canids suggest a European origin of domestic dogs. *Science* 342: 871-874.

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Rock Art and Mobile Art as Cultural Marker in the Solutrean and Magdalenian of the Iberian Peninsula

During most of the Upper Palaeolithic periods the North of the Iberian Peninsula was more densely populated by hunter-gatherer groups and showed a greater artistic expression than the South. It is in the Solutrean only that a similar density of human settlement is detectable in the South and in the North and a truly artistic explosion in rock and mobile art can be observed in the southern areas. Within the framework of the project C1 'Continuity or Discontinuity? Patterns of Land Use and Climatic Changes in the Late Pleistocene of the Iberian Peninsula' of the CRC 806, the dissertation focuses on the correlation between this demographic and artistic 'boom', possibly driven by climate change, and on the analysis of rock art as cultural marker, indicator of regional diversity and reflection of territoriality. The comparative analysis on the regional level of Solutrean and Magdalenian rock art sites on the Iberian Peninsula is based on a general data acquisition of the amount of art sites and all sites with occupation levels only, including the most recent dating results. By integrating Site Catchment Analysis, the goal is to find possible relationships between sites with artistic activities and occupation sites. These relations may help determine demographic and artistic centres of human settlements and show the diffusion and mobility of the hunter-gatherer groups. The approach includes also the comparison of faunal assemblages from occupation sites and possible migration routes of animals with frequencies of species depicted in rock art. Conclusively, it will be tested if climate changes are coupled with settlement and mobility patterns and rock art and if relationships between culture (art) and ecology (fauna) are evident.

The data collection of this dissertation allows a wide cross check of different relations between two chronological phases (Solutrean and Magdalenian), two different regions (northern and southern Iberia) and between ecological (fauna), spatial (settlement) and cultural data (art) by taking into account the cultural peculiarities, regional characteristics and cultural and ecological development.

References:

- Altuna, J., La relación fauna consuida-fauna representada en el Paleolítico superior cantábrico. *Complutum* 5 (1994) 303-311.
- D'Errico, F. et al., Les possibles relations entre l'art des cavernes et la variabilité climatique rapide de la dernière période glaciaire. In: Barrandon, J.-N. et al. (Ed.), *Datation. XXIe rencontres internationales d'archéologie et d'histoire d'Antibes* (Antibes 2001) 334-347.
- D'Errico, F. et al., L'impact de la variabilité climatique rapide des OIS 3-2 sur le peuplement de l'Europe. In: Bard, É. (Ed.), *L'homme face au climat* (Paris 2006) 265-282.
- Bicho, N. et al., The Upper Paleolithic Rock Art of Iberia. *Journal of Archaeological Method and Theory* Vol. 14,1 (2007) 81-151. doi: 10.1007/s10816-007-9025-5
- Djindjian, F., Functions, significations et symbolismes des représentations animalières paléolithiques. *Actes du Congrès IFRAO, Tarascon-sur-Ariège, septembre 2010*. In: Clottes, J. (Ed.), *L'art préhistorique dans le monde. Préhistoire, Art et Société* LXV-LXVI, 312f, 1807-1816.
- Schmidt, I. et al., Rapid climate change and variability of settlement patterns in Iberia during the Late Pleistocene. *Quaternary International* (2012) 1-26. doi:10.1016/j.quaint.2012.01.018

Bradtmöller, M. et al., The repeated replacement model – Rapid climate change and population dynamics in Late Pleistocene Europe. *Quaternary International* 247 (2012) 38-49.

O'Hara, K.D., *Cave Art and Climate Change* (Bloomington 2014).

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Lithic and organic technology during the Swabian Aurignacian and their implications for testing models of cultural innovation during the early Upper Paleolithic

Since the second half of the 19th century, researchers have studied the rich record of the early Upper Paleolithic in the Swabian Jura, and over the many decades of systematic excavation and research, a clear picture of the Swabian Aurignacian has emerged. The best-studied sites lie in the Ach and Lone Valleys and include the important assemblages from Bockstein, Hohlenstein and Vogelherd in the Lone Valley and Geißenklösterle, Hohle Fels and Sirgenstein in the Ach Valley. These assemblages document a radical technological shift from the preceding Middle Paleolithic that reflects the arrival of modern humans in the Upper Danube region during a mild climatic phase prior to 42 ka cal BP. While different find horizons show distinctive signatures, the organic and lithic technology, as well as a rich array of symbolic artifacts from the Swabian Aurignacian represent an unusually clear example of a regional signal within the innovative material culture of the Aurignacian. Here we summarize the key elements of the organic and inorganic technology of the Swabian Aurignacian and examine their implications for our understanding of cultural evolution and population dynamics during the early Upper Paleolithic in western Eurasia.

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The Paleolithic record in the central region of Sharjah (UAE) and conclusions about hominin settlement dynamics in Southern Arabia

A joint project of the University of Tübingen and the Directorate of Antiquities of the Emirate of Sharjah (UAE) has conducted field work in the central region of Sharjah since 1996. This work has led to the discovery of stratified Paleolithic assemblages at Jebel Faya and several surface sites distributed all over the interior plain. The deep and well dated archaeological sequence at Faya provides crucial data for testing hypotheses and models about the evolution of hominin populations on the Arabian Peninsula. This paper aims at reporting about ongoing Paleolithic research in Sharjah with focus on data increasing our knowledge about the settlement history of the region. I will provide an overview of the Paleolithic archaeology and the related Late Pleistocene paleo-environmental records of Southeast Arabia. I will further discuss these data with regard to local settlement dynamics and its implications for our understanding of the history of hominin settlement in South Arabia.

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Ice age hunters in Gösing at the Wagram

Since the 1920s the region around Gösing at the Wagram in Lower Austria has been well-known among archaeologists. Especially the area of the Pfundberggraben/Setzergraben has been noted for numerous finds in wine cellars. The sites are situated about 120 m above the Danube valley on a south slope which is cut by a number of gullies.

In the course of the excavation of a 3 x 3 m construction pit in the summer of 2014 in between the Pfundberggraben and the Setzergraben several Upper Palaeolithic cultural layers were cut. The Quaternary Archaeology research group of the Institute of Oriental and European Archaeology (OREA) of the Austrian Academy of Sciences was commissioned for the documentation and recovery of the remains of the cultural deposits. Since the greater part of the up to 2 m deep cultural layers had already been destroyed by the mechanical excavator, it was only possible to document the profiles and excavate a few remnants in the northeast part of the pit.

The archaeologically relevant spoil in a magnitude of ca. 15 m³ has been water-screened and assorted.

A total of four archaeological horizons were determined – all of these had been strongly influenced by periglacial processes and erosion. Only the youngest layer showed the remains of an in situ multi-phased fireplace in a shallow depression in the northeast corner of the construction pit. The slightly dug-in hearth with its 20 cm thick deposits contained at least one layer of stone slabs.

The finds obtained by water-screening include several thousand stone artefacts of a high-quality raw material with a white patina. The to date assessed part of the inventory shows a very high portion of blades and bladelets. Documented types include burins, backed bladelets, and backed micro-denticulates.

In addition to burnt stone slabs from the hearth, water-screening also revealed a remarkable amount of charcoal and different colour materials. So far faunal remains are sparse. Securely documented are horse, reindeer, and mammoth. Three serpulides (petrified wormshells) must be considered as personal adornments. Remains of cooking stones are represented by heat-cracked quartz pebbles.

Two ¹⁴C-samples of charcoal from the hearth provided dates between 26550 and 26790 BP.

An attribution of the uppermost find layer to the Pavlovian (regional group of the Gravettian) is possible due to technology of the knapped lithic artefacts, the occurrence of backed micro-denticulates, as well as the absolute dates.

The new investigations in connection to previous findings in the surrounding wine cellars show the potential of the Pfundberggraben/Setzergraben area in Gösing at the Wagram for the exploration of the Middle Upper Palaeolithic in the Danube region.

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Dissecting palimpsests and events of activity through lithic and faunal refits in karst systems during the Middle Paleolithic: the layer 4 of the Maras rockshelter (Ardèche, France)

The remains of human activity on archaeological sites are frequently found mixed together into single layers of sediment in caves. They are palimpsest of occupations. A rich archaeological layer can give the image of an “intense” human activity while it was only the mixture of

different human activity events occurring over time. The “palimpsest effect” makes it consequently difficult to interpret human settlement patterns, especially for Neanderthal. Despite that, data from lithic and faunal refits and spatial pattern analysis can help approaching and characterizing in a more accurate way the meaning of the archaeological accumulations.

In this paper, we present preliminary results from systematic lithic and faunal refits performed at the Abri du Maras in order to dissect palimpsests and identify events of activities among the accumulations of remains. The results are obtained integrating data from lithic technology, raw material procurement, zooarchaeology, tooth microwear, and their spatial distribution on the site. This interdisciplinary methodology has been already used for other Middle Palaeolithic sites, but with high resolution sedimentary contexts. It allowed us to identify domestic areas that correspond to specific events of human activity, identifying the temporal dynamics in the formation of the archaeological assemblage (Chacón et al. ip, Vaquero 2008; Vaquero et al. 2012a, 2012b; Machado et al. 2013). In this specific case, we test for the first time if this methodology is appropriate to a low resolution sedimentary context, which is the case of the layer 4 of Abri du Maras.

The Abri du Maras is a vast rock shelter located in a small valley less than 1 km from the Ardèche River, in southeast France. Since 2006, new excavations over more than 40 m² have focused on the bottom of the sequence which have yielded Middle Palaeolithic assemblages with evidence of occupations in a cold climatic context contemporaneous with MIS 4. The main one is the layer 4, a silty and loessic infilling 80 cm thick (Moncel et al. 1994; Moncel & Michel 2000). Based on the vertical and horizontal spatial distribution, at least two large phases of human occupations have been identified into the layer 4 (sub-levels 4.1 and 4.2) among partial collapses of the shelter roof (material mixed with levels of limestone blocks). Sterile levels of silt separated them.

Data on this layer are rich enough to investigate the question regarding the palimpsest and try to distinguish specific events in the accumulation. Several fire places or ashes lens have been discovered *in situ* in the layer. *Pinus* charcoals and other taxa are identified with a high proportion of *Pinus*. The large faunal spectrum is dominated by *Rangifer tarandus*, but comprise also some *Equus caballus* spp., *Cervus elaphus*, *Bison priscus*, *Capra ibex* and *Megaloceros giganteus*. The large mammal remains are exclusively related to Neanderthal activities (Moncel et al ip.). There are no carnivore remains and no chewing or ingestion marks (Hardy et al., 2013). The refits attest of the lack of taphonomic disturbance of the faunal remains. The lithic assemblage is composed of remains of core technologies and the technical strategies applied to flint, the main raw material, and other punctual stones (quartz and quartzite) indicate a fragmentation of the reduction processes in a local and semi-local perimeter around the site. The main core technology is Levallois, generally on flint cortical cores on flakes brought to the site. Flint flakes, blades and points are the main components of the series and the technological aims of the debitage, the largest ones brought to the site from outside. Flake-tools are rare (Moncel et al. 2014).

References:

- Chacón, M.G., Bargalló, A.; Gabucio, M. J.; Rivals, F., Vaquero, M. (in press) Neanderthal Behaviors from a Spatio-Temporal Perspective: An Interdisciplinary Approach to Interpret Archaeological Assemblages. Chapter 12. Settlement Dynamics IV. Kerns Verlag. Tübingen. Germany: 243-285.
- Combier, J., 1967. Le Paléolithique de l'Ardèche dans son cadre bioclimatique, Bordeaux.
- Hardy, B.L., Moncel, M.-H., Daujeard, C., Fernandes, P., Béarez, P., Desclaux, E., Chacón, M.G., Puaud, S., Gallotti, R., 2013. Impossible Neanderthals? Making string, throwing projectiles and catching small game during Marine Isotope Stage 4 (Abri du Maras, France), Quaternary Science Reviews 82, 23-40.
- Machado, J., Hernández, C.M., Mallol, C., Galván, B., 2013. Lithic production, site formation and Middle Palaeolithic palimpsest analysis: in search of human occupation episodes at Abric del Pastor Stratigraphic Unit IV (Alicante, Spain), Journal of Archaeological Science 40, 2254-2273.
- Moncel, M.-H., 1994. L'industrie lithique des trois niveaux supérieurs de l'abri du Maras (Ardèche). Actes de la table ronde „Les industries laminaires au Paléolithique moyen“, Dossier de Documentation Archéologique. CNRS Éditions n° 18, 117-125.

- Moncel, M.H., 1996. L'industrie lithique du Paléolithique moyen de l'Abri du Maras (Ardèche). *Gallia Préhistoire* 38, 1-41.
- Moncel, M.-H., Michel, V., 2000. Première datation radiométrique par U-Th d'un niveau moustérien de l'Abri du Maras (Ardèche, France). *Bulletin Société Préhistorique Française* tome 97, 1-5.
- Moncel, M.-H., Gaillard, C., Patou-Mathis, M., 1994. L'Abri du Maras (Ardèche): Une nouvelle campagne de fouilles dans un site Paléolithique moyen (1993), *Bulletin Société Préhistorique Française* tome 91, 363-368.
- Moncel, M.-H., Chacón, M.G., La Porta, A., Fernandes, P., Hardy, B., Gallotti, R., 2014. Fragmented reduction processes: Middle Palaeolithic technical behaviour in the Abri du Maras shelter, southeastern France, *Quaternary International* 350, 180-204.
- Moncel, M.-H., Allué, E., Bailon, S., Barshay-Szmidt, C., Béarez, Phi., Crégut, É., Daujeard, C., Desclaux, E., Debard, Lartigot-Campin, A.-S., Puaud, S., Roger, T. Evaluating the integrity of palaeoenvironmental and archaeological records in MIS 5 to 3 karst sequences from southeastern France, *Quaternary International* (2013), <http://dx.doi.org/10.1016/j.quaint.2013.12.009>.
- Vaquero, M., 2008. The history of stones: behavioural inferences and temporal resolution of an archaeological assemblage from the Middle Palaeolithic, *Journal of Archaeological Science* 35, 3178-3185.
- Vaquero, M., Chacón, M.G., Cuartero, F., García-Antón, M.D., Gómez de Soler, B., Martínez, K., 2012a. The lithic assemblage of level J, in: Carbonell, E. (Ed.), *High Resolution Archaeology and Neandertal Behavior: Time and Space In Level J of Abri Romaní (Capellades, Spain)*, *Vertebrate Paleobiology and Paleoanthropology Book Series*. Springer, Dordrecht, pp. 189-311.
- Vaquero, M., Chacón, M.G., García-Antón, M.D., Gómez de Soler, B., Martínez, K., Cuartero, F., 2012b. Time and space in the formation of lithic assemblages: The example of Abri Romaní Level J, *Quaternary International* 247, 162-181.

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The lithic technology and social-economic context at Vogelherd IV and V

The Swabian Jura is one of the key regions to understand the cultural innovations during the Early Upper Palaeolithic related to the expansion of the early modern humans in Europe. It thus calls for a clear understanding and definition of the Swabian Aurignacian. Although some recent data about the Swabian Aurignacian include new dates, newly found ivory

figurines and personal ornaments, there are only few lithic technology studies about the Aurignacian assemblages in Southwestern Germany. In order to clarify and place the Swabian Aurignacian in the overall European context, a reliable Aurignacian sequence based on the lithic production is required.

Based on typological analyses of their lithic artefacts, the Vogelherd IV and V were considered to be classical early Aurignacian/Aurignacian I in the past. The here-presented techno-typological study confirms the typical early Aurignacian blade technology. However, it further shows particularities in these assemblages (coexistence of parallel and convergent blade cores, relatively thin blades and big pointed bladelets, atypical and relatively few carinated end scrapers, various type of burin cores, absence of Dufour bladelets, abundant burin spalls, more burins than end scrapers, rare Aurignacian retouches, high proportion of splintered pieces and *Spitzklingen*, etc.). Here, I characterise the lithic techno-complex of Vogelherd IV and V and furthermore define the role of the Aurignacian of the Swabian Jura within the context of the European Palaeolithic.

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The Swabian Aurignacian and its implications for population dynamics and cultural evolution

Research on the Swabian Aurignacian dates back to the 19th century, and generations of scholars studying this important phase of the Upper Paleolithic have produced uniquely important information on human behavior and socio-economic evolution during this period between roughly 43 and 35 ka cal BP.

Building on the long tradition of excavations in the caves of the Swabian Jura, this paper reviews the salient results of the last two decades of research. Yearly excavations in the Ach and Lone valleys at famous sites including Hohle Fels, Geißenklösterle, Hohlenstein and Vogelherd, as well as new and lesser known sites have produced an unusually complete and record of the environmental conditions and subsistence practices during the Aurignacian. Additionally a wealth of organic and inorganic artifacts from all stages of production, use, recycling and discard provide important information on Aurignacian technology and the radical break it reflects relative to the technologies of the region's Middle Paleolithic.

Perhaps the most spectacular discoveries are in the area of symbolic behavior, where recent excavations have recovered numerous examples of three dimensional personal ornaments carved from mammoth ivory. The same fieldwork in the Ach and Lone valleys has yielded a wealth of figurative art made from mammoth ivory, depicting many animals, people and therianthropes. Additionally, remains of at least eight flutes carved from bird bone and mammoth ivory document a well-established musical tradition at the time of the early arrival of modern humans into Europe. Together, these many artifacts provide a rich view of the religious and artistic culture of Aurignacian inhabitants of the Upper Danube region. This paper summarizes current research on the Swabian Aurignacian and discusses how this work enriches our understanding of the fate of late archaic humans and the rise of symbolically based, cultural behavior that is today a universal aspect of human societies.

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Beyond food : The animal exploitation in the Early Upper Paleolithic

This paper tackles the question of the carcass processing by the first Anatomically Modern Human in Western Europe. While zooarchaeologists usually focus on the food exploitation,

large mammals are also a valuable source of utilitarian raw material. Based on new referentials produced by the « *Des Traces et des Hommes* » project, we propose a reconstruction of the global carcass exploitation process of different Aurignacian sites from Southwestern France. Beside meat and marrow, skin and tendons were intensively recovered by the Aurignacians and bone tissues were largely used for the production of tools.

Our study also highlights that some species were exclusively used for technical or symbolic purposes, attesting of a disjunction of the predation and symbolic/technical systems.

First comparisons with the Middle Paleolithic site of Les Pradelles underline, that contrary to the Neandertal inhabitant of this site, different choices were for the mammal exploitation by the Anatomically modern human populations. Since these two human groups evolved with the same geographic and climatic constraints, these differences might attest of a different conception and apprehension of their faunal environment.

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Early production and use of pigments: theory versus facts

Mineral pigments such as red iron or black manganese oxides have been widely exploited by human societies all over the world from at least the Middle Paleolithic and the Middle Stone Age. The earliest occurrences of pigment use were mainly found in sub-Saharan Africa, for instance at Twin Rivers in Zambia, in layers dated to more than 200 ka [1] or at Sai Island in Sudan, more than 180 ka ago [2]. Evidence for pigment use in Europe at such early dates is more scarce, such as the possible pigment drops from Maastricht-Belvédère in the Netherlands estimated at 200 ka [3], or more controversially, published claims from Bečov in Czech Republic [4] and Terra Amata in France [5]. Pigment use becomes widespread in Africa and the Near East from about 100 ka [6] and in Western Europe from at least 60 ka [7]. Because the frontier between the use of pigments and symbolic behaviours is not easily apparent, mineral pigments were often assumed to have symbolic meanings. However, both ethnographic and archaeological investigations suggest that they were used for different purposes, red ferruginous ochre in particular, including medicinal, cosmetic, ritual concerns, body painting, the preservation and maintenance of hides, or a use as a loading agent in adhesives. When one carefully looks at the evidence of pigment use for symbolic non-verbal communication or ritual more than 40 ka ago, several cases assumed to reflect symbolic mediated behaviours are problematic, especially when assumptions are supported by purely theoretical frameworks. By contrast, the engraved ochre pieces from the Still Bay units (c.a. 75 ka) of Blombos Cave in South Africa [8] represent compelling archaeological evidence for a symbolic use of red pigments. Pigment residues on *Nassarius* shell beads from South and North Africa, as well as the Levant [9,10], are also significant: their presence at multiple sites in each region strongly suggests a non-utilitarian, widespread use of red pigment. More recently, technological analyses and provenance studies on pigment lumps have provided further evidence of the complexity of pigment exploitation that are difficult to explain solely by evoking technical and economical motivations [11, 12]. Because pigment lumps are much more common than beads with pigment residues, their in-depth analysis can open new frameworks of interpretation in a near future.

References:

1. Barham, L. S. 2002. Systematic Pigment Use in the Middle Pleistocene of South-Central Africa. *Current Anthropology* 43(1):181–190.
2. McBrearty, S., and A. S. Brooks. 2000. The revolution that wasn't: a new interpretation of the origin of modern human behavior. *Journal of Human Evolution* 39(5):453–563.
3. Roebroeks, W., M. J. Sier, T. K. Nielsen, D. De Loecker, J. M. Parés, C. E. S. Arps, and H. J. M. M. 2012. Use of red ochre by early Neandertals. *Proceedings of the National*

- Academy of Sciences USA 109(6):1889–1894.
4. Trąbska, J., A. Gawęł, B. Trybalska, and I. Fridrichová-Sýkorová 2010. Coloured raw materials on the Be_cov I site and in the vicinity. Preliminary results and further perspectives. *Ecco Homo: In Memoriam Jan Fridrich*, ed Fridrichová-Sýkorová I (Krigl, Prague) 205–217.
 5. Wreschner, E. 1980. Red Ochre and Human Evolution: A Case for Discussion. *Current Anthropology* 21:631–644.
 6. Watts, I. 2002. Ochre in the Middle Stone Age of Southern Africa: Ritualised Display or Hide Preservative? *The South African Archaeological Bulletin* 57(175):1–14.
 7. Demars, P.-Y. 1992. Les colorants dans le Moustérien du Périgord. *L'apport des fouilles de F. Bordes*. *Bulletin de la Société préhistorique de l'Ariège* 47:185–194.
 8. Henshilwood, C. S., F. d'Errico, and I. Watts. 2009. Engraved ochres from the Middle Stone Age levels at Blombos Cave, South Africa. *Journal of Human Evolution* 57(1):27–47.
 9. d'Errico, F., C. S. Henshilwood, M. Vanhaeren, K. L. van Niekerk. 2005. Nassarius kraussianus shell beads from Blombos Cave: evidence for symbolic behaviour in the Middle Stone Age. *Journal of Human Evolution* 48(1):3–24.
 10. Vanhaeren, M., F. d'Errico, C. B. Stringer, S. L. James, J. A. Todd, and H. K. Mienis. 2006. Middle Paleolithic Shell Beads in Israel and Algeria. *Science* 312:1785–1788.
 11. Rifkin, R. F. 2012. Processing ochre in the Middle Stone Age: Testing the inference of prehistoric behaviours from actualistically derived experimental data. *Journal of Anthropological Archaeology* 31(2):174–195.
 12. Dayet, L., P.-J. Texier, F. Daniel, and G. Porraz. 2013. Ochre resources from the Middle Stone Age sequence of Diepkloof Rock Shelter, Western Cape, South Africa. *Journal of Archaeological Science* 40(9):3492–3505.

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Reconstructing skill and operational sequences from flake refittings. A view on Discoid technology

Refittings often are the most direct and immediate way to get informations about skill, operational sequences in lithic technology and raw materials supply and circulation (Turq et al, 2013). However, multiple refittings recording whole reduction sequences are rare in European Middle Paleolithic, especially if we limit our view to the Discoid technology. For this reason, the finding of a small concentration of flakes that we managed to refit with the core represent a remarkable discovery and a starting point to test approaches aimed to the comprehension of Neanderthal behaviour. These artifacts, recovered in 2012 in Grotta di Fumane, level A9, testify a complete discoid reduction sequence from decortication to core discard of a flint slab collected on the nearby stream bed.

Using a 3D Structured Light scanner to get the 3D reconstruction of the whole refitted core, turned to be a major helping for a better comprehension and contextualizing of the refitting, as well as for its performance. The discoid method is adopted from the beginning to the end of the reduction sequence and is used, in its bifacial exploitation variant, in a very strict “manual” way. Moreover, inference about the knapper’s manual dexterity and physical gestures was provided through the core knapping lateralization and backed flakes analysis. At last, an interpretation for the concentration as a lithic workshop waste rather than a knapped material cache, may shed some light about the existence of some “specialized” zones inside the cave and about the management economy of raw materials in the territory (Delpiano 2014).

References:

- Delpiano, D., 2014. Catene operative e frazionamenti. Risultati da uno studio tecno-economico dell'industria Discoide di Grotta di Fumane. Master Disseertation in Quaternary, Prehistory and Archaeology.
- Turq A., Roebroeks W., Bourguignon L., Faivre J-P., 2013. The fragmented character of Middle Palaeolithic stone tool technology. *Journal of Human Evolution* 63, pp, 641-655.

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Isotopic evidence of aquatic resource consumption in the Swabian Jura during the Late-Glacial interstadial

Aquatic dietary resources are considered as high quality food that provided ancient humans with beneficial nutrient to brain development and alternative subsistence advantage. During the Late-Glacial (16.9-11.6 ka cal BP), the populations of hunter-gatherers seemed to have indeed broadened their dietary spectrum to small game as well as aquatic resources. At that time, human populations were living in a context of changing environment with a succession of warm and cold episodes. The Late-Glacial interstadial (ca. 14.7-12.8 ka cal BP) was a period of global warming with the progressive replacement of some emblematic species of the Pleniglacial, such as reindeer, by more temperate species, such as red deer, in a context of high direct competition among the large herbivores.

Due to its low archaeological visibility, the contribution of fish and other aquatic prey to the diet of past populations has been investigated using direct trackers such as carbon and nitrogen isotope abundances in bone collagen. A growing set of stable isotope studies has shown a significant contribution of aquatic resources, especially from freshwater ecosystems, in coastal as well as in inland contexts during the Late-Glacial interstadial (e.g. Drucker et al., 2005; Mannino et al., 2011).

Using stable isotopes abundances in collagen (¹³C, ¹⁵N), we investigated the possible contribution of aquatic food to the diet of Magdalenian humans from of Hohlelefs, Brillenhöhle and Burkhardtshöhle in the Swabian Jura. Indeed, remains of fish have been identified at Hohlelefs, not only from the early Upper Paleolithic but also the Magdalenian levels (e.g. Conard and Malina, 2012). The occurrence of fish and or harpoon has also been reported for the Magdalenian context of other sites of the Swabian Jura. To decipher the trophic web of this period in this region, we considered the isotopic composition of faunal remains from the sites of Schussenquelle, Fellställe and Kesslerloch (Bocherens et al., 2011; Drucker et al., 2011).

The obtained isotopic signatures were very similar among the human individuals of the Swabian Jura, which reflected a similar composition of their dietary proteins. Their nitrogen-15 abundances were significantly higher than those found in the large carnivores (e.g. cave lion, wolf, wolverine), while the carbon-13 abundances were comparable between human and animal predators. Such a pattern can be explained by the intake of a significant amount of freshwater resources whose isotopic signature was recorded by bone collagen over years. This result raises the question of the potential reasons of an apparent systematic contribution of freshwater proteins to human diet during the Late-Glacial interstadial in Western Europe.

References:

- Bocherens, H., Drucker, D.G., Bonjean, D., et al. 2011. Isotopic evidence for dietary ecology of cave lion (*Panthera spelaea*) in North-Western Europe: prey choice, competition and implications for extinction. *Quaternary International* 245, 249-261.
- Conard, N.J., Malina, M. 2012. Neue Forschungen in den Magdalenien-Schichten des Hohle Fels bei Schelklingen. *Archäologische Ausgrabungen in Baden-Württemberg* 2011, 56-60.

- Drucker, D.G., Henry-Gambier, D., Lenoir, M. 2005. Alimentation humaine au cours du Magdalénien en Gironde d'après les teneurs en isotopes stables (^{13}C , ^{15}N) du collagène, *Paléo* 17, 57-72.
- Drucker, D.G., Kind, C.J., Stephan, E. 2011. Chronological and ecological information on Late-glacial and early Holocene reindeer from northwest Europe using radiocarbon (^{14}C) and stable isotope (^{13}C , ^{15}N) analysis of bone collagen: case study in southwestern Germany. *Quaternary International* 245, 218-224.
- Mannino MA, Di Salvo R, Schimmenti V, et al. 2011. Upper Palaeolithic hunter-gatherer subsistence in Mediterranean coastal environments: an isotopic study of the diets of the earliest directly-dated humans from Sicily. *Journal of Archaeological Science* 38, 3094-3100.

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Ewa Dutkiewicz

Markings and symbols - the fully developed symbolic behavior

The sites of the Swabian Jura are of great importance in regard to the development of symbolic expressions. Personal ornaments, figurative art and musical instruments are found in large numbers at the four major Aurignacian cave sites in the Ach and Lone Valley: Vogelherd, Hohlenstein-Stadel, Geißenklösterle and Hohle Fels. With an age of about 35,000 to 40,000 BP this very extensive ensemble is one of the oldest inventory of this kind worldwide.

A striking, but so far little researched feature are the numerous markings that are found on figurative artworks, on the musical instruments, on some jewelry objects, as well as on many organic tools. These markings are carefully selected symbols that are used on different media over and over again. Various explanations have been proposed, e.g. hunting markings, astronomical notation or purely decorative elements.

In this talk I will present the different explanatory models and discuss them on the basis of the data from the Swabian Aurignacian. I will also provide an overview of the so far examined inventory. The limitation of the study to a well-defined cultural unit with a clear chronological framework can lead to a better understanding of the symbolic system, than a comprehensive analysis of all Paleolithic symbols makes this possible. To demonstrate the significance of this very rich assemblage, an overview over the markings on osseous materials before the Swabian Aurignacian will be given as well.

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Francesco d'Errico

The earliest instances of symbolic material culture

The origin of symbolic material culture, long associated with a rapid cognitive change in Europe 40 ka ago, is now considered by many to have gradually emerged in Africa, in conjunction with the origin of our species. Others stress the use of symbolic artefacts by Neandertals, and their burial practices, to challenge the idea that symbolic behaviour is peculiar to our species. While a number of innovations documented in Africa may reasonably be seen as reflecting the emergence of symbolically mediated behavior, the archaeological record suggests that this tells just a part of the story. Neanderthals exhibited

many complex, including symbolic, behaviors before or at the very moment of contact with modern humans. Many key innovations are only found at a few African sites, which makes one wonder whether they can be considered as integral features of those cultural systems or just the expressions of local traditions. More importantly, many instances of symbolic material culture recorded in Africa, the Near East, disappear abruptly between 70 ka and 50 ka. Such discontinuities in cultural transmission, also seen in Europe, appear to separate the earliest instances of “modernity” from those that we see associated with historically known hunter-gatherers in southern Africa. The aim of this presentation is to summarize what we do know, and don’t know, about the origin of symbolic material cultures in Africa and Eurasia, and explore paths that could allow us to move from a situation in which the same evidence is accounted for by antagonistic scenarios to a research strategy that may produce, in the end, a unified theory for the origin of this innovation, and a better comprehension of the mechanisms that have stimulated the emergence, maintenance and transmission of this unique human adaptation.

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H. Floss¹, S. Fröhle¹ & S. Wettengl¹

New investigations on palaeolithic open-air sites in Southwestern Germany

The working group directed by H. Floss, Institut für Ur- und Frühgeschichte und Archäologie des Mittelalters, University of Tübingen, Abteilung Ältere Urgeschichte und Quartärökologie, is enlarging its research focus from the well known cave sites in the Ach- and Lone-Valley to palaeolithic open-air sites mostly in the north-eastern part of the Swabian Jura. These investigations originated in the discovery of the open-air site of Königsbach-Stein in 1988 by the lay-archaeologist Hans-Walter Poenicke, Pfinztal-Söllingen. Over the years, this cooperation was systematically extended to the Swabian Jura, which lead to the discovery of the palaeolithic open-air site Börslingen, Alb-Donau-Kreis, slightly north of the Lone-Valley. So far, ca. 4400 artifacts were collected from the surface, and each item was recorded with GPS-coordinates (Fröhle 2013). Between 2011 and 2014, excavations were conducted under the direction of H. Floss, which lead to the discovery of a hearth (Brenner 2013; Floss et al. 2012) and areas with heat-features.

Through close collaboration with the Arbeitskreis Steinzeit Schwäbisch Gmünd, it was possible to establish profitable contacts to several lay-archaeologists. After a first work regarding the palaeolithic artifacts in several sites known from surface collections (Wettengl 2013), the focus was laid on the site of Heubach-Sand in 2014. This site is known for almost a century. Since the 1970’s it was prospected by Adolf Regen and, beginning in 2013, by Wolfgang Naak. Amongst numerous mesolithic stone tools, a complex realized in local chert could be assigned to the Magdalenian. This makes the open-air site of Heubach-Sand outstanding in Baden-Württemberg. Additional excavations conducted in autumn 2014 by H. Floss showed, that potential intact magdalenian layers have already been disturbed by agricultural activities at least in parts of the open air site. Further research of other open-air sites in the Ostalbkreis and the Swabian Jura and its surroundings is planned in the future.

References:

- Brenner 2013 Brenner, M.: Die Feuerstelle des neuentdeckten Fundplatzes Börslingen-Eisenberg im Kontext der steinzeitlichen Feuerstellen Südwestdeutschlands. Unveröffentlichte Bachelorarbeit Universität Tübingen (Tübingen 2013).
- Floss et al. 2012 Floss, H.; Hoyer, Chr.; Dutkiewicz, E.; Frick, J.; Poenicke, H.-W.: Eine neu entdeckte paläolithische Freilandfundstelle auf der Schwäbischen Alb – Sondagegrabungen in Börslingen. Archäologische Ausgrabungen in Baden-Württemberg 2011, 71 – 74.

Fröhle 2013 Fröhle, S.: Die Oberflächenfunde der neu entdeckten paläolithischen Freilandfundstelle Börslingen, Alb-Donau-Kreis. Unveröffentlichte Bachelorarbeit Universität Tübingen (Tübingen 2013).

Wettengl 2013 Wettengl, S.: Die Kleine Scheuer im Rosenstein und das Paläolithikum um Heubach – Altfunde und neue Forschungen. Unveröffentlichte Bachelorarbeit Universität Tübingen (Tübingen 2013).

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Substantiating the saltationist view of Aurignacian emergence in Central and Western Europe: a reassessment of qualitative and quantitative arguments.

Following the seminal work of McBrearty and Brooks (2000), scholars have recently begun to argue that the specific archaeological fingerprint of the Aurignacian – the first Early Upper Palaeolithic entity in Europe securely attributed to anatomical modern humans (AMH) – does not truly capture a “rupture” event in hominisation (*sensu* the “human revolution” paradigm), but rather represents a mere *station* within incremental and cumulative cultural sophistication, which accelerated with the onset of MIS 3 in the context of Late Middle Palaeolithic populations (cf. d’Errico 2003; Langley et al. 2008; d’Errico and Stringer 2011). It is stressed here that overcoming radical linear and gradual perspectives on the process of becoming *humane* is a major epistemic obstacle in the “age of biology”. As a matter of fact, even evolutionary theorists acknowledge today that processes on larger temporal scales can at times be rather erratic and saltatory (Lange 2012). Moreover, granting endemic Neanderthal populations a unique sociocultural sphere with regulatory principles quite different from our own has nothing to do with degradation, but rather emphasises their extraordinary place in the human lineage. This said, we attempt to defend the saltationist view of the transition to the Aurignacian and argue that the latter is best understood as a direct consequence of a large-scale reorganisation of sociocultural spheres in AMH populations (Floss 2015). The ongoing extension of several painted cave chronologies – for example Pair-non-Pair, Aldène, and Coliboaia – to the Early Upper Palaeolithic is consistent with this perspective (compare also White et al. 2012). Those cases demonstrate that Chauvet’s artistic component is not exceptional and fits well into the wider picture of the period’s parietal and mobile art. Together with early Aurignacian ivory figures and musical instruments from the Swabian Jura in southwestern Germany (Conard and Floss 2013), they clearly show that the Early Upper Paleolithic marks a significant break to the preceding Middle Paleolithic, fostering a sociocultural “upheaval” scenario (see also Floss 2006; White 2006). By quantifying the material evidence from several Aurignacian sites in Central and Western Europe, we further show that this rupture can be expressed in *numbers* and is far more than “just” a qualitative one. These findings make abundantly clear that the Aurignacian archaeological signature is characterised by the *repetitive, redundant and systematic* appearance of parietal and mobile art that substantially contrasts the circumstantial and unsystematic evidence from previous times.

References:

- Conard, N.J., Floss, H. 2013. Early figurative art and musical instruments from the Swabian Jura of Southwestern Germany and their implications for Human Evolution. In: K. Sachs-Hombach, J. Schirra (Eds.), *Origins of pictures, anthropological discourses in Image Science* (pp. 172-200). Herbert von Halem.
- D’Errico, F. 2003. The invisible frontier. A multiple species model for the origin of behavioural modernity. *Evolutionary Anthropology* 12(4), 188-202.
- D’Errico, F., Stringer, C.B. 2011. Evolution, revolution or saltation scenario for the emergence of modern cultures? *Philosophical Transactions of the Royal Society of London B* 366, 1060-1069.

- Floss, H. 2006. Als der Mensch schuf, schuf er richtig – Europas kreativer Urknall vor 35.000 Jahren. In: G. Uelsberg, S. Loetters (Eds.), *Roots, Wurzeln der Menschheit* (pp. 209-226). Rheinisches Landesmuseum Bonn.
- Floss, H. 2015. A new type of society creates a new type of objects. Aurignacian ivory sculptures from the Swabian Jura (Southern Germany). In: S. Corchón Rodríguez et al. (Eds.), *congress of the centenary of the discovery of Candamo cave*. Oviedo 2014, Universidad de Salamanca, in press.
- Lange, A. 2012. Darwins Erbe im Umbau. Die Säulen der Erweiterten Synthese in der Evolutionstheorie.
- Langley, M.C., Clarkson, C., Ulm, S. 2008. Behavioural Complexity in Eurasian Neanderthal Populations: a Chronological Examination of the Evidence. *Cambridge Archaeological Journal* 18(3), 289-307.
- McBrearty, S., Brooks, A.S. 2000. The revolution that wasn't: a new interpretation of the origin of modern human behavior. *Journal of Human Evolution* 39(5), 453-563.
- White, R. 2006. Un big-bang socio-culturel. In: *La Recherche* (Ed.), *La naissance de l'art* (pp. 23-36).
- White, R., Mensan, R., Bourrillion, R. et al. 2012. Context and dating of Aurignacian vulvar representations from Abri Castanet, France. *PNAS* 109(22), 8450-8455.

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Jens Axel Frick & Harald Floss

Grotte de la Verpillière II, a Late Middle Paleolithic reference site in southern Burgundy

Detailed, cutting-edge studies of late Middle Paleolithic sites are rare in Eastern France. Ongoing research at the Grotte de la Verpillière II has the potential to fill in this gap, along with concurrent work at the sites of Germolles-en-Roche and Saint-Sulpice (Germolles, France) and Château Beau and La Roche (Saint-Martin-sous-Montaigu, France). In this paper, we give an overview of the geomorphological context of the archaeological layers at the site. Although it is called a cave (fr. *grotte*), the site is better described as a cave-like karst tunnel that forms a rock shelter (fr. *abri*) that was filled with sediments during Middle Paleolithic occupation and collapsed very soon after these occupations. The sediment deposits just above the rock collapse (likely derived from the overlying plateau) contain archaeological material attributable to the Middle Paleolithic, Early Upper Paleolithic (Chatelperronian and Aurignacian), the Neolithic, modern material (medieval to 21st-century) as well as notable bioturbation in the form of rodent and badger dens.

A team led by H. Floss discovered the site in 2006 during excavation at the Grotte de la Verpillière I (50 m to the south) and intact sediments were identified in 2009 beneath the talus and roof collapse blocks. Excavation has continued annually since that time. The area of excavated intact sediments includes 25 m², but several lines of evidence, including GPR survey, the size of the rock collapse, small test pits, and geomorphological analysis suggest that the cavity actually holds around 100 m² of intact sediments. Analyses of archaeological finds are ongoing, and suggest spatial differentiation of site use during the Middle Paleolithic occupations. Up to this point, we have not been able to identify specific hearths or fireplaces, however more than 8700 charcoal fragments and 200 burnt lithics confirm the presence of fire in the stratified, intact sediments. In the near future, detailed lithic analyses of the intact assemblages (Levallois reduction strategies with the presence of bifacial elements) will be presented. At this time, we focus on the stratigraphic sequence of the cave, and the regional context of this rich and promising site.

Work at this site and at the other sites listed above is part of international collaborative research projects in the region (PCR „*Le Paleolithic supérieur ancien en Bourgogne méridionale*“; DFG project FL 244/5-1 „*Die Côte Chalonnaise (Burgund) im späten Mittel- und frühen Jungpaläolithikum als Schnittstelle zwischen West- und Mitteleuropa: Diachrone und räumliche Analysen neu erschlossener archäologischer und umweltgeschichtlicher Archive des Oxygen Iso-tope Stage 3*“ and

SFB 1070 B01 „Variabilität der Ressourcennutzung. Raumerschließung durch späte Neandertaler und frühe anatomisch moderne Menschen in Europa“).

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Distinguishing Drop Zones: Lithic and Faunal Perspectives on Lower Magdalenian Activity Areas in El Mirón Cave, Cantabria, Spain

The Lower Magdalenian in Cantabria (north coastal Spain) is known for distinctive artifact assemblages and portable art (notably red deer scapulae with striated engravings of red deer and other ungulates), the latter possibly identifying a regional band. El Mirón cave, a large site in the mountainous interior of eastern Cantabria, was occupied frequently during the Lower Magdalenian, making it an ideal case for the study of human behavioral changes during the early Late Glacial. Level 16 (15,180±100 uncal. BP) was excavated following modern protocols: piece-plotting, water screening, and sub-square provenience recording, which enable high-resolution spatial analyses that demonstrate complex human occupations. This paper explores activity areas in Level 16 by integrating data from lithic and faunal analyses with GIS density modelling. Lithic distributions indicate well-defined reduction areas of a high-quality flint that was transported to the site from outcrops 50-70km away. Faunal distributions show distinct activity and depositional areas for bone processing and long bone discard. Lithic and faunal working activities were related to a possible latent, shallow hearth, demarcated by a high density of burned bones. These results demonstrate that Lower Magdalenian occupants of El Mirón cave deliberately maintained and re-used discrete activity areas in the outer vestibule: one where they manufactured lithics and processed bones, and another where large bones were discarded.

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Liane Giemsch

Makuyuni: Acheulean sites from the Lake Manyara, Northern Tanzania

This study investigates the Early Stone Age in the Lake Manyara area in northern Tanzania, which also includes the new hominid site Makuyuni. Surveys in the study area resulted in the discovery of 52 new sites, 42 of which yielded varying amounts of palaeolithic artefacts. The majority of Early Stone Age find spots are south of the village of Makuyuni. To clarify the original stratigraphic context of the surface finds, small test excavations were carried out in selected locations. For two main localities it could be evidenced, that the findings originate from the Lower/Upper- Member contact zone of the Manyara Beds.

In the course of surface survey and excavation, more than 1300 stone artefacts were recovered as single finds and then recorded in detail using qualitative and quantitative criteria. The main aim of the analysis was the technological and chronological classification of the pieces. Technological and metric attributes indicate that the assemblages consist of artefacts belonging to both the Middle and early phases of the Late Acheulean, but the vast majority of the pieces can be assigned to the Middle Acheulean culture. With reference to the absolute dates for the Manyara Beds and other comparable sites, the Makuyuni finds can be dated to between 630 000 and 270 000 years old, with the majority of artefacts falling between 630 000 and 400 000 years ago. The fact that both the hominid remains and some of

the artefacts were found in the contact zone between the Lower and Upper Members of the Manyara Beds suggests that hominids in the Lake Manyara area used the landscape near the shoreline of the Manyara palaeo-lake in the early part of the Middle Pleistocene.

References:

- Kaiser, T. M., Seiffert, C., Hertler, C., Fiedler, L., Schwartz, H. L., Frost, S. R., Giemsch, L., Bernor, R. L., Wolf, D., Semperebon, G., Nelson, S. V., Schrenk, F., Harvati, K., Bromage, T. G. & Saanane, C. (2010); Makuyuni, a new Lower Palaeolithic Hominid Site in Tanzania.- *Mitteilungen aus dem hamburgischen zoologischen Museum und Institut* 106: 69-110.
- Frost, S. R., Schwartz, H. L., Giemsch, L., Morgan, L. E., Renne, P. R., Wildgoose, M. M., Saanane, C., Schrenk, F. & Harvati, K. (2012); Refined age estimates and Paleoanthropological investigation of the Manyara Beds, Tanzania.- *Journal of Anthropological Sciences* 90: 151-161.

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Interdisciplinary investigations of the late glacial double burial from Bonn-Oberkassel

The late glacial double burial from Bonn-Oberkassel, with its unique combination of finds is one of the most important research sources for the Late Glacial in Central Europe. Due to the large number of questions concerning the find ensemble, late Palaeolithic humans in general, and also due to the approaching 100th anniversary of the discovery, the University of Bonn and the LVR-LandesMuseum Bonn has launched a complete scientific reinvestigation of the find complex. The anthropological studies of the human skeletons provided in addition to their sex and the attained age also answers to the questions of injuries and diseases of the two individuals. Stable isotope analyzes yielded answers to questions about nutrition and to determine the regions where the individuals grew up. With the help of a forensic facial reconstruction method we get an idea of the physical appearance of our ancestors from Oberkassel. The genetic studies on the human skeletons provide further information about their degree of relationship to each other and their phylogenetic position within the populations of Europe; they also help to date the expansion of modern humans out of Africa. Important questions regarding the domestication of wolves could be answered using mtDNA-analysis at the Oberkasseler dog and confirm that the Oberkasseler animal skeleton is a direct ancestor of today's dogs. Among other things microCT-scans and experimental reconstructions clarified the motive and the material from which the grave goods are made. In 2012 we conducted fieldwork at the site in the quarry in Bonn-Oberkassel, aiming at the location of still undisturbed glacial layers and shifted sediments from the destroyed burial and thus to gain important insights into the chronology and the original site. In fact it might also reveal whether the burial from the Rabenlay is a singular event, part of a repeatedly visited burial site or whether it corresponds to a nearby, as yet undiscovered living site.

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Colourful horizons – assessing the variety of colour pigments processed and applied at the Pavlovian site Krems-Wachtberg

Long-term excavations at the Middle Upper Palaeolithic site Krems-Wachtberg - ongoing since 2005 - have provided a wealth of data and important insights into a range of activities connected to life and death of Pavlovian society more than 30,000 years ago. Mainly this is due to the excellent conditions for preservation of both finds and evident features provided by the prevailing sedimentation processes.

Most outstanding among the preserved structural contexts are the two infant graves, one double and one single, which illustrate that the burial practices involved the extensive use of red ochre. Colour materials, predominantly red but also yellow, white, grey and brown, have also been evidenced in large amounts in the in situ horizon (AH 4.4) which is preserved in form of an occupation surface around a large multi-phased hearth. A similarly good state of preservation can be attested to the finds in the moved horizon (AH 4.11) immediately above which was formed by a sequence of slope movement processes that both re-located material of the occupation surface as well as from positions further uphill, and covered the palaeo-occupation surface with its evident features.

While about 22,000 colour occurrences – often fragments of 1-2 mm in size or only traces – were recorded three-dimensionally during excavations, more than 3,000 samples have been recovered, ranging from raw pieces to ground powder. Furthermore, hammerstones and stone slabs with colour traces, as well as painted objects – next to the ground red ochre abundantly applied in the burials, provide substantial evidence of the entire chaîne opératoire.

Starting with powder X-ray diffraction (XRD) analyses of the red colour pigments used in the double infant burial a research plan was developed to assess the variety of colour materials recovered at the site. A sampling area measuring 2 x 11 m that runs south to north was determined which includes the multi-phased hearth and extends beyond the preserved occupation surface on both ends. A total of 523 colour samples have been recovered from this area, 317 of which were considered suitable for XRD analyses. Besides, 20 samples from deposits outside the sampling area were examined, many of which derive from the burials. The sample treatment included grinding and photographic documentation of the ground substance.

The XRD results do not necessarily reflect the field observations on nature and similarity of colour samples. While the field denomination “red ochre” is mostly confirmed by the presence of hematite and/or magnetite, “yellow ochre” is already less reliable as to the actual occurrence of yellow coloured minerals, and the results for “brown colour material” are overall heterogeneous.

First results provided by spatial analyses particularly for red (hematite and magnetite) and

yellow (goethite and jarosite) colour pigments show a clear preference of red pigments in AH 4.4 as well as distribution patterns spatially congruent to evident features, in particular to the hearth. In contrast, yellow pigments are more common in AH 4.11.

References:

- Händel, M., Einwögerer, T., Simon, U., Neugebauer-Maresch, C., 2013: Krems-Wachtberg excavations 2005-12: main profiles, sampling, stratigraphy, and site formation. *Quaternary International*. <http://dx.doi.org/10.1016/j.quaint.2013.02.0024>
- Neugebauer-Maresch, C., Hammer, V.M.F., Einwögerer, T., Händel, M., Simon, U. 2013: Die gravettienzeitlichen Rötelfröber und die Farbstoffe des Fundplatzes Krems Wachtberg/ Niederösterreich. 5. Mitteldeutscher Archäologentag vom 4. bis 6. Oktober 2012 in Halle (Saale). Tagungen des Landesmuseums für Vorgeschichte Halle 8, 135–141.
- Neugebauer-Maresch, C. 2011: Rote Farbe im Bestattungsritus der Steinzeiten. In: Lauermaier, E., Sam, S. (Eds.), *Drei Farben – Magie. Zauber. Geheimnis, Bedeutung der Farbe über Jahrtausende*. Publikation des Urgeschichtemuseums Niederösterreich NF 497, Asparn/Zaya 2011, 26–43.
- Simon, U., Händel, M., Einwögerer, T., Neugebauer-Maresch, C. 2013: The archaeological record of the Gravettian open air site Krems-Wachtberg. *Quaternary International*. <http://dx.doi.org/10.1016/j.quaint.2013.08.009>.
- Simon, U. 2012: New Evidence of Painting in the Gravettian of Central Europe. Hugo Obermaier Society for Quaternary Research and Archaeology of the Stone Age, 54th Annual Meeting in Toulouse, 10th–14th of April 2012, 49.

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Stephan M. Heidenreich, Conny Meister & Claus-Joachim Kind

“Caves with the oldest Ice Age art” – On the Way to UNESCO World Heritage

The Lone and Ach river valleys in the Swabian Jura contain a concentration of archaeological sites unsurpassed in the world with their early examples of figurative art and musical instruments. Together with the artifacts and the surrounding landscape these sites form a unique early cultural ensemble that helps to illuminate the origins of human artistic development. Therefore, they are considered to be of outstanding universal value.

Since 2014 the “Caves of the oldest Ice Age art” are on Germany’s tentative list for inscription as UNESCO World Cultural Heritage. The submission of the final nomination is planned for February 2016. While a workgroup of research scientists is preparing the nomination file, various institutions and stakeholders contribute to the whole nomination process. Strategies for a network of all parties and a comprehensive management plan have been developed in order to establish a sustainable World Heritage site. The paper presented here addresses aims, challenges and prospects of an Archaeological World Heritage nomination.

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New insights into raw material use patterns in the Early Upper Paleolithic of Saint-Martin-sous-Montaigu (southern Burgundy, France)

In 1926, Dr. Lenez discovered the paleolithic open air site ‘La Roche’ in the vineyards of Saint-Martin-sous-Montaigu (southern Burgundy, France), which is reminiscent (in terms of topography) of the famous site of Solutré. Apart from a small test pit in the same year, only surface collections have been undertaken on-site. The most important were those of

André Charles Gros in the 1950s and 60s, which lead to the identification of distinct sectors for Middle Paleolithic and Early Upper Paleolithic (Aurignacian) activity.

Jurassic chert and residual cretaceous flint are available as raw materials in immediate proximity to the site. While the use of both has been attested for the Middle Paleolithic assemblages, only flint use has yet been reported for the Aurignacien sector in question.

Nevertheless, there is new evidence for more diverse raw material use patterns in the Early Upper Paleolithic of Saint-Martin-sous-Montaigu, including both flint and chert.

In the context of the international research projects SFB 1070 „ResourceCultures“, PCR UMR 6298 and DFG FL 244/5-1, a team from Tübingen (under the direction of Prof. Harald Floss) undertook new surface collections in St. Martin in 2014. The collected material bears evidence of the same artifact spectrum among the two raw material types such as cores, blades and bladelets as well as retouched forms, especially end scrapers. Due to intense weathering, resulting in strong surface alteration and a high degree of fragmentation as well as recent human activity (wine agriculture and plowing), the identification of chert artifacts is not always easy. Nevertheless, they show the same technological characteristics as the flint artefacts, though in a slightly less refined way, and thus differ in terms of curation, pointing to a more opportunistic ad hoc use of the direct available chert raw material. This point seems to be further strengthened by the presence of a considerable amount of modified frost shattered pieces.

These observations stand in contrast to the general assumption of high quality raw material preferences starting with the Upper Paleolithic. Until now, there have also been no reports of chert use for neighboring sites with Aurignacian present, thus making the site of La Roche an interesting case study in the research area of southern Burgundy with its multitude of late Middle Paleolithic, Transitional and Early Upper Paleolithic assemblages.

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Late Magdalenian hunter-gatherers at the rock shelter site Helga-Abri in Ach Valley

The rock shelter site Helga-Abri is situated in Ach Valley of Baden-Württemberg, Germany, at the southern edge of Hohle Fels. It forms a protected area on a slope which links the valley bottom with higher zones of the Swabian Jura. Archaeological excavations between 1976 and 1984 revealed several layers of occupation, dating from the Late Magdalenian to the Early Mesolithic. The site is crucial for our understanding of subsistence strategies and mobility patterns of prehistoric groups during the Late Glacial and the Early Holocene in southwestern Germany. This period was marked by rapidly changing climatic conditions and important innovations such as the widespread use of bow and arrow, and domesticated dogs for hunting. Furthermore, comparative zooarchaeological data show the high diversity of animal species that were present at the onset of Meiendorf-Interstadial (GI-1e). Lithic technology of the terminal Magdalenian groups can be characterised by the small size of artefacts (*azilianisation*), the occurrence of multifunctional tools, and a flexible reduction strategy. The latter reflects Magdalenian tradition, but includes characteristic features of the subsequent Late Palaeolithic. Backed points and asymmetric perforators (so-called *Zinken*) display similarities to Magdalenian assemblages in the Paris Basin (facies Cepoy-Marsangy) and northern Switzerland (Technokomplex E). The occurrence of non-local raw materials suggests a high degree of mobility and extensive movements along the Jura Mountains. Finally, the recent discovery of two refitted stone tools from Helga-Abri and Hohle Fels, argues for a contemporary use of the sites.

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Nadine Huber & Harald Floss

Painted limestones from the Magdalenian of the Klausenhöhlen (near Essing, Bavaria)

At the beginning of the 20th century J. Fraunholz and H. Obermaier found some painted stones at the Klausenhöhlen near Essing in the Altmühl valley. All of the objects were dated to the Magdalenian. These stones show rows of red dots and lines of red pigment and were published 1914 and 1982.

During a recent revision of the find material, two new items of painted mobile art from that site had been discovered in the Archäologische Staatssammlung München. These items are a painted limestone slab and a painted pebble, which are decorated with rows of red dots or stripes of red colourant. After all, these pieces complete the collection of painted stones known since the early excavations. The aim of this contribution is the presentation of all painted stones from the Klausenhöhlen and the application of different methods, which have been used for the documentation and analysis. The identification of the colourant was done by x-ray fluorescence analysis. For better visualisation of the colourant, UV-light irradiation and decorrelation stretching had been used. Both methods provided advanced results. Especially for one of the pieces, a limestone slab, it was possible to visualise the precise edges of the red dots. Additionally, experiments were performed for a better understanding of how the dots were made.

The painted stones bear strong resemblances to pieces from the Hohle Fels cave near Schelklingen in Baden-Württemberg, which are also dating to the Magdalenian. Possibly these assemblages of painted objects show a common cultural background.

References:

Bosinski (1982): Die Kunst der Eiszeit in Deutschland und in der Schweiz. Kataloge Vor- und Frühgeschichtlicher Altertümer Bd. 20, Bonn.

Floss, H., Hoyer, Ch. Th., Huber, N. (in press): In alten Sammlungen neu entdeckt: Bemalte und gravierte Steine aus den Klausenhöhlen bei Essing im Altmühltal (Bayern). *Anthropology* 53/1, in press.

Floss, H., Huber, N. (2014): Bemalte Steine aus dem Magdalénien der Klausenhöhlen bei Essing (Bayern). *Mitteilungen der Gesellschaft für Urgeschichte* 23, 103-119.

Freund, G., (1963): Die ältere und mittlere Steinzeit in Bayern. *Jahresberichte der Bayerischen Bodendenkmalpflege* 4, 98–110.

Obermaier, H. (1914): Fouilles en Bavière. *L'Anthropologie* 25, 254-262.

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Zigeunerfels: First results of recent investigations into the lithic and faunal remains

Zigeunerfels is a small rock shelter near Sigmaringen-Unterschmeien. Excavations at this site took place between 1972 and 1973. They were supervised by Dr. Wolfgang Taute and were part of the operations of the SFB (special research field) 53 – Palökologie – at the University of Tübingen. The excavations revealed a detailed stratigraphic sequence of the transition from the late Pleistocene to the Holocene. A total of nine archaeological layers were identified spanning from the Magdalénien to early Mesolithic.

A couple of articles about the scientific interpretation of the site as well as a preliminary report were published in the 1970s but up until now a thorough analysis and interpretation of the archaeological remains is still lacking. Currently all findings and features are being reinvestigated and interpreted within a dissertation funded by the DFG.

The main focus of this work is on the approximately 15,000 stone artefacts. The analysis of the utilised raw material so far shows a spectrum of various materials from a wide collecting area. The composition of Jurassic and Triassic cherts in the assemblage suggests that raw materials were collected to the south and west of the site. The total number of stone artefacts within each layer and the relative proportion of tools and burnt pieces indicate a change in site use between the Magdalénien and the late Palaeolithic.

The faunal material is currently reanalysed as part of a research project focusing on the evolution of human economic behaviour during the Early Holocene. However, the complex taphonomic history of the osteological assemblage from the Zigeunerfels remains thus far ambiguous. Therefore, in order to enable a comprehensive evaluation of the human economic activities at the site, the taphonomy of the faunal remains is analysed in detail.

References:

Taute, W. 1972, Die spätpaläolithische-frühmesolithische Schichtenfolge im Zigeunerfels bei Sigmaringen (Vorbericht). Arch. Inf. 1, 29-40.

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First report from the excavations at the De Nadale Cave, a single layered Mousterian site in the North of Italy

First reported in 2007 to the University of Ferrara, the De Nadale Cave is located in the Colli Berici, near Vicence, in North-Eastern Italy. The small shelter is oriented towards South and is situated at 50 m a.s.l. on a steep slope. After the successful cleaning off of the reworked sediment in 2013, which led to the recovery of a large amount of bone fragments and a few lithic implements, two excavation campaigns, financed by the H.Obermaier society, the Zovencedo Public Administration and local private companies were carried out in 2014. The excavations exposed a short stratigraphic sequence in its entirety, with one single anthropic layer (unit 7) inserted between sterile levels.

Disturbance of unit 7 is attested by the presence of badger dens beyond the current excavation limit, inside the cave along the wall. Aside from it, the layer is well preserved and extends inside the cave. It has yielded hundreds of bone fragments, flint implements and a few, small charcoals. At the time being, no chronological data are available to confirm the supposed Late Pleistocene age of these frequentations. Faunal remains show a marked preponderance of large ungulates (*Bos/Bison* and *Bison priscus* for the main part, but also *Megaloceros giganteus* and *Cervus elaphus*), which is an unusual evidence for the Middle Palaeolithic of the Berici Plateau and, in general, the southern Italian Alps. Most of the bones show traces of anthropic modifications due to skinning, dismembering and fracturing of the carcasses and of the shafts of the long bones for marrow recovery. Another evidence peculiar to this site is the high proportion of bone retouchers in comparison to the fragmented shafts. Related to these bone tools, the lithic industry records several intensively retouched scrapers made of flint collected outside the region, due to its absence in the surroundings.

The ensemble of anthropic indicators induces us to consider De Nadale Cave as a specific case for understanding the variability and the complexity of Neanderthal behavior in a region where the Middle Palaeolithic is the focus of long-term research projects aimed to reconstruct movements and economies of Neanderthal populations.

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The Lion Man from Stadel Cave and his significance for the Swabian Aurignacian

New excavations inside the Stadel Cave from 2009 to 2013 led to the rediscovery of the finding place of the famous paleolithic Lion Man sculpture, already excavated at the last day of 1939 campaign. It turned out, that - due to the sudden stop of the dig a few days before the beginning of World War II and to the methods at this time - besides other archaeological finds several hundred, mostly tiny ivory-fragments of the broken figurine had been left behind inside the cave. They were preserved in the backdirt in front of the last profile. Behind this profile an intact stratigraphy from middle to upper paleolithic could be uncovered. From three Aurignacian layers the lowest layer could be reconstructed as find-layer of the Lion Man. It's age was examined within series of several radiocarbon dates to approx. 40,000 BP. During a restoration-project 2012/13 the statuette could be further completed, mainly the head and the upper part of the body at the front, the back and the right side. Also it reveals much more details concerning it's shape and manufacturing process. Measuring now from head to toe 311 mm, the Lion Man is the tallest figurine between the Aurignacian ivory-sculptures from the Swabian Jura and the only one which has been carved out of a mammoth tusk in it's full diameter. The Lion Man combines a lion's head and a long shaped body with legs and paws of a lion as upper-arms with human legs and feet in an upright position. Somewhere in the middle, where the navel and an obviously male genital have been depicted too, the sculpture seems to turn from animal to human. As nearly all other aurignacian ivory-figurines it is supplied with a number of ornamental elements. Although the Lion Man is the only figurine which can be interpreted as a fabulous one without any doubt, there exist two other small objects, the so called "adorant" from Geissenklösterle and a fragment from Hohle Fels, which have been interpreted as possible "pocket-size"-versions of the Lion Man from Stadel Cave.

Noteworthy for the interpretation of the function of Stadel Cave seems the Lion Man's finding place itself, a kind of chamber in the rear of the cave with no traces of habitation, but with bone artifacts and personal ornaments as pendants from ivory and perforated animal teeth.

As therianthropic representation the Lion Man arouses numerous interpretations not only after it's new restoration and completion. Archaeologists, ethnologists and even neurologists tried to interpret the composition of human elements with those of a big cat in different ways. Nevertheless all theories underline the important role of this fantastic creature for human symbolic evolution and the worldview of Aurignacian hunter gatherer communities.

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New radiocarbon dating of animal bones from Ciemna Cave – a Micoquian site in Poland

Ciemna Cave is a famous Polish Palaeolithic site, the eponymic site for “Prondnik” knife of Neanderthal man. Archaeological investigations have been conducted since the beginning of 20th century and engaged many researchers (Czarnowski 1924; Krukowski 1924, 1939-48; Kowalski 1967, 2006). The new excavation in 2007-2012 (Valde-Nowak et al. 2014), realized with support of National Science Centre, Poland (grant N N109 185240) yielded a material of fossil bones with known stratigraphic provenience.

The sequence was divided into 24 layers, grouped in six lithostratigraphic series. They are: I (layers 19-17) – the oldest one, including yellowish and reddish clays and silty loams; II (layers 16-9) – brown and grayish brown loams and silty loams with limestone rubble, dated to marine oxygen isotope stage OIS 5 and probably also OIS 6 and OIS 7; III (8-6) – brown and grayish brown debris of limestone rubble, dated to OIS 4; IV (layers 5-2.2) – brown and grayish brown loams, silty loams and loess with limestone rubble, dated to OIS 3; V (layers 2.12-2.11) – yellowish brown redeposited loess, dated to OIS 2; VI (layers 1.2-1.1) – dark humus sediments, dated to Holocene. Nine cultural levels were recognized in sedimentary sequence, including seven Middle Palaeolithic horizons (Valde-Nowak et al. 2014).

Due to financial support of National Science Centre, Poland (grant 2012/05/B/HS3/03751) we had a possibility to date 10 samples with radiocarbon method. We chose animal bones and teeth from layers 1-7, as geological investigation suggested that these sediments are in the limit of radiocarbon method. These layers contain the most rich Micoquian level number III in the boundary between layers 2.3 and 3; the second Micoquian level number IV in layer 6; the mixed Palaeolithic and Holocene artefacts; and level number I, including Neolithic, Bronze Age, Roman Period and Middle Ages.

Radiocarbon dating of domestic pig bone from layer 1 yielded age $1,580 \pm 30$ BP (not calibrated). Remains from all other layers showed age ranging from $34,600 \pm 600$ to $47,000 \pm 3,000$ BP (not calibrated), however not in stratigraphic order. It suggests that sediments bearing Palaeolithic artefacts could be disturbed by post-depositional mixing.

References:

- Czarnowski SJ, 1924. Jaskinie i schroniska na Górze Koronnej na lewym brzegu Prądnika pod Ojcowem. Sprawozdanie z badań paleoetnologicznych. PAU, Kraków (in Polish).
- Kowalski S, 1967. Ciekawsze zabytki paleolityczne z najnowszych badań archeologicznych (1963-1965) w Jaskini Ciemnej w Ojcowie, pow. Olkusz. Materiały Archeologiczne, 8, 39-46 (in Polish).
- Kowalski S, 2006. Uwagi o osadnictwie paleolitycznym w Jaskini Ciemnej i Mamutowej w świetle badań z lat 1957-1974. In: J Partyka and J Lech (Eds.). Jura Ojcowska w pradziejach i początkach państwa polskiego. Wydawnictwo Ojcowskiego Parku Narodowego, Ojców, pp. 335-354 (in Polish).
- Krukowski S, 1924. Doliny Prądnika i Sąsławki jako teren przedhistoryczny. Ochrona Przyrody, 4, 85-92 (in Polish).
- Krukowski S, 1939-48. Paleolit. In: S Krukowski, J Kostrzewski, R Jakimowicz (Eds.). Prehistoria ziem polskich (Encyklopedia Polska, tom IV, część I – dział V). Polska Akademia Umiejętności, Kraków, pp. 1-117 (in Polish).
- Valde-Nowak P., Alex B., Ginter B., Krajcarz M.T., Madeyska T., Miękina B., Sobczyk K., Stefański D., Wojtal P., Zajac M., Zarzecka-Szubińska K. 2014. Middle Paleolithic sequences of the Ciemna Cave (Prądnik valley, Poland): the problem of synchronization. Quaternary International 326-327: 125-145.

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Detecting heat treatment among the Aceramic Neolithic artifacts from Chogha Golan, Iran

The Aceramic Neolithic site of Chogha Golan is located in the foothills of the Zagros Mountains in Ilam province of Western Iran. The site was excavated by the Tübingen-Iranian Stone Age Research Project (TISARP) in 2009 and 2010. Chogha Golan was occupied between 11,700 and 9,600 calibrated BP. The lithic artifacts from Chogha Golan are made from different varieties of local chert. The most frequently found lithic blanks in Chogha Golan are bladelets that were produced by pressure flaking of single platform unidirectional cores of conical and bullet shape.

The widespread use of pressure flaking during the early Neolithic is thought to be intimately related to the use of heat treatment of the raw materials. Since Chogha Golan dates to the early Neolithic and is located in the Near East as the core region for the first appearance of the Neolithic communities, it provides an interesting framework for studying this relation. Our aim is to find out whether the appearance of heat treatment was correlated with the appearance of pressure flaking or whether one phenomenon preceded the other.

Our analysis included evaluating lithic reduction, stone tool and reduction steps content. We randomly selected samples from the 3 uppermost layers (Layers I-III) and from the 3 lowest layers (Layers IX-XI). Heated stone artifacts can unambiguously be identified due to the presence of both glossy (post-heat-treatment) and dull (pre-heat-treatment) fracture negatives on one artifact. We found that a large number of the analyzed stone samples from Chogha Golan show these distinctive characteristics.

The inhabitants of Chogha Golan applied heat treatment to stone before tool knapping on most of the available raw materials. We also found that heat treatment was practiced from the very beginning of settlement and persisted until the very end of the sequence. Hence, the appearance of systematic heat treatment is simultaneous with the appearance of pressure flaking at the site. No sequence of inventions that would indicate a link of causality can be observed.

These results have important implications for understanding the beginning of a techno-economic system that persisted over the whole Neolithic period.

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Ine Leonard

Reading the Stones. Modelling the Early Aurignacian Archaeological Landscape of the Banat (SW-Romania)

Understanding the global dispersal of prehistoric humans and the routes they followed, has always been one of the most researched and contested topics of prehistoric archaeology. A consistent model can be achieved if the organizational strategies of past human communities are better comprehended. If insights in the intricate interplay of ecological and socio-cultural factors within a local archaeological landscape are acquired, it becomes possible to look on a larger scale and to reconstruct past migration routes.

The presented doctoral research of the CRC 806 'Our way to Europe'-initiative aims to model such a local archaeological landscape for the Banat region in South-western Romania during the early Upper Palaeolithic. In the Banat, three open-air sites – Romanești-Dumbrăvița, Tincova and Coșava – are preserved with archaeological records that are believed to encompass early Aurignacian assemblages. Although these assemblages exhibit mutual similarities, differentiating archaeological records indicate that multiple organiza-

tional strategies in relation to subsistence provisioning, raw material economy and lithic technology were at hand. Since the area holds a key-position, spatially and chronologically, the preliminary results render new insights concerning organization systems during the initial peopling of Europe by anatomically modern humans.

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La Güelga Cave (Northern Iberia): An archaeological sequence from the late Upper Pleistocene

The cave of La Güelga (Asturias, Northern Spain) is located in the eastern region of the Asturian Massif within the carboniferous limestone of the Calizas de Montaña. A small river runs through the cave that has shaped by erosion chambers and terraces at the cave entrance. They form a large rock shelter. In one terrace (D Area), an Upper Pleistocene deposit containing archaeological and palaeontological remains from the Middle-Upper Palaeolithic transition has been excavated. In the lower part (Area A) of the rock shelter a Magdalenian deposit has been excavated. Close to this in Area C Magdalenian and Solutrean layers are superposed.

The poster presents results of the archaeological research in La Güelga cave, carried out between 1989 and 2012. They comprise interesting data (faunal, lithics and mobile art) of the late hunter-gatherer groups in northern Spain and important data on the MP to UP transition in the northern Iberian Peninsula (Menéndez et al. 2014).

References:

Menéndez, M., Weniger, G-Ch., Álvarez-Alonso, D., Andrés-Herrero, M. de, García, E., Jordá, J. F., Kehl, M., Rojo, J., Quesada, J. M. y Schmidt, I. (2014): "La cueva de La Güelga". In Sala Ramos, R. (ed.): Los cazadores recolectores del Pleistocene and Holocene hunter-gatherers in Iberia and Gibraltar strait: the current archaeological record. Fundación Atapuerca: 60-63

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Leaf-shaped tools of the Middle and Upper Palaeolithic in Hungary: a technological approach

Three taxonomic units of the Middle and Upper Palaeolithic of Hungary are characterized by leaf-shaped tools. According to the techno-typological approach, they are considered to be basically different. The Jankovichian, related to the Middle Palaeolithic, is described preferring radiolarite as raw material, using Levallois flake debitage for blank production and wechselseitig-gleichgerichtete Kantenbearbeitung (WGK) method for shaping. The

Early Szeletian, dated to the Middle to Upper Palaeolithic transition, is characterized by less elaborated, irregular leaf-shaped tools, made on plaquettes of quartz porphyry by non-WGK shaping method. The Developed Szeletian, dated to the Middle Upper Palaeolithic, used the same raw material and the same shaping method but made well-elaborated, regular leaf points. Applying a technological approach and statistics for the study of the leaf-shaped tools of these taxonomic units, we were looking for the technical behaviour of the knappers. Unexpectedly, we found more similarities between Jankovichian and Early Szeletian, as well as more differences between Early and Developed Szeletian.

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Stratzing-Galgenberg in its lithic landscape: Difficulty of terrain as a relevant proxy for objectifying mobility patterns and economic behaviour in the Aurignacian of the Middle Danube region

The Stratzing-Galgenberg site in Lower Austria represents the most extensive early Upper Palaeolithic (EUP) open air settlement in Austria, and belongs among the most prominent Aurignacian sites in Central Europe (Neugebauer-Maresch 1999). The loess ridge on which the site is located has been explored over 1200 m² between 1985 and 2003, first as a rescue excavation funded by the Cultural Heritage Authorities, then in the scope of a long-term multidisciplinary research project (Neugebauer-Maresch 1996, 2008). Altogether, three cultural horizons were identified in the excavated area. Besides the discovery of Austria's oldest work of art – an anthropomorphic figurine produced from amphibolitic slate – the outstanding character of the site relates to the outstanding preservation of the main archaeological horizon (AH 2), which lead to the recovery of several in situ features, among which fireplaces, some of which were “constructed”, i.e. circumscribed by a ring of stones (Neugebauer-Maresch 1996, 2008). A consistent series of radiocarbon dates on charcoal were obtained for the main archaeological horizon (AH 2) (Neugebauer-Maresch 1996). Three charcoal samples directly taken from hearths in the main area cluster between 31.4 ka and 31.2 ka BP and support the late Aurignacian character of the occupation already indicated by the typological composition of the lithic assemblage (Neugebauer-Maresch 1996, 2008). This paper addresses the factors that conditioned the choices in lithic resource procurement for tool making at Stratzing-Galgenberg, based on the lithic assemblage from the main area of the site. The raw materials used in the analysed assemblage are varied and partly relate to various proveniences. We examine the predictive ability of terrain difficulty compared to distance regarding the question why some sources were used and not others, and why some were used more than others, using a Geographic Information System (GIS). Our results indicate that raw material behaviour and mobility are central aspects helping understand the mechanisms underlying variability in Aurignacian techno-economic systems in the Middle Danube region.

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Cave Bear Exploitation by Neanderthals and Modern Humans The Cases of Casamène (French Jura) and Hohle Fels (Swabian Jura)

Since the beginning of systematic cave research in the early 19th century, the issue of cave bear hunting and exploitation during Paleolithic times has been a matter of controversial discussion. Some scientists favored the idea that cave bears were hunted and celebrated in a cult, while others considered the mass accumulations of cave bear bones to be of natural origin. Hunting and exploitation of brown bears in the Palaeolithic was never questioned, but this issue was more controversial for cave bears. During the last decades more and more evidence also for the exploitation of cave bears in Europe was found as documented in several sites from the Middle Palaeolithic to the Gravettian in all areas of the former distribution of this species. The most spectacular find was the flint projectile in a thoracic vertebra of a cave bear from Hohle Fels, which represents, beside cut marks, the first proof of cave bear hunting.

In this context, the faunal remains of Grotte de Casamène near Besançon (Doubs, department), an important cave sites in the Franche-Comté (French Jura), were re-analyzed. The goal of this study was to obtain more information on the chronological context (radiocarbon dating) as well as to gather palaeo-environmental data (13C, 15N of bone collagen) on the fauna of Casamène. Another focus was the human impact on cave bears in this site.

Grotte de Casamène (French Jura) and Hohle Fels cave (Swabian Jura) are both situated in middle range karstic mountains with many caves suitable for cave bears to hibernate. Both caves revealed a long stratigraphy including the Middle to Upper Palaeolithic transition. Cut marks on cave bear bones from all stratigraphic units in both sites document a continuous exploitation of this species. In the Swabian Jura the youngest dates for cave bears (here: *Ursus ingressus*) are around 25 ka BP. For Grotte de Casamène the youngest dates for cave bears are 31 ka BP (35 ka cal BP). But quite recently, a cave bear (here: *Ursus spelaeus*) was dated from Rochedane, another cave in the French Jura, with 23.900 ka BP. This supports the general picture of extinction dates for cave bears (*sensu lato*) in Western and Eastern Europe, which all concentrate between 25 to 24 ka BP, around 4000 years before the Last Glacial Maximum, one of the harshest climatic cuts we know.

This raises the question whether Palaeolithic hunters had an impact on the extinction of this large mammal.

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Heidenschmiede, a Middle Palaeolithic Rock Shelter in Heidenheim. Fauna and Lithics re-visited

The Abri Heidenschmiede is situated around 540 m asl within the city of Heidenheim on the western bank of the Brenz valley at the foot of a Jurassic rock with Schloss Hellenstein on its top.

This rock shelter was discovered and excavated in 1930 by the amateur researcher Hermann

Mohn. Later the excavation was finalized by Eduard Peters (1931) from the monument rescue service (Landesdenkmalamt, BW).

During the excavation a 90-130 cm thick block of sediment was removed, including ca. 5000 lithics and around 5kg of faunal remains. Caused by inadequate excavation methods of Hermann Mohn and a lack of documentation, information about the stratigraphy of the site is lacking. In addition to this, the stratigraphy was disturbed by a medieval stone wall. Therefore in situ finds are rare with the exception of some artifacts in the hindmost area of the rock shelter.

The lithic assemblage includes a small number of bifacial tool types, points, varying types of scrapers, notched and denticulated pieces, some cores as well as retouched blades and flakes. The first analysis was made by Eduard Peters with the assistance of Hugo Obermaier. In lack of stratigraphical information the lithic artefacts were classified by typological criteria. Thus Peters suggested the existence of an Acheulian, a Mousterian and a Mesolithic layer at Heidenschmiede. Later Hansjürgen Müller-Beck (1956) and Gerhard Bosinski (1967) re-classified the lithic assemblage concluding, that only a Micoquian is clearly identifiable. The faunal remains were studied by Fritz Berckhemer from the Natural History Museum in Stuttgart, with the help of Florian Heller (microfauna) and Kálmán Lambrecht (avifauna). The species list included mammoth, rhino, horse, reindeer, wolf, fox, hare, marmot, lemmings, and several birds. Due to the situation as a rock shelter no remains of any larger carnivores were found, such as cave bear, cave lion or hyena. The re-analysis of the fauna focused on traces of carnivore and/or human impact, which were not recognized earlier.

In our poster contribution we will give a re-evaluation of the Abri Heidenschmiede based on lithic and faunal remains.

References:

E. Peters 1931, Die Heidenschmiede in Heidenheim. Fundberichte aus Schwaben, NF VI, 1931, 1-36.

H. Müller-Beck 1956, Das obere Altpaläolithikum in Süddeutschland. Ein Versuch zur ältesten Geschichte des Menschen. Dissertationsdruck, Hamburg 1956.

G. Bosinski 1967, Die Mittelpaläolithischen Funde im westlichen Mitteleuropa. Fundamenta Reihe A, Band 4, Köln 1967

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Discovery and Soundscape of Musical instruments of the Swabian Aurignacian

The oldest material evidence for music and a musical tradition was found in the caves of the Swabian Jura. In three caves, Geißenklösterle and Hohle Fels in the Ach Valley between Blaubeuren and Schelklingen, and Vogelherd Cave in the Lone Valley near Niederstotzingen, remains of bird bone and ivory flutes have been found in layers of the Aurignacian culture, dating to 42 – 36 ka cal BP. The three most complete flutes are the two bird bone flutes made from a swan's (GK1) and a vulture's radius (HF1), and the flute made from mammoth ivory (GK3). The fact that they have been found in both valleys indicates that music was a regular feature in the lives of people starting no later than 40,000 years ago.

During the course of the last 20 years experimental archaeology has become an important tool to study past societies, and this is especially true for musical instruments. By playing on their reconstructions, we gain an immediate impression of the potential sound production and music of the Upper Paleolithic.

In our lecture we summarize the information on the published finds of musical instruments from the Swabian caves and present new finds from Vogelherd. Reconstructions of these flutes, manufactured by Friedrich Seeberger † and Wulf Hein, were analyzed by the flutist

Anna Friederike Potengowski due to frequencies and tonality. In her performance she will demonstrate the large diversity of sounds and tones that which gives an idea of a possible soundscape 40,000 years ago.

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Chaîne opératoire of Molly, an Indian elephant from the Wilhelma in Stuttgart – Bad Cannstatt. Results of a workshop in Blaubeuren on the processing of Proboscidian ribs as raw material for tools.

Ribs of mammoth and mammoth-/rhino-sized mammals seem to be an important raw material for several kinds of tools during the Upper Palaeolithic, for example during the Gravettian. Most mammoth and mammoth-/rhino-sized ribs from the Gravettian layers in Geißenklösterle, Hohle Fels and Brillenhöhle (Ach Valley) show numerous anthropogenic traces, such as cut marks, impacts and scraping marks. Furthermore a large number of ribs seem to be part of a chaîne opératoire that is not yet fully understood.

The carcass of an Indian elephant from the Wilhelma Zoo in Stuttgart-Bad Cannstatt, named Molly, gave us the unique chance to study the chaîne opératoire of Proboscidian ribs to manufacture blanks for tools, such as smoothers and points. During a workshop in the Urgeschichtliche Museum in Blaubeuren we tested the material properties of these ribs after 3 years of burial in the ditch of the castle Hohentübingen.

During the workshop we were able to compare the experimentally worked bones with archaeological materials, which gave us important new insights and allowed us to tailor the experiment to specific archaeological questions.

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We would like to thank the numerous people, who were volunteering the butchering process in the Wilhelma, who buried Molly for maceration in the ditch of Schloss Hohentübingen and who excavated her again.

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** All authors were participants of the workshop in the Urgeschichtliche Museum Blaubeuren, 28./29.11.2014*

Martin Nadler

A newly discovered statue-menhir from north-western Middle Franconia – Bavaria's oldest „large-scale“ sculpture

Due to fortunate circumstances during excavation works for a sewer tunnel, a stone figurine was recovered, which shows morphological features so far unprecedented in comparable finds north of the Alps. It is made on a very accurately shaped, flat-cylindrical block of sandstone of 110 cm in length. Marked shoulders are clearly separated from a half-round head with strongly reduced facial features which is carefully carved out of the sandstone.

At the back, two pronounced, crescent- or horn-shaped features of unclear meaning are depicted plastically. The statue was dredged from a depth of 1.5 m at the fringe of a small valley filled with alluvial deposits. Profiles dug at the site and its surroundings showed several horizons with pottery sherds, fragments of animal bones and particles of charcoal, indicating repeated use of the site and its surroundings during different periods up to the late Latène period. A definite assignment of the statue to one of the horizons was, however, not possible. The statue can be attributed to the multi-variant group of the so-called owl-faced anthropomorphic menhir-statues of the late Copper Age. The few known specimens from Southern and Eastern Germany are made on roughly shaped stone slabs with rather irregular outline and have their faces, arms and different attributes carried out in scratch- or peck-technique. Plastic depictions of faces and a three-dimensional shaping of the bodies are unknown to date. These elements, particularly the mask-like face carved in negative-technique links this statue with many specimens in southern France and northern Italy. Only a few years ago, the so-called “Zeichensteine” (*sign stones*) of the Middle Regnitz valley in the border area of Middle and Upper Franconia, formerly dated to the metal ages, could be shown to be affiliated with the pictorial forms of menhir-statues of the Copper Age. Against this background, the newly discovered statue-menhir represents another outstanding find which sheds new light on the presence of supra-regional, normative, cultic-religious as well as social ideas and connections during this period.

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Štýřice III (Brno District) - A contribution towards understanding the Epigravettian Environment

An overview of archaeological finds from Brno-Štýřice III open-air site has been presented in HUGO 2013 (Nerudová – Neruda 2013). The rescue excavation on the site also continued last year. For the first time we obtained not only the lithic artefacts and animal bones but we also collected samples that can be used for reconstructing the natural conditions.

Pollen analysis made by N. Doláková documented the predominance of pine (*Pinus sylvestris* outnumbers *Pinus cembra*). The species birch (*Betula* sp.), alder (*Alnus* sp.) and rarely hazel (*Corylus* sp.) also occur in the spectrum of trees. The share of tree pollen (AP) is 52%, in comparison to 48% of herb pollen. Typical members such as *Helianthemum*, *Thalictrum*, and *Ephedra* demonstrate a climate of Glacial character. The vegetation can be reconstructed as a parkland of cold forest-steppe with wet places near the river (*Alnus*, *Glyceria*, *Cyperaceae*, *Caltha*, *Botryococcus*).

Reconstruction of the vegetation can be expanded by anthracological analysis. J. Novák identified numerous charcoals of birch (*Betula* sp., 33%), willow (*Salix* sp., 25%) and choke-cherry (*Padus* sp., 23%). The other represented trees are common sea-buckthorn (*Hippophae* sp., 5%), larch/spruce (*Picea/Larix*, 12%) and sporadically the cranberry genus (*Vacciniaceae* 1%). The presence of birch pollen indicates extreme climatic conditions, probably correlating with the LGM Period. On the basis of the determined taxons the environment can be characterised as forest-steppe vegetation with a prevailing share of steppe habitats and sparse occurrence of shrubs and small groves. The abundant presence of *Salix* and *Padus* could indicate the presence of a microclimate, situated in the vicinity of the watercourse.

The results fit well with the environmental reconstruction based on the fauna remains. M. Roblíčková has pointed out the predominance of *Mammuthus primigenius* over species like horse, reindeer or rhino. The mollusc fauna also document species typical for the Last Glacial Maximum including *Pupila loessica*, *Vallonia excentrica* and *Helicopsis striata* (det. L. Juříčková and M. Horsák).

In the context of the Palaeolithic occupation of the site we have noted the presence of numerous fragments of heavily burned bones (mostly *Mammuthus primigenius*) that prevail over the wood charcoals. During the excavations two large concentrations of burned bones (dark grey, grey or black colouration) and dark loess sediment have been uncovered. They document a very intensive utilisation of animal bones used probably as a source of fuel. It indicates a specific adaptation to the environmental conditions, with limited fuel sources for

the combustion of the wood.

The lithic industry analysis as well as the radiocarbon dating evidence fit very well with the presented palaeoecological results and enable a wider spatio-temporal reconstruction. The site at Brno Štýřice III and its surrounding can be interpreted as the evidence of Late Upper Palaeolithic (Epigravettian) occupation of the micro-region near the Svratka River corridor that was used by hunter-gatherer societie(s) due to favourable micro-climatic conditions during the terminal phase of the LGM. The archaeological investigation indicates that peoples repeatedly, perhaps seasonally, used this strategic site.

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Volker Neubeck¹ & Clemens Pasda¹

Alpine archaeology: research on caribou hunting near glaciers and snow patches in West Greenland

Inspired by recent research on glacial archaeology in Alaska, Canada and Norway, for the first time in Greenland, in 2014 an archaeological survey was done high above the low-lying valleys to search for material evidence left by caribou hunting. The results of the first field season will be presented.

References:

B. Grønnow: Caribou hunting structures and hunting grounds of the Thule Culture in Angujaartorfiup Nunaa, West Greenland. In: B. Grønnow (Ed.): On track of the Thule Culture from Bering Strait to East Greenland. Publ. Nat. Mus., Stud. Arch. & Hist. 15 (Copenhagen 2009) 201-210.

C. Pasda: Regional variation in Thule and Colonial caribou hunting in West Greenland. *Arctic Anthr.* 51, 2014, 41-76.

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Martin Oliva

Symbolic communication through mammoth bones

Since the main topic of this conference is “symbolic communication”, nearly all authors will ponder over how they could brush up the traditional theme of prehistoric art and funerary customs. Instead, I would like to mention quite a different phenomenon, that is to say the huge accumulations of mammoth bones at the Gravettian sites, mainly on the grounds of a revision of the pre-war excavations in the classical site of Dolní Věstonice I. Researchers of the previous periods simply regarded them as kitchen waste that had to be dumped somewhere, preferably into the aquiferous recesses. From a practical point of view, B. Klíma differentiated the main waste dump in the aquiferous furrow, reserves of fuel and raw materials in the settlement space, and finally the ground plans of real huts with fireplaces. The primary feature for their identification was the shape of the accumulations, at least roughly circular, as it appeared in the plans. In the interest of reconstruction of the so-called upper settlement he placed the purported huts into the area of the two fireplaces near Absolon’s Accumulation 1, directly into Accumulation 2, and among the scattered bones S near the central fireplace (with the Venus 1), where he marked two small fireplaces against the quoted Absolon’s sketched plan. In the space between mammoth bone heaps 6 to 8 a fireplace is clearly indicated (it was found missing in the original documentation) and the structure was interpreted as a circular hut. In reality, it is evident from the diary that the

densest accumulations of bones that were burnt themselves were lying in the most intensely fired spaces; therefore it was not a circle of bones around a central fireplace. A great concentration of bones in the SE part of this space followed on an elongated Accumulation 4, in which bones also overlain red-burnt loess in places. In the centre of Accumulation 2 above the central fireplace was documented a marked ochre blotch of 2m² area, and lying in the blotch was a cobble of rock crystal and a stone palette with two grinding sticks. It was exactly this place where B. Klíma situated the ground plan of another of the objects. He placed the hearth inside; a reference to the ochre area is missing. Therefore it is evident that in line with the prevailing paradigm the field data were largely subject to selection and distortion.

An especially spectacular discovery was made at the northernmost edge of the central fireplace with the Venus. In an alveolus of mammoth lower jaw, enlarged by a suppurate process, was concealed a big prismatic core of the silicite of the Krakow-Częstochowa Jura region. It is the biggest piece of this precious raw material brought from a distance of about 300 km in the entire Gravettian below the Pavlov Hills.

The main mammoth-bone heap explored by B. Klíma was extended on the area 45 to max. 12 m, elongated in the direction of the aquiferous depression. It is a question to what extent this hollow existed at the time of the mammoth hunters (as Klíma assumes), or to what level the water reached at that time. Two small strips of fireplaces and a workshop for radiolarite processing in a direct superposition in the central part of the storage area indicate that hoarding of bones perhaps belongs to the last phase of the occupation of the settlement area. The representation of the individual mammoth bones is very uneven. It is symptomatic that the highest number of individuals was represented by heavy, big bones of low nutritional importance: scapulae and pelvises of minimum 37 individuals, mandibles of 48, and tusks of 34 individuals. Among twin bones of limbs bigger types of bones distinctively prevail over smaller in the following order: in total 76 ulnae, 69 humeri, 64 tibiae, 63 femora were found, but only 39 radii and 33 fibulae. These details also corroborate the fact that rather than with a mere kitchen waste area we have to do with gathering of the most representative parts of mammoth remains.

The anatomical composition of the gathered remains has been the principal and very contradictory source of interpretations in the recent years. It ensues from the comparison of bones from all of the Absolon's "Kjökkenmöddings" with the main Klíma's "stacking ground" in the aquiferous furrow that many more bones were deposited into this main accumulation than into the previously studied deposits together, especially if we take into consideration that perhaps a half of this huge deposit has been either destroyed or unexcavated. In the smaller accumulations from the central part of the site there is a markedly higher representation of lower jaws, molar teeth, tusks, and to a lesser degree also long bones from legs and shoulder blades, whereas in the Klíma's large assemblage there are more vertebra, ribs and bones of the soles of feet. It looks as though a relatively greater quantity of those bones that we can link with the consumption of meat occurred in the main accumulation, and the partial deposits contain more of the representative bones, i.e. either big or linked to the head, with which we can assume an increased symbolic potential. The occurrence of pelvises differs a lot between the locations; where they are numerous, the scapulae are usually also represented by more than average quantities. The only exception is one partial concentration 1928-4, where only a single scapula occurred by the side of 20 pelvises. These circumstances cannot be incidental, same as the utilisation of both of the mentioned bones in the burial rite, where certainly not only their suitable flatness mattered. A woman DV 3 was found resting below two shoulder blades and a pelvis, a burnt child skeleton DV 4 under a shoulder blade, and remains of a post-cranial part of a man, whose skull lay under a mammoth molar tooth, were unearthed in Pavlov 1.

No practical explanation can be provided for the dominance of mandibles and certainly also for isolated molar teeth. In accumulation 3 lower molars are in quadruple prevalence over upper, and this is linked with the attention paid to lower jaws again. The prevalence of the lower molar teeth over the upper is usual at these settlements and it testifies against the thesis that humans exploited the local accumulations of mammoth cadavers. Both molars and tusks tend to be exceptionally abundant in some of the deposits; in addition to that molar teeth are also numerous in the hoards beyond the deposits. This also pertains to two or three hoards of rhinoceros molars in sector F2/1936.

It would no doubt be naïve to believe that the significance of the storage grounds or deposits of mammoth bones can be explained in some generally applicable manner. Certainly for the most part these were remains after the consumption of meat, but humans might not have thrown them just away, but also piously deposit according to the habits of the period. Other bones, mainly the big non-meat ones, were dragged up for the purpose of presentation of the group, or perhaps of the individuals, as the territorial markers, and maybe also to honour the remains of the killed animals, or their guardian spirits. Burning of bones on the large ash-grounds (see the fired zones in accumulations 4 and 6 to 8) could have worked as an effective social stimulant. The depth of the religious conceptions from which such a behaviour stemmed, and the intensity of the related rituals could have been very diverse, from ecstatic ceremonies to spontaneous adherence to good manners. We cannot exclude a liking for primitive valuables, albeit only in children's plays, with which small concentrations of mammoth molars may be related. The piled remains of mammoths (and later on also the huts of mammoth bones) certainly served for all passers-by as a marking of a place, where a group of capable hunters settled to be undoubtedly coming back over time. Obviously we do not know whether this was really the case. The diversity of aspects that reflect in the accumulations of big bones on all accounts cautions against counting of the kilocalories of the meat using the number of bones, or even using mammoth mandibles and molars in the so-called deposits.

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Northeast Asian record of early symbolic behavior

The presentation focuses on symbolic behavior reflected on archaeological artifacts and suggested acquisition activities of specific raw materials during MIS3 in broader context of Northeast Asia, including southern Siberia, Russian Far East, Mongolia, China, Korea, and Japanese islands. Clear evidence of symbolic activities appeared as personal ornaments, and the oldest example recognized at Denisova Cave Layer 11, and Kara-Bom site in Altai Mountains, ca. 50-43ka. No reliable evidence of symbolic behavior is available among Middle Palaeolithic sites in southern Siberia. In trans-Baikal area, ostrich eggshells and spot of ochre pigmentation, bracelets were reported from some sites Podzvonkaya, Kamenka A, and Khotyk belonging to ca. 35-38ka. Upper Palaeolithic Mongolian sites such as Tolbor-4 and Dorolj 1 site, adornments and ostrich eggshells are also found dated ca. 30-37ka. In northern China, Zhoukoudien Upper Cave, Suidonggou, and Xiaogushan etc. are famous that have ostrich eggshells, animal tooth pendants etc. in the first half of MIS2, ca. 20-30ka. Korean Peninsula presents these evidence very rare. In the Japanese islands, beads and pendants made of dunite and amber were excavated from Yunosato 4, and Pirika, Hokkaido in the latter half of MIS2, ca 20-24ka. Personal ornaments were also recognized in another three sites in Honshu (outside Hokkaido). Thus, symbolic behavior or behavioral modernity has not emerged simultaneously in broad range of Northeast Asia. Diffusion of these symbolic behavior expressed on personal ornaments has been gradually extended southeast direction together with chorological extension of Siberian microblade industries. Contrary to the personal ornaments, specific raw material acquisition activities should be paid much attention as one of the aspects of symbolic behavior. The author focuses on obsidian acquisition in the case of Japanese islands. Symbolic behavior should not merely limited to the appearance of personal ornaments. There are several newly discovered obsidian sources in Northeast Asia during the last decade, but studies of obsidian sources have many clear dated archaeological contexts in Japan. The oldest and well documented example is obsidian acquisition from Kozu island since 38ka crossing the seawater repeatedly by canoe/ or boat differentiated at least 40-45km to the shortest distance of Izu Peninsula. The other pattern of obsidian acquisition during the early Upper Palaeolithic was high mountainous obsidian sources in central north Japan. Dynamic acquisition activities experienced that they had obtained black volcanic glass with sharp edges for tool making. These two patterns of

long-distance acquisition have been functioned, practically, same as the case of ostrich eggshell acquisition activities.

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Hannah Parow-Souchon

The Wadi Sabra – a contextual approach to the Palaeolithic landscape

The study of human migration is a long term goal of prehistoric archaeology and researchers have long been interested to learn, why people migrate, which way they chose and how they adapted their lifestyle to the new environment. The earliest migrations of our species are the interest of the CRC 806 – Our Way to Europe of the Universities Cologne, Bonn and Aachen (Germany) investigating the eastern way from Ethiopia over Egypt, the Near East and the Balkans, and the western way over Morocco and Spain to Central Europe.

The comparison of settlement patterns and mobility of the Late Pleistocene anatomically modern human hunter-gatherers of the Levant is the topic of the PhD research of which preliminary results shall be presented. It concentrates on the Wadi Sabra, District Ma'an in Southern Jordan, very close to the Nabatean city of Petra, where an abundance of Palaeolithic sites, representing every stage of the Levantine Palaeolithic record, has been found. Though before any overarching theories about long term and far distance migration can be compiled, the degree of mobility and the general adaptivity of a settlement system have to be reconstructed in detail. Centrally the differences in mobility and settlement pattern organisation of the Ahmarian and Levantine Aurignacian industries are the focus of this research and shall be reconstructed with a combination of the understanding of technological organisation, raw material procurement and environmental proxies, forming a comprehensive synthesis, which then can be included in models of an Out of Africa scenario.

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Very modern cultures - New results of research on the late Upper and Late Palaeolithic in Central Germany

With more than 130 sites in Saxony, Thuringia, Saxony-Anhalt and southern Brandenburg, Central Germany is a key area for research on the latest part of the Palaeolithic in Europe. In the last decade some of these sites have been investigated by the University of Jena. Among them are excavated sites, large (Kleinlieskow, Oelknitz, Teufelsbrücke) and small (Hummelshain, Jena), as well as large (Kahla-Löbschütz, Pötewitz, Saaleck) and small (Etzdorf, Großpüschütz, Hartmannsdorf, Maua, Rothenstein) surface collections. By combining this ongoing investigation on operation chains with former results an archaeo-stratigraphy is present which starts in GS-2a (Magdalenian-“type Nebra”, Magdalenian-“type Saaleck”), follows into GS-2a/early GI-1 (“Late Magdalenian”) to early GI-1 (early Azilian) and GI-1/GS-1 (late Azilian) to be finished in GS-1 (Ahrensburgian).

References:

- P. Balthasar et al.: Kahla-Löbschütz – Ein Fundplatz des Magdaléniens im mittleren Saale-Tal in Thüringen. Arch. Korrb. 41, 2011, 299-318.
- I. Bergmann et al.: Etzdorf-Amnassen Wald: Steinartefakte aus Thüringen und ihre Diskussion im Rahmen des späten Jungpaläolithikums. Arch. Korrb. 41, 2011, 319-337.
- I. Bergmann et al.: Jung- und spätpaläolithische Freilandfundstellen im Tal der Weißen Elster (Mitteldeutschland). Arch. Korrb. 42, 2012, 439-451.
- C. Bock et al.: Steinartefakte aus Saaleck und ihre Stellung im späten Jungpaläolithikum zwischen Elster, Saale und Unstrut. Arch. Korrb. 43, 2013, 141-158.

- C. Bock et al.: Oelknitz – Der Magdalénien-Fundplatz am Sandberg (Thüringen). Arch. Korrb. im Druck.
- L. Hemmann et al.: Ölknitz, Jena, Rothenstein – Drei Fundstellen des Magdaléniens im Saale-Tal in Thüringen. Arch. Korrb. 38, 2008, 1-12.
- C. Pasda: Archäologie einer Düne im Baruther Urstromtal bei Groß Lieskow, Stadt Cottbus. Veröff. Brandenburgisches Landesmus. Ur- u. Frühgesch. 33, 1999, 7-50.
- C. Pasda: Living culturally in ice-age forests, dunes and swamps. Preliminary results of a study of backed retouched pieces of the Late Palaeolithic site Kleinlieskow 120 in Lower Lusatia (Brandenburg, FRG). In: M. Masojć et al. (Eds.): Contributions to the Central European Stone Age (Wrocław 2007) 43-52.

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Tracking in Caves – Deciphering the context of cave art by reading Pleistocene footprints with indigenous knowledge

Human hand- and footprints from prehistoric times along with human bones are the most personal remains left from an individual. Under ideal conditions a short lapse of time of a single person may be recorded in a plastic surface. No other findings (stone tool, artwork or other) are so clearly linked to a short individual moment. Prehistoric foot- and handprints are known from different continents and periods. Among them the most spectacular ones are footprints from Laetoli and Koobi Fora. No less fascinating are footprints left by Pleistocene humans in decorated caves in South-western France. The extraordinary status of such fragile remains stands in stark contrast to the scientific interest during the last 100 years because only three groups of researchers have seriously studied small parts of the known footprints. This imbalance is perhaps owed to the cultural alienation to this kind of remains and the potential means to interpret them.

This experiment aimed to test the feasibility of such an integration of two knowledge systems and the benefit for archaeological science but not to test the reliability of indigenous tracking skills. Even if the concrete method of tracking is still unknown and study in process, the precise and plausible results are reliable and worth to be presented to a wider public.

To stimulate the research on human footprints three professional trackers from the Ju/'hoansi-San from Tsumkwe (Namibia) - once known as "Bushmen" -, Ciqae, Thao and Kxunta, were directly confronted with the original footprints in four French caves: Niaux, Pech-Merle, Fontanet and Tuc d'Audoubert. For perhaps the first time, indigenous knowledge (IK) was integrated into archaeological data-gathering without the detour of ethnographic analogy or as mere confirmation of previous results.

In all four caves visited, the old interpretations of human tracks are now flanked by alternative readings which imply several necessary revisions. Most spectacular may be the identification of toe-imprints at the track that hitherto was present in literature as the only print of a shod foot. If pointed out by an expert, the impressions of the toes are even recognisable to an untrained observer, so that the hypothesis of a moccasin can hardly be upheld. For none of the tracks that formerly had been interpreted as 'ritual dance' or similar ceremonial behaviour was there any corroboration by the trackers. All footprints seem to be generated by ordinary stride with few exceptions of a faster pace, thus leaving no space for hypotheses regarding extraordinary behaviour. In none of the caves investigated was there any proven or even potential connection between spoor and the parietal art of the caves. In three cases the hitherto assumed number of acting people was either augmented (Pech-Merle) or diminished (Niaux, Tuc d'Audoubert).

Human tracks constitute a source that is comparatively obvious and unambiguous, though replete with information. They are equally accessible to various kinds of knowledge systems and therefore may be an ideal prototype for the integration of IK into archaeological sciences, not as an exotic add-on but as a serious interdisciplinary liaison method.

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What the Southern European record tells us about the evolution of symbolic culture

For most of the 20th century, it was thought that the indigenous Lower and Middle Palaeolithic populations of Southern Europe were not able to express symbolic behaviors comparable to those of the first representatives of our species. However, different categories of finds reveal how Heidelbergensis and Neanderthal have manifested attention to the aesthetic or uniqueness of certain products. Examples include the superficial modification of hard materials by engraving, the selection of attractive natural objects, the association of modified bones and stones with buried adults and children, and the specific selection of plumage and talons from birds. Even if this evidence was to be interpreted as expressions of individuality within an egalitarian society, a change in mental abilities and the development of modern cognition, communicative systems, physical manifestations of social boundaries and connections, or territorial demarcations like those attributed to the Upper Palaeolithic, it would need sound confirmation. In fact, the re-examination of a large part of archaeological material carried out in the last two decades, based on a rigorous technological and taphonomical approach integrated with experimental testing, has shown that many objects were the result of alterations due to processes of pedological change or animal activity. When the majority of this evidence of a diverse nature, inferred with great confidence, dates to the few millennia that preceded the spread of Anatomically Modern Humans in Europe, these are grounds to continue the debate regarding the emergence of complex behavior, seen as an autonomous phenomenon or as the result of contact with immigrant Anatomically Modern Human populations.

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Biomolecular investigation of Paleolithic and Mesolithic human remains from the Swabian Jura (South-West Germany)

In the present study hybridization capture in combination with high-throughput sequencing technologies was performed to reconstruct complete or almost complete mitochondrial genomes (mtDNAs) of prehistoric human remains from several archaeological sites in the Swabian Jura. Various stringency criteria were applied in order to reduce the impact of modern human contamination potentially present in the analyzed samples. The authenticated mtDNAs were used to assess phylogenetic relationships and molecular ages of Middle Paleolithic, Upper Paleolithic and Mesolithic ancient human remains.

A first study examined a right hominin femur shaft with archaic morphology that was excavated in 1937 from the cave of Hohlenstein-Stadel and assigned to a Middle Paleolithic layer called Black Mousterian. A direct radiocarbon dating of the specimen yielded inconsistent outcomes. Here we present the results of genetic and isotopic analyses of the femur shaft as well as related faunal remains that suggest an age of the human femur older than previously assumed and provide insights into genetic changes of Neandertal populations through time.

A second study focused on the analyses of Upper Paleolithic and Mesolithic anatomically modern human (AMH) mtDNAs. European mitochondrial genome variation during Paleolithic and Mesolithic time is currently poorly understood as only a limited number of

individuals from those periods have been genetically analyzed and those suggest genetic continuity between hunter-gatherer populations across Europe. In this study ten newly reconstructed AMH mitochondrial genomes from the Swabian Jura were co-analyzed with previously published ancient and modern complete mtDNA sequences and used to address questions about ancient European genetic population structure.

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Sarah Ranlett

Culture, Material and Choice: Conceptualizing Rare Raw Materials in the French Upper Palaeolithic

Since the Lower Palaeolithic, rare, exotic and unusual mineral and fossilized materials (e.g. amber, lignite, belemnites, ammonites, serpentine, calcite and soapstone) have constituted objects of interest for humans and recent ancestors across Eurasia and Africa. Beginning in the Upper Paleolithic, a number of these raw materials became, for the first time, a habitual part of human technological practice, coinciding with, and often utilized systematically within, the florescence of symbolic behavior witnessed at this time across Eurasia. Due to the relatively small quantity, diverse morphological typology and materially variable composition of this corpus, in the past, study of these materials as materials has fallen secondary to studies of more ubiquitous, 'utilitarian' material classes such as flint lithics and osseous artifacts or unified artifact classes such as projectile points, beads or female figurines, for example. Viewing Upper Palaeolithic behavior through the lens of rare mineral raw materials affords the opportunity to bring a hitherto largely overlooked body of artifacts to light in the service of considering the potential technological and social implications of the collection and use of these materials. Preliminary results from case studies in Southern France will be discussed.

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Climate and site formation in the Paleolithic Ach Valley: proposed analysis of microfauna from Geißenklösterle cave

Geißenklösterle cave, first excavated by Eberhard Wagner in 1973, is one of the earliest dated Aurignacian occupation sites in the Ach Valley. Later excavations under the direction of Joachim Hahn (1974 – 1991) and Nicholas Conard (2001 – 2002) revealed evidence of Upper Paleolithic symbolic expression, figurative art and musical ability, including painted

and perforated fish vertebrae, personal ornamentation, and a number of bone flutes. The site contains a continuous stratigraphic profile from the Middle Paleolithic through to the Mesolithic (Hardy, Bolus, & Conard, 2008) with particularly culturally rich Aurignacian deposits. Previous work has indicated climatic and paleoenvironmental stability at the site during the Middle to Upper Paleolithic transition (Conard *et al.*, 2013; Miller, 2009) despite documented shifts in the faunal spectrum including a dramatic increase in mammoth remains and a decrease in cervids, small ruminants, carnivores, and cave bear (Münzel & Conard, 2004).

This project will test the assumption of climatic stability through the comparison of rodent and insectivore, bat, amphibian, and reptile assemblages from the Middle and Upper Paleolithic deposits. Similarities and differences in the taxonomic composition of these assemblages will inform both on-site and regional paleoenvironmental and paleoclimatic interpretations. Developing a detailed taphonomic history of the microfaunal assemblages in tandem with a taxonomic analysis will ensure that differences in species diversity and abundance are representative of the past biotic community rather than differential post-depositional destruction.

The proposed research design builds upon previous work (Hahn, 1988; Münzel & Conard, 2004; Conard *et al.*, 2013) and is part of a larger Ph.D. project examining the paleoenvironment of the Ach Valley during the Middle to Upper Paleolithic transition. Following the analysis of the Geißenklösterle material, this methodology will be applied to the microfaunal assemblages from Hohle Fels, facilitating comparison of the taxonomic compositions and the taphonomic histories of these two important sites.

References:

- Conard, N.J., Kitagawa, K., Krönneck, P., Böhme, M., & Münzel, S.C. 2013. The Importance of Fish, Fowl and Small Mammals in the Paleolithic Diet of the Swabian Jura, South-western Germany. in J.L. Clark and J.D. Speth (eds.) *Zooarchaeology and Modern Human Origins: Human hunting behaviour during the Later Pleistocene*. American Museum of Natural History: New York: 173 - 190.
- Hahn, J. 1988. *Die Geißenklösterle-Höhle im Aichtal bei Blaubeuren I. Fundhorizontbildung und Besiedlung im Mittelpaläolithikum und im Aurignacien*. Stuttgart: Theiss Verlag.
- Hardy, B. L., Bolus, M. & Conard, N. J. 2008. Hammer or crescent wrench? Stone-tool form and function in the Aurignacian of southwest Germany. *Journal of Human Evolution* 54, 648–662.
- Miller, C. 2009. Formation processes, paleoenvironments and settlement dynamics of the Paleolithic cave sites of Hohle Fels and Geißenklösterle: A geoarchaeological and micromorphological perspective. Ph.D. Dissertation, University of Tübingen.
- Münzel, S. C. & Conard, N. J. 2004. Change and continuity in subsistence during the Middle and Upper Palaeolithic in the Ach Valley of Swabia (South-west Germany). *International Journal of Osteoarchaeology* 14, 225–243.

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New ages for the human remains from Wannen. A ‘classical’ Neanderthal and human remains as symbol?

The sediment fillings of volcanoes in the Eifel area are rich in archaeological remains and sites, especially for the Palaeolithic period, with very few human remains. A partial Neanderthal neurocranium was recovered from the Ochtendung/Wannen volcanic group, but no direct

relation to the excavated Middle Palaeolithic sites located a few hundred meters can be established (Justus, 2000; von Berg, 2003). Morphologically the Wannen remain is assigned to the classic form of Neanderthals (Condemi, 1997). The fragments of the neurocranium were loosely associated with three stone artefacts and reported to have been situated in the lower part of the sediment fill of a small depression in secondary volcanic deposits. This is in accordance with some edge rounding of the bones, however, some of the modifications are pre-depositional and therefore can be taken as evidence that there is neither a burial context (von Berg, 2003), nor that the individual deceased there. Polishing of some parts might even suggest a symbolic use of the neurocranium by Neanderthals (von Berg, 2003).

Recovery of the finds did not take place under formal excavation and therefore neither exact location nor context could be precisely documented during quarrying activities, which lead to slightly different representations of the exact stratigraphic context (von Berg et al., 2000; Flohr et al., 2004). However, it is reported, that the find layer did not contain a significant non-volcanic component (von Berg et al., 2000). Therefore it can be established that the human remains were recovered from sediments which were related to the very last phase of volcanic activities at Wannen, or shortly afterwards (von Berg et al., 2000).

On the basis of sediment correlations (Frechen, 1995; von Berg et al., 2000) the deposit is assigned to the early stage of the second last glaciation (Saalian) with little more precision provided by chronometric data up to now. The Hüttenberg tephra, which occurs at the base of the volcanic sequence at Wannen, has an average age of 215 ± 4 ka dated by the argon (Ar/Ar) technique elsewhere (van den Bogaard et al., 1989) and gives a maximum age for the volcanic formation and therefore a terminus ante quem for the deposition of the fossil. One preliminary Ar/Ar age of 235 ± 35 ka of the scoria cone indicates that the volcanic formation of Wannen took place early after the deposition of the Hüttenberg tephra. A tephra identified as D6, which is (dated to 238 ka at the Plaidter Humerich, is located above the find layer (von Berg et al., 2000) and therefore indicates an early Saalian age. TL and IRSL dating (Frechen & Justus, 1998) of the loessic crater infill to the post Eemian and late Würmian provide post quem age estimates. This leaves a time span of ~ 100 ka for the age of the fossil because it has to be older than the dated overlying sediments and younger than most of the volcanic activities. Given the rarity of human remains from this time frame, a more precise age estimate is desirable.

The scoria at Wannen contains xenoliths, one of which (quartzitic silt-/sandstone) was sampled from the upper part of the Wannen volcanic sequence, and thus from an event late in the formation of the volcano. The entire volcanic sequence at Wannen is penetrated by dykes containing mobilised Tertiary clays which were pressed upwards and erupted in at least one occasion (Frechen, 1995). These events are the latest evidence for volcanism at Wannen and the heating of the clay therefore took place at the very end of the volcanic activities. The sequence of event was as follows: deposition of the Hüttenberg tephra; build-up of the volcano with several craters; scoria formation which heated the rock (xenolith) brought up with the eruption; dykes of heated clay pressed through the sequence and shortly afterwards the deposition of the neurocranium; loessic sedimentation which also contains the Middle Palaeolithic sites.

The xenolith and the clays are suitable for luminescence dating of these two different events of heating and therefore datable with thermoluminescence (TL) techniques. Both age estimates agree, and the xenolith date is also in agreement with a new Ar/Ar dating of a phlogopite recovered from a bomb situated within the same scoria the xenolith was sampled from. Thus the same event is dated by these two different methods for the two different samples. The agreement with Ar/Ar dating provides evidence that the luminescence results are valid. However, the dated event of scoria formation likely occurred before the heating of the clay. This is reflected by the slightly younger TL age obtained for the heated clay, which is taken as the best estimate for the age of the deposition of the „Neanderthal from Wannen“ in accordance with the geological dating. This new chronometric data appears to show that the ‘classic’ form of Neanderthals developed long before the last interglacial and provides an early age for a possible symbolic use of human remains by Neanderthals, if the surface modifications are pre-depositional indeed.

References:

- Conдеми S (1997) Preliminary study of the calotte of the Ochtendung cranium. *Berichte zur Archäologie an Mittelrhein und Mosel* 5, 23-28.
- Justus A (2000) Der mittelpaläolithische Fundplatz „In den Wannen“ bei Ochtendung, Kreis Mayen-Koblenz. *Jahrbuch des Römisch-Germanischen Zentralmuseums Mainz* 47, 155-300.
- Flohr S, Protsch von Zieten R & von Berg A (2004) Morphological analysis of the neanderthal calotte from Ochtendung, Germany. *Human Evolution* 19, 1-18.
- Frechen M (1995) Eruptionsgeschichte und Deckschichtenfolge der Wannenköpfe-Vulkangruppe in der Osteifel. *Eiszeitalter und Gegenwart* 45, 109-129.
- van den Bogaard P, Hall CM, Schmincke HU & York D (1989) Precise single-grain $^{40}\text{Ar}/^{39}\text{Ar}$ dating of a cold to warm climate transition in Central Europe. *Nature* 342, 523-525.
- von Berg A (2003) Siedlungsreste aus der Zeit der Neanderthaler im Wannenvulkan bei Ochtendung, Kreis Mayen-Koblenz. In: *Archäologie in Rheinland-Pfalz*. 2002, 14-17.
- Von Berg A, Conдеми S & Frechen M (2000) Die Schädelkalotte des Neanderthalers von Ochtendung/Osteifel - Archäologie, Paläoanthropologie und Geologie. *Eiszeitalter und Gegenwart* 50, 56-68.

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Estimating Neanderthal seasonality: Application of tooth mesowear and microwear to the Middle Palaeolithic levels from Portel-Ouest (France) and Teixoneres (Spain)

The research presented here investigates patterns of Neanderthal occupation in archaeological sites, which purpose is to estimate seasonality through the application of tooth mesowear and microwear analysis. The aim is to contribute to a better understanding of the occupational patterns that occurred at the sites.

The combination of tooth mesowear and microwear techniques has proven very useful for documenting both long and short term patterns in the paleodietary reconstruction of fossil mammals (Sánchez-Hernández et al. 2014). Tooth mesowear reflects the cumulative wear imposed on molars during a relatively long period of feeding activity (months-years). Tooth microwear is the analysis of microscopic scars produced by food on the occlusal surface and is more sensitive to short term fluctuations (hours-days) which may not be detectable if only mesowear is considered alone. The two methods are not commonly employed in Palaeolithic archaeology to study mammal remains but they can provide valuable information about ungulate immediate behavior and are useful to detect seasonal procurement of game ungulates by hominins. It is important to note that both mesowear and microwear are non-destructive methods and allow the study of faunal assemblages of large sample sizes.

These two methods were applied to two Middle Palaeolithic sites. At Teixoneres Cave (Moia, Barcelona, Spain), the levels II and III have provided a significant record belonging to the Late Pleistocene (MIS 3) (Rosell et al. 2010). The stratigraphic sequence is dated between 100.3 ± 6.1 ka and ca. 14-16 ka BP (Tissoux et al. 2006). At Portel-Ouest (Loubens, Ariège, France), we sampled three levels, from level F dated to ca. 45 ka BP (MIS 3) to level B dated to 36.3 ± 5.4 ka BP. (Bahain 2007).

The high inter-specific variation observed in the microwear pattern for levels III and IIIb from Teixoneres suggest that the horse and red deer have been hunted during different events/seasons. These results are identified and interpreted as the existence of a succession of short-term occupations during the year. At Portel-Ouest, estimation of variability of the microwear patterns estimated for ungulates (horse, reindeer, and red deer) indicates short

occupations. These short term occupations at Teixoneres and Portel-Ouest are put in relation with high mobility that Neanderthals groups developed throughout the territory. The discrepancy in the results from mesowear and microwear suggest a strong seasonality in the occupation of the sites by Neanderthals. In addition, through a new approach analyzing the variability of the microwear pattern it was possible to estimate that those occupations were of short duration. This study establishes the usefulness of dental wear techniques as one of many valuable proxies to obtain information about hominin paleoecology.

References:

- Bahain, J.-J. (2007) La méthode de datation par résonance de spin électronique (ESR) au Muséum national d'histoire naturelle. Vingt ans de recherches méthodologiques et d'applications géochronologiques. Thèse d'Habilitation à Diriger des Recherches. Université Michel de Montaigne, Bordeaux.
- Rosell, J., Blasco, R., Rivals, F., Chacón, M.G., Menéndez, L., Morales, J.I., Rodríguez-Hidalgo, A., Cebrià, A., Carbonell, E., Serrat, D. (2010) A stop along the way: the role of Neanderthal groups at Level III of Teixoneres cave (Moia, Barcelona, Spain). *Quaternaire* 21(2): 239-253.
- Sánchez-Hernández, C., Rivals, F., Blasco, R., Rosell, J. (2014) Short, but repeated Neanderthal visits to Teixoneres Cave (MIS 3, Barcelona, Spain): a combined analysis of tooth microwear patterns and seasonality. *Journal of Archaeological Science* 49, 317-325.
- Tissoux, H., Falguères, C., Bahain, J.-J., Rosell, J., Cebrià, A., Carbonell, E., Serrat, D. (2006) Datation par les séries de l'Uranium des occupations moustériennes de la grotte de Teixoneres (Moia, Province de Barcelone, Espagne). *Quaternaire* 17(1): 27-33.

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Florian Sauer

Organic Resource Management in the Late Palaeolithic of North-Eastern Bavaria. Geomorphology-Based Modelling of Potential Biodiversity for Catchment Analysis

Reconstruction of biogenetic resources in prehistory often faces limitations resulting from the scarcity of data on vegetation and fauna. This data also represents more or less local information and makes it difficult to assess the spatial distribution of bioresources. In the case of the northern Bavarian Late Palaeolithic this situation is very pronounced. Only a small number of pollen-samples gives insight into late Pleistocene vegetation and data on faunal composition is absent. This situation contrasts with a great number of surface collections that can be assigned to the Federmesser-Groups. In this presentation, an approach towards organic resource modelling will be presented. It is based on the profound influence of geomorphology on factors relevant for plant growth. Different geomorphic units (landforms) yield different environmental conditions supporting the propagation of specific plant communities. These variations in environmental conditions will be used to give insight into the relative potential diversity of biogenetic resources in the catchments of the different Late Palaeolithic sites. Patterns in ecological makeup might be linked to different categories of sites and a possible correlation of tool assemblages with biodiversity will be tested.

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Adeline Schebesch

See me. Feel me. Read me. An experimental approach to reading the body language of the oldest anthropomorphic figurines

The oldest *intentionally* crafted figurative art objects, little figurines discovered in the Aurignacian layers of the caves of the Suebian Alps, continue to fascinate scholars and general public alike. On the one hand they seem strangely familiar: They are man made objects therefore revealing a human state of mind; yet on the other hand, they remain puzzling and evasive. The present paper proposes an empirical method derived from professional acting techniques to approach the figurines' inherent 'message': *Understanding by emphatic imitation*. Professional actors 'understand' a character on multiple levels by consciously reproducing the basic physical attitude of that character. The attitude and posture of living bodies provide important clues about intended actions and emotional status. This universal ability to 'read' one another is crucial to any social exchange and communication. All known anthropomorphic figurines from the Upper Paleolithic display certain postures: they have body language. Being works of art, we respond to them in an emotional way much as if they were alive (Gell 1998). In a double experiment in 2010 and 2011 two groups of professional German actors and Vietnamese students used standard acting techniques in order to break down the figurines' body language into discernible basic units. In a first step, the body language of each figurine was copied. The instant emotional effect of the specific posture was examined in a second step. Standard elements of body language and corresponding emotional impact were recognized in a surprisingly consistent way for each respective figurine. Three of the initially five anthropomorphic figurines have been picked for this presentation: 1.)The Lady of Hohle Fels cave; 2.)The Lionman from Hohlenstein-Stadel and 3.) The theriantrop in half relief from Geissenklösterle cave. The results for the Aurignacian figurines generally showed many parallels with existing disciplinary interpretations, e.g., of the 'Kraft und Aggression' hypothesis of Hahn (1986). Moreover, the experiment yielded interesting new insights that may add to the current discussion over the figurines' meaning and importance as hallmarks of cultural modernity.

References:

- Gell, A., 1998. *Art and Agency. An Anthropological Theory*. Clarendon, Oxford.
Hahn, J. 1986. *Kraft und Aggression. Die Botschaft der Eiszeitkunst im Aurignacien Süddeutschlands*, *Archaeologica Venatoria*, Bd. 7., Tübingen.
Schebesch, A., 2013. *Five Anthropomorphic Figurines of the Upper Paleolithic - Communication through Body Language*. *Mitt.Ges.Urgesch.* 22, 61-101.

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Patrick Schmidt

How can lithic heat treatment in the South African MSA be an indicator of modernity?

In recent years, South Africa has gained increasing importance for our understanding of the evolution of "modern human behaviour" during the Middle Stone Age (MSA). A key element in this suite of behaviours is heat treatment of materials such as ochre for ritual purposes and stone prior to tool production. Until now, there has been no direct archaeological evidence for the exact procedure used for the heat treatment of silcrete and the implications of this process for understanding the investment and actions of its MSA instigators remain unclear.

Conducting mineralogical and crystallographic analyses aiming to understand the parameters necessary for heat treatment of South African silcrete, we found out that this material is particularly undemanding regarding heating speed and temperature and thus, can theoretically be heat-treated with most techniques known from ethnographic observations. In a second step, we conducted a series of experiments that aimed to reproduce possible procedures requiring the least investment in time and resources. During these experiments, we found that, when silcrete is heated in direct contact with the glowing embers of a domestic fire, a particular residue may be produced on its surface, a tempering residue, which results from the distillation of plant exudations in anoxic conditions within the ember-pile.

We then tried to find direct archaeological proof of the MSA heat treatment procedure. Through the analysis of heat-treated artefacts from the Howiesons Poort (HP) from several South African sites, we identified similar tempering residues, presenting themselves as black films on the surface of archaeological silcrete artefacts. Analyses of these residues showed them to be identical to the experimentally produced tempering residue: an organic tar with a microscopic flow-texture and that contains microscopic fragments of charcoal. The identification of specific technological markers on these artefacts shed further light on the process used for heat treatment in the MSA. Such markers include distinct fracture surfaces due to heat-induced-non-conchoidal (HINC) fracturing that happened during heat treatment. The frequency of HINC-fractures on HP artefacts implies that heat induced fracturing was a frequent and accepted phenomenon after which knapping continued.

Regular domestic fires, as they are known from many sites dating from the South African Middle Stone Age, can be used for this relatively fast and highly efficient procedure. Our low-investment model of silcrete heat treatment opens for the first time the possibility to discuss the insertion of this technique in the *chaîne opératoire*, the time and resources needed for its realisation and its place in the suite of modern behaviours that appeared during the MSA in South Africa.

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Lithic technology and landuse during the Middle Pleistocene in Schöningen

The presence of hominins in Schöningen during the period between 320 and 300 ka BP is proven by the finds from several archaeological layers. Although most areas of excavation represent low density sites, one, 13 II – 4 is an extremely rich horizon. In contrast, 13 I, which is the oldest site of the sequence, reflects ephemeral use of the landscape. Here, excavators recovered large mammalian fauna remains together with a small number of stone artifacts, along with a large quantity of thermally altered pieces. Since 2014, the lithic inventory is being studied together with the stratigraphy of new profile sections.

Excavations in Schöningen 13 II - 4 (layers 4a to 4c), also known as the “Spear-Horizon”, produced approximately 12,000 animal remains, at least 12 wooden and 1500 stone artifacts. In the year 2011, we identified a continuation of this rich archaeological layer was discovered, which is currently the subject of further excavations. Systematic water screening undertaken over a period of 20 years has allowed the recovery of many very small flakes, artifacts which would otherwise have been lost over the vast area of excavation. These small finds represent about 90% of all lithic artifacts. In addition, a few dozen carefully worked and finely retouched tools have been recovered. The archaeological find layer consists of a fine lime mud, which is rich in organic content. In this layer, there are almost no naturally occurring pebbles with a diameter exceeding 1 cm.

On the basis of the information published by H. Thieme and the artifacts recovered from the ongoing excavations since 2008, we can show a robust and repetitive technological strategy in Schöningen. The artifacts are made of high quality Senonian flint, which was locally abundant. Flint cores are extremely rare and not standardized. Some features in the flint reduction indicate distinctive direct impact using a hard stone hammer for the production

of flakes. In addition, both bone tools and knapped flint document the use of organic retoucheurs as soft hammer. This Lower Paleolithic assemblage is dominated by intensely retouched scrapers and complimented by several serrated and notched tools. These tools are made from manufactured flakes, as well as from natural spalls. Despite the carefully worked scrapers, calling to mind tools prevalent in the Middle Paleolithic, there is no evidence of the use of Levallois technology. Bifaces are also missing, and bifacially worked tools are extremely rare.

Here we examine the lithic assemblages from Schöningen to gain a better understanding of the technological strategies documented within a large archaeological landscape dating to the Middle Pleistocene.

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Markus Siegeris, Wolfgang Burkert & Harald Floss

Lithic raw material sources of the Swabian Jura

The lithic raw material sources for producing chipped stone artifacts have always been of great importance for the Paleolithic studies in Southwestern Germany. In the last years a lithic raw material collection has been established in the Department of Early Prehistory of the University of Tuebingen, set up by several university thesis (e.g. Burkert 1991, 2001; Siegeris in prep.) or other material analysis (e.g. Burkert & Floss 2005; Bressy & Floss 2006.). The field surveys were mainly aiming at the variability of the varieties of the Jurassic chert of the Swabian Alb. In the recent past also other lithic raw materials such as Keuper- and Muschelkalkhornstein (triassic chert) occurred more frequently in the scientific research. The knowledge about the raw materials of the region were enriched in recent decades by further research of the studies of for example J. Affolter, B. Auffermann, B. Cep, M. Kaiser, Chr. Strien, C. Pasda and J. Hahn.

As part of the work of the Collaborative Research Center 1070 “ResourcesCultures” at the University of Tuebingen and the sub-project B01 “ Variability of the use of Resources. Spatial Exploitation by Late Neanderthals and Early Modern Humans in Europe “ (project management: Harald Floss & Nicholas J. Conard; scientific researchers: Y. Chang, K. Herkert. & M. Siegeris) the lithic raw material theme is brought up again with new and systematic methodologies. The aim of this presentation is to give an intermediate stage of the work and to submit a first try of a GIS and database-driven mapping.

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Andrei Sinitsyn

Aesthetic subsystems in the context of Upper Paleolithic cultural unities: East European perspectives

There are two options for overcoming the current crisis in the cultural-historical approach: (1) the abandonment of its principles and development of a new approach, or (2) reform, by overcoming its disadvantages. Both options necessitate the definition of its shortcomings with respect to the aims of modern prehistoric archeology.

The issue of analogies appears to be a major weakness. Archaeological assemblages very rarely provide similarity or differences among all components when they are compared. More often, some features are similar while others are different. As a result such hybrids as the “Aurignacoid Epigravettian” and “Gravettoid Epiaurignacian” have appeared.

The best starting point in this situation seems to be the notion of the heterogeneity of archaeological assemblages, necessitating its division into autonomous (sub-)systems, with functions and evolution that are determined by their own mechanisms. In other words, it is assumed that there is no common cultural system, but that there is a set of systems, which are possibly independent and possibly connected. The question is whether there is a general system of cultural values or whether there are separate systems of tool production, dwelling construction, ritual activity and aesthetic values that are independent each from other.

The separation of material culture into tools, utensils, weapons and ornaments is traditionally associated with the name of Lazar Geiger in the nineteenth century. In its modern version, this division supposes relatively autonomous, if not independent, functioning of these (sub-)systems.

In prehistoric archeology, where utensils (tableware, storage baskets, etc.) are practically absent with a few exceptions (lamps, grindstones) and therefore may be excluded from consideration in the characterization of material culture, it appears reasonable to unite tools and utensils in a single sub-system of domestic economy. The separation of material relating to domestic activities from objects relating to hunting and weaponry was introduced by A. N. Rogachev in the middle of the last century and has recently been subject to a new wave of development (Tatar et al., 2006). As part of the archaeological study of analogies, this subdivision proposes similarities among archaeological materials in some areas and differences in others.

Our experience of dealing with the East European Upper Palaeolithic suggests the following situation. Cultural affiliations are always defined according to lithic assemblages. Bone assemblages, dwelling constructions, ornaments, decorations, and figurative and decorative art show mostly intercultural affinities. Correlations among the spatial patterning of dwelling types, symbolic elements, and lithic and bone assemblages are identified for single cases only (Kostenkovian).

Examples from the Upper Paleolithic in Eastern Europe show some obvious intercultural analogies in the symbolic domain. The small zoomorphic sculptures from Kostenki 1 (Layer I) (Kostenkovien), Kostenki 11 (Layer II) (unique non-Gravettian affinity) and Kostenki 4 (I) (non- Gravettian) of similar date (23-22 ka ¹⁴C BP) demonstrate obvious similarities, in contrast to the differences among the lithic and bone inventories. Particular tubular beads from Kostenki 14 (Layer IVb) show striking resemblances to similar tubular beads from Denisova cave (Layer XI) in the Altai, the Aurignacian of Le Cotte and Isturitz in France (all dating to the most ancient Upper Palaeolithic), while other elements are distinct. In the first example the direct contact of populations cannot be excluded; in the second any direct or indirect contact is impossible: it obviously shows that separate elements of the aesthetic system arise independently in distinct contexts, but that some of them become fixed, and others do not.

At the intuitive level we feel that there are internal mechanisms of selection (evaluation), which support the maintenance of some elements of material culture and discard of others. The problem is how this supposition may be confirmed or rejected.

The crisis in the cultural-historical approach is caused by the lack of adequate methods for analyses of archaeological materials. Both the complex-statistic methods initiated by F. Bordes and two variants of analyses at last decade of last century (attribute analysis and the *chaîne opératoire* concept) have provided fewer results than hoped. Given the current state of the methodological basis of prehistoric archaeology it seems favorable for the evolution of our reflections to deal with culture as a system of separate subsystems: domestic activity, hunting, ritual activity, and aesthetics. Experience shows that each of them is (relatively) autonomous, regulated by its own mechanisms of functioning and development. This concept seems capable of evaluating trans-continental analogies without the violation of cultural-historical principles.

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Environment and subsistence during the Swabian Aurignacian

The caves of the Swabian Jura contain some of the most iconic Aurignacian sites in Western Europe. As such, they have the potential to greatly inform archaeologists about the subsistence strategies of early Upper Paleolithic humans, as well as the environmental contexts in which they lived. In this paper, we integrate faunal, archaeobotanical, and isotopic data from sites in the Lone and Ach valleys, including Vogelherd, Bockstein, Hohlenstein-Stadel, Hohle Fels, and Geißenklösterle. We focus on the Aurignacian components of these sites, but in some instances data from the late Middle Paleolithic, Gravettian, and Magdalenian are included for comparative purposes. From an environmental standpoint, the late Middle Paleolithic was warmer and wetter in the Swabian Jura (Miller, 2009), while the subsequent Aurignacian was cooler with a dominance of pine taxa (Riehl et al., 2014). After a brief mild, wet phase with closed tundra in the region and some boreal taxa such as conifers in the late Aurignacian, the cooling trend continued (Miller, 2009; Riehl et al., 2014). The climate deteriorated further at the transition between the Aurignacian and Gravettian, when the local environment was marked by an interglacial tundra with a mosaic of cold steppe and patches of woody taxa (Riehl et al., 2014). The increasingly cooler climate culminated in a hiatus in the region following the Gravettian, which lasted through the last glacial maximum.

In this presentation, we focus on similarities and differences in the faunal signature of the five sites listed above, and between the Lone and Ach valleys, against the backdrop of climatic variability. Special attention is paid to different excavation methodologies during recovery and taphonomic factors when comparing the assemblages. For the region as a whole, we evaluate differences in the composition of large game taxa, and the proportion of large to small animals to determine if changes from the Middle Paleolithic are attributable to environmental shifts, or if they can be explained by cultural, demographic, or technological factors that accompanied newly arrived modern humans. Some shifts in species representation are explained by climate change, for example the ubiquity of reindeer during cold phases. The trend of climatic deterioration found in the archaeobotanical and micro-morphological records is also reflected in the composition of cervids (Conard and Münzel, 2004). While we find four cervids with very different ecological needs (giant, red, roe, and reindeer) in the Middle Paleolithic, by the Gravettian, only red deer and reindeer remained. At the same time, isotopic evidence indicates that the forage niche of horses and mammoths overlapped considerably in the Ach Valley, starting in the Aurignacian and continuing into the Gravettian. This is not the case in other parts of Western Europe, and suggests that, while the subsistence niche of mammoths remained intact despite local climatic change, horses began to encroach on this niche. A plausible explanation for this is that mammoth populations were already depleted in the Aurignacian because of human hunting pressures (Drucker et al., 2014).

Other shifts in the faunal record, in particular the increase in small game use during the Upper Paleolithic, are probably tied to the intensification of resources to feed growing human populations (Conard et al., 2013). Diachronically, there is a clear increase in the use of small animals, though this differs depending on the class of small game. The use of birds such as ptarmigan and fish spike in the Aurignacian, but then drop off again in the Gravettian, when there is a significant increase in hare hunting (Conard et al., 2013). Equally important to these larger patterns are issues of site use, for example why Hohlenstein-Stadel, Hohle Fels, and Geißenklösterle were more heavily occupied by bears than humans. In the end, our work demonstrates that, despite their close proximity, different environmental and ecological parameters led to different histories of use for the Swabian caves, even within a single cultural phase. However, overarching trends in the region likely relate to the cultural, behavioral, and demographic realities of modern human populations occupying southern Germany during the Late Pleistocene.

References:

- Conard, N.J., Kitagawa, K., Krönnecker, P., Böhme, M., Münzel, S.C., 2013. The Importance of Fish, Fowl and Small Mammals in the Paleolithic Diet of the Swabian Jura, Southern Germany. In: Clark, J.L., Speth, J.D. (Eds.), *Zooarchaeology and Modern Human Origins: Human Hunting Behavior during the Later Pleistocene*. Springer Science+Business Media Dordrecht, pp. 173–190.
- Conard, N.J., Münzel, S.C., 2004. Change and Continuity in Subsistence during the Middle and Upper Palaeolithic in the Ach Valley of Swabia (South-west Germany). *International Journal of Osteoarchaeology*. 243, 225–243.
- Drucker, D.G., Vercoutère, C., Chiotti, L., Nespoulet, R., Crépin, L., Conard, N.J., Münzel, S.C., Higham, T., van der Plicht, J., Lázničková-Galetová, M., Bocherens, H., 2014. Tracking possible decline of woolly mammoth during the Gravettian in Dordogne (France) and the Ach Valley (Germany) using multi-isotope tracking (13C, 14C, 15N, 34S, 18O). *Quaternary International*. 1–14.
- Miller, C., 2009. Formation processes, palaeoenvironments, and settlement dynamics at the Palaeolithic cave sites of Hohle Fels and Geißenklösterle: a geoarchaeological and micromorphological perspective. University of Tübingen, Tübingen.
- Riehl, S., Marinova, E., Deckers, K., Malina, M., Conard, N.J., 2014. Plant use and local vegetation patterns during the second half of the Late Pleistocene in southwestern Germany. *Archaeological and Anthropological Sciences*.

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Martin Street & Birgit Gehlen

New AMS dating results for Bedburg-Königshoven aurochs (*Bos primigenius*)

Since its discovery in the late 1980s Bedburg-Königshoven has generally been seen as the oldest directly dated Mesolithic site in the southern central part of the Northern European Lowlands. Pollen analysis suggested that the sub-aquatic gyttja layer containing many butchered aurochs remains and typically Early Mesolithic lithic and organic artefacts formed in an ancient meander of the River Erft during the Middle Preboreal.

This age is confirmed by two conventional radiocarbon dates provided by the Cologne laboratory for wood of twigs recovered from the layer, which are themselves bracketed by compatible older and younger radiocarbon dates in sequence.

At odds with this interpretation were five conventional radiocarbon dates on aurochs bone obtained from the Cologne laboratory in the early 1990s. With the exception of one result similar to the Preboreal results on wood, the bone dates scattered widely, spanning the Younger Dryas almost back to the Allerød Interstadial. This suggested unexplained methodological problems and it has seemed best to interpret these dates as not reflecting the true age of the site.

In the framework of a major research project into the status of Mesolithic and other early aurochs coordinated by Birgit Gehlen eight new dates on bones of this species were obtained from the Cologne AMS facility. Unexpectedly the AMS dates mirror the picture provided by the conventional radiocarbon bone results. The results will be presented and their implications for an interpretation of the age of the Bedburg site will be discussed.

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Sebastian Szyja

Backed bladelets from the Magdalenian open air site of Bad Kösen-Lengefeld

The Magdalenian open air site of Bad Kösen-Lengefeld is located in Sachsen-Anhalt, Eastern Germany in the vicinity of the famous Magdalenian site of Saaleck. Since its discovery in the mid 1950's archaeologists collected over 2000 lithic artifacts during systematical surveys. From 2008 to 2014 Bad Kösen-Lengefeld has been excavated by a joint team from the Universities of Cologne and Erlangen.

The over 300 backed bladelets in the lithic assemblage are analyzed regarding to morphology, typology, technology and usage. The results will be published in a forthcoming Masterthesis at the University of Cologne. The assemblage contains of all different types of backed bladelets and also some waste products indicating their "on site" production. In contrast to other Magdalenian sites in the region the typological composition of the backed bladelets has a relative high amount of truncated specimens. Most of the truncations clearly had the function to remove the fragile distal parts of the original blanks.

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Yvonne Tafelmaier

"Trapped in terms" - the Proto-Aurignacian and early Aurignacian of Northern Spain"

Beyond doubt the appearance of the Aurignacian marks a turning point in the history of human evolution. By stressing the techno-typological differences, the Proto-Aurignacian on the one hand and the early Aurignacian on the other hand are said to reflect two different routes of dispersal of *Homo sapiens* into Europe (e.g. Otte 2007). Some researchers claim a diachronic emergence, with Proto-Aurignacian assemblages preceding Aurignacian 1 occupations. Thereby the latter is believed to represent an adaptive shift of the eco-cultural niche accompanied by technological changes as a response to the climatic deteriorations of the HE4 event (Banks et al. 2013). A prerequisite for this approach is a secure attribution of the considered inventories.

A study of Aurignacian 0 & 1 lithic assemblages from Labeko Koba (layers VII, VI, and V), Ekain layer IXb (both Basque Country / Spain), and Arbreda H (Catalonia / Spain) with special focus on laminar blank production has been conducted. In addition to the empiric data secondary data on Proto-and early Aurignacian assemblage variability have been acquired. Significant overlaps with regard to technological as well as typological aspects became apparent. Both the typological (Laplace 1966) as well as the technological definition (Teyssandier et al. 2010) proved to be insufficient to clearly differentiate the two "entities". Numerous assemblages exist that yield characteristics of both phases. Therefore a cultural interpretation featuring different technological traditions is rejected (Teyssandier 2006). In contrast, it is proposed to consider Aurignacian 0 and 1 occupations as more complex adaptive manifestations drawing upon a common technological repertoire.

References:

- Banks, W. E., d'Errico, F., Zilhão, J. 2013. Human-climate interaction during the Early Upper Paleolithic: testing the hypothesis of an adaptive shift between the Proto-Aurignacian and the Early Aurignacian. *Journal of Human Evolution* 64, 39–55.
- Laplace, G. 1966. *Recherches sur l'origine et l'évolution des complexes leptolithiques*. Paris: Ed. de Boccard.
- Otte, M. 2007. Arguments for Population Movement of Anatomically Modern Humans from Central Asia to Europe. In: Mellars, P., Boyle, K., Bar-Yosef, O. & Stringer, C. (Eds.). *Rethinking the human revolution. New behavioral and biological perspectives on the origin and dispersal of modern humans*, McDonald Institute for Archaeological Research, Cambridge, 359-366.

- Teyssandier, N. 2006. Questioning the first Aurignacian: Mono or multi cultural phenomenon during the formation of the Upper Palaeolithic in central Europe and the Balkans. *L'Anthropologie* XLIV/1, 9-29.
- Teyssandier, N., Bon, F., Bordes, J.-G. 2010. Within projectile range. Some thoughts on the appearance of the Aurignacian in Europe. *Journal of Anthropological Research* 66, 209–229.

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Noora Taipale & Veerle Rots

Stone tool hafting and use in the European Upper Palaeolithic: the first results of the analysis of Gravettian tools from Hohle Fels

European Upper Palaeolithic lithic assemblages have been so far defined largely on a typological or technological basis, whereas extensive studies that would utilise the full potential of functional analysis have been few. In this poster, I will present the outline and first results of an ongoing PhD project dedicated to the variability in stone tool use and hafting in the Upper Palaeolithic of Central and Western Europe. Recent methodological developments have made possible the distinction between hafted and hand-held tools and the identification of different hafting modes in archaeological assemblages. The aim of my research is to understand the main developments and regional patterns in tool hafting and use in the Gravettian and Magdalenian, and evaluate their impact on lithic assemblage variability. The cave site Hohle Fels serves here as a case study, and the first results of the analysis of the site's Gravettian material will be used to illustrate the potential of this kind of approach in the study of past human behaviour, cognition and culture.

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Latest results from Aghitu-3 Cave, an Early Upper Paleolithic Cave site in the Southern Armenian Highlands

Aghitu-3 Cave is situated in the Syunik region of Southern Armenia, at 1601 m above sea level in a basaltic plateau above the Vorotan river valley. It is the first stratified cave site of the Upper Palaeolithic (UP) in Armenia and has yielded three intact layers covering a timespan from 39,000 to 24,000 BP. Besides the interesting lithic assemblages, Aghitu-3 also offers an excellent preservation of different paleoecological archives (micromammals, fish, birds, reptiles, amphibians, charcoal, pollen, non-pollen palynomorphs, tephra) and is therefore perfectly suited for reconstruction of the climate and environment at the time when the first anatomically modern humans started to colonize the Armenian Highlands. All UP lithic assemblages are dominated by unidirectional manufacture of bladelets, which usually also constitute more than 90% of all blanks used for tool making. The predominant form of modified pieces is the laterally retouched bladelet. Other tools like burins, endscrapers or perforators are present but very rare, as are cores. These finds suggest use of the site as a short-term occupation rather than a base camp. The dominant lithic raw material is obsidian of very good quality from several different sources. Among the artifacts of organic materials, a fragment of an eyed needle and two awls are of special interest, as they indicate the fabrication of clothing, nets or bags.

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Gary Tomlinson
Music and Early Symbolic Communication

The place of music making (or /musicking/) in early human symbolic communication has tended to be presumed more than analyzed; that is, the presence of musical instruments in Aurignacian cultures and other early traces of musicking have been taken to confirm a burgeoning human modernity otherwise attested in iconic artifacts such as carved figurines and parietal painting. A more exacting scrutiny of musicking in its relation to symbolism (as instanced, for example, in modern language) brings new nuance to these presumptions. This is because human musicking is not properly speaking a /symbolic/ activity at all; it is instead an /indexical/ activity of huge, probably unrivaled, complexity, suspended in webs of symbolic behavior characteristic of all modern humans. What does the shift of focus that musicking brings, from symbolism to ordered indexicality, tell us about the emergent capacities of early sapient humans?

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Marian Vanhaeren, Wulf Schiefelhövel, Nicolas Antunes & Francesco d'Errico
Personal ornaments and group identity during the Early Upper Palaeolithic

Our knowledge of the migration routes of the first anatomically modern populations starting to live in Europe at the beginning of the Upper Palaeolithic, of their degree of biological, linguistic, and cultural diversity, and of the nature of their contacts with local Neanderthals, is still vague. Ethnographic studies indicate that among the different components of the material culture that survive in the archaeological record, personal ornaments are among those that best reflect the ethno-linguistic diversity of human groups. However, the ethnic dimension of prehistoric beads is not straightforward. First, because a number of prehistorians consider that ethnicity, an ascribed powerful feeling of identity which leads to within-group cohesion and opposition between groups, did not exist in prehistoric hunter-gatherer societies. Secondly, because the ethnic dimension of beads is rarely univocal. It may be conveyed through the use of distinct bead types as well as by particular combinations and arrangements on the body of bead types shared with one or more neighbouring groups. Ethnographic studies have shown that cultural differences between groups are reflected through variations in techniques, motifs, compositions, choice of raw material, colour, location on the body, and contexts of use. One would expect these variants to leave detectable traces in the archaeological record. To explore the potential of this approach, we recorded the occurrence of bead types at European Early Upper Palaeolithic sites. Seriation, correspondence, and GIS analyses of this database identify a definite cline sweeping counter-clockwise from the Northern Plains to the Eastern Alps via Western and Southern Europe through geographically cohesive sets of sites. The sets most distant from each other do not share any bead types. We argue that this pattern, which is not explained by chronological differences between sites or by differences in raw material availability, reflects the ethno-linguistic diversity of the earliest Upper Palaeolithic populations of Europe. The possible role of personal ornaments as proxy for ethnolinguistic diversity will be discussed as well as alternative explanations (e.g. bead diversity a mere reflection of cultural drift). Preliminary attempts to apply eco-cultural and eco-linguistic niche modelling to present day New Guinea body ornaments in order to create modern analogues which may guide and refine our interpretation of past bead variability will be also presented and evaluated.

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Symbolism is coded communication that can be deciphered by the cultural group in which it originated. Such communication is sometimes expressed through material culture items intended for use by individuals. Evidence for symbolic communication seems to date to at least 100 000 years ago in the South African Middle Stone Age. In the South African Still Bay technocomplex, people may have used perforated marine shells as personal ornaments and, at Blombos, these seem to have been strung to create designs distinguished by colour and shape differences. Engraved geometric designs were created on ostrich eggshell water bottles used in the Howiesons Poort technocomplexes at both Diepkloof and Klipdrift. Amongst modern hunter-gatherers, engraved eggshell water bottles signify ownership, but we do not know whether this was also the case in the past. Repetition of particular designs suggests that group traditions were adhered to. The early South African evidence for symbolic communication involves the use of analogy which is arguably the root of all complex cognition.

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Playing with Fire: Evidence of fire at the late Early Pleistocene Palaeolithic site of Cueva Negra del Estrecho del Río Quípar (Caravaca de la Cruz, Murcia, Spain)

Archaeological excavation of a deeply-lying sedimentary deposit containing thermally-altered Palaeolithic chert artifacts and nodules has uncovered evidence of combustion implying fire was tended ca. 0.8 Ma inside the southeastern Spanish rock-shelter with Palaeolithic artifacts of Cueva Negra del Estrecho del Río Quípar (lat. 38.0374; long. -1.8850; 740 m above sea level; situated 10 km S of Caravaca de la Cruz, Murcia, Spain). Systematic excavation began in 1990. An antiquity of >0.78 for the entire 5 m-deep sedimentary sequence inside the rock-shelter is demonstrated by magnetostratigraphy (Scott and Gibert, 2009). New single-grain OSL analysis now indicates an age of >0.5 Ma though signal saturation precludes greater accuracy. Biostratigraphical findings are consistent with assigning the deposits to a period of <1->0.7 Ma (Walker et al., 2013). A limestone hand-axe and a wide range of small artifacts on chert and other raw materials have been excavated (*ibidem*). Most chert came from a nearby outcrop, though some may have been obtained up to 30 km away from the site according to comparative trace-element analyses by laser-ablation inductively-coupled plasma mass-spectrometry (Zack et al., 2013). Our poster highlights evidence of combustion presented in the next two paragraphs.

Evidence that **fire** had affected not only bone fragments but also Palaeolithic chert artifacts was uncovered first in 2011 during excavation of a layer -4.5 m below the top of the sedimentary sequence, 5 m inside from the entrance, and more burnt remains have been excavated in the same layer in 2012, 2013 and 2014. Charred bone and numerous *white calcined* bone fragments include some that show conjoined lengthwise long-bone spalling typical of circumferential shrinkage after thermal volatilization of organic components at about 800-900° C (cf. Uberlaker, 1999 [2004]). Among abundant *thermally-altered lustreless chert* fragments a nodule was excavated that had been split open with several minute razor-sharp splinters still in place and a split surface showing pock-marked rippling typically seen when heating chert produces “pot-lid” fracture surfaces. An artificially-struck flake cracked open by “thermal shock” was excavated with sharp conjoinable fragments in place. Following thermal alteration those two finds cannot have undergone displacement of more than a few centimetres. In the 2 m² of deeply-lying sediment uncovered to date, combustion had affected over 350 fragments of bones of small and large mammals, birds and tortoise, and about 150 of chert which included abundant small splinters indicative of chert shattering at about 700-800 °C.

That combustion temperatures certainly of 400-600° C were reached is shown by *thermoluminescence* analysis of burnt chert and analyses of burnt bone using both electron spin resonance “palaeothermometry” and Fourier Transform infrared spectroscopy. Thermal discolouration of bone is supported by *taphonomical analysis* combined with *scanning electron microscopy* and *energy-dispersive X-ray spectroscopy* which discount post-depositional mineral staining. Compatible with the effects of combustion and degradation of bone are findings (notably hydroxyapatite) from chemical and mineral investigation of the sediment by thermogravimetric analysis with mass spectrometry, granulometry using laser diffraction, and X-ray fluorescence and X-ray diffraction studies, although micromorphological investigation of thin sections of sediment is as yet inconclusive, suggestive indications from macroscopical inspection notwithstanding.

Sparks from a bush fire outside are unlikely to have set alight brushwood accidentally lying well inside, so as to produce such temperatures. Perhaps smouldering brands left by bush fires outside were carried inside so fire could be tended where rain or wind would not extinguish it; fire also might have been made by striking chert to produce sparks. No fire-pit or hearth stones have been found, hence there was scant ability, if any, to control the heat. Nevertheless, the denizens of Cueva Negra could well have been less afraid of fire outside than were animals they saw fleeing from it. That may have led them to play with fire in order to drive animals towards natural death-traps, such as swamps, enabling dismemberment and roasting. In line with arguments that heating foodstuffs had irreversible physiological consequences for human evolution (Wrangham 2009), its possible incidence on human cognition in late Early Pleistocene Europe is intriguing in the light of fascinating aspects of Palaeolithic versatility at Cueva Negra (Walker 2009). The antiquity of fire at Cueva Negra should be interpreted in relation to considerations for the evidence for fire at other late Early Pleistocene sites (e.g. Alpersón-Afil and Goren-Inbar 2010; Berna *et al.*, 2012; Goren-Inbar *et al.*, 2004; James 1989; Roebroeks and Villa 2011).

References:

- Alpersón-Afil, N., Goren-Inbar, N., 2010, *The Acheulian Site Of Gesher Benot Ya'aqov: Ancient Flames And Controlled Use Of Fire Vol. 2*. Springer, New York.
- Angelucci, D., Anesin, D., López-Martínez, M., Haber-Uriarte, M., Rodríguez-Estrella, T., Walker, M.J., 2013, Rethinking stratigraphy and site formation of the Pleistocene deposit at Cueva Negra del Estrecho del Río Quípar (Caravaca de la Cruz, Spain). *Quaternary Science Reviews* 80, 195-199.
- Berna, F., Goldberg, P., Horwitz, L. K., Brink, J., Folt, S., Bamford, M., Chazan, M., 2012, Microstratigraphic evidence of in situ fire in the Acheulean strata of Wonderwerk Cave, Northern Cape province, South Africa. *Proceedings of the National Academy of Sciences of the USA* 109: 7593-7594.
- Goren-Inbar, N., Alpersón, N., Kislev, M. E., Simchoni, O., Melamed, Y., Ben-Nun, A., Werker, E., 2004, Evidence of hominin control of fire at Gesher Benot Ya'aqov, Israel, *Science* 304: 725-727.
- James, S. R., 1989, Hominid use of fire in the Lower and Middle Pleistocene: A review of the evidence. *Current Anthropology* 30: 1-26.
- Roebroeks, W., Villa, P., 2011, On the earliest evidence for the habitual use of fire in Europe. *Proceedings of the National Academy of Sciences of the USA* 108, 5209-5214.
- Scott, G. R., L.Gibert, L., 2009, The oldest hand-axes in Europe. *Nature* 461: 82-85.
- Überlaker, D. H., 1999 [2004], *Human Skeletal Remains*. Washington DC, Taraxacum.
- Walker, M. J., 2009. Long-term memory and Middle Pleistocene 'Mysterians'. Pp. 75-84 in de Beaune, S. A., Coolidge, F. L., Wynn, T., eds., *Cognitive Archaeology And Human Evolution*. Cambridge University Press, Cambridge and New York.
- Walker, M.J., López-Martínez, M.V., Carrión-García, J.S., Rodríguez-Estrella, T., San-Nicolás-del-Toro, M., Schwenninger, J-L., López-Jiménez, A., Ortega-Rodrigáñez, J., Haber-Uriarte, M., Polo-Camacho, J-L., García-Torres, J., Campillo-Boj, M., Avilés-Fernández, A., Zack, W., 2013. Cueva Negra del Estrecho del Río Quípar (Murcia, Spain): A late Early Pleistocene hominin site with an “Acheulo-Levalloiso-Mousteroid” Palaeolithic assemblage. *Quaternary International* 294, 135-159.
- Wrangham, R., 2009, *Catching Fire. How Cooking Made Us Human*. London, Profile Books.

Zack, W., Andronikov, A., Rodríguez-Estrella, T., López-Martínez, M., Haber-Uriarte, M., Holliday, V., Lauretta, D., Walker, M.J., 2013, Stone procurement and transport at the late Early Pleistocene site of Cueva Negra del Estrecho del Río Quípar (Murcia, SE Spain). *Quartär, Internationales Jahrbuch zur Eiszeitalter- und Steinzeitforschung, International Yearbook for Ice Age and Stone Age Research* 60: 7-28.

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Flexed knees and elbows, with hands raised up beside the face, of both a young Neanderthal woman (SP96 “Paloma”) and a child beneath her (SP97 “Paloma’s child”), suggest intentional arrangement before *rigor mortis* developed. Excavation discovered the skeletons in anatomical connexion, their heads to W, lying within cemented rocks 1.5-2 m below the rock overhang above the karstic shaft (*sima*); there was no burial pit. Beneath the child lay articulated parts of another adult skeleton with an extended elbow (SP92). Near the child were 2 articulated leopard paws. A parsimonious interpretation is that a single anthropogenic process had impinged on both human and leopard body parts such that articulation was retained and scattering by scavengers avoided (further deterrence perhaps afforded by rocks thrown over the bodies). The aforementioned bones show neither charring nor cut-marks. Charred articulated horse ankle bones and flints were excavated nearby (beside SP92 there were 9 retouched artifacts, 12 other flakes and >100 knapping spalls and fragments of flint, calcite, and quartz). Maybe the assemblage reflects tidying-up and good house-keeping. A direct U-series date on Neanderthal bone of 54,100±7700 BP (APSLP-1) is in line with excavated material dated to 51,000±2500 (APSLP-6) by U-ser and 54,700±4700 (X2509) by OSL, as well as a U-ser sample taken below SP1/SP92 of 56,000+13000/-10000 (though yet another U-ser date and two by ¹⁴C seem to be underestimates: Walker *et al.*, 2012). An intriguing contrast exists between the 3 nearly-complete articulated skeletons and sparse remains of 6 other Neanderthal individuals known from the site, including some burnt bones (a burnt leopard temporal bone could imply Neanderthal dominance). The skeletons

were separated by an almost impenetrable conglomerate bed from underlying sediments containing Mousterian tools and abundant fragments of burnt animal bones.

SP96 ("Paloma") was a short 16-20 year-old woman, lying on her left side, with skeletal parts connected anatomically (rib cage, shoulder and pelvic girdles, flexed knees and elbows, hands beside her crushed skull and mandible; altogether >70 different bones exist, including all major limb bones except for her feet: Walker *et al.*, 2011). CAT scanning of SP97, undertaken to enable virtual reconstruction, revealed hand bones hidden in sediment cemented to the child's forehead (SP97 has cranium, mandible and >34 different bones). SP92 has 60 different bones; very likely its head was the crushed mandible and maxillae found by a speleologist in 1991 in a place according well with SP92's W-E orientation (its articulated foot bones lay at E). The skeletons were excavated in our 12th to 15th annual field seasons (2005-8). Laboratory removal of adherent breccia with vibroscalpels continues.

Arranging cadavers before *rigor mortis* develops implies Mousterian attention paid to flexing knees and elbows, with hands raised to the face, among Neanderthals (Regourdou; Shanidar 7) and anatomically modern humans (Skhul 4 and 7), though knee flexion is more widespread (Defleur, 1993, esp. p. 233). The completeness of SP96 "Paloma" highlights comments both by Anne-Marie Tillier (1982), namely, "*La présence du squelette ou d'une grande partie du squelette en connexion n'est pas un phénomène naturel et il ne semble pas indispensable de mettre en évidence une structure artificielle pour envisager un dépôt volontaire du corps...*" (cf. Pettitt, 2002), and also by Erik Trinkaus (1989) who commented, in response to Robert Gargett's scepticism about some allegedly intentional Neanderthal burials, that several Neanderthal articulated skeletons "*managed to be preserved in highly accessible Upper Pleistocene rock-shelters and caves in near-anatomical position and over-all skeletal-part frequencies identical to those of recent cemetery samples... These partial skeletons retain many fragile elements largely intact, despite the ubiquitous presence of carcass-destroying carnivores...the lack of evidence in most cases for sufficiently rapid natural sedimentation rates to shield them from scavengers, and the absence of comparably preserved nonhominid skeletons in similarly accessible Upper Pleistocene locales*" – here Trinkaus was referring to mainly-complete animal skeletons, which our leopard paws are anything but!

References:

- Defleur, A., 1993, *Les Sépultures Moustériennes*. Éditions du Centre National de la Recherche Scientifique, Paris.
- Pettitt, P., 2002. The Neanderthal dead: exploring mortuary variability in Middle Palaeolithic Eurasia. *Before Farming* 1 (4), 1-26.
- Tillier, A-M., 1982. Les inhumations d'enfants au Paléolithique ancien et moyen. In : *Les Dossiers d'Archéologie* 66 (septembre 1982), "La Mort dans le Préhistoire", Éditions Faton, Dijon, pp. 19-22.
- Trinkaus, E., 1989. In: Comments, pp. 183-184, in response to Gargett, R.H., Grave shortcomings. The evidence for Neandertal burial. *Current Anthropology* 30 (2), 157-190.
- Walker, M. J., Ortega, J., Parmová, K., López, M. and Trinkaus, E., 2011 Morphology, body proportions, and postcranial hypertrophy of a female Neandertal from the Sima de las Palomas, southeastern Spain. *Proceedings of the National Academy of Sciences USA* 108, 10087-10091.
- Walker, M. J., López Martínez, M., Ortega-Rodríguez, J., Haber-Uriarte, M., López-Jiménez, A., Avilés-Fernández, A., Polo Camacho, J. L., Campillo-Boj, M., García-Torres, J., Carrión-García, J. S., San Nicolas-del Toro, M. and Rodríguez-Estrella, T., 2012. The excavation of the buried articulated Neanderthal skeletons at Sima de las Palomas (Murcia, SE Spain). *Quaternary International* 259, 7-21.

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Thomas Weber

Attribute analysis of flakes from stone inventories: a valuable method also for the Upper Palaeolithic periods in Europe?

For the long time spans of the (European) Lower and Middle Palaeolithic, the studies of flake inventories seem to provide an useful method for reconstructing cultural history – more or less un-influenced by the functional requirements in the different sites from raw material exploitation areas through killing and butchering places up to artefact assemblages reflecting home base situations.

These different features of the inventories appear as different (absolute and relative) frequencies of the different remains in the course of the *chaîne opératoire* and as different features of the recovered pieces. Interestingly, it seems to be that the given level of the technological development is more regulatory for the characteristic flake attributes than the special type of the site: technical similarities how the artefacts have been made can be recognized regardless of the site interpretation as, e. g., a raw material collection place (like Markkleeberg) or an *Elephas antiquus* butchering site like Gröbern or Lehringen. Even the raw material situation (different frequencies of crypto-crystalline, fine, and coarse grained rocks) may form several flake features but can be distinguished from the characteristics of the level of technology.

The features included in the previous studies have been selected to distinguish especially between the older stages of the Lower and the Middle Palaeolithic. Therefore absolute measurements of the pieces and the striking platforms (and their relationships) play an important role, the distinct conditions of the striking platforms, the flaking angle, and under the dorsal features the worked surface portion, the number of negatives, and the number of flaking directions (but not the precise directions in relation to the ventral face). Of course, the L(ength) B(readth) I(ndex) as an expression of the piece's "bladedness" can be calculated as well as the R(elative) T(hickness) I(ndex) measuring the "flattening".

Using these observations, it is – interestingly – possible to arrange not only the Lower and Middle Palaeolithic (Central, Eastern, and Western European) inventories in the different – chronologically and spatially limited – technocomplexes but also assemblages which can be placed in the Latest Middle / (transitional phase to the) Early Upper Palaeolithic (Tsanova 2012).

Also multivariate investigations like hierarchical clustering or principal component analysis – undertaken by the Dutch "Wiekvoet" group with a database presented by Prof. G. Ritter (Passau University) for the Machine learning Repository from the University of Southern California, Irvine – show that the Late Middle / Early Upper Palaeolithic inventories go together – characterized firstly by high LBI and quite low values of primary striking platform percentages. But also the other attributes have nearly identical values also for these three Bulgarian assemblages. It would be interesting to include also other Upper Palaeolithic inventories to answer the question for a new degree of "technological standardization" of these features in the European Upper Palaeolithic record.

References:

Tsanova, T. R. 2012: A diachronic view of flake production from the beginning of the Upper Palaeolithic in the Eastern Balkans. In: A. Pastoors & M. Peresani (Hg.) 2012: Flakes not blades. The Role of Flake Production at the Onset of the Upper Palaeolithic in Europe. *Wissenschaftliche Schriften des Neanderthal Museums* 5, 75-98. Mettmann 2012.

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Randall White¹ & Raphaëlle Bourrillon²

"Aurignacian graphic and plastic expression in Southwest France: context, dating and inter-regional comparisons"

The Vézère Valley of SW France was the first region of Europe to have yielded Aurignacian graphic and plastic representations that included "vulvar," animal and geometric forms. In the justifiable excitement of the relatively recent finds from Chauvet, the Swabian Jura, Fumane and Pester Coliboaia in Romania, the rich corpus of SW French Aurignacian wall painting, engraving and bas-relief sculpture has been somewhat overlooked. This "neglect" is in part a result of the fact that scientific knowledge of the chronological and cultural context of that early-discovered symbolic record has been limited by the crude archaeological methods and anecdotal descriptions of that pioneering era as well as the loss and dispersal of many of the works discovered. This paper presents important new discoveries from excavations since 1994 at the sites of Castanet, Blanchard, Cellier and La Souquette, as well as the re-discovery and re-analysis of several dozen works dispersed around the globe in the early 20th century. This new research increases the sample of known works from the Vézère by more than 10% and makes important new contributions to the chronology and archaeological context of Aurignacian expressive arts, allowing us to take the first steps to rigorous comparisons with the known corpus outside SW France.

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Insight from stable isotopes into the ecology of late Neandertals and early anatomically modern humans (AMH) in North-West Europe

The "Troisième caverne" of Goyet yielded recently new human remains that belong to the latest Neandertals and earliest AMH in Northwestern Europe. Together with the late Neandertals from the nearby site of Spy and the coeval faunal remains from Scladina cave, this Belgian bone material provides a unique opportunity to investigate the potential ecological and cultural differences among the last Neandertals and first AMH in Northwestern Europe.

This study focuses on collagen isotopic results on human and animal bones. Collagen is the predominant protein in bone and its isotopic composition directly provides insights in ecological aspects such as diet, habitat, and landscape use patterns of both hominins as well as the herbivorous and carnivorous mammal species. Statistical treatment of the obtained isotopic raw data with statistical software (R and JMP) yielded quantitative estimates of the trophic relationships among the animal and human species.

The isotopic analysis of several elements (carbon, nitrogen) allowed amongst other aspects to establish the ecological niche partitioning and the prey-predator relationships at Scladina, Spy and Goyet caves, all sites being relatively close to each other (± 40 km) and of similar age. These isotopic results show that the dietary strategies of Neandertals from Goyet are very similar to those of Spy, with a high dietary contribution of mega-herbivores. We compared these results with the ones obtained from the AMHs corresponding to the Aurignacian

technocomplex from “Troisième caverne” of Goyet in Belgium. On the other hand the sulfur isotopic composition of collagen being linked to the characteristics of the bedrock, significant differences were found within and across the sites, which are interpreted as indicating different foraging areas for several mammal species including the Neandertals and AMH from Spy and Goyet.

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Sibylle Wolf & Claire Heckel

Early Aurignacian Personal ornaments of southwestern Germany and southwestern France: commonalities and differences

On the Early Aurignacian landscape of Europe, southwestern Germany and southwestern France represent two distinct regions where a shared symbolic culture is documented at numerous contemporaneous sites. In both regions, personal ornaments are part of a system of social communication, which appears in the oldest Early Aurignacian layers of the sites, with the arrival of anatomically modern humans in Central and Western Europe, ca. 40.000 years ago. In the Swabian Jura, the six cave sites of Hohle Fels, Geißenklösterle and Sirgenstein (Ach Valley) as well as Vogelherd, Hohlenstein-Stadel and Bockstein-Törle (Lone Valley) yielded personal ornaments of the Early Aurignacian. We see slight differences in the bead production in the different sites and extraordinary forms, but the double perforated bead dominates in all sites. There is a tradition of manufacturing this bead type for more than 6000 years, and the type is unknown in other Aurignacian regions; this leads to the thesis that the Swabian Aurignacians formed their own group identity, which they expressed by the double perforated bead. The figurative art and the musical instruments, which also constitute a unique ensemble from the Swabian sites so far, further support this idea. In southwestern France, the basket-shaped bead is the dominant (nearly exclusive) bead-type. It appears at numerous sites in the Aquitaine Basin, six of which will be discussed in this presentation. As in the Swabian Jura, the presence of these artifacts at multiple Early Aurignacian sites is interpreted as evidence for social networks on an extended landscape. Furthermore, morphometric analysis of the beads and the distribution of production debris suggest that bead production was the task of a limited number of individuals at a limited number of sites, and that these artifacts of social communication circulated in a larger landscape beyond the centralized sites of production.

While the manufacturing processes for Early Aurignacian beads in the Swabian Jura and the Aquitaine Basin are nearly identical, there are significant differences in the final products and in the contexts of production, especially where human-mammoth interaction is concerned. These similarities and differences are addressed through the results of recent detailed studies in both regions.

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Bericht zur 56. Tagung der Gesellschaft in Braunschweig und Schöningen vom 22.-26. April 2014

von

Thorsten Uthmeier und Andreas Maier

2014 hatte das Niedersächsische Landesamt für Denkmalpflege und das Landesmuseum Braunschweig zur 56. Jahrestagung der Gesellschaft an zwei Tagungsorte, Braunschweig und Schöningen, eingeladen. Neben den klassischen beiden Exkursionstagen am Ende der Tagung in das Hannoversche Wendland und die Höhlen des Harzes bot sich am zweiten Tag der Tagung die Gelegenheit, sich vor Ort im Rahmen eines geführten Rundgangs durch die Ausstellung über das Konzept des Forschungs- und Erlebniszentrums „paläon“ aus erster Hand zu informieren. Bereits an dieser Stelle gebührt allen, die sich an der Organisation der Tagung beteiligt haben, der besondere Dank der Gesellschaft, wobei Herr Prof. Dr. Thomas Terberger und Herr Dr. Felix Hillgruber die Hauptlast vor Ort getragen haben.

Vor dem Beginn des Vortragsprogramms verlieh der Präsident der Gesellschaft den diesjährigen Hugo Obermaier-Förderpreis an Camille Anne Jéquier MA. Mit dem Preis wird ein Sondageprojekt zur Erfassung von mittelpaläolithischen Schichten an der oberitalienischen Fundstelle Covolo di Natale gefördert, das die Preisträgerin im Rahmen ihrer Dissertation an der Universität in Ferrara durchführen wird.

Der Tagungsverlauf

Am Dienstag, den 22. April, wurde die Tagung am Beginn des Nachmittags nach einem Grußwort der Leiterin des Braunschweigerischen Landesmuseums, Frau Dr. Heike Pöppelmann durch den Präsidenten der Gesellschaft eröffnet. Am Beginn des Vortragsprogramms, das an diesem Tag im großen Vortragssaal des Museums stattfand, standen Beiträge zum Schwerpunktthema „Archäologie, Klima und Umwelt des Mittelpleistozäns“. Zunächst berichteten Avi Gopher, der von der Gesellschaft eingeladen worden war, Ran Barkai und Lutz Maul über ihre Forschungen zur Qesem Cave in Israel, einer in das ausgehende Altpaläolithikum datierenden Fundstelle in der weiteren Umgebung von Tel Aviv, die durch Fund von Zähnen mit Merkmalen des modernen Menschen in den letzten Jahren für Furore gesorgt hat. Danach folgten mit Beiträgen von Knut Bretzke et al. zum paläolithischen Fundbestand im Persischen Golf, von Michael Walker über die Rohmaterialversorgung in den altpaläolithischen Schichten von Cueva Negra sowie von Clemens Pasda zur Problematik der Silexfunde aus Bilzingsleben weitere Wortbeiträge zum Schwerpunktthema der diesjährigen Tagung. Nach der Kaffeepause eröffnete der Präsident der Gesellschaft die Postersession, indem er die ausstellenden Wissenschaftlerinnen und Wissenschaftler bat, ihre jeweiligen Poster kurz vorzustellen. Wie bereits bei der vorangegangenen Jahrestagung in Wien, so bestand auch jetzt die Möglichkeit, den Posterbeitrag über NESPOS als offizielle Publikation im Internet zu veröffentlichen. Der erste Tagungstag klang mit einem Empfang der Stadt Braunschweig, vertreten durch ihre Bürgermeisterin Annegret Ihbe, im Altstadt-Rathaus Dornse aus.

Am zweiten Tag der Tagung brachten Busse die Teilnehmer nach Schöningen in das seit Sommer 2013 eröffnete „paläon – Forschungs- und Erlebniszentrum Schöninger Speere“. In Wurfweite von der Fundstelle entfernt präsentierten - nach Grußworten durch den Präsidenten des Niedersächsischen Landesamtes für Denkmalpflege, Herrn Prof. Dr. Stephan Winghart, und den Geschäftsführer des Paläon, Dr. Florian Westphal - zahlreiche Arbeitsgruppen und Einzelforscher ihre Ergebnisse zu einer der wichtigsten Fundstellen des Mittelpleistozäns in Europa. Den Anfang machten Jutta Winsemann et. al. mit neuen Erkenntnissen zur relativ- und absolutchronologischen Abfolge der Flussterrassen, gefolgt von Utz Böhner, der neue Paläolith-Funde aus den regionalen Kiesgruben bekannt gab. Die nachfolgenden Vorträge befassten sich allesamt mit Aspekten des altpaläolithischen Fundplatzes Schöningen. Nach dem Beitrag von Jörg Lang et al., zur Faziesarchitektur der Ablagerungen, folgte Nicholas J. Conard, der sich zum allgemeinen Fortgang der archäologischen Forschungen äußerte. Florent Rivals et al. befassten sich mit der Rekonstruktion des Nahrungsverhaltens der Pferde, während Jordi Seregalí et al. über den Stand der

Ausgrabungen vortrugen. Dem Speerhorizont waren die Vorträge von Utz Böhner und Pascale Richter zum räumlichen Kontext der Speere sowie – nach der Kaffeepause – von Aritza Villaluenga zu Details des Speerhorizontes 13II-4 gewidmet. Der Redebeiträge von Falco Turner et al. über die Fluss- und späteiszeitliche Landschaftsdynamik im Gebiet um Grabow und Witsche leitete über zum Spätpaläolithikum und Mesolithikum, dem zweiten, auch für die Exkursion bedeutsamen regionalen Themenschwerpunkt. Ebenfalls in das Spätpaläolithikum gehörte der Vortrag von Stephan Veil et al. zum Projekt Grabow/Weitsche mit seinem dichten Cluster an Federmesserplätzen, denen durch ihre Bernsteinverarbeitung eine auch überregional herausgehobene Bedeutung zukommt. In das Mesolithikum schließlich gehört der von Klaus Gerken vorgestellte Fundplatz Bierden mit seiner anthropomorphen Darstellung auf einem Sandstein-Retuscheur.

In der Mittagspause stärkten sich die Tagungsteilnehmer/Innen an einem warmen Buffet nebst Kaffee und Kuchen, das im vorderen Bereich des Vortragssaals des paläons gereicht wurde. Das nachfolgende Vortragspaket zum Mittelpaläolithikum begann mit Ausführungen von David Álvarez-Alonso et al. zur mittelpaläolithischen Besiedlung der zentralen Iberischen Halbinsel. In der Folge kamen Regine Stolarczyk mit einem Beitrag zu Knochenartefakten des südafrikanischen MSA sowie Elaine Turner und Petr Neruda mit Überlegungen zu Subsistenzmustern in der Schicht 11 der Kůlna-Höhle zu Wort. Zu den dortigen warmzeitlichen Umweltbedingungen passte der nachfolgende Vortrag von Maria Knipping zur pollenanalytischen Untersuchungen in den – allerdings wesentlich älteren – mittelpleistozänen Seesedimenten aus dem Höhenmoos. Einen in der archäologischen Fernerkundung methodisch neuen Ansatz verfolgten Shumon Hussein et al., in dem sie in Jordanien potentiell fundführende, rot gefärbte, an der Oberfläche aufgeschlossene Wadi-Sedimente kartierten.

Nach der Kaffeepause gab Gabriele Zipf einen Einblick in das paläon-Konzept. Von der gelungenen Umsetzung der Ausstellungskonzeption, in der neben den Exponaten in den Vitrinen ein Forschungslabor, eine Parkanlage mit einer Herde Wildpferde und nicht zuletzt die nahegelegenen Grabungsschnitte im Tagebau Archäologie lebendig vermitteln, konnten sich alle Teilnehmer im Rahmen der nachfolgenden Führung durch Ausstellung und Grabungsgelände überzeugen. Ab 18 Uhr lud der Förderverein „Schöninger Speere - Erbe der Menschheit e.V.“ zu einem Stehempfang ein. Sein 1. Vorsitzender, Dr. Wolf-Michael Schmid, schilderte anschaulich die kleineren und größeren politischen und diplomatischen Hindernisse, die es bis zum ersten Spatenstich zu überwinden galt. In dem treffend mit „300.000 Jahre Spitzentechnik – Schöningen und die Altsteinzeit in Niedersachsen“ betitelten Abendvortrag hob Prof. Dr. Thomas Terberger noch einmal die Diversität der niedersächsischen Landschaft und die damit verbundene Vielfalt ihrer archäologischen Hinterlassenschaften hervor.

Der Donnerstagmorgen begann mit Beiträgen zum Mittelpaläolithikum von María Gema Chacón et al. zu kurzfristigen Aufenthalten an der spanischen Fundstation Teixoneres sowie von Hanna Parow-Souchon zum Beginn der Klingenproduktion im äthiopischen Mochena Borago. Thematisch leitete Yvonne Tafelmaier mit ihren Ausführungen zur Lamellenproduktion des Aurignacien 0 und 1 in Lakebo Koba im spanischen Baskenland zum Vortragsblock über das Jungpaläolithikum über. In der Folge berichteten Claus-Joachim Kind über die Ergänzungen am Löwenmenschen aus dem Hohlenstein-Stadel, Tina Jahnke über die letzten Riesenhirsche der Schwäbischen Alb und Stephan Heidenreich et al. über die 3D-Erfassung des Hohlenstein und gaben so einen Einblick zum Stand der Forschungen am Fundplatz der einzigen größeren Statuette des Aurignacien. Ebenfalls zum Aurignacien, und zwar zu den ersten Ergebnissen der Grabungen in Breitenbach, sprach Tim Matthies, gefolgt von Bibiana Hromadová und Lubomíra Kaminská, die über die Elfenbeinspitzen verschiedener slowakischer Höhlen berichteten. Anschließend folgten mit Marcel Bradtmöller, der seine Ergebnisse zum Siedlungsmuster des kantabrischen Gravettien darstellte, und Marco Peresani et al., die sich mit alpinen Fundstellen oberhalb der Baumlinie beschäftigten, zunächst Ausführungen zum älteren Teil des mittleren Jungpaläolithikums. Isabell Schmidt und Gerd-Christian Weniger gaben einen Einblick in ihre Forschungen zu den technologischen Strategien zur Erzeugung von Solutréenspitzen in Spanien. Ebenfalls noch in den Themenbereich des Jungpaläolithikums gehörte der bereits nach der Kaffeepause angesetzte Beitrag von Andreas Pastoors et al. zu den neuen Arbeiten in den Volp-Höhlen.

Jan Kegler machte den Anfang der Vorträge zum Spätpaläolithikum und Mesolithikum; er gab die ersten Ergebnisse seiner Grabungen an der Fundstelle der Hamburger Kultur, Sandhorst, bekannt. Die Federmesserplätze bei Grabow waren Thema der Ausführungen von Peter Balthasar et al., während Michael Baales et al. über spätglaziale Fundstellen in Westfalen sprachen. Martin Street et al. stellten ihre neuen Analysen zum Hund von Oberkassel vor, und Alvise Barbieri et al. beschrieben – nach der Kaffeepause – ihre Modellierung der spätglazialen Landschaftsoberfläche des Ach- und Lonetals. Den Abschluss der Vorträge bildeten die Beiträge von Markus Wild zu den Geweihmasken des Mesolithikums sowie von Daniel Groß, der über Mensch und Umwelt im Frühholozän vortrug.

Am Abend begrüßte der dortige Förderverein die Tagungsteilnehmer/Innen im ur- und frühgeschichtlichen Museum des Braunschweigischen Landesmuseum in der Kanzlei Wolfenbüttel. Dank des guten Wetters und der Gastfreundschaft der Vereinsmitglieder konnten die Diskussionen bei Gegrilltem, Bier, Wein und nichtalkoholischen Getränken unter freiem Himmel in herzlicher Atmosphäre im Innenhof des Museums bis spät in den Abend fortgesetzt werden.

Mitgliederversammlung und Vorstandswahlen

Am Donnerstagnachmittag eröffnete der Präsidenten der Gesellschaft die Hauptversammlung und verlas anschließend den Jahresbericht des Geschäftsjahres 2013. Die Gesellschaft hatte vor Beginn der Tagung 239 persönliche und institutionelle Mitglieder. Während des laufenden Geschäftsjahres gab es 13 Neueintritte. Während des Geschäftsjahres verstarben die Mitglieder Stephan Planitz, Dr. Walter Grotenthaler, Mag. Georg Schwarz und Prof. Dr. Hubert Trimmel. Die Anwesenden gedachten der Verstorbenen mit einer Schweigeminute.

Thorsten Uthmeier gab bekannt, dass eine Änderung in den Richtlinien für den Förderpreis der HOG nun vorsieht, dass nicht nur Geländearbeiten, sondern auch andere Projekte – wie Laborarbeiten und Materialanalysen – zu den förderungswürdigen Projekten der Doktoranden gehören. Der Förderpreis wird aus den Rücklagen der HOG bis auf weiteres verstetigt.

Der Kassenbericht für das Rechnungsjahr 2013 wurde durch die Schatzmeisterin Frau Dr. M.-J. Weber vorgetragen. Er enthielt einen detaillierten Bericht über Einnahmen, Ausgaben und Saldo des Geschäftsjahres zum 31.12.12 sowie zum aktuellen Stand, die Mitteilung über Ausgaben und Einnahmen der Tagung 2012 in Wien sowie den Hinweis auf die Möglichkeit der Einsichtnahme. Anschließend verlas Frau Maria Knipping den Bericht über die Kassenprüfung durch Mitglied Gernot Tromnau, der die einwandfreie Kassenführung bestätigte und die Entlastung der Schatzmeisterin vorschlug, was von der Mitgliederversammlung einstimmig angenommen wurde. Herr Uthmeier sprach im Namen der Gesellschaft Herrn Tromnau den Dank für die Tätigkeit als Kassenprüfer aus. Als Kassenprüferin für das neue Geschäftsjahr wurde Frau Maria Knipping einbestellt.

Werner Müller berichtete im Namen des Herausgebergremiums des Jahrbuchs Quartär über den ausgelieferten Band 60 sowie den Stand zum Band 61 (2014).

Als nächster Punkt wurde dem scheidenden Vorstand in mehreren kurzen Reden gedankt. Der Präsident Thorsten Uthmeier drückte im Namen der Gesellschaft der ausscheidenden Beisitzerin Frau Neugebauer-Maresch den Dank der Gesellschaft aus. Ein besonderer Dank, begleitet von lang anhaltendem Applaus, wurde dem ebenfalls nicht mehr zur Wahl antretenden Schriftführer der Gesellschaft, Leif Steguweit, ausgesprochen, der dieses Amt bereits seit dem Jahre 2003 innehatte. Die Verdienste von Herrn Steguweit wurden ausgiebig gewürdigt. Nach einer kurzen Laudatio wurde ihm ein original australischer Arbeitshut für viele weitere Aufenthalte an sonnenbeschienenen Aufschlüssen, Fundstellen und Grabungsschnitten überreicht.

Anschließend wurde die Vorstandswahl durchgeführt. Nach Entlastung und Rücktritt des alten Vorstandes wurde Herr Jürgen Richter mit der Wahl eines neuen Vorstandes beauftragt und leitete die Sitzung während der Wahl. Vier der neu gewählten Vorstandsmitglieder waren anwesend und nahmen die Wahl an. Für die anderen beiden Mitglieder lagen schriftliche Einverständniserklärungen vor. Gewählt wurden als Präsident Herr Thorsten Uthmeier, als Vizepräsident Herr Werner Müller, als Schriftführer Herr Andreas Maier, als

Schatzmeisterin Frau Mara-Julia Weber, als Erste Beisitzende Frau Walpurga Antl-Weiser und als Zweiter Beisitzender Herr Michael Baales. Nach der Wahl übernahm der neue Präsident, Herr Thorsten Uthmeier, die Führung der Versammlung. Im Anschluss wurden Frau Doris Döppes, Herr Nicholas Conard, Herr Jürgen Richter, Herr Andreas Pastoors, Frau Elaine Turner, Herr Gerd-Christian Weniger und Herr Ludwig Zöller in ihrem Amt als wissenschaftliche Beiräte bestätigt.

Frau Knipping wünschte, dass dem Programmheft ab dem nächsten Jahr wieder eine Teilnehmerliste mit allen angemeldeten Teilnehmern beigelegt wird, was in dem vorliegenden Heft bereits umgesetzt wurde. Außerdem wurde auf Anfrage von Herrn Pasda beschlossen, die Möglichkeit zur Verwaltung wissenschaftlicher Nachlässe unter anderem durch die Archiv-Stelle der FAU prüfen zu lassen.

Für die 57. Jahrestagung lag eine Einladung von Prof. Nicholas Conard PhD. (Universität Tübingen) vor, welche die Gesellschaft dankend angenommen hat. Die kommende Tagung wird vom 7.-11. April 2015 in Heidenheim an der Brenz stattfinden. Die Versammlung schloss um 19.00 Uhr.

Exkursionen

Am ersten Exkursionstag, dem 25. April 2015, führten vor allem Prof. Dr. Schwalb, Dr. Tolksdorf und Dr. Stephan Veil zu Fundplätzen im Hannoverschen Wendland. Der erste Exkursionspunkt, die ehemaligen Kiesgrube von Lübbow, wurde allerdings von Dr. Leif Steguweit erläutert, der mit einer Magisterarbeit über diesen wichtigen Fundpunkt des frühen Mittelpaläolithikums seine akademische Laufbahn begonnen hat. Das durch eine Levallois-Komponente gekennzeichnete Inventar konnte durch stratigraphische Anhaltspunkte in einen älteren Teil des Saale-Komplexes noch vor der Drenthe-Vereisung datiert werden. Ebenfalls in das Mittelpaläolithikum, jedoch in einen späten Abschnitt nach dem 1. Kältemaximum der letzten Kaltzeit, werden die Funde der Freilandfundstelle Lichtenberg gestellt (Abb. 1). Stephan Veil, der die damaligen Ausgrabungen durchgeführt und die Steinartefakte ausgewertet hat, betonte die Zugehörigkeit der zuweilen äußerst ästhetischen, da symmetrisch und flach gearbeiteten Biface-Geräte, unter denen sich eine Reihe von Keilmessern befinden, zu den „Keilmessergruppen“ bzw. dem Micoquien. Auch am nachmittäglichen Exkursionspunkt Grabow/Weitsche erfolgte die Führung vor Ort durch Dr. Stephan Veil, der – wie an den anderen Punkten auch – durch Prof. Dr. Schwalb und Dr. Tolksdorf und ihren sehr spannenden Ausführungen zur Geologie, Geomorphologie sowie der Landschafts- und Vegetationsgeschichte tatkräftig und kompetent unterstützt wurde (Abb. 2). Archäologisch handelt es sich trotz der unterschiedlichen Flurnamen um ein Fundareal mit mehreren Fundkonzentrationen, von denen eines – Weitsche 1 – die inzwischen berühmt gewordene Bernstein-Statuette eines Elches geliefert hat. Mit einem absoluten Alter von etwa 14.000 Jahren ist es die älteste figürliche Darstellung Nordeuropas. Die vielen Oberflächenbegehungen und Sondagen erbrachten neben den Funden von Weitsche auch die Erkenntnis, dass in den Rinnensedimenten von Grabow (Abb. 3) die Erhaltungsbedingungen weitaus besser sind als in Weitsche. Von hier stammen weitere, ebenfalls spätpaläolithische Steinartefakte und weitere Bernsteinsplitter aus der Perlenproduktion, die in der Umgebung von kleinen, unscheinbaren, muldenförmigen Feuerstellen gefunden wurden.

Am Morgen des 26. April 2015, dem zweiten Exkursionstag, stand als erster Punkt die oft auch irrtümlich als „Schwedenschanze“ bezeichnete spätbronzezeitliche Ringwallanlage von Isingerode auf dem Programm. Keramik- und Bronzefunde datieren die große Anlage, die nur als zentraler Ort verstanden werden kann, in die Lausitzer Kultur. Die seit 2006 durch die Freunde der Archäologie im Braunschweiger Land (FABL) unter der Leitung von Wolf-Dieter Steinmetz M.A., der auch die Führung übernommen hatte, ergrabenen Befunde werden durch geomagnetische und luftbildarchäologische Untersuchungen ergänzt und belegen die wechselvolle Geschichte der eindrucksvollen Anlage (Abb. 4). Nicht weniger eindrucksvoll war die Führung durch Ralf Niebelbrock M.A. und Dr. Felix Hillgruber in der Einhornhöhle und ihrer näheren Umgebung. In der vergleichsweise großen Tunnelhöhle begannen systematische archäologische Grabungen nach Vorarbeiten durch Rudolph Virchow und Karl-Jacob Friesen mit den Tätigkeiten von Ralf Niebelbrock, der erstmals

paläolithische Steinartefakte nachweisen konnte, sowie von S. Veil, J. Hahn und A. Scheer. In jüngster Zeit wurde, wie F. Hillgruber im Gelände demonstrierte, durch Sondageschnitte im Umfeld der Höhle versucht, weitere Eingänge zum Höhleninneren zu lokalisieren (Abb. 5). Nach dem Verzehr einer hausgemachten Erbsensuppe in der Restauration der Einhornhöhle erfolgte mit dem Transfer in das Höhlenerlebniszentrum Iberger Tropfsteinhöhle bei Bad Grund eine nochmalige Auseinandersetzung mit der späten Bronzezeit. Während der Phase Hallstatt B wurden in fünf flachen, nur kriechend zu erreichenden Kammern etwa 70 Personen teils primär, überwiegend jedoch sekundär bestattet. Wie Dr. Stefan Flindt erläuterte, konnten aufgrund der hervorragenden Erhaltungsbedingungen die Verwandtschaftsbeziehungen der bestattenden Gemeinschaft mittels genetischer Analyse weitestgehend geklärt und als eine einzige Großfamilie identifiziert werden. Den informativen Abschluss des offiziellen Tagungsprogramms bildete der Besuch im Städtischen Museum Schloss Salder in Salzgitter, wo die Funde der mittelpaläolithischen Fundstelle Salzgitter Lebenstedt als wichtiger Bestandteil der Dauerausstellung zu sehen sind. Parallel dazu und in thematischer Ergänzung zum Ausstellungsthema "50.000 Jahre Leben in Salzgitter" hat das Museum seit dem Jahr 2006 auf nahezu 2000 Quadratmetern im Außengelände die damalige eiszeitliche Vegetation, wie sie sich aus den reichhaltigen botanischen Resten in den Feuchtsedimenten des archäologischen Fundplatzes ergeben, rekonstruiert (Abb. 6). Abschließend kann festgehalten werden, dass die 56. Jahrestagung der Gesellschaft ein voller Erfolg gewesen ist. Neben den weiterhin hohen Teilnehmerzahlen war die zahlenmäßig hohe aktive Teilnahme von nationalen wie internationalen Forscherinnen und Forschern am Vortrags- und Posterprogramm erfreulich. Aufgrund der zahlreichen ausländischen Teilnehmerinnen und Teilnehmern waren zudem viele Beiträge auf Englisch, was sicherlich weiterhin zur der – ja bereits traditionellen und in der Vergangenheit bereits über viele erfolgreich umgesetzten – Internationalisierung beiträgt. Schließlich ist nochmals all denjenigen, die an dem Gelingen der Tagung beteiligt gewesen sind, herzlichst zu danken.

✉ Thorsten Uthmeier, Andreas Maier, Hugo Obermaier-Gesellschaft c/o Institut für Ur- und Frühgeschichte, Universität Erlangen, Kochstr. 4/18, 91054 Erlangen



Abb. 1: Leif Steguweit (links) und Stephan Veil (2. von links) am mittelpaläolithischen Fundplatz Lichtenberg



Abb. 2: Einführung in die Fundlandschaft um Weitsche/Grabow durch Stephan Veil



Abb. 3: Erläuterungen am spätpaläolithischen Fundplatz Grabow



Abb. 4: Ralf Nielbrock (vorne) und Felix Hillgruber (hinten) an einem der Schnitte im potentiellen originalen Eingangsbereich der Einhornhöhle

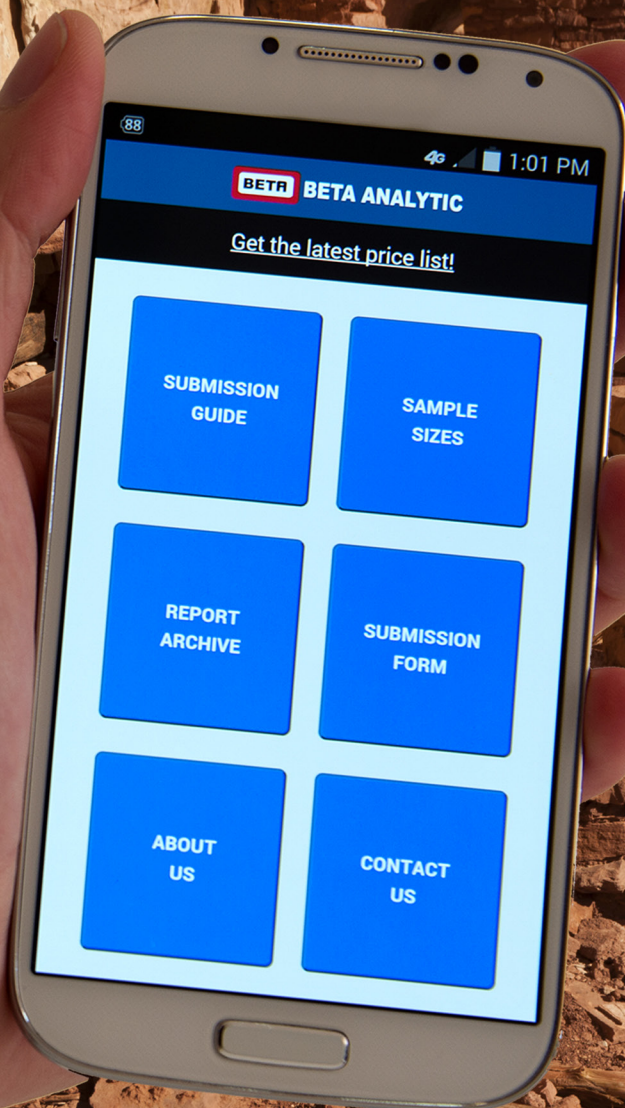


Abb. 5: Wolf-Dieter Steinmetz auf der Grabung der spätbronzezeitlichen Ringwallanlage von Isingerode



Abb. 6: Im Eiszeitgarten des Städtischen Museums Schloss Salder in Salzgitter

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