



HUGO OBERMAIER SOCIETY

for Quaternary Research and Archaeology of the Stone Age

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DEPT. OF ARCHAEOLOGY AND HERITAGE STUDIES, AARHUS UNIVERSITY
MOESGAARD MUSEUM



64th Annual Meeting in Aarhus

April 11th – 15th 2023

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



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In cooperation with



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Venue map for the conference with the location of the three separate venues: AIAS (Aarhus Institute of Advanced Studies, Aarhus University, Høgh-Guldbergs Gade 6B, 8000 Aarhus C, Building 1630.1632, Auditorium (201) and The Hall (101), Moesgaard Museum (Auditorium, Moesgaard Museum, Moesgård Allé 15, 8270 Højbjerg) and the Dinner venue (Spiselaugset, Skovgaardsgade 3, 8000 Aarhus C). A) A macro view of the Aarhus area showing the three venues. B) The center of Aarhus with both AIAS and the dinner venue. C) The AIAS venue. D) The Moesgaard Museum venue. ©Google Maps 2023.

Program Overview

Tue, April 11th, 2023

*Auditorium (201) and The Hall (101), Aarhus Institute of Advanced Studies (AIAS)
Aarhus University, Høegh-Guldbergs Gade 6B, 8000 Aarhus*

- 12:00 Opening of the conference office at the Aarhus Institute of Advanced Studies
- 13:30 Beginning of the meeting, welcome by our hosts and the president of the
 Hugo Obermaier Society
- 14:00 – 17:20 Presentations (Coffee break: 15:40 – 16:00)
- 17:30 – 18:30 Poster session I
- 18:30 Evening reception

Wed, April 12th, 2023

Auditorium, Moesgaard Museum, Moesgård Allé 15, 8270 Højbjerg
!!! Moesgaard Museum is located 10km south of the city centre !!!

- 09:00 – 12:00 Presentations (Coffee break: 10:40 – 11:00)
- 12:00 – 13:00 Lunch break
- 13:00 – 16:20 Presentations (Coffee break: 15:00 – 15:20)
- 17:00 Evening lecture by Dr. Trine K. Nielsen
 (Moesgaard Museum / Aarhus University):
 Searching for hominins along their northern extremes –
 a Fennoscandinavian perspective

- 19:30 Conference Dinner at Spiselaugget (<https://foodfamilygroup.dk/spiselaugget>)

Thu, April 13th, 2023

*Auditorium (201) and The Hall (101), Aarhus Institute of Advanced Studies (AIAS) Aarhus
University, Høegh-Guldbergs Gade 6B, 8000 Aarhus*

- 09:00 – 10:00 Poster session II
- 10:00 – 13:00 Presentations (Coffee break: 11:20 – 11:40)
- 13:00 – 14:00 Lunch break
- 14:00 – 18:00 Presentations (Coffee break: 15:40 – 16:00)
- 18:30 General Assembly
- 20:30 Get-together

Fri, April 14th, 2023, Excursion A:

(probably 08:30 – 16:30)
The Archaeology of Djursland – bus tour

Sat, April 15th, 2023, Excursion B:

(probably 10:00 – 18:00)
Museums in Aarhus: Moesgaard Museum / Den Gamle By

Detailed Program

Tuesday, April 11th, 2023

- 12:00** Opening of the conference office at the Aarhus Institute of Advanced Studies
- 13:30** Beginning of the meeting, welcome by our hosts and the president of the Hugo Obermaier Society
- 14:00 – 17:20** **Presentations on the Lower and Middle Palaeolithic**
- 14:00 – 14:20** *Diego Lombao, Juan Ignacio Morales, Marina Mosquera, Andreu Ollé, Palmira Saladié & Josep Vallverdú*
Technological innovations and continuities at the Early Acheulean assemblage of El Barranc de la Boella (La Canonja, Spain)
- 14:20 – 14:40** *Berrin Çep & Yvonne Tafelmaier*
Middle Pleistocene technological behaviour as viewed from the travertine site Cannstatt "Bunker" (Southwest Germany)
- 14:40 – 15:00** *Giulia Marciani, Simona Arrighi, Sara Silvestrini, Katerina Harvati, Stefano Benazzi & Fabio Negrino*
Preliminary notes on the Middle Palaeolithic laminar lithic assemblage of Via San Francesco, Italy
- 15:00 – 15:20** *Francesca Romagnoli, Magda Ciesla, Paraskevi Elefanti, Dusan Mihailovic, Telmo Pereira, Damian Stefański, Paweł Valde-Nowak, Nikola Vukosaoljevi & Zsolt Mester*
On Microliths in Middle Palaeolithic: Start from scratch. Discussing problems and perspectives looking at shared taxonomies
- 15:20 – 15:40** *Elena T. Moos, Gregor D. Bader & Manuel Will*
Knapping Attributes of Dolerite: An experimental investigation of knapping characteristics of South African dolerite and implications for the interpretation of Middle Stone Age technologies
- 15:40 – 16:00** **Coffee break**
- 16:00 – 16:20** *M. Gema Chacón, Juan Ignacio Morales, Hassan Aouraghe, Diego Lombao, Antoni Canals-Salomó, Sandra Bañuls-Cardona, Carlos Tornero, Alfonso Benito-Calvo, Elena Moreno-Ribas, María Soto, Celia Díez-Canseco, Gala García-Argudo, Hamid Haddoumi, Antonio Rodríguez-Hidalgo, Hicham Mhamdi, Mohamed Souhir, Mourad Farkouch, Martina Demuro, Lee Arnold, Ibrahim Embarki, Jeema Amakrane, Abdellah Tsouli, Mustapha Alilich, Aïcha Oujaa, Jan van der Made & Robert Sala-Ramos*
Tahya 3: A new open-air site and its significance for the Middle Stone Age in Eastern Morocco
- 16:20 – 16:40** *Marco Romboni, Jacopo Gennai, Giovanni Boschian, Sergio Tofanelli & Damiano Marchi*
Late Neanderthals and their environment in northwestern Tuscany: news from Buca del Tasso

- 16:40 – 17:00** *Mario Mata-González, Britt M. Starkovich, Mohsen Zeidi & Nicholas J. Conard*
Middle Paleolithic Subsistence Strategies at Ghar-e Boof (Southern Zagros Mountains, Iran)
- 17:00 - 17:20** *Anna Riethus, Bärbel Auffermann & Gianpiero Di Maida*
A joint digital archive for Neanderthal research
- 17:30 – 18:30** **Poster session I**
- 18:30** **Evening reception**

Wednesday, April 12th 2023

- 09:00 – 12:00** **Presentations on the analysis of faunal remains**
- 09:00 – 09:20** *Matthias Tschuch & Françoise Chaput*
Steinsfeld-Endsee, a new Palaeolithic site from the Franconian Gipskeuper Land
- 09:20 – 09:40** *Kerstin Pasda, Lilian Reiss, Norbert Buchinger, Thomas Einwögerer, Marc Händel, Andreas Lücke, Andreas Maier, Holger Wissel & Christoph Mayr*
Comparisons of animal species composition and their isotopes in Lower Austrian early Gravettian and Epigravettian sites evidence palaeoenvironmental and settlement changes
- 09:40 – 10:00** *Elisa Luzi, Angel Blanco-Lapaz, Jeanne Geiling & Nicholas J. Conard*
Revision of the small mammal assemblages of Hohle Fels Hütten and Schmiechenfels (Swabian Jura, Germany)
- 10:00 – 10:20** *Yvonne Tafelmaier, Chris Baumann, Claus-Joachim Kind, Gerd Albrecht & Susanne C. Münzel*
People and dogs? – The cultural context of the Gnirshöhle canids (SW-Germany)
- 10:20 – 10:40** *Werner Müller & Clemens Pasda*
More on the Magdalenian in Thuringia – A re-investigation of the faunal remains from Teufelsbrücke
- 10:40 – 11:00** **Coffee break**
- 11:00 – 11:20** *Angel Blanco-Lapaz, Jeanne Geiling, Elisa Luzi, Britt M. Starkovich & Nicholas J. Conard*
Exploring the role of fish in the Schmiech Valley (Swabian Jura) during the Magdalenian
- 11:20 – 11:40** *Paulo Duñó-Iglesias, Jordi Nadal, Lluís Lloveras & Florent Rivals*
Ungulates seasonality and Epipaleolithic hunter-gatherer mobility at Balma del Gai (north-east Iberia): A tooth wear analysis

- 11:40 - 12:00** *Yvonne Tafelmaier, Thomas Beutelspacher, Matthias Blessing, Hannah Huber, Elisa Luzi, Giulia Toniato & Claus-Joachim Kind*
Kohlhau-Abri (SW-Germany) – archaeological and palaeoecological investigations at a newly discovered rock-shelter site
- 12:00 – 13:00** **Lunch break**
- 13:00 – 16:20** **Presentations on "Going to extremes – hominin lives at ecological margins"**
- 13:00 - 13:20** *Mara-Julia Weber, Sönke Hartz, Hauke Jürgens, Dirk Leder, Trine Kellberg Nielsen, Martin Segschneider & Marcel Weiss*
Neanderthals at the northern margins – The Middle Palaeolithic site Drelsdorf (Schleswig-Holstein, Germany)
- 13:20 - 13:40** *Sarah Pederzani, Kate Britton, Manuel Trost, Helen Fewlass, Nicolas Bourgon, Jeremy McCormack, Holger Dietl, Hans-Jürgen Döhle, Klervia Jaouen, André Kirchner, Tobias Lauer, Shannon McPherron, Harald Meller, Jörg Orschiedt, H el ene Rougier, Tim Sch uler, Geoff M. Smith, Sahra Talamo, Thomas T utken, Marcel Weiss & Jean-Jacques Hublin*
A multi-isotope record of climate and ecosystem change during the Middle to Upper Palaeolithic transition at Ranis Ilsenh hle, Germany
- 13:40 – 14:00** *Ralf Vogelsang, G tz Ossendorf & Minassie Girma Tekelemariam*
Living the high life! Prehistoric occupation of high-altitude environments in Ethiopia
- 14:00 – 14:20** *Alvaro Arrizabalaga, Aitor Calvo, Miguel  ngel Berj n, Aitor S nchez & Mar a Jos  Iriarte-Chiapusso*
Raising the barriers. The Upper Ebro Valley (northern Iberian Peninsula): from "ecological margin" to territory of passage and settlement during the Upper Palaeolithic
- 14:20 – 14:40** *Andreas Maier, Isabell Schmidt, Birgit Gehlen, Katja Winkler, Alvaro Arrizabalaga, Nico Arts, Nuno Bicho, Philippe Cromb , Berit Valentin Eriksen, Sonja B. Grimm, Katarina Kapustka, Mathieu Langlais, Ludovic Mevel, Nicolas Naudinot, Zdeňka Nerudov , Marcel Niekus, Marco Peresani, Felix Riede, Florian Sauer, Werner Sch n, Iwona Sobkowiak-Tabaka, Hans Vandendriessche, Mara-Julia Weber, Annabell Zander & Andreas Zimmermann*
Move or stay put – Two distinct metapopulation responses to environmental degradation during the Gravettian and Late Palaeolithic at their ecological margins
- 14:40 – 15:00** *Sebastian J. Pfeifer*
The working of hard animal tissues during the Last Glacial Maximum at Cosauți site (Republic of Moldova) – local idiosyncrasy or part of the bigger picture?
- 15:00 – 15:20** **Coffee break**

- 15:20 – 15:40** *Jesper Borre Pedersen, Jakob Johann Assmann, Signe Normand, Dirk Nikolaus Karger, Andreas Maier & Felix Riede*
Beyond the threshold – climate niche modelling reveals how pioneering Hamburgian foragers moved beyond the ecological margins of Late Pleistocene northern Europe
- 15:40 – 16:00** *Morten Ramstad & Tor Arne Waraas*
On the brink of the great Glacier. Langfjelldal, an Alpine Early Mesolithic single unit reindeer camp in Western Norway
- 16:00 – 16:20** *Morten Ramstad & Tor Arne Waraas*
Fetegga, Alpine Late Mesolithic Reindeer Hunting Expeditions into the Extreme Margins
- 17:00** **Evening lecture by Dr. Trine K. Nielsen (Moesgaard Museum/AU):**
Searching for hominins along their northern extremes – a Fennoscandinavian perspective
- 19:30** **Conference Dinner**

Thursday, April 13th 2023

- 09:00 – 10:00** **Poster session II**
- 10:00 – 13:00** **Presentations on mixed topics and Upper Palaeolithic**
- 10:00 – 10:20** *Robin John, Florian Linsel, Hubert Mara, Georg Roth, Isabell Schmidt & Andreas Maier*
PyREnArA – Spatio-temporal analysis of artefact morphology with multivariate approaches
- 10:20 – 10:40** *Sonja Rigterink, Xuan Li, Michael Hein, Tobias Lauer, Brigitte Urban, Marcel Weiss, David Colin Tanner & Antje Schwalb*
Paleotemperature development during the Eemian Interglacial at Lichtenberg, Northern Germany, inferred from a subfossil chironomid record
- 10:40 – 11:00** *Alejandro Prieto, Aitor Calvo, Erich Claßen, Wolfgang Heuschen, Volker Kuhlmann, Thorsten Uthmeier & Andreas Pastoors*
“Tertiary quartzite” exploitation by Middle Palaeolithic societies in the Lower-Middle Rhine Valley. A geoarchaeological approach to stone procurement and management strategies
- 11:00 – 11:20** *Senka Plavšić Gogić, Sofija Dragosavac, Predrag Radović, Tamara Dogandžić, Bojana Mihailović & Dušan Mihailović*
Settlement patterns in the Balkan Peninsula during MIS 3
- 11:20 – 11:40** **Coffee break**

- 11:40 – 12:00** *Tjaark Siemssen & Andreas Maier*
Riverbank meander – An agent-based model of Late Upper Palaeolithic and Late Palaeolithic water-oriented land-use decisions in the Middle Rhine Valley
- 12:00 – 12:20** *William Mills*
Doggerland, perspectives from the Eastern Hills: the evidence, challenges and attractions when crossing this dynamic landscape
- 12:20 – 12:40** *Marcel Bradtmöller, Marcel El-Kassem, Arantzazu Jindriska Pérez Fernández, Christoph Schmidt, Felix Henselowsky, Stefan Hecht & Olaf Bubbenzer*
Living and working on the slope - News from the Middle- and Upper Paleolithic open air site Feldberg "Steinacker"
- 12:40 – 13:00** *Katarzyna Pyżewicz & Witold Grużdź*
Reinvestigation of the Aurignacian assemblages from Góra Puławska – a microscopic and experimental approach
- 13:00 – 14:00** **Lunch Break**
- 14:00 – 18:00** **Presentations on the Upper/ Late Palaeolithic and Mesolithic**
- 14:00 – 14:20** *Guido Bataille, Hannah Huber & Nicholas J. Conard*
New lithic studies of AH IIIb of Hohle Fels Cave in the light of the technological and functional variability of the Aurignacian in the Swabian Jura (southwestern Germany)
- 14:20 – 14:40** *Jacopo Gennai*
Follow the river: the Pontecosi Upper Palaeolithic site in NW Tuscany (Italy)
- 14:40 – 15:00** *Aitor Calvo & Thorsten Uthmeier*
Acquisition and technological management of lithic resources during the Upper Palaeolithic in the Altmühl Valley: the case of the Abri I im Dorf (Neu-Essing, Bavaria, Germany)
- 15:00 – 15:20** *Philip R. Nigst, Stéphane Pirson, William Davies, Samuel Kasemann, William Chase Murphree, Bence T. Viola, Walpurga Antl-Weiser & Marjolein D. Bosch*
New fieldwork at Grub-Kranawetberg (Austria): New insights on spatial extent, stratigraphy and chronology
- 15:20 – 15:40** *Małgorzata Kot, Claudio Berto, Greta Brancaleoni, Adrian Marciszak & Aleksandra Kropczyk*
What happened in MIS 3 stays in MIS 3. Traces of the very last Epiaurignacian hunters in Pod Oknem Cave, Southern Poland.
- 15:40 – 16:00** **Coffee break**
- 16:00 – 16:20** *Hannah Stephanie Parow-Souchon, Thomas Einwögerer, Marc Händel & Norbert Buchinger*
Site use and organization of space at Kammern-Grubgraben

- 16:20 – 16:40** *Jeanne Marie Geiling, Ana B. Marín-Arroyo, Manuel R. González Morales & Lawrence Guy Straus*
Lower Magdalenian Human occupations of the montane site El Mirón (Cantabria, Spain)
- 16:40 – 17:00** *Zdeňka Nerudová, Petr Neruda, Lenka Lisá, Zdeněk Vaněček, Nela Doláková, Antonín Přichystal, Katarzyna Pyżewicz, Piotr Moska, Tomasz Goszlar & Ivo Světlík*
Hošťálkovice II – Hladový vrch (Ostrava, Czech Republic) – New Results of the Archaeological Excavation (the Magdalenian Horizon)
- 17:00 – 17:20** *Marcel Schemmel*
An intrasite analysis of the Magdalenian site of Bad Kösen-Lengefeld (Saxony-Anhalt)
- 17:20 – 17:40** *Anna Krahl*
The finds of Andernach Roonstraße in context of the Late Palaeolithic layers Andernach Martinsberg 2 and 3
- 17:40 – 18:00** *Hannah Huber, Yvonne Tafelmaier & Patrick Schmidt*
Heat treatment of Middle Triassic Chert in the Early Mesolithic at Rottenburg-Siebenlinden
- 18:30** **General Assembly**
- 20:30** **Get-together**

Poster session I

Cristina López-Tascón, Carlos Mazo Pérez & Marco de la Rasilla Vives
Carinated endscrapers, cores or vice versa?: Analysis of Aurignacian artefacts from La Viña rock shelter (Asturias, Spain)

Peter Yaworsky, Shumon T. Hussain & Felix Riede
The Human Niche Space of Late Upper Paleolithic Europe

Guido Bataille & Yvonne Tafelmaier
Nach dem Spiel ist vor dem Spiel - New Palaeolithic field projects in the Ach Valley in the Swabian Jura (southwestern Germany)

Rebecca Gnau & Jürgen Richter
High-resolution analysis of the central hearth at the Magdalenian site of Bad Kösen-Lengefeld

Tom Noack & Andreas Maier
Three-dimensional visualization and analysis of the stratigraphy at the Blätterhöhle entrance area

Dennis Thomas Batz & Jürgen Richter
The Magdalenian open-air site of Bad Kösen-Lengefeld faces its final field season – overview and outlook

José Ramón Rabuñal, María Soto, Juan Ignacio Morales, Diego Lombao, Miguel Soares-Remiseiro, Juan Luis Fernández-Marchena, Gala García-Argudo, Felix Riede & Josep Vallverdú
The Late Glacial sequence of Cova de Les Borres and the emergence of Epipalaeolithic geometric microliths in Eastern Iberia

Diego Lombao & Armando Falcucci
Blade and Bladelet Cores in the Protoaurignacian: A New Method for Measuring Reduction Intensity

Robin John
Just the tip of the Iceberg? An in-depth investigation of lithic projectile morphology during the Upper Paleolithic in Europe

Helena Dalager, Sofie F. Hellerøe, Shumon T. Hussain & Felix Riede
New finds and insights from islands at the edge of the world – did stranded whales attract Final Palaeolithic foragers to northern Jutland during the Allerød?

Felix Riede, Isobel Wisher & Ester Oras
Revisiting the Final Palaeolithic site of Mühlheim-Dietesheim (Hessen, Germany)

Keiko Kitagawa, Daniel Burger-Völlmecke & Felix Riede
Paleolithic occupations in the Lahn Valley of Central Germany: New Dates from Wildscheuer and Wildweiberlei

Florian Sauer & Joel Orrin
CoDEx 2022: Cologne Digital Excavation protocol. Latest advances and experiences

Christian Marzinke, Marcel Bradtmöller, Harald Lübke & Joao Marreiros
Use-wear analysis on Objects from the Ertebølle site „Timmendorf-Nordmole I“

Thijs Karens, A.G. Henry & V. Fogliano
Foods from the Forest: A Nutritional Analysis of Wild Plant Foods Used by the Baka Forager-Horticulturalists in Southeastern Cameroon

Viktoria Fries, Janos Puschmann, Jürgen Richter, Andreas Maier & Patrick Roberts
Isotope analysis of animal teeth from the Magdalenian site of Bad Kösen-Lengefeld

Jeanne Marie Geiling, Angel Blanco-Lapaz, Elisa Luzi & Nicholas J. Conard
Revisiting the Schmiech Valley (Swabian Jura): new taphonomic faunal studies of Magdalenian occupations in Hohle Fels Hütten and Schmiechenfels

Poster session II

Giulia Toniato & Yvonne Tafelmaier
From the Magdalenian to the Early Mesolithic: reconstructing palaeoenvironmental changes and human activities through macrofaunal remains at Kohlhau-Abri, southwestern Germany

Guillaume Berton, Cláudia Costa, João Cascalheira & Nuno Bicho
Lion (*Panthera leo* ssp.) in European Upper Palaeolithic: insights from Vale Boi assemblage

Leonor Filipe, Anna Rufà, Joana Belmiro, João Cascalheira & Célia Gonçalves
Interpreting fire structure use through mammal remains: preliminary results from the Cabeço da Amoreira shell midden

Florian Gumboldt, Jürgen Richter, Andreas Maier & Carsten Münker
Isotopic analysis of faunal remains from Neanderthal sites in central and southern Germany – an outlook

Shumon Hussain & Nathalie Ø. Brusgaard
Human-Beaver Relations in the Early and Mid-Holocene of Northern Europe: Revisiting the Mesolithic through the Lens of Multispecies Affordances

Cristian Micó Sanchis, Felipe Cuartero, Javier Llamazares, Pablo Sañudo, Luis Zalbideia, Florent Rivals & Ruth Blasco
Testing the effectiveness of horse teeth as retouchers: a preliminary characterisation of the use wear traces

Valentina Lubrano, Ruth Blasco, Florent Rivals, Jordi Rosell & Anna Rufà
How to identify standards of Neanderthal short-term occupations in cave environments? Zooarchaeological and taphonomic preliminary results of Teixoneres Cave unit III

Lisa Bauer, Merlin Hattermann, Marcel Bradtmöller, Marcel El-Kassem & João Marreiros
Blanks and chunks - analysis of the lithic assemblage of the Middle to Upper Paleolithic site of Feldberg "Steinacker"

Lisa Schunk, Marcel Weiss & Andrzej Wiśniewski
Early human occupation of Central Europe: Reassessing Racibórz Studzienna 2 - a Middle Pleistocene site in the Oder River Valley, Poland

Emil Schou Nielsen, Trine Kellberg Nielsen & Søren Munch Kristiansen
Exploring Interglacial Deposits in the South-Western Region of Jutland, Denmark: Uncovering Archives of Human Activity and Environmental

Mikel Díaz-Rodríguez, Felix Riede & Trine Kellberg Nielsen
Comparing spatio-temporal dynamics of Neanderthals and Anatomically Modern Humans in the Cantabrian Region of the Iberian Peninsula

Mikel Díaz-Rodríguez, Arturo de Lombera-Hermida, Xosé Pedro Rodríguez-Álvarez, Ramón Fábregas-Valcarce, Hugo Bal-García, Tania Mosquera-Castro & Xes Aldea-Moreiraz
Decoding the Middle/Upper Palaeolithic Transition in NW Iberia: Insights from the site of Cova Eirós

Amelia Bargallo, M. Gema Chacón, Francesca Romagnoli, Bruno Gómez de Soler, Juan Ignacio Martín-Viveros, Manuel Vaquero, Palmira Saladié & Josep Vallverdú
Identifying Neanderthals knappers in the Abric Romani rockshelter

Antje Schwalb, Thomas Terberger, Felix Bittmann, Gianpiero Di Maida, Katharina Dulias, Michael Hein, Deepak Kumar, Tobias Lauer, Dirk Leder, Falko Malis, Neda Rahimzadeh, David C. Tanner, Martin Theuerkauf, Sumiko Tsukamoto, Brigitte Urban, Sebastian Wagner, Jutta Winsemann & Marcel Weiss
Climate Change and Early Humans in the North

Ella Quante, Peter Frenzel & Anna Pint
Nonmarine Ostracoda as proxies in Geoarchaeology

Andrzej Wiśniewski, Milena Różycka & Lisa Schunk
In search of a better method to distinguish artefacts from geofacts

Hannah Rausch, Ottmar Kullmer, Joao Marreiros, Lisa Schunk, Walter Gneisinger & Ivan Calandra
An experimental approach on dynamic Occlusal Fingerprint Analysis to simulate use-wear development and localisation on Palaeolithic stone tools

Maier, A., Stojakowits, P., Mayr, C., Pfeifer, S., Preusser, F., Zolitschka, B., Anghelinu, M., Bobak, D., Duprat-Oualid, F., Einwögerer, T., Hambach, U., Händel, M., Kaminská, M., Kämpf, L., Łanczont, M., Lehmkuhl, F., Ludwig, P., Magyari, E., Mroczek, P., Nemergut, A., Nerudová, Z., Niță, L., Polanská, M., Połtowicz-Bobak, M., Rius, D., Römer, W., Simon, U., Škrdla, P., Újvári, G. & Veres, D. (2021b). Cultural evolution and environmental change in Central Europe between 40 and 15 ka. *Quaternary International* 581-582: 225-240.

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Settlement patterns in the Balkan Peninsula during MIS 3

The Marine Isotope Stage 3 (MIS 3) is characterized by significant climatic changes associated with abrupt atmospheric shifts over Greenland (Dansgaard-Oeschger events) and episodes of massive iceberg discharge into the North Atlantic (Heinrich events), enhancing cold and dry conditions at mid-to-low latitudes. The extreme conditions and fluctuating climatic and environmental conditions of Marine Isotope Stage 3 significantly affected many aspects of the lives of prehistoric populations, including settlement and mobility patterns. Many ethnographic studies show that settlement and mobility patterns are conditioned by numerous factors such as climate conditions, terrain morphology, group preferences, animal behavior, resource availability, etc. Although the Balkan peninsula has been characterized as a refugial region, hominine populations could still be affected by the unstable conditions of Marine Isotope Stage 3. With extensive research conducted during the last few decades in the Balkan peninsula, available data shows mostly diverse practiced settlement models during MIS 3.

This study aims to examine settlement and mobility patterns of the hominine groups during Marine Isotope Stage 3 on the Balkan peninsula with a specific accent on the factors that could have influenced them. The study is based on published data from the Middle and Upper Paleolithic sites in the Balkan peninsula, dated to Marine Isotope Stage 3. We consider several parameters to assess the settlement and mobility patterns of the hunter-gatherer groups. Two analyses have been conducted: bivariate WABI (Whole assemblage behavior index) and multivariate PCA (Principal component analysis) for the following variables: lithic density, retouched frequency, core, blanks, and chips frequency as well as tool diversity, which are frequently used to assess settlement patterns of prehistoric human populations. Including both Middle and Upper Paleolithic sites, differences in the settlement patterns are inspected between different hominine populations (Neanderthals and Anatomically Modern Humans), climate conditions, and between microregions in which sites are located in.

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“Tertiary quartzite” exploitation by Middle Palaeolithic societies in the Lower-Middle Rhine Valley. A geoarchaeological approach to stone procurement and management strategies

Lithic raw material sourcing is a recurrent topic in Palaeolithic Archaeology thanks to the interesting conclusions they put on the table and which are mainly related to the mobility of objects, and, of course, the people behind them. Furthermore, the characterisation of lithic raw material from geoarchaeological perspectives allow us to profound in the characteristic of the rocks transformed into artefacts by Palaeolithic knappers, to unveil the strategies carried out by humans to manage lithic resources and to propose how rocks were extracted or collected from the Earth surface (Burke 2018).

In this presentation, we will show how the geoarchaeological characterisation of the “Tertiary quartzites” in the Middle-Upper Rhine Valley (Germany) is unveiling how this resource was procured, distributed and managed by Middle Palaeolithic groups, but also particular human actions and adaptative behaviours. The methodology applied was based on the petrological characterisation (thin section and micro-stereoscopic petrography and X-Ray characterisation) of the “Tertiary quartzite” artefacts from the assemblage of Troisdorf-Ravensberg, a Middle Palaeolithic site excavated in 2015 between the cities of Bonn and Cologne and the starting point of this project (Pastoors et al. 2016). In addition, a series of geoarchaeological surveys were performed to geographically localise the natural occurrence of this rock in the region and petrographically characterise its quartzites. Finally, the revision of the lithic assemblages of Ratingen and Kleine Feldhofer Grotte was performed to characterise their quartzite artefacts. The techno-typological analysis of the lithic assemblages of the three aforementioned sites was also performed.

The results are thematically varied and they allow us to comprehensively understand this rock, resource and expression of material culture. Petrologically, “Tertiary quartzites” are more related to silcretes, that is, sedimentary rocks created by the endurance of clastic quartz grains by silica cement, rather than with sensu stricto quartzites, metamorphic rocks (Prieto et al. 2019). In addition, the petrographic characterisation of this rock puts on the table the presence of three types and varieties driven by textural features (mainly). The geoarchaeological surveys suggest that the presence of these “Tertiary quartzites” is restrained to some small occurrences around the site of Troisdorf-Ravensberg and in relationship with landforms associated with water circulation. Nevertheless, due to the changeable environment of the area in the last 50,000 years and the well-documented intensive use of stone for construction purposes (Dettmann 2015), we could not discard their presence in other areas during the Pleistocene. Of course, other quartzites were discovered in the region, but they were less exploited. “Tertiary quartzites” were, therefore, a relevant resource for Middle Palaeolithic societies. They probably quarry these rocks in natural occurrences, like those surrounding Troisdorf-Ravensberg, they moved the material more than 20 kilometres (to the North), and they manage differently the different varieties of the “Tertiary quartzites”. In addition, it seems that these quartzites were also acquired in secondary deposits, together with other lithic resources and applying selective mechanisms. These data put on the table a complex economy articulated around quartzites by Middle Palaeolithic societies in the

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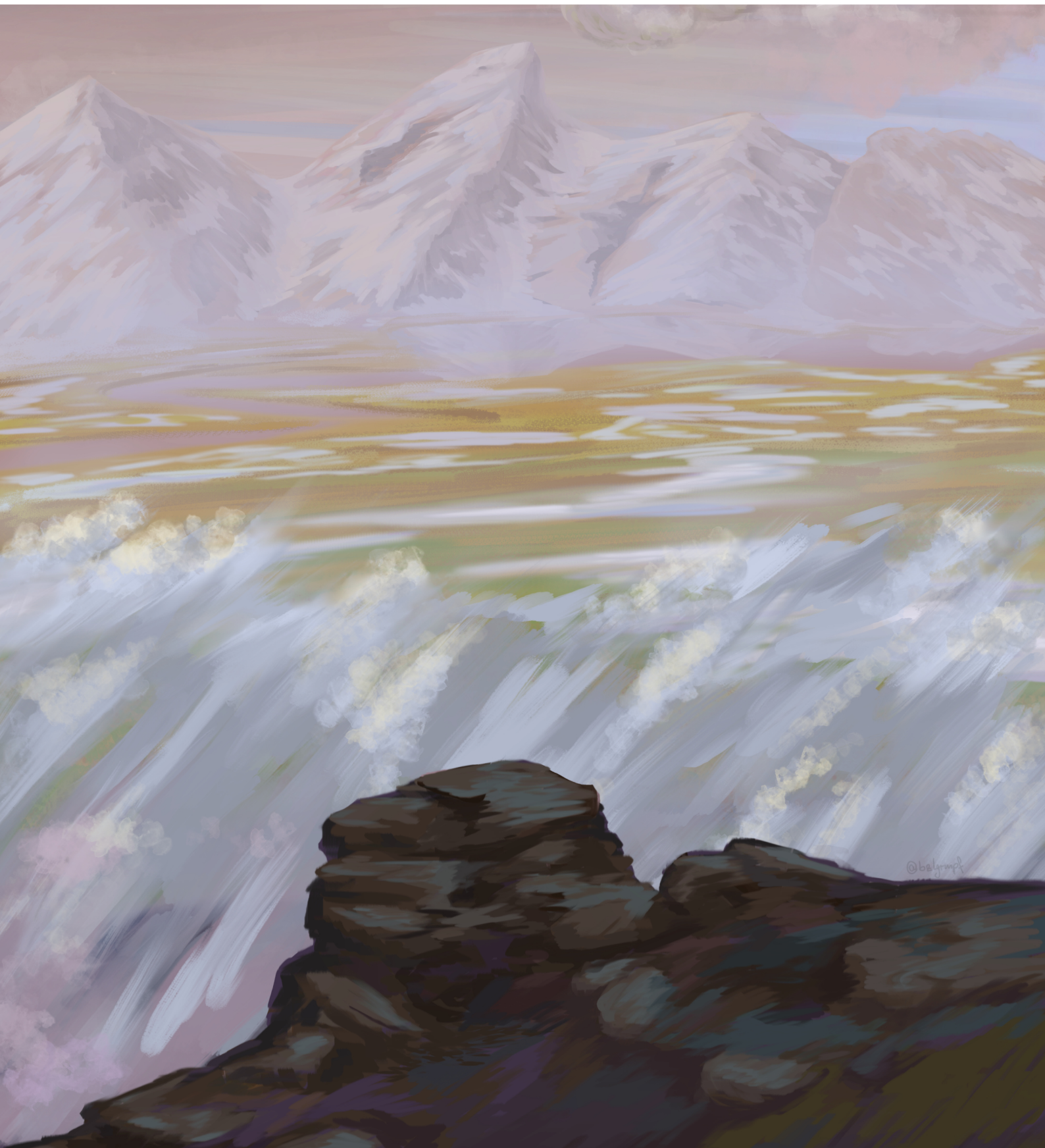
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