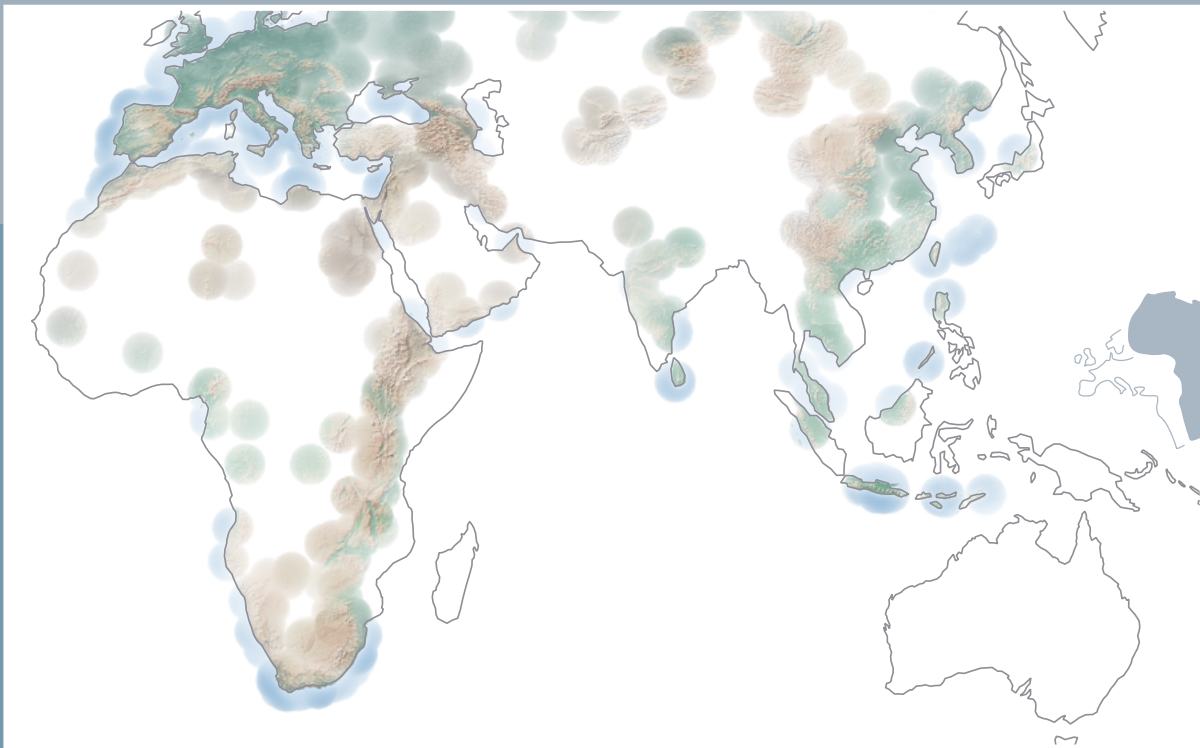


newsletter 23 | 2024

The Role of Culture in Early Expansions of Humans (ROCEEH)



Cover: By putting the pieces of the puzzle together, we see how much of the world is still missing from our view. This map is based on a Kernel Density Estimate of all ROAD assemblages. Sites with higher densities of assemblages appear more intense in color. The blank areas show that the majority of the prehistoric world remains uncharted, despite our intensive focus on data entry. Note that Australia is not within the scope of the database. Map credit: Made with Natural Earth – public domain.



**HEIDELBERGER AKADEMIE
DER WISSENSCHAFTEN**

Akademie der Wissenschaften
des Landes Baden-Württemberg



THE ROLE OF CULTURE IN EARLY EXPANSIONS OF HUMANS

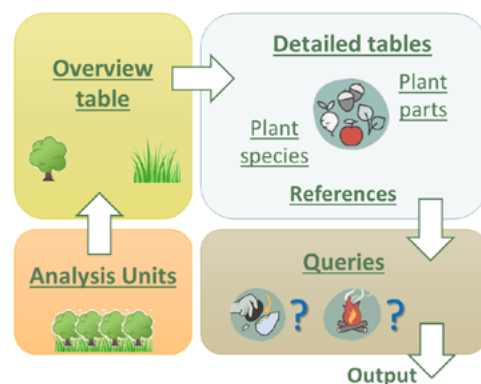
Editorial

In this 23rd newsletter, we report on PlantBITES, a database of plants that were useful to early humans. Next, we explore the remains of a prepared meal from Shanidar Cave in Iraq, which tells us a story about the interaction of Neanderthals with their environment. We describe how the recent discovery of an additional piece of an ivory figurine—which excavators found years ago in Hohle Fels—led to a completely different interpretation. Finally, we present the work of the ROCEEH team about the ROAD database, recently published in the international journal PLOS ONE, and provide a summary of the international conference „Ritual in Human Evolution: Interdisciplinary Perspectives“, which took place in Tübingen in October, 2023.

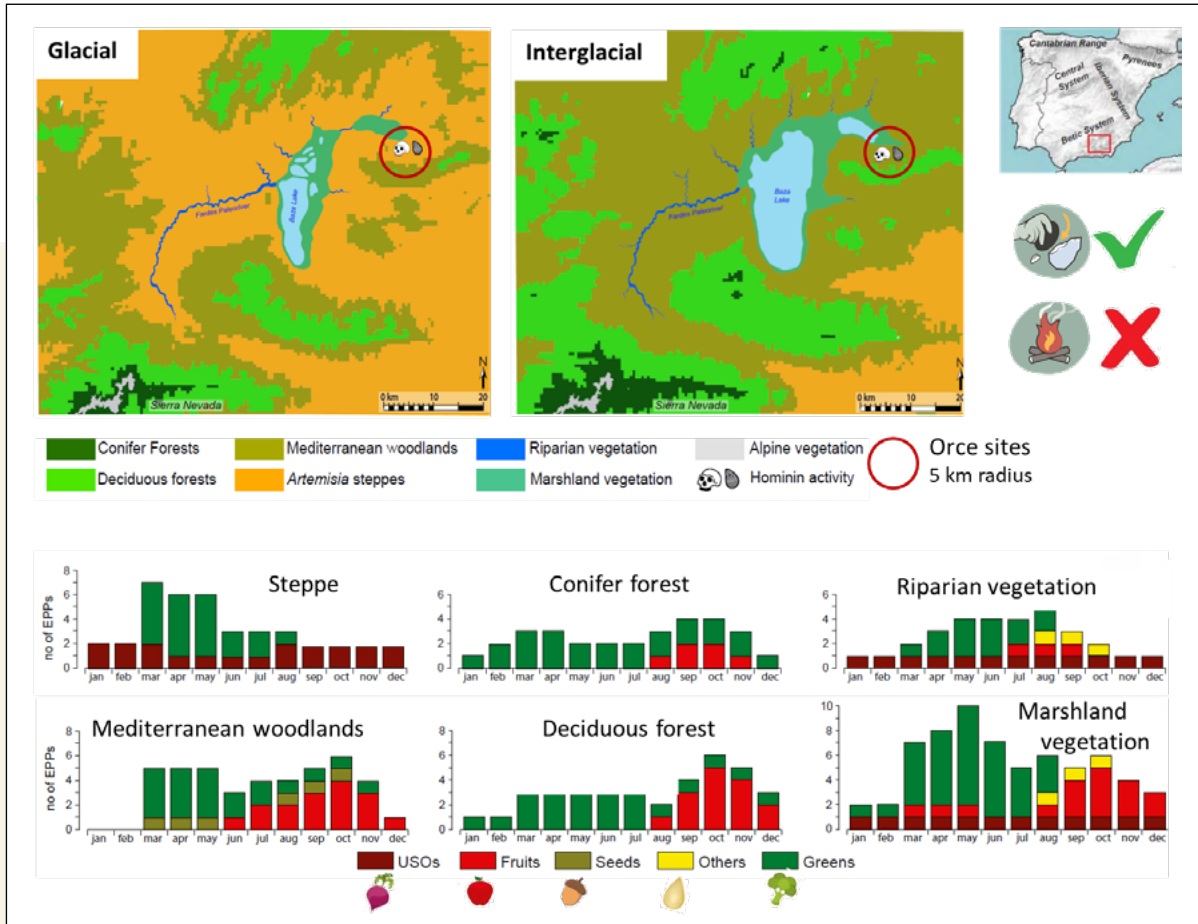
PlantBITES: A database for Plant Resources in Early Human Environments

Studies about possible plant foods and their availability for different groups of early humans usually consider only a pre-selected set of plant species and are often based on the scarce archaeobotanical record. Therefore, we developed the PlantBITES database as a tool to consider the full range of potentially available, dominant plant species in vegetation units. The database serves to assess the amount and variety of obtainable food (and other) resources that were available to early humans. It also examines the necessary techniques for exploitation and use of plant resources. Such data crucially contribute to answer questions about how early humans with different technological abilities could have used plants in different environments.

The database itself consists of different groups of tables that accommodate different levels of information on the vegetation being assessed (Fig. 1). We begin with full taxa lists of the vegetation unit, which we call the “analysis unit”. Each taxon of such a list is researched individually and presented in an overview table which provides basic information on the taxonomy and the usefulness of each plant. Only plants which have a specific use are further considered in more detailed tables. At species level, mainly information about plant traits and habitats is collected, while on the level of plant parts, the information is more detailed. Data on edibility, storability, processing, and harvesting techniques build the core of the



► Figure 1. Simplified structure of the PlantBITES database. Graphic: A. Bruch.



▲ Figure 2. Maps of the Early Pleistocene vegetation units of the Guadix-Baza Basin during dry periods associated with glacial climate, and humid periods associated with interglacial climate. The seasonal availability of potential plant food items in those vegetation units are also shown. Underground storage organs (USOs) comprise rhizomes, bulbs, and roots; 'greens' are leaves, shoots, stems, flowers, buds, tendrils, and petals; 'others' represents manna from *Tamarix gallica*. Graphic: A. Bruch, after Altolaguirre et al., 2021.

database. Also traits like size and phenology of the plant part, and any other uses, are recorded.

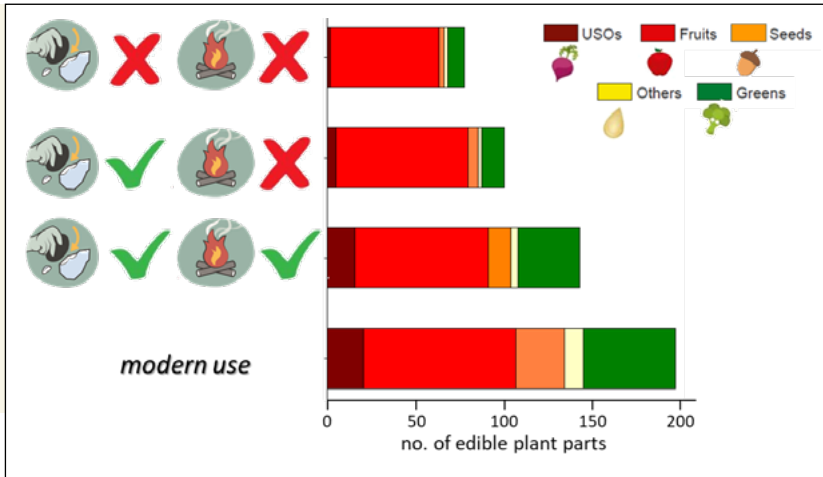
One case study of the potential of the database explores the relevance of Early Pleistocene environmental changes on plant food availability. The Guadix-Baza Basin in Southern Spain hosts the archaeological sites of Orce, which provide evidence of the earliest presence of Homo in Western Europe. In Orce, Early Pleistocene glacial and interglacial phases caused strong differences in vegetation cover. During the interglacials, the lowlands are characterized by Mediterranean woodlands, and deciduous forests expand. However, steppe dominates glacial periods, with Mediterranean woodlands; deciduous forests are restricted to higher elevation. Based on modern analogs of those vegetation units, lists of dominant taxa were extracted from the European Map of Natural Vegetation (Bohn et al., 2003) to assess what these changes in vegetation cover mean for plant food availability.

As there is no evidence that this group of early Homo used fire, the analysis was restricted to edible plant parts which can

be eaten raw (i.e. no use of fire), are easy to process (peeling, cracking, digging), and can serve as staple food (e.g. spices, and condiments were excluded). Taking plant phenology into account, the number of available plant parts per month provides information on the seasonal availability of different types of plant parts in different vegetation units (Fig. 2).

While these data provide many details about the available plants, the main conclusion is that marshland vegetation is the richest among all units in this environment and reliable throughout the year. In addition, Mediterranean and deciduous forests provide large amounts of plant food in summer and autumn. Even during glacial periods marshland vegetation is available a short distance from the sites, as are Mediterranean woodlands. This indicates that the sites of Orce are strategically very well situated in the landscape, namely just a short distance from the most useful vegetation units even during dryer and cooler periods (Altolaguirre et al., 2021).

A second case study deals with the question of how the availability of edible plant parts depends on cultural performances of early



◀ Figure 3. Potential plant food resources in the savannas of Southern Africa according to cultural performances. Underground storage organs (USOs) are roots, tubers, rhizomes; 'greens' include leaves, stems, sprouts, flowers, buds; 'others' are sap, bark, and wood. Graphic: A. Bruch after Bruch & Hahn, 2022.

humans. This study focuses on the northeastern region of South Africa, which was inhabited by different groups of hominins since about three million years. The area is covered by different types of savannas and grasslands which existed since the beginning of the Early Pleistocene (Lombard 2023).

Independent of possible fluctuations of the paleoenvironment through time, this given set of plants exemplifies how the availability of plant resources changes with changing cultural performances. The same taxa list was analyzed by applying four different filters, which each represent various cases of cultural performances for exploiting edible plant parts: 1) without any tools, 2) only with simple food processing by the use of stone tools, 3) with both tools and the use of fire, and 4) with all modern techniques available. Not surprisingly, the number of available edible plant parts increases with increasing technological skills. On one hand, the ability to use fire especially increases the availability of underground storage organs (USOs) and leaves or shoots (greens). On the other, many seeds and greens are only exploitable using modern techniques. One quarter of useful plant parts in the landscape are used today as spices, condiments, or to make drinks, but were not available to early humans. (Fig. 3).

Even if the exact timing of the steps from the first mastery of fire to complex cooking is not fully resolved, the use of fire for food preparation is significant for an effective food yield. It had great advantages for nutrition, in terms of the variety of edible plant parts as well as for their exploitability. Also many foods that can be eaten raw are easier to chew and easier to digest when cooked, and the nutrients they contain are easier for the body to utilize (Bruch & Hahn, 2022).

These examples show the great potential of the PlantBITES database for quantifying the availability of plant resources for early humans. While the database can of course also be used in a 'classical sense' for retrieving information on single taxa of specific interest (ter Schure et al. 2022), such quantitative approaches will shed further light on early human plant use and help improve the understanding of how different groups of early humans interacted with their environment.

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Angela Bruch

Hidden complexity in Neanderthal plant food preparation

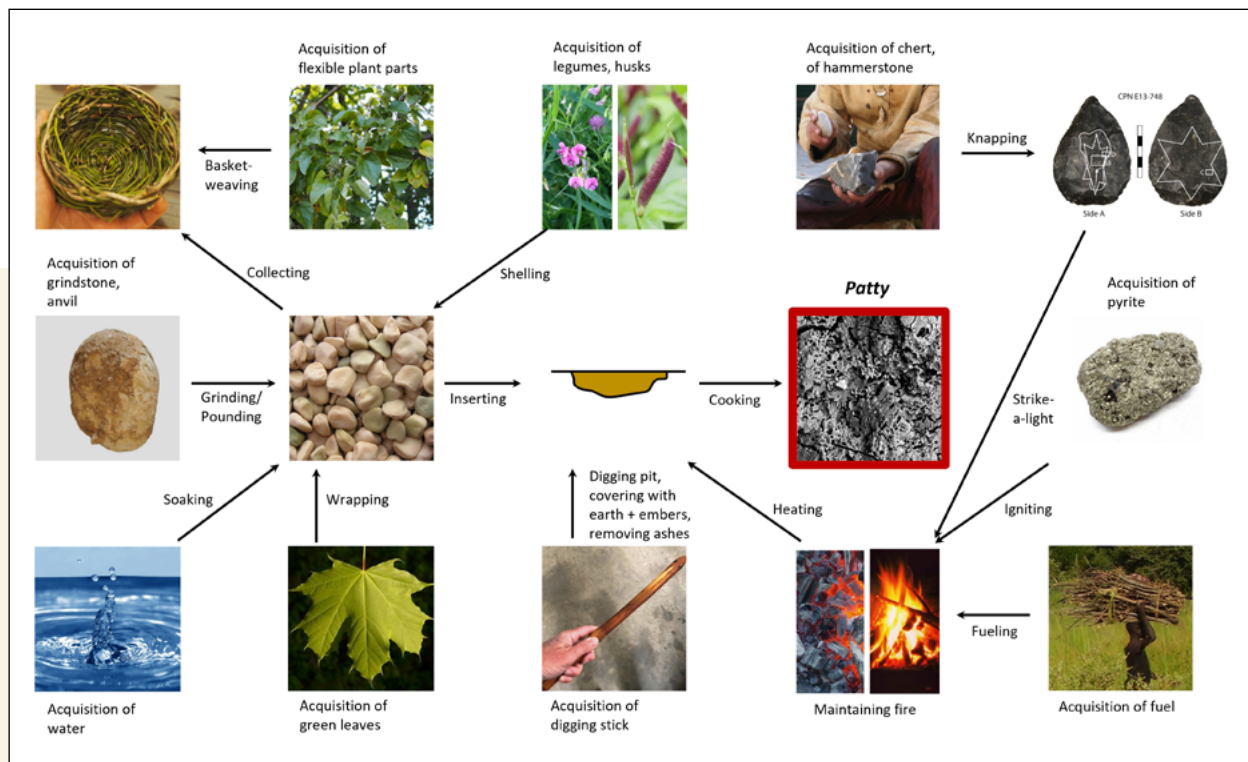
In the last years, new research has revealed astonishing facts about the ways Neanderthals interacted with their environment beyond using stone tools. The spears and throwing sticks from [Schöningenen](#) as well as the digging sticks from [Poggetti Vecchi](#) show deep knowledge and technical mastery of wood as a raw material for different purposes. In addition to large game hunting of deer and horses, Neanderthals show greater flexibility in exploiting small animals such as tortoises, crabs, and birds at [Gruta da Figueira Brava](#) on the Portuguese coast. They also hunted straight-tusked elephants weighing up to 13 tons at Eemian lakeshores in Central Europe. At [Neumark-Nord 1](#) and [2](#) the evidence shows that they shaped the vegetation by keeping the landscape more open than in surrounding areas, probably with the help of fire. Using advanced technological processes such as the production of birch tar at [Königsau](#), Neanderthals controlled fire, which they were able to produce at will with chert strike-a-lights, at least in later phases.

Another form of behavioral complexity is based on combining diverse sets of behavioral units (modules) that were then integrated into multifaceted, aggregated sets. Charred remains of a patty of pounded and cooked pulses from a Mousterian context at [Shanidar](#) cave (Kabukcu et al., 2023) give insight into such modularity. By reverse engineering the production process

and the necessary tools, we can uncover an enormous variety of activities, knowledge, and skill behind this superficially unglamorous discovery. Fig. 4 shows a preliminary summary of the different behavioral elements, materials, and artifacts that occurred in the reconstructed process of preparing a meal. In this case, we are talking about baking a patty of pulses in hot ashes. The reconstruction builds on three distinct elements: a) direct evidence from Mousterian contexts; b) necessary and probable elements that are not preserved in the archaeological record; and c) hypothetical assumptions and possible alternative pathways, for example, instead of baking the patty, it was roasted on stones or cooked as a mash in hides.

The process of preparing a meal of pulses starts with their acquisition. Either the entire plants are harvested and brought to the site in a bundle, or the husks are plucked from the plants and collected in some sort of container. As bins, baskets made of flexible plant parts or hide bags are conceivable.

After shelling, the pulses are also likely to have been gathered in such a receptacle. Remains of seed coat fragments within the feature from [Shanidar](#) indicate that the seeds are not, or only partly, hulled. The seeds are soaked in water for some time to remove alkaloids and tannins in their coats that would otherwise give them a bitter and astringent taste. The soaking process may take place in a permeable container such as a basket at the bank of a body of water or in an impermeable container such as a hide bag filled with water. The seeds are coarsely ground, cracked or pounded with a stone on an appropriate base, called an anvil.



▲ Figure 4. Materials, tools, and activities incorporated in the preparation of a Neanderthal pulse meal. Graphic: M. Haidle.

For cooking, we assume baking in hot ashes. A patty is formed, possibly with some sort of binding, and wrapped in green leaves. In the fireplace, embers have to be removed and a shallow pit dug with the help of a stick. The package is placed in the pit, which is then covered with a layer of soil or ashes and embers. After some time for baking, the cover is removed and the food package removed from the pit, again using a stick.

Beside the actions directly related to processing the pulses, other performances are needed to create conditions for successful preparation and cooking. Raw materials and potentially tools have to be obtained to produce a container. A grindstone and anvil, perhaps of stone or hardwood, as well as a stick for digging and moving ashes and embers have to be acquired, and a water source exploited. A campfire has to be prepared and maintained, which requires the collection of fuel. If freshly ignited, the process entails the manufacture and use of a strike-a-light or other equipment to produce fire. All of these elements could have been used several times and in different contexts.

From a Mousterian context in Israel, the use of pulses is known from [Kebara](#), about 50,000–60,000 years ago. The evidence of soaking, coarse crushing or grinding, and cooking of the seeds comes from 70,000–75,000 year old layers at [Shanidar](#). Simple grinding or pounding stones used for plant food processing have been found at [Riparo Bombrini](#), in a 41,000–43,000 year old context. The use of bifaces as parts of strike-a-lights is known from several sites in France such as [Chez-Pinaud](#) around 50,000 years ago. Analog processes of material transformation through underground heating are inferred for Neanderthals from the analyses of the 80,000 year old birch tar lumps from [Königsau](#) (Schmidt et al., 2023).

There is no direct evidence from a single site pointing to the specific process of food preparation. Nonetheless, these examples make it clear that the reconstructed performance lies well within the behavioral potential of Neanderthals. Such a cooking process comprises a large framework of entangled raw materials, tools, technologies, knowledge, and skills. For many activities, like the acquisition of certain raw materials at specific places, we will find no or only indirect archaeological evidence. Some elements remain hypothetical, such as the modes of cooking. We can think of different ways, yet each will be associated with its own requirements: if you cook a mash of pulses in a hide bag instead of baking a patty, for example, you need to procure hides, dig a pit, and look for cooking stones. Behind each of the different reconstructed activities stand people who performed them. In the reconstruction of the food preparation process, we cannot name the acting person or, more likely, persons.

Each of the activities requires knowledge, training, and experience. The preparation of a meal is an example of a performance within a community of practice with different levels of participation (Lave & Wenger, 1991). Several persons with different capabilities and learning status can participate in the process by selectively performing only some of the modules. Newcomers like children grow into the process and approach the central cooking activity, while experienced individuals may sometimes participate only peripherally. The whole process requires orchestration of the activities, their performers, and products; it has chronological, spatial, and social components that have to be adjusted for each iteration. Complex behaviors like this go far beyond a mere accumulation of behavioral modules and represent a variation of cumulative culture. *(The links in the online version of this text take you directly to the Summary Data Sheets from the ROCEEH Out of Africa Database – ROAD, which are updated to include new entries and additions to existing ones.)*

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Miriam Noël Haidle and Vivienne Vent



▲ Figure 5. Overview of the excavations at Hohle Fels, 2022. Photo: Nicholas J. Conard, University of Tübingen

A horse head becomes a bear figurine: a new discovery from the Aurignacian of Hohle Fels

The animal and human figurines from the caves of the Ach and Lone valleys of the Swabian Jura count among the oldest figurative artworks worldwide and are well known to both the scientific community and the public. Archaeologists found these artifacts in Aurignacian deposits documenting the earliest phase of occupation by *Homo sapiens* in southwestern Germany. The naturalistic sculptures are rich in detail and give a unique insight into the thoughts and ideas of people in Central Europe roughly 42,000 to 35,000 years ago (e. g. Conard, 2003, Conard and Kind, 2022). Gustav Riek found the first statuettes in Vogelherd Cave in the Lone Valley in 1931. Further sculptures were discovered during Robert Wetzel's excavations at the nearby site of Hohlenstein-Stadel in 1939. Still more figurines originate from the work carried out at Geißenklösterle under the direction of Joachim Hahn in the 1970s to 1990s, as well as during the ongoing excavations in Hohle Fels. Today the corpus of Aurignacian artworks includes over 30 clearly recognizable figurines, as well as numerous other fragments of figurines.

Last year the team from ROCEEH and the University of Tübingen discovered a piece of an ivory figurine (Conard et al., 2023). On July 6, 2022, Rudi Walter found this worked ivory fragment with a polished surface and several engraved lines. The artifact measures circa $4.0 \times 2.5 \times 0.6$ cm and was located near the base of an archaeological horizon which corresponds to the top of the Aurignacian deposits at Hohle Fels (Fig. 6). The find depicts the torso of an animal. Upon close inspection while drawing the find, Ralf Ehmann identified the new artifact as belonging to the “horse head” found at Hohle Fels in 1999. This sculpture is well known, because it was the first Aurignacian figurative artwork discovered in Hohle Fels. Subsequent excavation succeeded in recovering further figurines including a well-known female figure, a water-bird and a small lion-man.

By refitting the body to the head, it became possible to add another small fragment to the body of the figurine. Finely engraved lines extending across the pieces facilitated the refitting. A piece of ivory representing the left front leg also belongs to the animal sculpture, but does not attach directly to the main part of the figurine. Counting a piece of the cheek that was refitted to the head shortly after its discovery, the statuette now consists of five pieces recovered between 1999 and 2022 (Fig. 7). The newly refitted figurine is on permanent display in the Museum of Prehistory in Blaubeuren. Due to the elongated shape of the head, the piece from 1999 was first thought to represent a horse (Conard, 2003). However, because of its incomplete preservation, this attribution was never considered as certain. Together with the fragment found in 2022, this interpretation has changed. The massive body of the sculpture with a hump along the dorsal line at the shoulder suggests the depiction of a bear or lion. Because of its overall massive appearance, the broadly spread front legs, the conical



▲ Figure 7. Newly refitted ivory sculpture from Hohle Fels.
Photo: Ria Litzenberg, University of Tübingen

shape of the head, and the pointed snout of the animal, we conclude that this figurine most likely depicts a bear. Both brown bear and cave bear occupied the Swabian Jura during the early Upper Paleolithic, and remains of cave bear represent by far the most abundant category of bones found in Hohle Fels. This means that the well-known Vogelherd horse is now the only certain representation of an equid from the caves of the Swabian Jura. Excavators at Geißenklösterle recovered a depiction of a standing bear in the 1970s. The discovery of a representation of a bear at Hohle Fels is particularly interesting because the cave is closely connected to this species. During the first systematic research in the cave in 1871 and 1872, the excavators, Oscar Fraas and Theodor Hartmann, were actually not interested in archaeological material, but rather were searching for paleontological finds and particularly cave bear bones. Over tens of thousands of years, cave bears used the site to hibernate and for raising their offspring. The bears also left polished spots on the limestone walls of the cave, which are still visible today. Thus, the Aurignacian inhabitants of Hohle Fels often encountered traces of cave bears that perhaps inspired them to carve the newly discovered artwork described here.

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Nicholas J. Conard & Ria Litzenberg

Publication: “The ROCEEH Out of Africa Database (ROAD): An indispensable research tool for human evolutionary studies”

The ROCEEH research center understands the importance of large-scale databases for helping scientists decipher long-term patterns in human evolution. In fact, the creation of such a database was one of ROCEEH’s core missions when the project began in 2008. Since then the ROCEEH team designed and implemented the ROCEEH Out of Africa Database (ROAD) and has filled it with data from 2,400 localities (sites) containing 24,000 assemblages (groups of finds) from 5,300 publications

(articles and books). This information stems from published sources spanning the last 150 years, including results generated by the research team. We will continue to feed it with precious new data until the project ends in 2027.

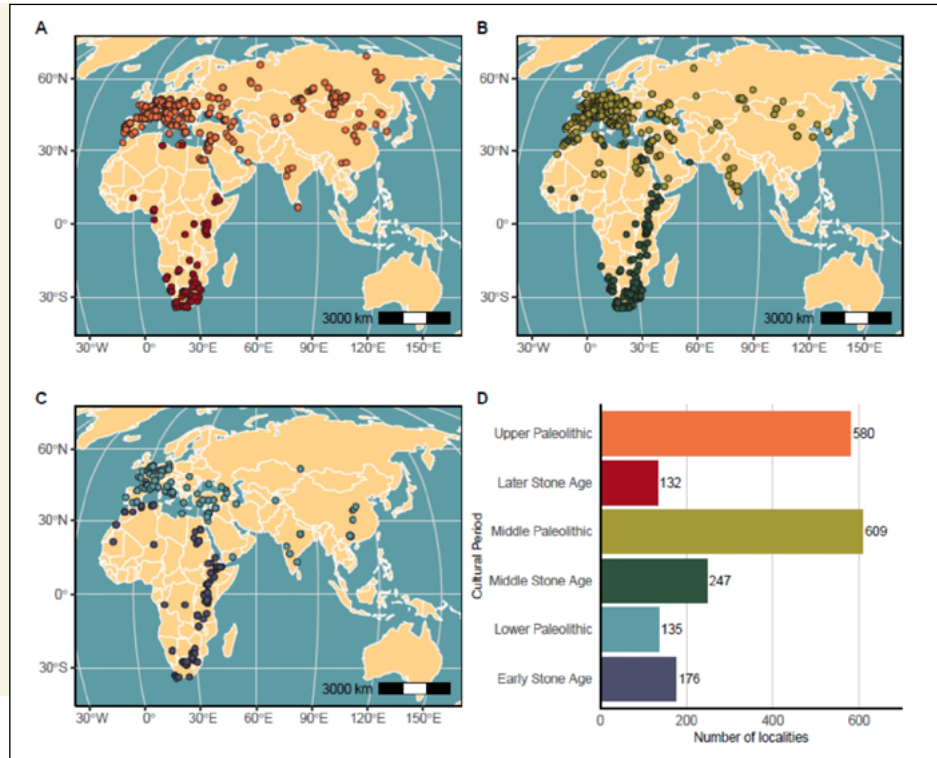
The team is pleased to announce its recent publication about ROAD in the international journal called PLOS ONE. The article is appropriately entitled, “The ROCEEH Out of Africa Database (ROAD): A large-scale research database serves as an indispensable tool for human evolutionary studies”. The paper describes the conception, development and structure of this research database and illustrates how we can harness big data to formulate new ideas about the past. The article is open access, which means it can be [downloaded](#) freely.

The ROAD database covers many scientific disciplines. It was conceived as a tool to study the origins of culture and the multifaceted aspects of human expansions across Africa and Eurasia over the last three million years. We have also taken steps to make the contents of ROAD available to the public. An easy-to use search interface allows users to make simple queries, display the results in a map, and see a list of sites meeting those criteria (Fig. 8). By clicking on a specific site, users can download a summary sheet about any site of interest. There is also a game called “[Time Flies](#)” which allows users to explore the archaeology of Africa in an airplane. If you would like to view the ROAD database and explore some of these functions, it is available without a [login](#).

| locality | type | longitude | latitude | country | category |
|---------------------------|--------------|-----------|----------|--------------|--|
| Aar 1 | rock shelter | 16.49 | -26.77 | Namibia | raw material, technology, symbolic artifacts, miscellaneous finds, typology |
| Aar 2 | rock shelter | 16.47 | -26.73 | Namibia | typology, technology, miscellaneous finds, raw material |
| Aasvoelkop | open air | 28.00 | -26.17 | South Africa | typology, raw material, technology |
| Abdur Archaeological Site | open air | 39.86 | 15.15 | Eritrea | miscellaneous finds, typology, raw material, technology |
| Abri Blanchard des Roches | rock shelter | 1.10 | 45.00 | France | raw material, technology, typology, miscellaneous finds, organic tools, symbolic artifacts |
| Abri Caminade | rock shelter | 1.25 | 44.87 | France | miscellaneous finds, technology, organic tools, typology, raw material |
| Abri Cistagnet | rock shelter | 1.10 | 45.00 | France | typology, technology, raw material, organic tools, symbolic artifacts |

▲ Figure 8. Screen shot of the ROAD entry page. Without logging in, users can write simple queries (left) by selecting the “what, when, and where” and change the background map. The results of the query are mapped (upper right) and summarized in a list (lower right).

► Figure 9. Spatial and temporal distribution of the archaeological assemblages. ROAD contains assemblages attributed to six broad cultural periods: A) Upper Paleolithic and Later Stone Age localities; B) Middle Paleolithic and Middle Stone Age localities; and C) Lower Paleolithic and Early Stone Age. D) The bar graph shows the frequency of the main cultural periods by number of localities, with colors coded to the dots on the three inset maps. Map credit: Made with Natural Earth – public domain.



For more detailed data analysis, users first need to register to gain access to ROAD. ROCEEH developed ROAD and implemented its web-based applications to integrate varied geographical data with archaeological, paleoanthropological, paleontological and paleobotanical content within a robust chronological framework. In fact, the unique feature of ROAD is its ability to link data both spatially and temporally (Fig. 9), thereby allowing its reuse in ways that its designers did not originally imagine. Descriptions of these data rely on the development of a standardized vocabulary and profit from online explanations of each table and every attribute. Thus, by synthesizing legacy data, ROAD makes heritage data available and facilitates its reuse in novel ways.

Users can conduct their own queries to yield structured information available in a choice of interoperable formats. By downloading data as Excel files, in JSON or XML, users can conduct further quantitative analyses, for example with Geographic Information Systems, modeling programs, and artificial intelligence. By visualizing data on maps in ROAD, users can explore this vast dataset and develop their own theories. We hope that our article in PLOS ONE demonstrates the innovative nature of the database. We show how ROAD helps scientists studying human evolution to access datasets from different fields, thereby connecting the social and natural sciences. Because ROAD permits the reuse of “old” data in new ways, it is now an indispensable tool for researchers of human evolution, paleogeography, and many related fields. It also makes inaccessible heritage data more available to the public.

Andrew W. Kandel & Christian Sommer

Summary of the International Conference “Ritual in Human Evolution: Interdisciplinary Perspectives” held from 4-6 October 2023 in Tübingen, Germany

Ritual remains one of the profound enigmas of human behavior. On one hand, it stands as one of the defining hallmarks of our species, *Homo sapiens*, with virtually every human society incorporating some form of ritual into its cultural repertoire. Rituals often demand substantial investments of time, energy, and resources, and can even involve personal risk and pain. On the other hand, from a utilitarian perspective, ritual appears to lack any practical utility, if it is not outright maladaptive. This raises questions about why and how this behavioral pattern emerged and became a universal cultural phenomenon throughout human evolution. Since the 1990s, pioneering work at the intersection of evolutionary biology, cognitive sciences, and cultural anthropology has advanced our understanding of ritual and its evolution significantly, both on theoretical and empirical levels. However, Paleolithic archaeology has somewhat remained on the periphery of this endeavor.

From 4–6 October 2023, researchers from diverse fields came together in Tübingen at the “Neue Aula” to explore interdisciplinary perspectives on ritual in human evolution. This international conference brought together experts spanning the fields of ethnography, cognitive science of religion, primatology, and Paleolithic archaeology. The primary aim of the conference was to integrate Paleolithic archaeology into the canon of contemporary ritual research. We aimed to collectively



▲ Figure 10. Participants of the conference in the Neue Aula.
Photo: Sibylle Wolf

evaluate our current understanding of ritual in human evolution, identify shared research perspectives, and promote interdisciplinary dialogue.

The conference sessions were structured around four fundamental questions:

1. What do we know about ritual behavior of today's *Homo sapiens*?
2. What do we know about the ritualized behavior of our closest primate relatives?
3. What do we know about the oldest rituals in the Paleolithic?
4. What are the connections between ritual behavior and Paleolithic art?

Within these sessions, a wide array of topics was explored, all contributing to the overarching topic. Session 1 covered subjects such as embodied synchronization and emotional alignment, Hadza ritual practices and accompanying objects of power, costly signaling and cooperation, darkness, sensory deprivation and spiritual experiences, as well as anxiety and emotion regulation through ritual.

Session 2 delved into chimpanzee accumulative stone throwing, spontaneous minimal ritual behavior, the presence (or absence) of know-how-copying in great apes, ritualized greetings and social bonding in baboons, and the origin of symbolism and social identity in ape gesture.

The topics addressed in Session 3 included the role of ritual in demographic expansions and the identification of ritual behavior in the archeological record and its relationship to Middle Stone Age pigment use. Other subjects distinguished between ritual items and children's material culture, the complex ritual behavior of Neanderthals with a special focus on the finds from Krapina (Croatia), and the exploration of the origins of mortuary behavior using taphonomic and forensic methods, with a focus on exceptional sites such as Sima de los Huesos (Spain) and the Rising Star Cave (South Africa). In Session 4, presenters examined the relationship between the

figurative art of the Swabian Aurignacian and ritual behavior, which included, but was not limited to, the well-known Lion Man from Hohlenstein-Stadel Cave and a new approach to test explanations against empirical data. Additionally, the session explored the material remains in sacred spaces and their relationship to cave topography in the Magdalenian of Southwestern Europe, the significance of darkness and sensory stimulation in the decorated caves of the Upper Paleolithic, and the specialization of art and ritual practices during the same period. Moreover, Professor Nicholas Conard, the chair of the Department of Early Prehistory and Quaternary Ecology, University of Tübingen, delivered an engaging keynote lecture on "The evolution of ritual and the evidence for Paleolithic *Gesamtkunstwerke* in the caves of the Swabian Jura".

Vibrant discussions followed each presentation and continued during breaks, fostering connections between ideas and participants from various disciplines. Many questions were raised, and bridges were built, exploring a multitude of aspects of ritual spanning various levels of description and analysis.

These intellectually engaging conversations extended into the late evening hours during both formal and impromptu conference dinners. Dr. Sibylle Wolf expertly guided conference attendees on visits to the Museum Ancient Cultures in Hohentübingen Castle, as well as an excursion to the Urgeschichtliches Museum Blaubeuren (URMU), and the sites of Hohle Fels and Geißenklösterle. In Hohle Fels, Rudolf Walter gave an impressive tour. Many international guests had their first opportunity to witness some of the world-famous figurative artworks from the Aurignacian of the Swabian Jura and personally visit these UNESCO World Heritage sites.

The idea and scientific conceptualization of the conference was based on the [doctoral dissertation](#) of Rimtautas Dapschaskas (see Who's who? in this newsletter), a comprehensive synthesis on the evolutionary origins of rituals, which was recently published by Propylaeum eBooks. Dr. Sibylle Wolf also made a significant contribution to the scientific conception of the conference. The management and administrative organization were carried out by Sibylle Wolf and Mareike Keysan (Senckenberg-HEP). Additional members of the scientific committee included Prof. Nicholas Conard Ph.D. and PD Dr. Miriam Haidle (ROCEEH). The conference was generously sponsored by the Fritz Thyssen Foundation.

All participants agreed that the conference was intellectually stimulating and an unequivocal success on an organizational and personal level. The connections made at the conference will be valuable for potential future collaborations across different disciplines and research institutions. Rimtautas Dapschaskas, Sibylle Wolf and Miriam Haidle are currently planning the conference proceedings.

Rimtautas Dapschaskas and Sibylle Wolf

Who's who?

This issue: Rimtautas Dapschauskas

Rimtautas Dapschauskas is passionate about synthesizing the evolution of human cultural behavior, with a focus on the big picture and long-term developments. To this end, he integrates Paleolithic Archaeology with theory-building and empirical findings from Cognitive Science, Ethnology, and Primatology, deliberately transcending the historically grown barrier between the humanities and the natural sciences.

After studying Media Informatics at the Flensburg University of Applied Sciences, he moved to the University of Jena, where he obtained his Master's degree in Prehistoric Archaeology in 2013. He became a doctoral student at the University of Heidelberg, supported by PhD scholarships provided by the Gerda Henkel Foundation and the Graduate Academy of the University of Heidelberg. Since 2015, he has collaborated with ROCEEH, where he conducted extensive statistical analysis of ochre use during the Middle Stone Age in Africa, using the ROAD database, in close collaboration with Dr. Andrew Kandel and Dr. Christian Sommer.

This research revealed that a non-linear intensification and massive geographical spread of ochre use occurred between 500 and 40 thousand years ago, with a significant acceleration accompanied by demographic expansions starting in the second half of the Middle Stone Age after 160,000 years ago.

These findings were integrated into his doctoral thesis, where he provided a comprehensive transdisciplinary

synthesis on „The Evolutionary Origins of Rituals“ and their subsequent spread in early *Homo sapiens* populations. He defended his thesis in 2020. A revised and updated version was published by [Propylaeum eBooks](#) in September 2023. Since 2021, he has been a postdoctoral researcher at ROCEEH, analyzing the long-term development of Neanderthal pigment use during the Middle Paleolithic of Eurasia, again using the ROAD database and the analytical tools developed during the earlier work. This research is still ongoing and has so far been supported by the Fritz Thyssen Foundation and the Heidelberg Academy of Sciences and Humanities. With this project, he aims to compare the long-term development of ritualized behavior between the fluctuating but ultimately expanding *Homo sapiens* populations and the roughly contemporaneously retreating Neanderthal populations.



Forthcoming

- Computer Applications and Quantitative Methods in Archaeology, 2024

8-12 April 2024, Auckland, New Zealand

Christine Hertler, Jan-Olaf Reschke, Christian Sommer and Volker Hochschild are organizing a session about one of ROCEEH's core topics in the realm of modeling, 'Data Sources and Data Integration for Macro-scale Archaeology'. The subject of the session ranges from collecting data in databases like ROAD, through various procedures for integrating data, to simulation approaches like agent-based modeling.

- 89th Annual Meeting of the Society for American Archaeology, 2024

17-21 April 2024, New Orleans, USA

Session "Examining spatial-temporal variation in the lithic technology of the early Upper Paleolithic" organized by Svenja Schray, Benjamin Schürch and Nicholas Conard

- NECLIME Annual Conference, 2024

Mid-September 2024, Almaty, Kazakhstan
co-organized by Angela Bruch

Click for more [details](#)

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THE ROLE
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