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des Landes Baden-Württemberg

Miriam Noël Haidle · Martin Porr ·
Sibylle Wolf · Nicholas J. Conard (Eds.)

Images, Gestures, Voices, Lives

What Can We Learn from Palaeolithic Art?



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**IMAGES, GESTURES,
VOICES, LIVES**

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**HEIDELBERGER AKADEMIE
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THE ROLE
OF CULTURE
IN EARLY
EXPANSIONS
OF HUMANS

IMAGES, GESTURES, VOICES, LIVES

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Edited by

**Miriam Noël Haidle, Martin Porr, Sibylle Wolf,
and Nicholas J. Conard**

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Tilman Lenssen-Erz was a passionate and pioneering archaeologist and rock art researcher, who worked across national and disciplinary boundaries in the Global North and the Global South. He also enriched the ROCEEH conference at the University of Tübingen with his insights and experiences, which he generously shared with the other attendees. Unfortunately, he could not experience the publication of this volume.

He passed away on 10 November 2023 after a serious illness. To acknowledge his significant contributions that continue to inspire new researchers, we dedicate this volume to his memory.

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Martin Porr , Miriam Noël Haidle ,
Sibylle Wolf , and Nicholas J. Conard 

Introduction

Images, Gestures, Voices, Lives What Can We Learn from Palaeolithic Art?

Palaeolithic Art – Where Do We Stand?

There can be little doubt that one of the most profound events of European archaeology has been the discovery and recognition of the first painted Palaeolithic cave at Altamira, Spain. In 1879 and inspired by Palaeolithic decorated artefacts that he had seen at the Universal Exhibition in Paris, Marcelino Sanz de Sautuola started excavations near a cave on his property in Cantabria. While he was busy excavating, his daughter Maria examined the roof of the cave and discovered those paintings that have similarly intrigued academic and general audiences for more than 100 years. This discovery has fundamentally changed the understanding of the Palaeolithic period and the perception of humanity's deep past. Not surprisingly, the discovery also created a significant amount of controversy. This first encounter with Palaeolithic cave art also has a tragic dimension, because its substantial antiquity was only accepted by the contemporary scientific community around 1900 and long after Marcelino Sanz de Sautuola's death. Since then, the existence of European Palaeolithic cave paintings and figurative objects has been confirmed by thousands of well-dated and well-contextualized pieces of evidence. Palaeolithic figurative and abstract expressions are most prominently known from Western and Southwestern Europe but they also occur across Central and Eastern Europe and can be found in Eastern Eurasia, mostly in the form of mobile statuettes and decorated items (Bahn and Vertut 1988; David 2017). Within this vast area, a traditional focus still exists on the Franco-Cantabrian region and the famous painted caves that were found here. This emphasis is reflected in long and well-established

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research traditions, several UNESCO World Heritage determinations, and the highly visible recognition of many sites as prominent tourist destinations (Palacio Pérez 2024; Duval et al. 2019). For a long time, the largely mobiliary art in other parts of Eurasia did not receive an equal amount of academic and public attention (Palacio Pérez 2013). An exception are the figurative objects discovered in caves of the Swabian Jura, Germany, which are not only among the earliest known examples of such a practice in the world; they have also been recognized as UNESCO World Cultural Heritage in 2017, which is both an acknowledgement of the importance of the finds themselves as well as the extensive research that has been conducted in the region (see Conard et al. in this volume). However, research into Palaeolithic art and its public perception continues to suffer from a Eurocentric bias. The origin story outlined above was certainly impactful at the time and it continues to serve as a romantic example of the formative stages of archaeological research. But it also hides the fact that the history of rock art research has been a globalized story at least since the early 19th century. It reflects the global distribution of rock art itself as an expression of human creativity and meaning-making practices (Moro Abadía et al. 2024a; Hampson et al. 2022). While this volume is restricted to different conceptual engagements with to figurative and non-figurative non-utilitarian objects and markings from the European Upper Palaeolithic that are conservatively dated between 40,000 and 10,000 years ago, all authors and original participants are aware that rock art, image making, and so-called symbolic items are a world-wide phenomenon with a considerable antiquity. When we ask questions about universal features of human becoming, we must be aware of the global character of humanity and humanity's becoming. Therefore, even though the volume foremost focusses on European material evidence, Palaeolithic archaeology needs to adopt a global perspective – both in deep time and today, considering and incorporating global exchanges and collaborations.

In archaeological research contexts, art remains a key phenomenon that is perceived to reflect fundamental and genuinely human characteristics. Often, art is argued to make us truly human, which fuels a global race to find and securely date humanity's oldest artistic expressions (Sauvet 2024). Art seems to reflect a uniquely human aesthetic sense of beauty and exclusively human capacities for cultural behaviours and cognition (Heyd and Clegg 2005; Henshilwood and d'Errico 2011). Art is furthermore widely regarded to reflect the use of symbolic language, possibly the most important trait that is viewed as uniquely human (Nowell 2010; Grosos 2017). Questions surrounding the origins of art are directly and indirectly entangled in questions about human becoming and human origins in the deep past. These aspects consequently affect everyone in some way because they reflect the definition and understanding of humanity itself. The *explanandum* is not any phenomenon; the aim is to explain *us*, an aim that must fundamentally engage with questions about similarity and difference, and questions about human nature and human diversity.

While these considerations probably make immediate sense to most readers, it is much more difficult to define what 'art' is and how it can be inferred from material remains in the archaeological record (Palacio Pérez 2013). Within Palaeolithic archaeology and related fields, extensive discussions around these issues are continuing and they are far from resolved. Some researchers are comfortable with the use of the term while others have rejected it because of its problematic connotations and

history (Porr 2019). Many archaeologists think that the term is better replaced with references to 'Pleistocene visual cultures' (Nowell 2006), 'Upper Palaeolithic visual cultures' (Nowell 2017) or 'Pleistocene images and symbols' (Conkey et al. 1997; Moro Abadía and Gonzales Morales 2020). In this way, the respective authors want to avoid a Eurocentric bias in the definition of creative human expressions and Western ideas related to beauty and aesthetics. In this volume, we have decided to retain the term but also offer critical reflections of its history and its uses (see Moro Abadía and Tapper in this volume). The term 'art' continues to be a powerful signifier we do not want to abandon completely. While the material expressions we are engaging with are not products of the modern cultural and socio-economic system of art (Bourdieu 1996), they are still reflective of aspects of human behaviours we are familiar with. We can recognise them as expressions of communication and meaningful relationships with the world, even if the respective details will remain inaccessible to us.

This tension between familiarity and strangeness continues to fuel the ongoing fascination with Palaeolithic art forms. Since the acceptance of its antiquity in the early 20th century, the phenomenon of Palaeolithic art has influenced a wide range of disciplines and fields with very different theoretical perspectives, orientations, and views. Within the wider field of the humanities and social sciences as well as the public sphere, it has also shaped the notion of 'art' itself and has affected the understanding of humanity's past and present, notions of time and progress in complex ways (Pfisterer 2007). Palaeolithic art has also intrigued many artists in their engagement with the breadth and depth of creative aspects of the human experience. Consequently, art historians continue to return to Palaeolithic art to reflect on the idea of a global 'art history', its time depth and its applicability across cultural boundaries (Pfisterer 2008; Bredekamp 2019). Similarly, the understanding and assessment of Palaeolithic art is linked in complex ways with a wide range of orientations and notions that have a long and complex intellectual history. These exchanges continue to participate implicitly and explicitly in the establishment of some foundational aspects of modern thought, the definition of basic features of humanity and humanity's origins (Stavrinaki 2022; Geroulanos 2024).

Palaeoanthropology and Palaeolithic archaeology are in the equally fascinating and challenging position to enhance our understanding of the events and processes leading towards humanity as we know it today. As such, the scientific concern with the deep human past must navigate – in one form or another – the boundary between nature and culture, between humanity and animality, and between the natural and the social sciences. The conference from which this book originated was designed in a spirit of a diversity in approaches and perspectives beyond the divide between the sciences and humanities. Following a recent paper by McManus (2017), one could say that the conference was designed to avoid *epistemologies of replacement*. Within the academic fields of Palaeolithic archaeology and palaeoanthropology, it is often biological and evolutionary frameworks that play a dominant role, and there can be little doubt about their importance and relevance. However, how far can these explanations be extended? When do we have to engage with new forms of causality and processes that are linked to symbolic forms of cognition and communication? In these contexts, questions about appropriate ontological assumptions need to be addressed and, consequently, assumptions about appropriate epistemologies and inferences.

These are questions that not only have to engage with questions of temporal scales; these are questions that must involve insights from the social sciences and humanities. Following McManus (2017, 31) again, we would want to make the case here that the most valuable course of action is the establishment of an “interdisciplinary dialogue among fields in which no theory claims to be all encompassing, and no discipline pretends to be the architect of knowledge”. The engagement with Palaeolithic art is one area in which such a dialogue can and should take place.

The Senckenberg Conference at the University of Tübingen and Beyond

To discuss recent perspectives within this research field, the research centre *The Role of Culture in Early Expansions of Humans* (ROCEEH) of the Heidelberg Academy of Sciences and Humanities organized an international, interdisciplinary conference in cooperation with the *Senckenberg Centre of Human Evolution and Palaeoenvironment* (HEP). Supported by the *Deutsche Forschungsgemeinschaft* (DFG) and the *Senckenberg Gesellschaft für Naturforschung*, the conference took place from 30 May to 02 June 2018 at the Alte Aula of the University of Tübingen, Germany. The invited researchers presented their results in 30 talks altogether. Focused on European Palaeolithic art, the conference was aimed at critically exploring the mutual influences between Palaeolithic archaeology, palaeoanthropology, art history, literary/cultural studies, philosophy, social/cultural anthropology, and digitization methodologies. The conference also critically engaged with foundational interpretative frameworks, concepts, and ideas to create a forum to discuss aspects that are often not given enough space. This form of engagement and reflexivity seems even more valuable when we consider that the results that are produced within the academic sphere will also have consequences outside of it. In Southwest Germany, where the conference was held, one of the most significant developments in this respect took place with the recognition of the caves of the Swabian Jura Mountains as UNESCO World Heritage.¹ This listing gave new significance to archaeological sites and a region that traditionally received relatively little attention within the study of Palaeolithic art in comparison with the painted caves of the Franco-Cantabrian region as briefly mentioned above. While this aspect was not a major theme at the conference, it needs to be recognized that archaeological evidence is always also contemporary heritage and is assessed and evaluated in the present by different communities and stakeholders (Moro Abadía et al. 2024b; García-Bustos et al. 2022).

A key topic of research into Palaeolithic art continues to be its origins and antiquity. Following discoveries in East and South Africa in the last decades (Scerri and Will 2023), the respective discussions in the European context have shifted towards the question of the presence of art or symbolic practices in Neanderthal populations. This issue continues to be a field in which different aspects of more general considerations about the definition of humanity are being debated (Wragg Sykes 2020; Nowell 2010). Since the conference, several important discoveries have been made in this respect, which have contributed considerably to our understanding of these aspects directly

1 <https://whc.unesco.org/en/list/1527/> (accessed 03.09.2024)

and indirectly. New insights were generated about the timing and presence of anatomically modern humans in the Mediterranean and Central Europe with possible implications for the duration and intensity of interactions with Neanderthal populations (Mylopotamitaki et al. 2024; Slimak et al. 2022). Shortly before the conference, new radiometric dates were published that suggested that pigment markings in several Iberian caves were made between 60,000 and 65,000 years ago (Hoffmann et al. 2018). These dates place the markings well before the arrival of *Homo sapiens* in the region and would provide the first evidence for the use of pigments for cave wall markings by Neanderthals. The results, however, have been criticized on technical grounds and the respective discussions are ongoing (White et al. 2020; Aubert et al. 2018). A study of the general cognitive abilities of Neanderthals revealed nevertheless that they were able to use indexical or symbolic elements to interact with the environment (Capín 2025). The evidence of a wide range of non-utilitarian, decorative, ornamental, and, hence, symbolic behaviours in Neanderthals is growing, which contributes to the increasing appreciation of the behavioural and cognitive complexity of these hominins (Pitarch Martí et al. 2021; Peresani et al. 2021; Shaham et al. 2019; Baquedano et al. 2023; Leder et al. 2021). These new insights also include evidence for non-figurative engravings made by Neanderthals on cave walls at the site of La Roche-Cotard in France (Marquet et al. 2023). It becomes increasingly difficult to find behaviours that are exclusive to modern humans in comparison to contemporaneous Neanderthals and consequently, it becomes more difficult to deny the latter the full range of modern behavioural capabilities.

The conference demonstrated the diversity of approaches and disciplines that either have an interest in Palaeolithic art or are involved in its analysis and interpretation. The field is not only very diverse but also very dynamic. Since the conference, some significant developments have shaped the field both conceptually and practically. While we will not be able to survey the field comprehensively here, we want to draw attention to some key aspects and advances.

In terms of theoretical and conceptual approaches, it can certainly be observed that the time of the grand theories is over. Recent attempts to find general structuring principles of European cave art, for example, in the spirit of a proto-writing system have not been met with great enthusiasm by Palaeolithic art researchers (Bacon et al. 2023; von Petzinger 2017; García-Bustos et al. 2023). The field currently does not have a dominant explanatory framework that could either provide a common ground for inferences or the focus for discussions as was previously the case with structuralism or shamanism (Solomon 2018; Moro Abadía and Gonzales Morales 2020; Conkey and Fisher 2020). This development is largely due to the increasing diversification, internationalisation, and professionalisation of the field. While research into Palaeolithic art is still dominated by the work that is being conducted in the Franco-Cantabrian region, the field is also increasingly affected by the realisation that Western Europe is only a small part of a global story. The recent radiometric dating results from the islands of Sulawesi and Borneo, Indonesia, have significantly contributed to this change in perspective (Brumm et al. 2021; Aubert et al. 2019; Aubert et al. 2018; Ilmi et al. 2023; Oktaviana et al. 2024). These new insights from Southeast Asia cannot rival the extent and complexity of the European evidence, which is the product of a much longer and intense research tradition. However, they contribute to an increasingly decentred understanding of the human story that is less dependent on the Eurocentric legacies of archaeology's research history.

Conceptually, there is an equally growing realisation that European research needs to be oriented towards a multiplicity of perspectives and in relation to other research traditions and countries (Ruiz-Redondo 2024; Moro Abadía and Tapper 2021). European Palaeolithic art research is increasingly engaging in discussions about the inclusion of Indigenous knowledges and related ontologies/epistemologies (Moro Abadía and Porr 2021). This development reflects a wider concern in archaeology and anthropology with the relationship between science and Indigenous knowledge systems and concerns (Moro Abadía and Lewis-Sing 2021; Smith et al. 2022). In Europe, there are no local communities with long-term cultural connections to (Palaeolithic) rock art sites. However, in the future, archaeological research and heritage management approaches will invariably be affected by more general developments in archaeology regarding community involvements and social justice issues (Black Trowel Connective et al. 2024; Montgomery and Fryer 2023).

Apart from theoretical developments, the field of Palaeolithic art research has also enormously profited from advancements in new methods and technologies that continue to allow unprecedented and detailed insights into past practices and decision-making processes as well as socio-cultural structures and non-utilitarian behaviours. Building on the foundational work by Conkey (1980), recent analyses have continued to infer social groups and networks from the detailed spatial and statistical analysis of cave and mobiliary art (Rivero and Sauvet 2014; Garate et al. 2020). These investigations examine the art as an expression of regional or continental movements of past people and their interactions. At the other end of the spectrum, detailed analyses of cave wall painting and manufacturing episodes of mobiliary art objects have allowed the reconstruction of social interactions through learning processes and the differential access by past individuals to significant painting locations (Rivero 2016; Fritz et al. 2016). Similarly detailed analyses enhanced by the use of digital technologies also allow new insights into the placement and related gestures of Palaeolithic cave paintings, enabling new insights into past skills, choices, and motivations (Garate et al. 2023; Tosello and Fritz 2005; Fritz and Tosello 2007). These approaches might also throw more light on the role of the structure of the cave walls in the design and location of cave art and the possible influence of pareidolia in the respective artistic choices (Wisher et al. 2024). The relationship between art expressions and the physical space of the cave has emerged as another important research trend in recent years. This work also relies on the careful analysis of cave sites and their geomorphological reconstructions. The analyses often demonstrate a complex interplay between the use of natural features and their intentional manipulation. They are partly inspired by work outside of Europe and the input by Indigenous communities, for example, in Australia (Delannoy et al. 2024; David et al. 2024; Delannoy et al. 2013).

It is, of course, not possible to address all current significant research areas that could be connected to the phenomenon of Palaeolithic art in a single volume. This is testimony to the intense interest in the subject and the multiplicity of perspectives surrounding the field as well as the length of the research history. The volume's main title 'Images, gestures, voices, lives' draws attention to the fact that archaeology is not only about objects and material evidence. It is about human lives and their expressions, both in the past and the present. It is about the people who have lived around and with the material evidence that we now call 'art'.

Structure and Outcomes of the Conference

The first session of the conference was titled “The origins of the eternal quest for beauty”. The original speakers were Ingeborg Reichle/Vienna, Austria; Harald Floss/Tübingen, Germany; Thomas Heyd/Victoria, Canada; Ulrich Pfisterer/Munich, Germany; and Rémi Labrusse/Paris, France. This first section of the conference dealt with questions around the significance of Palaeolithic art in the context of the history of art and the understanding of the development of aesthetics. Art historians have been intrigued and puzzled by the antiquity and complexity of Palaeolithic art for a very long time. Like non-European ethnographic art objects, Palaeolithic art continues to challenge the traditional schemes of Western art history. The contributions at the conference demonstrated that Palaeolithic paintings and sculptures have been used by art historians to support Darwinian as well as anti-Darwinian arguments since 1900. Aesthetics remains an important approach to understanding the manufacture, use and the (ancient and modern) perception of those objects. However, it is equally recognized that the Palaeolithic gaze had many further dimensions. While Palaeolithic figurative objects and paintings are generally met with strong emotions, these reactions must be viewed as the result of long acculturation processes leading towards the current deep appreciation of Palaeolithic “art”. In this context, it is important that the work of several modern artists has been influenced by Palaeolithic objects, which has, in turn, further affected the perception of Palaeolithic remains. In the keynote lecture, Nicholas Conard elaborated on the variety of artistic expressions in the Aurignacian of the Swabian Jura and their role in denomination of the cave sites as World Heritage sites.

The second session “The challenge of materiality” examined the interrelationships between the study of Palaeolithic art and more recent approaches in social anthropology and material culture studies. It included as speakers Hans-Peter Hahn/Frankfurt a. Main, Germany; Chris Low/Oxford, United Kingdom; Peter Vang Petersen/Copenhagen, Denmark; Shumon Hussain/Leiden, Netherlands; Olivia Rivero/Salamanca, Spain; and Randall White/New York, USA. The session revolved around the question of how we should engage with the materiality of Palaeolithic art. In recent years, a range of disciplines have developed an increasing interest into the material dimensions of human existence and its ontological variabilities. This has inspired a reassessment of established anthropological concepts and notions, and a renewed engagement with Indigenous worldviews. At the conference, it also became apparent that processes of production and stabilization of meaning need further assessment. These re-evaluations will have to engage with the agency of materials, dynamic processes of production and use as well as the biography of objects that are entwined with the life-histories of human beings.

In the third session, speakers engaged with the topic “Beyond evolution and history” to address the relationship between Palaeolithic art objects and the origins of modern cognition and humanity. As original speakers, it included Margaret Conkey/Berkeley, USA; Oscar Moro Abadía/St. John’s, Canada; Niels Weidtmann/Tübingen, Germany; Thomas Junker/Tübingen, Germany; Ewa Dutkiewicz/Tübingen, Germany; and Duilio Garofoli/Tübingen, Germany. A core theme in Palaeolithic archaeology has always been the question of human origins. Entangled in this field are the definition of humanity and human nature and the distinction between history and evolution as well as nature and culture. These aspects have a long history within the Western intellectual

tradition and form (often unacknowledged) core elements of modern science. The speakers discussed if art objects – as traditionally defined – have any specific role to play in these contexts. They also discussed how art objects could be productively integrated into biological frameworks of explanation and a respective understanding of human evolution. Issues of the constitution of meaning, including social memory, and the representational qualities of so-called art objects were critically discussed.

The fourth session engaged more closely with the gestures and voices that are mentioned in the title of the conference. It was titled “Perception, practice and performance” and included Inés Domingo Sanz/Barcelona, Spain; Adeline Schebesch/Erlangen, Germany; Antonio Batarda/Vila Nova de Foz Côa, Portugal; Beth Velliky et al./Tübingen, Germany; Andreas Pastoors/Erlangen, Germany; Tommaso Mattioli and Margarita Díaz-Andreu/Barcelona, Spain, as original contributors. How can we reconstruct the practices and performances that once created those objects that now constitute our archaeological record? In archaeological research, the producers and creators are absent; but they once existed in those empty spaces between images and objects. Objects were imagined, created, and watched. From the evidence from the cave sites in Southwest Germany, at least, we can also infer the presence of music through the presence of several flutes. The role of bodily sensorial experience and perception, the role of voices and sounds, has so far received relatively little systematic attention in the context of the study of Palaeolithic art. However, at the conference, it became clear that there are various ways in which these aspects can be approached, through the reconstruction of soundscapes and contexts of light and darkness, references to ethnographic case studies and the comparative analysis of body techniques that are used by professional actors.

The fifth and last session addressed issues surrounding questions about the role of digital technologies in moving from documentation to analysis and interpretation. The session was titled “From digital documentation to meaningful analysis” and featured Tilman Lenssen-Erz and Oliver Vogels/Cologne, Germany; Christoph Steffens and Markus Steffens/Esslingen, Germany; Ewa Dutkiewicz/Tübingen, Germany; Jo McDonald/Crawley, Australia; Andrew Kandel/Tübingen, Germany and Rimtautas Dapschauskas/Heidelberg, Germany; Richard Buffat/Vallon Pont d’Arc, France as speakers. The recording and storage of artworks in digital form is indispensable today to support the ways researchers and the public engage with artefacts and artistic expressions. Researchers can easily share information and work on art pieces without touching the existing objects when they are able to access the appropriate digital data. In this session, we discussed how digital technologies can assist in the epistemological and methodological challenges of the interpretation of Palaeolithic art. Again, case studies ranged from the detailed recording and presentation of the delicate statuettes from the Swabian Jura to the monumental replication of the famous Grotte Chauvet in Eastern France.

In summary, the conference moved between different scales of analysis and interpretation from microscopic studies of single objects to diachronic developments across whole continents. Generally, it was asserted that art as such is a problematic notion that has a complicated history and cannot be applied cross-culturally without problems. Objects that are usually regarded as ‘art’ participate in human world-building and in processes of the creation and stabilization of meaning. In this context, it was generally acknowledged that so-called art objects need to be seen in contexts of

dynamic performances of production, use and communication. Art cannot be reduced to material visual culture, but also has acoustic, haptic, and other dynamic aspects. It can be linked to a wide range of performances and social purposes. The latter can include ritual-religious or more general aspects related to social cohesion, self-assurance, teaching and apprenticeship. These insights have demonstrated that 'art' cannot be viewed as a unified phenomenon but rather needs to be understood as a variety of processes that can equally embrace the mundane or extraordinary. Consequently, it remains difficult to pin this phenomenon down and even to assert that it is always connected to symbolic meanings. As was mentioned above, the processes of the creation, communication and stabilization of meaning remain an area of debate and no unequivocal relationship between objects and cultural meanings can be assumed. These considerations clearly demonstrate that the idea of Palaeolithic art has shifted considerably in the last decades. It is no longer connected to an idea of "fine art" that concentrates on objects of elaborate artistic qualities such as paintings and sculptures. The interest has now broadened considerably, and it equally embraces items such as personal ornaments and pigments.

The conference closed on a very positive note and the participants acknowledged the many and diverse insights that had been gained into past practices and contemporary ideas and approaches related to Palaeolithic art. The meeting demonstrated that the most powerful, innovative, and interesting insights into the deep human past can be gained whenever meticulous empirical research is combined with reflective and sophisticated theoretical approaches. In this spirit, we will continue to be able to learn from the images, gestures, voices, and lives, which constitute the many creative expressions we today call Palaeolithic art.

For this volume, we have attempted to preserve the structure of the conference as much as possible, even though it was not possible to include all original contributions. The volume is still divided into five thematic sections that cover the key areas of engagements with European Palaeolithic artistic expressions as addressed at the conference. The first section includes papers that discuss the use of the term 'art' itself. The respective papers provide historical reflections of the term in the context of Palaeolithic visual expressions as well as new approaches within this conceptual space. The second section contains two papers that discuss aspects related to the materiality of Palaeolithic art and how the respective relationships can be understood and conceptualized. In this context, the ontological understanding of materiality itself is challenged and questioned with reference to Indigenous knowledge systems. The third section is concerned with possible ways in which Palaeolithic art can inform about human evolutionary processes. The respective papers demonstrate how so-called artistic expressions can be relevant in understanding aspects of human evolution beyond the nature/culture divide. As material art expressions are always products of bodily engagements, both in production and consumption, the fourth section presents a paper on an experimental study how body language can enhance our understanding of the design of Palaeolithic statuettes. Finally, as all heritage is created in the present, the last section of the volume includes two papers that show how new digital technologies can enhance our understanding of Palaeolithic art and how these expressions from the deep human past can become significant in the present at a local, national, and global level.

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PART I
**PALAEOLITHIC 'ART'
AND THE ETERNAL
QUEST FOR BEAUTY**

The Collapse of the Origins

Prehistory Beyond Art History

Abstract As soon as it was invented, the idea of “prehistory” was integrated into Western theories of the origins and evolution of art. Rather than completing these theories as originally hoped, however, the concept of “prehistory” instead became an insuperable stumbling block for the contemporary obsession for the origins. By shedding light on this paradoxical situation, particularly with regard to Palaeolithic artefacts and images, this paper tries to shed light on the deconstructive power of “prehistory” when it comes to the ideologies of art history and the progress of “civilisation”.

Keywords art history, evolutionism, modernity, primitivism, progress

Disconnecting Art from Civilisation

For the first prehistorians, works of art emerged as one of the major features of the late Palaeolithic period, what they called “Ice Age” or “Age of the Reindeer”, in addition to the fauna which was supposed to live in close connection with early human societies. These societies, when they were accepted as “prehistoric”, were identified with their “artistic” productions, “artistic” being understood in its full modern meaning.

A founding example of this view is John Lubbock’s famous *Pre-Historic Times* (Lubbock 1865). As we know, the book opens with definitions of the four “prehistoric” periods, the first two being named by the neologisms Palaeolithic and Neolithic, coined by the author

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himself. They are followed by Bronze and Iron Ages, but the real division is between Neolithic, Bronze and Iron Ages on the one hand, all characterised by their tools (“beautiful weapons and instruments” in the Neolithic, “arms and cutting instruments” in the Bronze Age, “arms, axes, knives, etc.” in the Iron Age), and the Palaeolithic or “the Age of Drift” on the other hand, when the “possession of Europe” was “shared” by human beings “with the mammoth, the cave bear, the woolly rhinoceros, and other extinct animals” (Lubbock 1865, 2–3). For Lubbock, closeness to natural life is not the only feature of the Palaeolithic. Mimetic art making is also underscored by the British archaeologist, in contrast to the supposed lack of any representation in the Neolithic and later Ages:

No representation, however rude, of any animal has yet been found in any of the Danish shell-mounds, or the Stone Age lake-villages. Even on objects of the Bronze Age they are so rare that it is doubtful whether a single well-authenticated instance could be produced. Yet in these archaic bone-caves, many very fair sketches have been found, scratched on bone or stone with a sharp point, probably of a flint implement. In some cases there is even an attempt at shading. [...] In considering the probable condition of these ancient cave-men, we must give them full credit for their love of art, such as it was; while, on the other hand, the want of metal, of polished flint implements, and even of pottery, the ignorance of agriculture, and the apparent absence of all domestic animals, including even the dog, certainly imply a very low state of civilisation and a very considerable antiquity (Lubbock 1865, 254–255).

Two conclusions can be drawn from these initial views on “pre-historic” cultures. First, unlike the Neolithic, Bronze and Iron Ages, which are distinguished through their respective gradation in a general process of technical improvement, artistic expression plays the dominant role in defining the Palaeolithic and, therefore, in embodying the origins of culture. Art is celebrated as the initial expression of human genius, and its first realisations seem partly to ignore the law of progressive development, all the more so because their naturalism appear to have been almost prophetically consistent with the academic doctrine of art. Second, representational art making is disconnected not only from technology but from “civilisation”; by contrast, what Lubbock calls “civilisation” is strictly identified with progress in technology, up to the present achievements of the industrial era. Comparative ethnology is called for help by Lubbock, in order to reinforce this view: one can be “very low”, he writes, in terms of civilisation and quite high in terms of artistic creation, as it is shown “among recent savages”, by whom “a certain skill in drawing and sculpture” is “accompanied by an entire ignorance of metallurgy” (Lubbock 1865, 255).

By disconnecting art from the overall notion of civilisation, Lubbock strengthens the prevailing scientific and technological ideology of his time. But concurrently, he deprives the ideology of progress from its totalising ambition, both historically and qualitatively. The only way for him to ensure the logic of the overarching law of progress is to cut it from its starting point (considering that it is mainly characterised by art making activities) and, therefore, to limit implicitly its global meaning. The

result is an insuperable contradiction between the desire to celebrate technics and sciences of the industrial nations as the utmost accomplishment of humanity, and the belief in the global validity of the law of progress. Present can be deemed the perfect fulfilment of a long-term improvement in “civilisation” only if it is separated from its origins in the early human cultures of the Palaeolithic, when works of art were the most striking cultural element and seemed to have instantaneously reached an impressive level of mimetic skills. Briefly speaking, from the 1860s on, the discovery of Palaeolithic artworks strongly contributed to put the idea of the origins of culture at odds with the ideology of progress, of which it should altogether have been an essential part; consequently, it was the whole ideological edifice of modern culture that was threatened to collapse.

Lubbock was certainly not the only one, in these years, to be fascinated by the first discovered Palaeolithic works of art and to stumble intellectually against them. In many of the early publications on the subject of “antediluvian” or “primeval” human civilisations, artefacts with figurative or non-figurative images were mentioned, reproduced and discussed. In France, as early as 1861, Edouard Lartet had spoken of the representation of an animal head on a bear tooth as made by a “craftsman or, so to speak, an artist” (Lartet 1861, 190) and had praised the “quite correct drawing” of a bear head on a pierced stick found in the cave of Ker de Massat, in the Pyrénées mountains (Lartet 1861, 211). Three years later, he published with his English friend Henry Christy their famous article on “some engraved or carved animal figures [...] from the primeval times of the human period”, in which the two scholars praised the “high level of art and even taste” of the artefacts they had excavated from the La Madeleine and Laugerie sites (Lartet and Christy 1864, 257). Adopting the classical divisions of the European fine arts tradition, they recognised “a certain degree of artistic culture” in prehistoric societies, of which a “higher manifestation” was to be found in “their drawings and sculptures” (Lartet and Christy 1864, 263). Within a few years, they were unanimously followed by other prehistorians, whose admiration for these skills and realistic effects only grew, thanks to continuing discoveries of highly elaborated artistic creations. In 1883, the most respected prehistorian of the time and fervent evolutionist Gabriel de Mortillet went even further by celebrating an “eminently artistic population”, producing “even small masterpieces” (de Mortillet 1883, 416). Concurrently, popular representations were quick to represent the first artist as an exceptionally skilled craftsman, enjoying his creations like a modern connoisseur. Even when ethnographic comparativism led scientists and illustrators to depict these artists as hunter-gatherers similar to the actual populations of the arctic regions, rather than ideal ancestors of 19th-century Europeans, they were still coined as “precursors of Michelangelo and Raffaelo”, like in Emile Bayard’s illustrations for the popular scientific book by Louis Figuier, *L’Homme primitif*, in its successive editions of the 1870s (Figuier 1870, Fig. 67, 131; Figuier 1876, Fig. 88, 169).

Like in Lubbock’s views, the excellency of these so-called “artistic” representations seemed to contrast with the poverty of the “tools” these people used. Despite the lack of technical apparatus, it was noted that an extreme skilfulness was specifically adapted to a veritable aesthetic feeling, resulting in figurations with no practical purposes even when added to regular tools like throwing sticks, harpoons, etc. This radical opposition between Palaeolithic and post-Palaeolithic cultures, i.e., between

“artistic” and “technical” societies, was of course reinforced at the end of the 19th century by the discovery and authentication of Palaeolithic rock art compositions, whose magnificence contrasted with the poverty and rudeness of artistic samples from the Mesolithic and Neolithic. Origins, in other words, were literally submerged into the present; when art was at stake, the figure of the ancestor receded and made way for the figure of an unexpected interlocutor, across the millennia, much closer to us than contemporary hunter-gatherers most capable of making tools.

Deconstructing Progressivism

At this point, it must be noted that such a dual division closely reflected the contemporary debate on the position of the arts in the context of modern industrial societies. More precisely, it echoed the major anxiety of art critics, architects, ornamentists, politicians and industrialists, about decorative art’s deviation from an ever-improving evolutionary track, which science and technology were following with dazzling acceleration. While ornaments and decorations were looking backwards into the past, engulfed in historicism, science and industry were heading towards a promising future. As a consequence, the question was how one might provide a new articulation of the “union of art and industry” (this was the title of the lengthy Report of Léon de Laborde on the London Great Exhibition of 1851 (de Laborde 1856).

What was at stake was not only a matter of taste for connoisseurs but also the meaning of modernity, i.e., a global cultural order before which lay the menace of an ethical and metaphysical void. At a time when new devices and technics were incessantly invented, this new world failed to be reshaped by ornamental patterns whose historicist proliferation seemed to display nothing but a severe cultural disorientation – what the English architect and designer Owen Jones denounced in 1852 as the “reproduction of a galvanized corpse,” à propos neo-Gothic imitations (Jones 1853, 291). Evidence of this kind of schizophrenic evolution of modern Western culture had been brought to the fore when ornaments of non-Western nations had been displayed at the 1851 Great Exhibition and had showed an obvious aesthetic superiority, in comparison to modern industrial decorations. “Where is art? Where is progress? Where is civilization? What overwhelming doubts are enclosed in such a phenomenon!”, wrote the French reviewer Alexis de Valon, among many others, on this occasion (de Valon 1851, 205). In his report of 1856, de Laborde developed the same argument at length, opposing the artistic ability of stable “barbarian nations”, out of history, and the disorderly ugliness of our “industrial stammers”: “How can we solve the contradiction of barbarian, ignorant and miserable nations, exhibiting such a perfect, magnificent art among the great competition of peoples ... that it illuminates everything with a glow of royal splendour? How can we explain the contrast of the passing styles, ephemeral vogues, creations barely born than already outmoded, by our artists, and this stable, motionless, ever-repeating art, old as the hills but full of youth, vigour, charm and novelty?” (de Laborde 1856, 243).

Echoing such an opposition between historical and non-historical cultures, the contemporaneous construction of the notion of “prehistory” directly reflected these modern anxieties, linking together the aura of progress and the sombre expectation of an impending decadence. The sharp distinction made between an “artistic” primeval

age and an age of industry beginning with the Neolithic was in perfect accordance with the disunion observed in the present days. The praise of the Neolithic as a more “advanced” state of civilisation echoed the faith in scientific and technical improvements. Concurrently, the fascination for Palaeolithic artistic productions mirrored a deep, subterranean mistrust of the theoretical and practical sustainability of modern “civilisation”. From this point of view, troubles expressed by prehistorians in front of these objects strikingly resemble the current debates on art and industry. Lartet and Christy note for example in 1864 that “these works of art hardly match the gross barbarian state of civilisation in which we imagine these aboriginal populations, deprived of the use of metals and other most elementary resources of our modern civilisations”; and they can but conclude that “progress and perfection in the arts not always appear in keeping with chronological stages” (Lartet and Christy 1864, 264). In 1889, Salomon Reinach, soon to become curator at the French Musée des Antiquités nationales, asks “how such elaborated arts could have existed among societies which were still savage”, and, exactly like Lubbock did some twenty-five years before, he answers by cutting the practice of art from the idea of civilisation: “We can observe that instinct in the arts of drawing is not strictly an offspring of civilisation” (Reinach 1889, 170). As we shall see, the on-going friction between this fascination for early human works of art and the belief in the global validity of a progressive path towards “civilisation” led inevitably to a deconstruction of the evolutionist idea of origins.

Conjuring the Lure of Palaeolithic Artefacts

Most of the early discoverers and interpreters of Palaeolithic artefacts were determined supporters of the over-arching “law of perfectibility”, which the positivist science “hung on to as to a safety anchor”, in the words of the astronomer Aimé Laussedat (1875, 45). Therefore, they could not content themselves with recording a discrepancy between art and industry by which the current public debates were haunted, and which constituted Palaeolithic cultures not merely as an early stage of civilisation but as an unsettling reverse image of modernity (a high-level proficiency in the arts and a low level of “civilisation” being opposed to a high level in “civilisation” and, to say the least, a severe crisis in the arts).

The easiest way to bridge the chasm was to confer an artistic status to technical tools and to describe them with the same vocabulary ordinarily employed for works of art. This is what one finds in Lubbock’s first characterisation of Neolithic “weapons and instruments” as “beautiful”. He was followed on this path by his British colleague John Evans, who readily describes the polished-stone instruments as “beautiful” (in contrast with the “ruder unpolished implements” (Evans 1872, 63) and who praises also occasionally the “beautiful workmanship” (Evans 1872, 65) of chipped flint stones, whereas he barely mentions the “works of art” from the “Age of La Madelaine” (*sic*) (Evans 1872, 438), and never grants them an aesthetic appreciation. Considering the growing number of objects which seemed to be “pure” works of art, however, it became more and more impossible to ignore them, even before cave art was officially recognised. These objects had to be integrated into the global system of progress in order to substantiate the idea that art, like all human activities, had followed a qualitative progression (Moro Abadía 2013).

To serve that purpose, one strategy was to try to demonstrate that the first stages of human artistic activities were materially and technically poor, disorderly like child drawings or visually repelling like caricatures. Jacques Boucher de Perthes' so-called "figure-stones" (Boucher de Perthes 1847–1864, vol. 3, 481) are a fascinating symptom of this belief: in his attempt to attribute works of art to the earliest stages of humanity, he imagined that natural stones or fragments of chipped flint stones were naturalistic hand-made images (Labrusse 2022). These pareidolic leanings led him, from the mid-1840s on, to select and publish stones which always had a raw and clumsy aspect, as if his quest was predetermined by the prejudice that the "arts at their origin" should necessarily look clumsy. The title itself of his foundational work, *Mémoire sur l'industrie primitive et les arts à leur origine*, identifying aesthetics and technics as the two pillars of the history of culture, are in keeping with the contemporary debates already mentioned. It does not prevent him, however, from suggesting, like Lubbock, that arts cannot be a component of "civilisation": "a nation can be artist and poet, he writes, before being civilised" (Boucher de Perthes 1847–1864, vol. 3, 61), as if the rawness and oddity of his fancied "figure-stones" were not convincing enough to integrate the arts in the global idea of progress.

A few years later, in 1865, A. Meillet, a collaborator of the amateur archaeologist Amédée Brouillet, commissioned fake engraved bones with child-like graffiti in order to attest that, in the Palaeolithic societies of centre-western France, the alleged creators of these inexpert representations were at a stage of cultural infancy, between "the individual caprice of an idle savage" and "the style of five-year old children" (Meillet 1865, 50–51). To be precise, he intended to demonstrate that these artefacts had been made by migrant ancestors from the East who were the poorest and most illiterate fractions of their own nation and had even descended to a lower stage of civilisation in their new Western environment.

The famous cave painting controversy of the early 1880s further demonstrates this type of evolutionist reasoning: in this case, it did not originate from the counterfeit production of poor works of art but from the rejection of overly skilled authentic images, as if they were forgeries. Even when their authenticity began to be recognized, in the late 1890s, the first tracings of cave paintings or engravings were generally done in a deliberately clumsy style, as if the draughtsmen, like Emile Rivière at La Mouthe (Rivière 1897) or François Daleau at Pair-non-Pair (Daleau 1897), had integrated the idea that a prehistoric image should necessarily be untidy (Groenen 1994, 322–324) (a trait which was to be reversed after the final authentication of these paintings and the monumental copies, profiled in the form of veritable classical compositions, published by Henri Breuil at the beginning of the 20th century (Breuil and Capitan 1902; Breuil and Cartailhac 1906)).

Opposing the Palaeolithic and the Neolithic

From the start, however, the phenomenal ability of "Prehistoric artists" had also been a matter of surprise and admiration. As already mentioned, the extraordinary realism of their images seemed to match the requirements of the aesthetics of imitation (mimesis), promoted in official Academic circles as the most elaborate state of creation in history. Therefore, in order to protect the idea of the origins as a true starting point

in the course of progress, another strategy was developed. It consisted of focusing on the lack of elaborate intellectual intentions in these altogether fascinating objects. As beautiful as they could appear physically, it was argued that they concealed no spiritual meaning and were deprived of the conceptual content one should expect from a fully developed artistic creation. This argument could be used negatively, as a sign of “savagery” or “barbarism” (to have recourse to the vocabulary of the time), or positively, in the spirit of Rousseau’s “*bon sauvage*” (Rousseau 1755), and sometimes with a mixture of these two conflicting feelings (Dagen et al. 2003).

The praise of an innocent state of mind, deprived of religious anxiety, is central to Lartet and Christy’s first interpretation of Palaeolithic objects: “If necessity is the mother of industry, one can also say that an easy life of leisure gives birth to the arts” (Lartet and Christy 1864, 264). Following in this wake, Gabriel de Mortillet developed in the 1880s a dominant theory of Palaeolithic art as the product of a natural “artistic instinct” and, consequently, a primordial manifestation of art for art’s sake, made by human beings who had “a light spirit, lacking foresight and thoughtfulness” (de Mortillet 1883, 421). In his view, these objects were certainly not visually unelaborated, as he expresses in his famous, endlessly quoted formula: “this infancy of art is far from being an infant-like art” (de Mortillet 1883, 416); but they were nevertheless intellectually related to the first stages of civilisation, which one could still observe in the contemporaneous “savage” cultures. He could thus firmly establish the causal chain of progress from the very beginning up through the present, in order to “pave the way for the future on the ground of reason and justice”, in the words of his disciple Emile Cartailhac (1885, 475).

In his 1893 *Anfänge der Kunst*, Swiss ethnologist Ernst Grosse, as far as he is concerned, defended the idea of the practicality of the same artefacts, integrated in a culture of hunters and echoing their intense familiarity with the natural world in general and with animals in particular. The logical result, whose theoretical construction is infused by the natural and social evolutionist doctrines of Charles Darwin and Hippolyte Taine (Reichle 2012), was just the same: “Their realism, he wrote, is just a piece of evidence for their antiquity”, because they are the “aesthetic manifestation of skills developed for the struggle for life” (Grosse 1894, 296–297). The hypothesis of the magic hunt, which soon became the dominant way of reading Palaeolithic cave paintings and engravings (Reinach 1903), rested on the same presupposition. Implicitly, it was based on the assumption that the “struggle for life” had led gradually to a felicitous disalienation from natural threats, a freedom lastly embodied by the post-Neolithic conquests of science and industry, as opposed to the Palaeolithic’s rather ineffective artistic expressions and magical superstitions.

But deeper in the mind of the evolutionist interpreters of “prehistoric” art, these views of early human cultures rooted into natural feelings and in constant and close connection to the natural world opened the way to a “preference for the primitive”, as Ernst Gombrich (2004) coined it, which constantly counterbalanced the belief in progress, applied to art. Sometimes, such a preference was openly developed, like when Gabriel de Mortillet, in keeping with his anticlerical commitment, values the spiritual insouciance of early humans and utilizes their supposedly meaningless artworks as testimonies that the sense of the sacred and religious conceptions were not innate but historical constructions progressively invented by later societies. More often, however,

the attraction towards non-progressive and non-industrial cultures is not explicit but can be felt in the tone of scholarly analyses, as a sort of unconscious resurgence. In popular culture, by contrast, admiration for a new version of the myth of the Golden Age was more readily expressed, as it is shown by many representations of the “first artists” at the end of the 19th century, challenging the opposite cliché of the prehistoric man as a brute and cruel being (Dagen et al. 2003, 43).

If “prehistory” was preferentially identified with Late Palaeolithic, if this period was so mesmerizing, endowed by a sort of mythic aura, it is also because it seemed bound to remain unveiled, as a block of indistinctness. Available documentary traces remained poor and fragmentary and their interpretation highly disputable, if not structurally enigmatic, in the absence of any written or simply decipherable evidence. It thwarted all endeavours to give it a definite meaning, in the same way as works of art do. Paradoxically, instead of bringing the Western theories of the origins and evolution of art to completion, as it had first been expected, the notion of “prehistory” thus became an insuperable stumbling block for the progressivist obsession with the origins. In this context, Palaeolithic artistic artefacts in particular were endowed with a strong deconstructive power on the methods and ideologies of evolutionist art history. And their prestige derived precisely from this blurring of the beginnings, revealing at the same time the complex, conflicting nature of the modern quest for the origins. If these mythic origins were a matter of fascination, it was not as a clear starting point for a long journey of improvement but rather as an indecipherable stable structure, challenging the all-encompassing validity of the logic of progress. As the distrust of this logic expanded, an irrational attraction towards the obscure uncertainty of primeval artistic expressions only grew stronger.

Learning From our Preference for the Palaeolithic

Let us now return to our question: What can we learn from Palaeolithic art? Very little, considering its essentially fragmentary and obscure nature. From this point of view, for a popular audience, the main contribution of recent prehistoric archaeology is almost Socratic: science has gone from a battle of interpretations in order to secure the domination of one of them, to the coexistence of a variety of compatible views, and eventually to a methodological self-restraint, verging on sheer abstention. In museums and sites, in popular scientific books and electronic resources, one gets the impression that the lesson science wants all of us to learn is to know that we can know nothing about the meaning of Palaeolithic art. This is not what we want, however. The need of meanings and interpretations remains as strong as ever, even more potent today than it was a century and a half ago. Evidence for this is that neo-animistic views often edge their ways more or less consciously into the works of even the most academic and apparently positivist works of scientists.

We therefore need to shift the question and put it in these new terms: What can we learn from our fascination for Palaeolithic art? In this case, the answer will be: A lot, if we pay attention to the complete reversal of values which has occurred on this subject since the middle of the 19th century. Assuredly, these artefacts have been continuously identified as significant testimonies of the origins of human cultures. But the inferences drawn from this common premise are opposed to each other.

Logically, the embedding of this conception into the ideology of progress should have led to a condescending understanding of a primeval stage which was per force situated not only before but below later and more advanced developments. Regardless of the eventuality of fortuitous collapses and unexpected historical regressions, the general advancement in time had to be coextensive with an advancement in quality, i.e., in “civilisation”. To be the first stage in the history of mankind, chronologically, meant also to be a “primitive” stage, negatively. Indeed, the early interpretations of Palaeolithic artefacts were infused with this belief, when the objects were first discovered and later on, in the context of the difficult authentication of cave paintings, carved reliefs and engravings.

But it has been shown that this first impulse was almost immediately deterred and that a highly appreciative observation of so-called Palaeolithic “artworks” led to a collapse of the expected pejorative views of them. Rapidly though illogically, these “origins” were credited with a greater potency than their later offspring. This conclusion came not only from the outside, that is from the obvious beauty and refinement of the excavated objects themselves, but also from the inside, that is from a collective cultural desire, in the context of modern industrial cultures of the time. What attracted us was not so much the perfection of the art forms (after all, many of the artefacts discovered were deprived of it) but rather the assumption that a stable or slowly evolutionist equilibrium in human cultures had prevailed for a very long period of time. This observation directly counterbalanced the specific anxiety provoked by incessant historical changes in modern times. Briefly speaking, a culture characterised by art rather than by technics appeared to be not only missing the train of progress, but also – and contradictorily – escaping it, in the positive sense of the word.

As a result, the consideration of Palaeolithic art and culture was critical in blurring a universal linear conception of evolutionism, going from a point of origin to a point of completion. This was challenged by a dualist vision distinguishing between Palaeolithic and Neolithic, that is between stable societies based on art and environmental harmony, and evolutionary societies governed by technics and the exploitation of natural resources. Consequently, cultural evolutionism tended to be reduced to merely an accident in the history of mankind rather than a general and inescapable law.

Eventually, a growing disbelief in the a priori worthiness of progress and a symmetrical anxiety about the plausibility of a global downfall favoured our now prevailing preference for the Palaeolithic. In this context, what we can learn today from our relationship to Palaeolithic art is not so much about the people of that time than about ourselves: it shows that we feel the urge to break with what has been identified as a Neolithic vision of the world. It does not mean that we are at the end of the Neolithic but rather that we dream of this end, and that our current vision of the Palaeolithic, with the artistic impulse at its core, is instrumental in this contemporary reverie.

The invention of the Palaeolithic was infused with such a desire from its very inception; but it took a century and a half for it to become predominant in the popular view of human prehistory. Inasmuch as ideas are performative, the collapse of the evolutionist notion of origins, as seen in our praise of Palaeolithic art, may soon be followed by the collapse of our present modernist culture, thus rendering the future truly unpredictable.

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Understanding Palaeolithic Figurative Manifestations as Art: an Hermeneutic Perspective

Abstract Palaeolithic manifestations constitute an extraordinary window to the lifeworld of people with whom we share many human-making traits even if the precise content of their experiences would have been considerably different from ours. Understanding Palaeolithic visual imagery constitutes a particular case of the more general hermeneutical problem of understanding cultural manifestations of peoples from other times and places. Following Hans-Georg Gadamer's approach to hermeneutics, Palaeolithic manifestations require taking into account the contexts in which they were produced as well as our contemporary contexts of interpretation. The objection that Gadamer's hermeneutics would require the elimination of the category art from archaeological research of Palaeolithic manifestations is considered and rejected. It is concluded that hermeneutics offers a valuable, fruitful avenue for deriving new insights regarding their makers' cultural grasp of the world.

Keywords Palaeolithic, hermeneutics, Gadamer, art, understanding, cave art

Introduction

The Symposium invited us to discuss the question “What can we learn from Palaeolithic Art?”. This question opens up at least two issues. On the one hand, we may note that some in the archaeological community have contested the art status of prehistoric visual manifestations, in particular those that go under the labels ‘rock art’ and ‘Pleistocene art’. On the other

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hand, “learning from Palaeolithic art” raises the question whether it is even possible to understand Palaeolithic manifestations.

In some ways, one may see these two issues as connected, insofar as the art status of prehistoric manifestations has been contested by appeal to the supposition that the cultural difference between present and pre-historic societies makes meaningless and misleading the translation of concepts such as *art* to the Palaeolithic. In other words, the supposition is that we cannot properly *understand* Palaeolithic manifestations through the category *art* because the large gap in time and culture leads to something akin to a ‘category mistake’ when we apply *our* concepts to *their* manifestations. This leads to the larger question regarding *the conditions* in which we may be said to *understand any thing at all*, especially when confronting manifestations of people removed from us by large gaps of time, and living under significantly different environmental, social, economic and cultural conditions.

Recently, appeal has been made to Hans-Georg Gadamer’s hermeneutics in support of the view that reference to Pleistocene visual manifestations as art is the result of a prejudicial supposition arising in contemporary societies. In the following I argue that, on the contrary, Gadamer’s account precisely shows that to view at least some pre-historic, figurative visual manifestations as art generally may be *appropriate* and *productive* in generating adequate understanding of those manifestations.¹

This essay begins by introducing key points of Gadamer’s theory of hermeneutics. It is followed by discussion of the proposal that hermeneutics might support eliminating consideration of Palaeolithic manifestations as art. Finally, it makes some suggestions regarding how viewing figurative manifestations from the Palaeolithic period as art in fact may help us understand them.

Gadamer’s Hermeneutics: Key Points

In “Classical and Philosophical Hermeneutics” Gadamer traces hermeneutics to a long interpretive tradition that arises with concern for the correct understanding of allegorical theological texts going back to Augustine (354–430 CE) and continuing in the Mediaeval period (Gadamer 2007a, 46). While in pre-Modern times hermeneutics basically consists of technical advice (*Kunstlehre*) on how to avoid errors in interpretation of ambiguous passages, during the Reformation it develops as a method for “objective, object-centered” readings intended to be “free of subjective arbitrariness” (Gadamer 2007a, 46–47). Eventually, Friedrich Schleiermacher (1768–1834) transforms hermeneutics into a method for making theological tradition understandable by attempting to reconstitute the mindframe of authors (Gadamer 2007a, 47).

1 While our concern here primarily is with Palaeolithic art, my points regarding hermeneutics and art are intended as applicable to pre-historic as well as non-European manifestations generally. Furthermore, I use the term ‘figurative visual manifestations’ to refer to paintings, engravings (including dendroglyphs), as well as sculptures (portable or not), bas-reliefs, and rock arrangements (geoglyphs) that present more or less discernible figures to sight. In other words, by this term I intend to encompass physical items presenting both naturalistic and fictive (hybrid or fully invented) images that seem to constitute recognisable figures.

In interaction with the Romantic doctrine of creativity (Gadamer 2007a, 51–53), Schleiermacher's approach based on “psychological interpretation” was adopted in the philosophical hermeneutics of Wilhelm Dilthey (Gadamer 2007a, 50–54). By his own account, the immediate antecedent to Gadamer's exploration of hermeneutics is Martin Heidegger's ontological understanding of hermeneutics (Gadamer 2007a, 56–57).² While their predecessors had sought to find an interpretive *methodology* for the sciences (*Wissenschaften*), in the hands of Heidegger and Gadamer hermeneutics becomes a fully general account of what it is *to understand anything*.³

In a 1992 paper Harald Johnsen and Bjørnar Olsen note that there have only been a few explicit discussions of Gadamer's hermeneutics in relation to Archaeology (Johnsen and Olsen 1992, 419), and, up to a point, it still is the case today.⁴ Generally, concerns regarding interpretation have been considered part of ‘post-processual’ methodology as introduced, among others, by Ian Hodder and Christopher Tilley (see, e.g., Thomas 2000). As Johnsen and Olsen suggest, Gadamer's hermeneutics, however, should be seen as of significant relevance to Archaeology more generally (Johnsen and Olsen 1992, 423, *passim* and 433). This certainly makes sense inasmuch as it is a historical science that pursues understanding of human actions and artefacts.

More recently, Oscar Moro Abadía and Manuel R. González Morales (2012) have deployed Gadamer's hermeneutics in the discussion of Pleistocene manifestations in order to argue for vigilance regarding prejudices, especially concerning the application of the category *art* in its context. In the following, I argue that, even if Gadamer's theory indeed does urge critical approaches to unfounded suppositions, it does not support their eliminativist view regarding the category *art* in non-contemporary contexts.

Gadamer considers the conditions for the possibility of understanding and what distinguishes adequate understanding from mis-understanding. His account may be summarised in four points. First, pre-judgements, understood as interpretive judgements made in advance of the availability of full evidence, are *essential* in the achievement of understanding. Second, understanding is not realised by simply taking up information, in the manner supposed by positivistic approaches. Instead, it requires something like *a dialogic conversation* between the interpreter and the text.⁵ Third, grasping the point of a text is not only a matter of reconstructing the meaning that the text had when it was created. Rather, to be understood, it needs to be meaningful to us in our own circumstances. Fourth, there is no final, conclusive interpretation of a text. I develop these points a little more next.

2 Heidegger's account is in terms of the emergence event (*Ereignis*) in processes of disclosure of truth that ground presence in time (*Dasein*) (for further details, see the reference).

3 Most interestingly for our purposes here, he explains that in order to highlight the necessity of presuppositions in understanding he chose to begin his book *Wahrheit und Methode* (1990, originally 1960; translated as *Truth and Method*, Gadamer 1989) with “the experience of art” (*Erfahrung der Kunst*; Gadamer 2007a, 61). More on this later.

4 But see Back Danielsson, Fahlander, and Sjöstrand (2012); Cole (2009); Corbey, Layton and Tanner (2004); David (2002); Tonner (2010).

5 Throughout this paper, we will proceed on the assumption that what goes for texts goes for other matters to be understood, including art, gestures, ‘body language’ and so on.

Pre-judgement or *Vorurteil* and Prejudice

In the hands of Moro Abadía and González Morales, Gadamer's key message is that we are always beholden to *prejudices* (Moro Abadía and González Morales 2012, 264 and *passim*). In their view, the consequence of this is that "our interpretations are necessarily *imprisoned* within our words and concepts" and "it is *impossible to try to escape* from one's own frameworks", even if they also assert that we do not "have to uncritically accept *the tyranny* of our preconceptions"; rather, we are to discriminate between "legitimate prejudices... and non-genuine prejudices" (emphases added; Moro Abadía and González Morales 2012, 267).

Even if they are correct in supposing that, according to Gadamer, some presuppositions are to be rejected while others accepted, the manner in which they discuss so-called "prejudices" itself turns out to be highly prejudicial. Certainly, to anyone who has read Gadamer's *Truth and Method*, especially if she did so in the original German, their way of understanding his account of hermeneutics may come as a great surprise since Gadamer explicitly endorses Heidegger's point that understanding *fully requires* those so-called "prejudices" (Gadamer 2007a, 62).

For those not acquainted with the original, the German term in *Wahrheit und Methode* that in English translations alternatively is rendered as "prejudice" and as "pre-judgement" is *Vorurteil*, which, when its constituents are read out, *vor-Urteil*, literally stands for *pre-judgement*. Gadamer quite intentionally brings up the deeper meaning of this term in the context of his discussion of other Heideggerian terms that involve the suffix 'pre-', *vor*, as in *Vorhabe*, *Vorsicht* and *Vorgriff* (pre-having or intention, pre-view or caution, and pre-grasp or anticipation), and himself adds some to this set by speaking of *Vorentwurf* (pre-projection or preliminary design), *Vorwegnahme* (pre-takings away or anticipation), and *Vormeinung* (pre-opinion or pre-meaning or prior opinion).

So, while Gadamer (1990, 274-275) indeed is concerned with misleading pre-judgements, which he describes as caught up in *Voreingenommenheit* (literally: pre-taken-inness), that is, *bias*, he concurs with Heidegger in *denouncing* the Enlightenment pre-judgement against pre-judgement. This is because understanding relies on the 'hermeneutic circle', and movement along this circular track precisely depends on making judgements *before* all of the evidence has come in. Notably, the 'hermeneutic circle' simply is to make (revisable) claims about *wholes* on the basis of acquaintance with their *parts*, and claims about *parts* in view of the evolving grasp of *the whole* (Gadamer 1990, 270-272). This is most easily seen in the sequential reading of texts, which, to be understood, necessitate the continuous projection of what the whole may mean if any one part is to be understood at all.

Taking as our example the first text of the European literary canon, the first sentence of the *Iliad* sets the stage for the rest of the text, which either confirms or falsifies the judgement that this first sentence calls up in the reader: "Sing, goddess, the anger of Peleus' son Achilleus and its devastation, which put pains thousandfold upon the Achaians..." (Homer 1961, 59).

Moreover, for the Greeks *the very first word* set the stage, so to say, which in the Greek text is *μῆνιν* (*mēnīn*), "of anger/wrath". So, on that account, one would think that the *Iliad* is about the consequences of anger for the Achaians. The second sentence,

however, says “What god was it then set them together in bitter collision?”, thereby modifying our initial projection, since it now lays out the prospect that the action is fated by the gods.

This process of revisions of the meaning of the whole based on the meaning of the parts goes on until reaching the end of the book when, with a view of the whole completed, we can now review whether our earlier interpretations of each part were justified or need to be viewed in a new light. Circumspect readers discover that, as a matter of fact, a single text allows for indefinite re-readings, each of which constitute new hermeneutic circles as our grasp of ‘the seat in life’ (*Sitz im Leben*) of the text is plumbed in new ways while one’s own experiential horizon shifts as well.

To come back to Gadamer’s view concerning *Vorurteile*, he explicitly says that the value of any pre-judgement remains open until there is a “grounding” (*Begründung*) in the text (Gadamer 1990, 275, 369),⁶ and accepts that this runs counter to the principle of Cartesian doubt, which gives no credence to anything that could be subject to the slightest uncertainty (1990, 275). Moreover, insofar as the matter to be understood is embedded in a tradition of interpretations, that tradition (*Überlieferung*) itself becomes a resource for understanding the text (Gadamer 1990, 274 and *passim*).

So, contrary to Moro Abadía and González Morales’ assumption (2012, 273), Gadamer’s view is *not* that we need to expunge the prejudices transmitted to us by tradition (see Gadamer 1990, 281–290). That indeed is the requirement set out by Enlightenment methodology, inspired by figures such as Francis Bacon. Gadamer’s view, rather, is *to take up* those ‘readings’ generated in tradition as interpretive options for our own readings. In this sense, Gadamer is a self-conscious heir to the Romantics who saw the rejection of tradition as an unjustified, biased prejudice of the Enlightenment.

Nonetheless, for the hermeneutic circle to be ‘virtuous’, pre-judgements have to be ‘worked out’ through confrontation with the things (or matters) themselves (“*den Sachen selbst*”). In other words, to avoid being stuck in possible mis-interpretations, what is required is an approach that opens up the interpreter to *what the text actually says* (Gadamer 1990, 270–271). On Gadamer’s view, this whole process, in any case, requires a grand initial presupposition, namely that the text or matter under view be seen as having “unity of sense” (Gadamer 1990, 271–272; 2007a, 68). Arbitrary pre-judgements are detected by the fact that they do *not*, in the end, permit unity of sense of the text. That is, *arbitrariness* (*Beliebigkeit*) and *bias* in pre-judgements are shown by the fact that, even if they may fit a particular part, they cannot give a coherent sense to the *whole* text.

So, in a way, if not confirmed by the text, pre-judgements are something like ladders to be thrown away once climbed. Though perhaps this would be stretching analogies, one may view Gadamer’s approach to understanding as running in parallel

⁶ Guided by the literal meaning of the German term *Vorurteil*, pre-judgement, Gadamer points out that in the justice system a judge begins assessing a case guided by antecedent facts and case precedents, which necessarily will colour her grasp of a case. While this may seem prejudicial, in the pejorative sense of biasing, Gadamer argues that it is inevitable and not necessarily harmful if accompanied by readiness to change as called for by the facts of the matter.

with Karl Popper's "falsificationist" approach in science (Popper 2002).⁷ According to Popper, all empirically testable proposals are valuable, since *any* falsifiable hypothesis investigated will increase our understanding – even if only in a negative sense (by showing us which are to be rejected).

Linguisticality or *Sprachlichkeit* and Dialogue

For Gadamer the process of discovery whether pre-judgements are justifiable by confrontation with the text is fundamentally mediated by language (Gadamer 1990, 385 and *passim*). With regard to actual texts, this entails that interpreters inquire not only regarding the meaning of the terms in relation to their immediate con-text but also regarding their use within the historical period in which the text originates. However, the linguisticality or *Sprachlichkeit* of understanding means more than this since, most importantly, language and linguisticality make possible the question-and-answer dialogue that Gadamer posits as essential for all understanding (Gadamer 1990, 373–384; 2007a, 63–70).⁸

Texts are only understood as meaning a particular thing when understood in relation to *what else* could have been asserted. But then, in order to understand what something means, it is necessary to ask what those other assertions are that were *not* made but *could* have been. That, however, means that we see the text at hand as *a chosen answer to a question*. So, to understand a text is to understand the question that it is answering (Gadamer 1990, 375–389). In other words, grasping the meaning of a text is a matter of entering into *a dialogue* with that text, insofar as adequate interpretation means asking a question of the text such that *the text may reveal what question it is answering!*

As a paradigmatic case we might think of Plato's figure Socrates who, surprised, asks what it is that the Delphic oracle means when, in the name of the god Apollo, she claims that Socrates is the wisest person in Greece (Plato 1978, 20e-23c).⁹ Socrates has to find the answer to the riddle by asking himself how to understand the oracle's claim through the alternatives that she does not choose. The way he decides to investigate this is not by asking the Pythia but by querying those who claim to have wisdom to learn in what way he might be counted as wise among them. At the end of his

7 As noted by a reviewer of this paper, "hermeneutical pre-judgments always rely on tradition (not the tradition of knowledge but the tradition of our understanding the world, i.e., our being-in-the-world) while this is not the case for Popper's falsifiable hypotheses" (Reviewer 2, 25 March 2021). Another reviewer suggested that the 'tradition' in which Gadamer writes precisely stems from Ancient Greek times, but that this fact should give us pause to wonder whether we may apply Gadamer's hermeneutics to traditions that have arisen in other 'epochs', such as the Palaeolithic. While I take this to be a fair challenge, I see no reason for supposing that the principles of understanding carved out by Gadamer are not universally relevant.

8 However, as noted by a reviewer, this does not fully describe the importance that language has in Gadamer's hermeneutics: "Language stands for the 'ontological turn' of hermeneutics because through language humans take part in the emergence/unfolding/appearance of truth (there is no truth besides its self-expression)." (Reviewer 2, 25 March 2021)

9 Regarding Plato's texts as exemplary of question-and-answer dialogues in the hermeneutic process, see Gadamer (1990, 368–379).

investigation, Socrates concludes that the oracle had attributed to him greater wisdom than others precisely because he had already realised the need to continue enquiring what it is to be wise, and not to take it as a given that he is.

With regard to non-linguistic, visual manifestations of the sort found in the Palaeolithic record, how the matter at hand may enter into language and dialogic conversation may seem more challenging than in the literal case of texts. The issue in this situation might be rephrased as a question regarding the point that the manifestation is making *by contrasting it* with its possible alternatives. For instance, if we have a painting of a lion at hand, the questions that we may want to ask are, why paint a lion and not a bear or a rhinoceros or a mammoth or something else?, why here and not somewhere else?, why near the other motifs that actually are near it, and not near *other* motifs?, why paint?, why make a lasting mark at all?¹⁰

In short, the way to find the question being addressed by the painting is by asking what point is being made by making an image here, making it in this way – when some other image could have been done in some other place in some other technique – or not at all. So, Gadamer's approach suggests that understanding something like the lion image is predicated upon understanding the choices available to someone such that, without this lion image painted in this way here, the point being made would not be made. In other words, the question is, what makes this lion image at this spot 'right'?¹¹

Horizons and Fusion of Horizons

Gadamer introduces the term 'horizon' in relation to all that an interpreter can 'see' from where she is at any one point in time, in relation to the object in question. It directly relates to the supposition just discussed that a text is to be understood as a response to a question that the author has. The term horizon designates *all the responses* that an author could have given in answer to the question that she faced when she chose to give the particular answer that she *actually* gave, and that the interpreter is now confronting as text (Gadamer 1990, 375 and *passim*).

The concept of horizon may be easily grasped in relation to those cases in which we are puzzled by certain actions or responses. For example, if we hear of someone of whom we know that she prefers vanilla that she in fact chose a chocolate ice cream, we may feel puzzled by the choice – until we find out, for example, that either chocolate was not available or that she didn't realize that it was available. If we find out that chocolate was available and she knew this, we will have a gap in understanding, which we generally try to fill in by bringing in new hypotheses (new pre-judgements) to broaden our horizon by supposing, for example, that sometimes she feels adventurous or curious or has other reasons to act out of character.

Gadamer uses the concept of horizon to draw attention to the role in understanding of one's historically shaped consciousness (*wirkungsgeschichtliches Bewusstsein*),

¹⁰ Also see Davidson (2020) regarding enduring marks in relation to pre-historic art.

¹¹ Regarding fittingness or rightness, also see Gadamer's (2007b, 197) description of encounters with art, be they in poetry or the pictorial arts: "the same affirmation ... that we often utter as we recognize a work of art is 'right,' namely, 'So ist es!' ['That's it!'] or 'Yes, that's the way things are!']".

that is, to the fact that one's grasp of what makes sense is conditioned by our particular place in historical time, and by how that place shapes our ways of 'being aware' (*Bewusst-sein*). The consequence of this is that while some statement or other human manifestation may have made obvious sense to its author, we, at our place in time with our particular historically shaped consciousness, may struggle to understand what it may mean (see especially Gadamer 1990, 305–312). There are two errors in the grasp of what understanding is that Gadamer points out with the help of the concept of horizon.

On the one hand, along with the proponents of historicism (*Historismus*), Gadamer repudiates the idea that we can simply 'be objective' in the sense that the Enlightenment philosophers and the later positivists thought that we could. There is no 'god's eye' point of view for describing and grasping the meaning of human action or its products. Our attempts at achieving objectivity are always already pre-figured by our historically shaped consciousness when approaching the object.

On the other hand, Gadamer also repudiates the Romantic historicism according to which we understand when we can reconstruct or reconstitute the mindframe or consciousness of the author of a text. He sees two problems with this, first, that the text *says more than the author knows or is aware of*, and, second, that understanding is not achieved until the text or product can be located *within our own horizon*.

Regarding the first problem, it is now commonplace that poems, novels, speeches and artworks have *a voice of their own*, which may or may not coincide with the views of the author (Gadamer 1990, 377–378). Often artists and writers themselves point out that they only found out what their artwork or text means once they finished it. This leads to the practical conclusion that interpreters should take *the text* as their guide and *not* the generally inaccessible, and possibly irrelevant, mindframe or thought processes of its authors.¹²

Regarding the second problem, Gadamer makes the general point that *to really understand* any thing means that *we* can see the point of the statement or expression, not just its authors or contemporaries (Gadamer 1990, 379–381). This becomes clear as soon as we try to imagine a situation in which we don't. Generally, we are quick in giving sense to the thing to be understood by launching certain pre-judgements. If someone does something that seems odd we feel a certain urgency to find some way to accommodate the view within our own worldview, for which reason it is difficult to locate examples of things that are not understood at all. Nonetheless, we may find some cases that offer more 'resistance' to interpretation than others.

For instance, we may "feel stumped" by behaviour that falls squarely outside common norms of reasonableness or morality, such as acts of excessive recklessness or of excessive cruelty or strongly contrary to evident self-interest. All such acts call for special accounts. The apparently reckless behaviour of rock climbers and spelunkers, for example, can be understood once we become aware of their superior training and appropriate equipment and their unique motivations. The behaviour in question does not become any the less out of the norm but understanding it means that we can see how, if *we* were in their place, with their conditionings, we might see it as reasonable or acceptable.

12 Within a different context this point is also developed by Wimsatt and Beardsley (1954) with regard to "the intentional fallacy".

Highly morally deviant behaviours, such as parricide, infanticide, incest, cannibalism and idolatry all have occupied writers for a long time in their attempt to understand what may move those who are deemed to do such acts. Those acts may become more understandable, even if still morally abhorrent, if we find evidence that their motivation was of the sort that *we* might *also* envisage if our apparent options were radically narrowed as theirs were. For example, Medea's infanticide of her own children may perhaps be understood, if at all, as an act of desperation in a cloud of rage. In such ways, we attempt to accommodate actions inside our own horizons that would normally not find their place there.

In any case, it is to be noted that Gadamer *only analytically* speaks of two distinct horizons, of interpreter and text, just as Aristotle only analytically speaks of substances being matter and form while, in reality, they are inseparable. Actual understanding is merging or fusion of horizons (*Horizontverschmelzung*, literally, 'melting together of horizons') that are only kept apart in analytic discourse. So, Gadamer argues that if the horizon of the author were reconstituted *without* making sense to the interpreter, at most we would have a sort of antiquarian, meaningless, record. Genuine examples may be hard to come by, but perhaps the case of Ötzi, "the Iceman" found in a glacier at the Austrian-Italian border, is to the point. His presence in the inhospitable area is a mystery until, on the evidence of his fatal injury by arrowhead, we may conclude that he was perhaps fleeing aggressors (Fagan and Durrani 2016, 303).

Another candidate for manifestations that are hard to understand may include the pre-historic, abstract markings on cave walls, even if their meaningfulness as some sort of proto-writing has recently been mooted (George, 2016; von Petzinger, 2016). We can perhaps approximately establish when the marks were made, who the people were who made them, what they used to make the marks with, that they were not just accidental (i.e., that they were intentional), that the makers had other options (such as leaving no marks, or painting or engraving figuratively), and so on, but *still* fail to understand because the action does not clearly make sense *to us*.

No Final or Single Meaning

Gadamer emphasises that the so-called hermeneutic circle is a *virtuous* circle, but that this does not mean that it will lead to a single or final resolution. That is, though there are ways to arrive at more adequate understanding, our understanding will still continue to evolve (Gadamer 1990, 379).

As already pointed out, the hermeneutic circle is *a circle* insofar as understanding is achieved by repeated going through a text since, to understand, we need to project meanings for the whole based on the parts that we progressively read. At each stage of reading we apply pre-judgements. Adequate reading is achieved by attention to what the text actually says, so that the pre-judgements that fail to fit the content of the text are dismissed. For example, the first few words may suggest that a text is a thriller. As one reads on, one may encounter wording, however, that suggests a comedy instead. If this second supposition gets further confirmed, the way to understand the text may be to dismiss the earlier assumption or to somehow integrate the two. This process continues on until one has completed the reading, by which time each of the parts would have acquired a different meaning from what they had in the first reading.

The result is that this is a process that, if done with care, will continuously extend and correct understanding of the text. In literature we may think of the story of Theseus and Ariadne: when we read of Theseus slaying the Minotaur we may view it as an heroic epos, when he elopes with Ariadne it looks like a love story, and when he leaves her stranded on the island of Naxos it seems to be a tragedy, even if – as a consolation prize – she gets to marry the god Dionysus. In archaeological research the evolution of understanding over time is well documented, since each generation of researchers can use new techniques and theoretical frameworks not previously available. Moreover, and especially to the point, conclusions reached in earlier research can work as pre-judgements to be tested by re-analyses of the evidence, given updated techniques, auxiliary data, and more comprehensive theories.

For instance, and quite remarkably, after the confirmation of the very early dates for most of the paintings in the Chauvet Cave, conclusions about the supposed pinnacle in representational skill attributed to the painters of the earlier known Palaeolithic sites, such as Lascaux, had to be revised. For an example on a smaller scale, once there was an identification of a single author for most of the handprints located in the entry area of the Chauvet Cave, the presence of handprints deeper in the cave changed in meaning when it was discovered that at least some were of the same person.

Hermeneutics Against 'Art' in the Palaeolithic?

What concretely can Gadamer's hermeneutics contribute to the understanding of Palaeolithic visual manifestations? Certainly, contra Moro Abadía and González Morales (2012), more than the recognition that we are subject to biased prejudices. Even Émile Cartailhac's famous initial refusal to accept that the paintings in the cave of Altamira may have had pre-historic origins (Cartailhac 1902) may be seen to make a positive contribution to the understanding of those manifestations, since it shows the degree to which its standards of figurative, realistic, representation coincided with the prevailing artistic tastes of his own time.¹³

The Concept 'Art'

Gadamer's hermeneutics suggests that understanding means being attentive both to the horizon of the text, or matter under consideration, and to our own horizon. While Moro Abadía and González Morales (2012) suppose that Gadamer's account vindicates their supposition that Palaeolithic visual manifestations should *not* be seen as *art*,¹⁴ hermeneutics invites us to reflect not only on the horizon of the paintings but also on *our own horizon*.

13 This surprising fact calls for explanation, of course. See Davidson (2020) for an attempt to explain this kind of convergent cultural evolution.

14 Ironically, Gadamer himself displays no reticence in speaking of "early cave paintings or other prehistoric plastic images" as pertaining to "the pictorial and plastic arts" (2007b, 197). Moro Abadía and González Morales themselves unapologetically refer to Pleistocene visual manifestations as "artworks" (2012, 270).

As I have argued elsewhere (Heyd 2019a; see also Heyd 2019b; Heyd 2012; Heyd 2001; Heyd and Clegg 2005), critics of the application of the term ‘art’ to visual manifestations from prehistoric and non-European contexts oddly tend to work with an outdated concept of art, shaped by the artworld and art theories of the 18th and 19th centuries. In other words, for whatever reasons, such critics *continue* assuming that the term ‘art’ makes reference to the production of objects of ‘transcendent’ character, made in aesthetic spheres separate from the rest of life and in an individualistic context under the influence of ‘genius’, to be recognized by ‘a universal faculty’ but also requiring art connoisseurs, and necessarily denuded of practical utility (see Moro Abadía and González-Morales 2008; Soffer and Conkey 1997; Tomášková 1997; White 2003). This view of art, however, has been *long superseded*, as even a furtive glance at 20th century art practice and products reveals.

Without going through my earlier arguments here again, be it noted that even by 1902, when Émile Cartailhac had finally recognized the paintings in the Cave of Altamira to be pre-historic, the 18th century concept of painterly art had *already* been thrown into disarray. We need only remember that the Impressionists, active 1876–1886, had by then turned painting into an ‘experimental’ visual exploration, aimed at uncovering how we actually see landscape (*Encyclopaedia Britannica* n.d.). Moreover, as is well known, the trend to turn art into a wide-ranging exploratory field for challenging all formerly secure givens of artistic practice, political assumptions and societal prejudices continued with increasing power from that time onward. This is evidenced by the work of the Fauves (from around 1905), Pablo Picasso’s *Demoiselles d’Avignon* (1907), Marcel Duchamp’s “anti-art” (from around 1913), dada (from about 1915), and all the subsequent avant-garde movements (e.g., see Bürger 1984).

Certainly, by the time that Marcel Duchamp proceeded to offer ready-mades, such as an upside down urinal titled *Fountain* (1917), as art, *any* pretense that art were to be defined through appeal to inspiration by genius, or delimited by exclusive production for an aesthete art market, had been blown apart.¹⁵ Only dyed-in-the-wool provincials could still believe in the old definition of art while art practice and theory went on their inexorable trajectory toward the mostly non-aesthetic modes of the present.¹⁶ Out of hand, it does a profound dis-service to the understanding of Palaeolithic manifestations to dismiss the hypothesis that these figurations may be viewed as art – simply by appeal to a conception of art that was *anachronistic already* when Palaeolithic manifestations were first discovered!

Moreover, to take refuge in terms such as “visual imaginaries” (Conkey 2010) in order to avoid the term ‘art’ does not necessarily make things clearer, because the term ‘imaginary’ really leaves unclear that art is not just a matter of a mental state but that it refers to actual physical traces on view. Some suggest to replace the term ‘art’ with “visual cultures” (e.g., Nowell 2006, 244) on the supposition that the term ‘art’ is “anachronistic”. Its advantage, however, is debatable since it would seem that the concept culture is no less anachronistic for, surely, no Altamiran hunter-painter

15 But see Humble (1984, 119–28), who argues that avant-gardiste pieces should not count as art.

16 See Binkley (1977) for an account of non-aesthetic art.

thought of ‘visual cultures’, and, while there may be debate regarding what art is, the concept ‘culture’ is not any the more transparent (see, e.g., Ingold 2002 329–349). Furthermore, when terms such as “visual language” are applied to pre-historic manifestations,¹⁷ they probably are not to be taken at face value since, surely, it would be difficult to show that each image on display has a univocal, conventional meaning in a system of symbols, as befits a language (see Young 2001, 38–44).

In any case, why we should not consider as art those sophisticated manifestations that in any other context *would* count as art calls for further argument. We do not have the same reticence to call highly skilled objects used as axes ‘axes’ or as scrapers ‘scrapers’, and so on. In short, to object calling something ‘art’ merely on the grounds it does not originate in the Modern European sphere of influence would itself seem to be biased and possibly ethnocentric. Attempts to implement a new vocabulary in Archaeology to avoid those terms that for whatever reasons have seemed problematic all run into the same hermeneutic fact, pointed out by Gadamer, that to understand anything we necessarily have to apply *our* categories and *our* terms to the text or matter at hand, since it has to make sense *to us*.

Gadamer on Art

Gadamer himself, on whom Moro Abadía and González Morales (2012) ground their argument, critiques the aesthetization of the art concept and the reference to genius that took place in the wake of Immanuel Kant’s discussion of art (Gadamer 1990, 98–99 and *passim*). In Gadamer’s view art is grounded in skillful generation of objects and events that allow for a kind of complementary cognition to conceptual cognition.¹⁸ That is, artworks ‘open up a world’ that, modulated by the capacities of the artist, more or less richly disclose insights that may help viewers to make sense of their own lived experiences. As James Young (2001, 26–38) points out, one way in which illustrative art does this is by offering *types* of events, characters, experiences, and so on, that resonate with our own particular experiences.

For instance, Homer’s poetry was a fictionalised image of the world of the Achaians, who the Greeks in the classical period, 700 years after the supposed events, considered their ancestors. By accessing the legendary ‘world’ of their ancient heroes opened up by Homer’s poetry, the Greeks thought of themselves as having access to models for how to understand, and lead, their own lives. How do we, today, understand Homer’s *Iliad* and *Odyssey*? Following Gadamer’s account, for us to understand those works means reconstructing the historical context in which these texts originally were meaningful – *as well as* finding those texts meaningful *for us today*.

Understanding Homer, in other words, is the *merging* or *fusion of the horizons* of these respective meanings. When we read of the anger of the fighter Achilles, of the frustration of the seer Cassandra, or of the homesickness of Odysseus, understanding

17 See, e.g., Chippindale and Nash (2004, 23), who speak of rock art as “a more complex and expressive visual language”, by which they apparently intend that the manifestations make up a meaningful array.

18 Today we may say that the contrast is with cognition based in propositional statements. For an elaboration, see Young (2001, in particular 38–43).

the text means that *we do not* merely see each one of the images offered by Homer as presenting feelings or intentions enclosed in a black box, in the way that the feelings and intentions of insane people or aliens might be. Rather, understanding those texts means that *we* can be caught up in what it would mean *for us* to be those people in that world, and to transpose the point of their experiences into *our own lives*.

Understanding non-textual visual manifestations, of course, entails its own complexities as well as advantages. While texts may elicit images, their operative mode of reaching us is through language, that is, through systems of symbols that have conventional interpretations. This linguistic mode of communicating at least partially fixates interpretation in ways that visual manifestations *do not*. Visual images, however, may import meanings that cannot easily be transmitted by words (see Langer 1953), as is captured by the saying that “an image is worth a thousand words”. Consequently, the import of such visual manifestations is much more dependent on the apprehension of their context and on the interpretive skills of the viewers. This is the more so, the further we are separated from the original experiences that motivated those manifestations.

Seeing Palaeolithic Visual Manifestations as Art

For whatever historical reasons, the science of Archaeology has mostly pursued modes of explanation modelled on the natural sciences, intent on determining the past in terms of cause-effect relations. As noted, it may be argued though that, insofar as Archaeology is a historical science engaged in uncovering human actions and experiences, hermeneutics as an account of how we attain *understanding* should rather be of central interest to the discipline (Johnsen and Olsen 1992, 423).¹⁹

The archaeological record may contain traces of human activity of diverse kinds related to the maintenance and reproduction of lives and communities, but also traces such as paintings and engravings that may puzzle us, insofar as they seem to have involved activities that were not merely instrumental in reaching easily understood goals, such as securing nutrition, shelter or mates. Many of the extant painted or engraved marks, sculptures and spatial arrangements of objects, display a degree of care in their execution that clearly exceeds the functional requirements of such objects. For instance, elegantly executed spear throwers, broaches and hand-held tools. As such, they very much fit the current most accepted concept of artworks as things, events or processes that are in some way *extracted from the natural world and offered for appreciation* to a potential or actual audience (Dickie 1974).²⁰

19 See Gadamer (2007a, 67) regarding the importance of hermeneutics in the social and natural sciences as well as in the humanities. The more general question concerning whether the social sciences, including Archaeology, ought to be directed toward explanation or toward understanding (*verstehen*) has a long history in itself, going back to the debate between Peter Winch (1958) and Alasdair MacIntyre (1977). In more recent times, the latter approach has been applied to art manifestations on rock surfaces by researchers such as Ingold (2013) and Morphy (2005).

20 For further discussion of arguments in favour of viewing manifestations on rock, including those originating in the Palaeolithic, as art, see Heyd (2019a). Regarding Dickie’s view,

If we adopt this minimal description as a working definition of art, what difference does it make to view Palaeolithic visual manifestations, such as paintings, as art? My proposal is that it would enrich our understanding of those manifestations with a number of productive working hypotheses. For example, if paintings are viewed as ‘works’ in which something particular is isolated from the remainder of the natural world and exhibited for appreciation, we are called upon to grasp *how* the required skills were developed, *why* these works were placed where they were, *in what ways* they were expected to be appreciated, and so on.

If, furthermore, we take on Gadamer’s view that an artwork discloses and encloses a world (Gadamer 2007b, 207 and *passim* 207–220), the supposition that we may be encountering artworks attains much more importance still. Among other things, we are challenged to determine *what* belongs to each work, thereby constituting the limits of the world disclosed. Most simply, we may ask whether there are *scenes* and what belongs to them, for it makes a difference whether, for example, a lion image is to be understood by itself or as part of a hunting or mating scene.²¹ We may also ask ourselves what difference *the location* should make when images are taken to open up ‘a world’. This is a point long explored by André Leroi-Gourhan’s (1965) structuralist approach, and can be further developed through micro- and meso-analyses of the relation of each image to any and all features surrounding it (including non-figurative marks, bones stuck in nearby cracks in the rock, pre-existing bear bones, rock arrangements on the cave floor, and so on).

It has been pointed out, for example, that the five female pubic triangle images in relative proximity to each other in the final sections of the Chauvet Cave may comprise a ‘network’: two are situated in the Megaloceros Gallery at the entrance to a side passage, one at the entry to a gallery (Belvedere), and one on a pendant in the End Chamber in front of the corridor leading to “the Sacristy” (Le Guillou 2003), which contains a very finely painted horse image. Yanik Le Guillou suggests that “All of the pubic triangles occupy a privileged and perhaps essential position in the construction of the parietal layout. They provide strong evidence for a real thematic structure that is closely associated with the cave’s topography” (Le Guillou 2003, 171).

Viewed as art, we could see these female pubic triangle images as playing a role in a sort of “site-specific installation” in which each of the elements plays a part in the meaning of the whole suggesting that whoever completed respective images transformed that whole environment into a unitary meaningful space. We may compare this to the way in which institutional spaces, such as temples, Moorish palaces, or Italian Renaissance squares function. While each part composing such constructions may have its own significance, there is a supervening significance characterizing the whole, which gives new meaning to each part. As Mircea Eliade has argued, for instance, the threshold of a temple door transforms the interior space into something separate, while that separation of the interior transforms the whole such that the threshold leading to the interior attains a new, liminal, meaning (Eliade 1963).

also see Gadamer (2007b, 201–204) who, in his semantic analysis of Ancient Greek terms, somewhat anticipates this view.

21 Regarding scenes, see Dobrez’ (2013) excellent analysis.

Someone may perhaps object that interest in factors such as location, participation in scenes or particular behaviours represented should be considered a given in archaeological work, independently of whether one supposes there to be art. It may indeed seem 'natural' to investigate such features, but we may wonder whether these pursuits are not driven by the concept of art – even while it is being repudiated or held in suspense. We may ask what we are to make of figurative paintings or engravings if they are *not* seen as artworks. Possibly, it may be suggested that such manifestations are part of some kind of signalling, so that the image of a lion is to be seen as a sort of announcement about the availability of lions in the area, or as providing instructions about their hunting behaviour, or as records of shamanic journeying, or as identity markers of the maker's group.

Seeing paintings and engravings of the sort found in the Palaeolithic record merely as signalling systems, seems rather highly implausible, though, since *any* mark can function as a sign, and *any* sign can be utilised as a symbol. Viewing figurative manifestations merely as communicative symbols would, in other words, leave unexplained why at least some of them display very considerable painting and drawing skills, producing high degrees of verisimilitude with beings from the reality of the makers, and are placed in remote locations such as deep in caves. Certainly, some *non*-figurative marks might suffice to convey information, as long as there were suitable conventions shared among the people who are to view it. Viewing figurative manifestations as art, in contrast, works as a potentially enriching hypothesis, inviting us to enquire into the insights that they may have in store.

Conclusion

If we briefly shift our view to the perspective of philosophy of science, we may note that the denial of art status to Palaeolithic manifestations may *only be justifiable* if art is understood through 18th and early 19th century conceptions. However, from our present, 21st century, perspective, their candidacy as artworks has *not* as been falsified and moreover, to speak in Popper's terms, is rather still proving *productive*. Furthermore, if we take note that with respect to human activities we are interested in *understanding*, letting ourselves be guided by Gadamer's hermeneutics may lead to new ways of viewing the products and processes of human action from our deep past.

According to Gadamer's hermeneutics all pre-judgments function as something like suppositions that are to be confronted with the text or other material under consideration. The suppositions that *cohere* with the material are to be retained, at least provisionally, while those that fail to cohere are to be discounted. As pointed out by Moro Abadía and González Morales (2012, 269), certain pre-judgements that were gender-biased and ethnocentric, for example, have been shown to be without support, and should rightfully be dismissed.

Coming back to the question "What can we learn from Palaeolithic art?", posed to us at the Symposium, we need to ask two questions: are all Palaeolithic manifestations art, and is there something that we can learn from them? In response we can see that some substantial argument would be needed to suppose that all the countless non-figurative marks, including the ubiquitous cup marks distributed in various constellations in caves and on rocks on the open air, should count as art, even if some groupings of them

possibly might be. There are reasons however, to view figurative images as artworks, intended to incite viewers to appreciate these visual manifestations as expressions of ways of seeing and being in the world. Under that interpretation it fully makes sense to investigate whether their makers had applied judgement in making and correcting images, in creating scenes, and in finding particular locations for their creations.

In other words, seeing the images of lions in the Chauvet Cave *as art*, for example, explains their great verisimilitude with real lions, for then we can understand why their makers displayed a very considerable mastery of the medium to facilitate their appreciation. Alternatively, if those images were only intended as a shorthand to *symbolize* lions then it would be unclear why such considerable work would have been invested, since a few marks, with minimal or no similarity, could have sufficed for this purpose.

By drawing attention to the manner in which we understand, Gadamer's hermeneutics may help us get a sense why people, even while living through the extremely chaotic climatic conditions of the Pleistocene (see, e.g., Burroughs 2005), were engaged in creating richly meaningful figurations and places. Such insights may come to stand us in good stead for the new, climatically changed, geologic epoch of the Anthropocene that we are all now entering (Heyd and Lenssen-Erz 2015).

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Modern Art, Prehistory and the Search for a Universal Human Language

With an Analysis of *Art Brut*

Abstract As different and culturally specific as artistic expressions may be throughout human history, there are overarching universals in art. The hand negatives in rock art, which are widespread across all times and continents, are a good example of this. It is no coincidence that modern and contemporary artists have explored the content of prehistoric art in search of a universal human language. In Germany, the Stuttgart painter Willi Baumeister is the most important representative of modern art inspired by prehistory. Subsequently, without wishing to make simple analogies, we have looked at the art of outsiders working in isolation, which generally goes by the name of *art brut*. We were investigating in what content these people are interested in their seclusion without the influence of the art world.

Keywords prehistoric art, modern art, human universals, *art brut*

Numerous modern and contemporary artists continue to attempt to develop a primal artistic language. They may achieve such a seemingly archaic position intuitively or sometimes through a concrete interest in the Stone Age. For archaeologists, who are interested in Ice Age art, these artists are exciting because they create a direct access to early art that we as prehistorians do not have with our primarily analytical and less emotional approaches. With their specific interest in archaic themes, gestures and techniques, they thus draw attention to central human universals and thus also enable unexpected approaches to the understanding of Ice Age art.

But what is the interest of these artists? Is it the forms, specific expressions, or the techniques? Is it specific content such as the animal imagery of the Ice Age

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caves, the signs, human figures, the hand, or even geological formations? Is it, in the end, just a longing for a genuine original life without the complications of the modern mechanized world and a search for roots during times of crisis and missing communication?

It is noticeable that most modern and contemporary artists who have a concrete interest in the Ice Age, are fascinated by representations of humans. Hybrid creatures also find their interest. Especially in the recent past, the human-animal relationship has been increasingly dealt with in art. Signs and hand symbols are emblematic themes. In contrast, other features from the Ice Age, such as dwellings or stone artefacts, have been addressed less often in art (Debray et al. 2019).

The Search for Identity

While 19th century historicism still drew a heroic or romanticized image of Ice Age populations, the situation changed at the transition to the 20th century. For Rémi Labrusse (2019), it was Paul Cézanne who was perhaps the first to take an interest in the content of geology and prehistory. At the beginning of the 20th century, in times of economic crisis and between two world wars, there was an increase in individual approaches. We can draw attention, for example, to Franz Marc's animal paintings as an innocent rebellion against the militarization and technological armament of the time. It was obviously the search for identity in these uncertain times that made artists develop very personal approaches and look for references to archaic themes. In times of crisis, one especially seeks one's own roots, which is extended to also include the early phases of humanity. We can consider this period as a real restart of art and one is almost inclined to compare this situation to the origins of art altogether, when *Homo sapiens* was in search of identity arriving in Europe during a time when it was still inhabited by the last Neanderthals.

It would be presumptuous to venture into a complete historical outline of the artistic preoccupation with the Ice Age here, especially as this has only recently been undertaken several times (e.g., Debray et al. 2019; Seibert et al. 2020; Faass & Schmidt 2023). In Germany, one of the first artists with a Stone Age connection was undoubtedly Willi Baumeister who was born in Stuttgart. He was a student of Adolf Hözel and, after a constructivist phase, he found his way to an archaic primeval language at the end of the 1920s. While some authors interpreted this transformation as a kind of inner retreat and escape from the emerging National Socialism, it can be demonstrated that Baumeister's work has a very specific connection to themes of palaeontology and prehistory. We have referred to this aspect in detail elsewhere (Floss 2019; 2020) and can only outline a few key points here. Baumeister visited prehistoric sites in south-western Germany from the late 1920s onwards, assembled a collection of prehistoric finds and replicas and maintained an impressive library of works on Ice Age art. During the Second World War he worked in the underground for the Wuppertal lacquer manufacturer Kurt Herberts, for whom he carried out experiments in prehistoric cave painting. His major work, *Das Unbekannte in der Kunst* (The Unknown in Art), published in 1947 (Baumeister 1947), contains numerous examples of prehistoric art. Baumeister maintained intensive contacts with the *escuela de arte* in Altamira, where he also travelled for the first time in 1951. Baumeister was particularly interested in Levantine art in eastern Spain, especially the depiction of an archer from the Valltorta

Gorge, which he interpreted in numerous paintings. The most famous of these is the painting *Läufer* (Runner) (Floss and Ruiz López 2023). He was also influenced by an engraving on a mammoth tusk from the Czech site of Predmosti, and his so-called „ideograms“ closely resemble Neolithic axes found in his archaeological collection. Active as a set designer, the hand in *pochoir* technique also appears in his designs as a clear reference to prehistoric cave art. We have recently also pointed out that there are individual vague references in Baumeister’s art of the ivory figurines found in Vogelherd cave in 1931 (Riek 1934).

In Germany, there are other artists who engaged with the Ice Age without having a direct affiliation with Baumeister. Here, of course, one must first mention the great Joseph Beuys. He can justifiably be called the incarnation of an Ice Age shaman. His performances with dead and living animals are legendary. Ralf Winkler even named himself after an Ice Age geologist and became famous under the name A. R. Penck. His crazy worlds of stick figures and signs look like modern cave paintings. Rune Mields would be another striking example.

Even if it is difficult to define basic classifications, it still appears to be legitimate to distinguish two case studies. On the one hand, there are artists who demonstrably exhibit a concrete interest in the subject of the Palaeolithic. These artists include, for example, Willi Baumeister, whom we have dealt with just before and elsewhere more in detail (Floss 2019; 2020; 2022). In various conversations with colleagues, I have gained the impression that such an interest in the Stone Age period is perceived as somehow simplistic and superficial, if not as an act of appropriating cultures that are removed in time and no longer able to defend themselves against such an exploitation. Also implied is the accusation that demystifying the secret language of artists through this kind of research should be avoided. The reader can certainly appreciate that I do not necessarily share such a point of view.

On the other hand, artists seem to be more appreciated when they attempt to arrive at a basic archaic pictorial language without having dealt specifically with the Stone Age itself, particularly artists who are active in the contemporary art world, who ask central questions about who we humans really are and which artistic expressions can provide appropriate answers.

Human Universals

The question concerning which factors are responsible for the characteristics of cultural expressions and art can be related to numerous criteria, which can of course only briefly outlined here. In this context, we would tend to give preference to specific cultural solutions over deterministic factors, for example, connected to basic biological and cognitive prerequisites of human beings. Of course, we are humans – and not flies – and have certain basic properties. But the cultural characteristics in specific spatial and temporal contexts are far too variable to adequately explain them as the result of general physical and cognitive characteristics of human beings. This already applies to the Palaeolithic, if we think, for example, of the very different forms of Aurignacian art in Europe.

Despite this diversity of human behaviors and products, there are cross-cultural patterns that are common to almost all humans and thus allow comparability. These

common aspects, which are also not necessarily biological, are called ‘universals’ (Brown 1991). For example, according to Durkheim, all humans are social beings (Bogusz & Delitz 2013). They use language, forbid incest or search for order and the meaning of existence. Ethnological research has described up to 200 such universals to date (Antweiler 2009).

Human Universals and Artistic Expression

In the German-speaking world, the idea of human universals was taken up particularly by I. Eibl-Eibesfeldt and the discipline of human ethology he founded (Eibl-Eibesfeldt 2004) and subsequently extended to the field of art and aesthetics (Eibl-Eibesfeldt and Sütterlin 2007). We support the human ethology approach because it guarantees fundamental comparability of artistic creation between different spatial and temporal contexts. Beyond formal and material-specific aspects, we would like to extend the comparison in this paper to aspects of content. According to this hypothesis, the legitimacy of comparison makes it possible to approach art from the past, for which we have neither the statements of its makers nor written explanations, with art for which we have contextual information. This is best done by comparing prehistoric art with other types of original art apart the art market, such as from hunter-gatherers. Comparisons with such ethnic groups have long been made by prehistoric researchers, based on similarities in subsistence strategies or questions of mobility but these have often been rejected by ethnologists as illegitimate and absurd, as it seems completely obsolete to compare or even equate societies of the Palaeolithic with sub-recent hunter-gatherers simply due to similar subsistence systems. It is only in the recent past that views seem to have become more acceptable, if such comparisons are not used to imply analogies but are understood as purely illustrative material of the diversity of human behaviour.

The basic idea is thus, when researching the question of the motivation and authorship of Ice Age art, to draw on information from artistic milieus for which contextual information is available and which are equally characterized by an originality of human creation.

Art Brut

In this context and as a prehistorian, we would like to turn here for the first time to a form of art, more a category than a real movement that is summarized under the term *art brut* (Dubuffet 1947; 1962; Thévoz 1990). For this type of ‘raw art’, we can assume an original and individual search for a primordial, unadulterated, and non-academic expression, which is developed as far as possible without major outside influences. *Art brut* is a genre of art that has unfortunately become highly commercialized in recent years but had originally a genuine character. It refers to art created by self-taught artists, for example lay people or individuals with or without mental illness, by people who are isolated, not socially adapted and do not belong to the established art market. These artists assemble the working materials they use and the artworks from within themselves and not from the categories of established art or the trends that are currently in vogue. The *art brut* movement was popularized by the French artist Jean Dubuffet and is alternatively but not entirely legitimately called ‘outsider art’.

Nevertheless, *art brut* is heterogeneous and controversial as a term that supposedly summarizes similarities. Today, it is understood as the lowest common term for art that has something original about it and that was mostly created by outsiders of the official art scene. Basically, comparable art existed long before *art brut* was established as an art term. It is interesting to note that various artists from the period of classical modernism were just as interested in art forms that were later summarized as *art brut* as they were in content from the fields of prehistory and ethnology. This applies, for example, to artists of the *Blauer Reiter* (e.g., Kandinsky, Macke, Marc, Klee, Jawlensky), who developed a special interest in the art of mentally ill people, but also in the art of children and so-called folk art. Paul Klee, for example, wrote in his diary at the time: „There exist primal beginnings of art, such as one tends to find in ethnographic collections or at home in one's nursery. Parallel phenomena are the works of the mentally ill“ (Klee 1957, 276). Such statements must of course be viewed with caution from today's perspective, as they equate non-European populations with children and patients with mental health problems.

With the background of human universals, in *art brut* the aspect of what people outside the art establishment are interested in is important to us. Which themes are important to the artists and how do they implement them? Ice Age art was related to the intimate world of the creators, too. Nevertheless, it is of course problematic to compare these art genres with each other as it is to compare children's art to cave art, too. Human phylogenies and ontogenesis are still two completely different things. Even more, pathological mental health issues are difficult to put on the same level. Nevertheless, it was important for me to have a look at artists living one way or another in certain isolation and to investigate which themes these people are interested in without being subject to external influences. So, it appealed to me to carry out a quantitative survey on the contents of *Art brut* and to take this opportunity to check whether, for example, female and male artists reproduce similar or different themes in art.

For the survey, I was able to benefit from my own library on the subject as well as from the documentation of special exhibitions of the *Musée de l'art brut* in Lausanne and the *Musée de la création franche* in Bègles for more than 25 years. As far as the survey is concerned, I have adopted an approach that is certainly open to criticism and probably does not stand up to statistical tests. I have taken into account, for each artist included in the survey, the main themes that dominate their work. The invitation brochures of the participating museums for special exhibitions are particularly suitable here, because the curators succeed with excellent expertise in pointing out the main aspects of each artist (Fig. 1).

We asked ourselves to what extent our approach is reprehensible and reminiscent of some dark times in history, which applied analytical procedures to diverse minorities. We abhor these inconceivable acts and affirm that we are far from them. We rather follow the idea that human artmaking is not shaped by deterministic factors, but by individual and cultural ones. On the other hand, we consider the existence of human universals across space and time to be conceivable, which in turn makes comparisons possible.

We have analysed the work of a total of 200 *art brut* artists¹, whose results are reproduced anonymously. 152 of them are men and 48 are women. It would be going too



Fig. 1 | Painting by Giovanni Galli; title page of a press dossier for the exhibition *Corps* at the Musée de l'Art Brut in Lausanne.

far to consider here the respective social, sexual or – important in this genre – also pathological background that has led to the consideration of the artists in the category of *art brut*. If we look globally at the artistic themes and independently of the chosen techniques (painting, sculpture, collage etc.), the following weighting stands out (Fig. 2). By far the most attention is given to representations of human beings, undifferentiated by sex or gender, which are the focus of the oeuvre of 34.5 % of the artists (Fig. 2). If

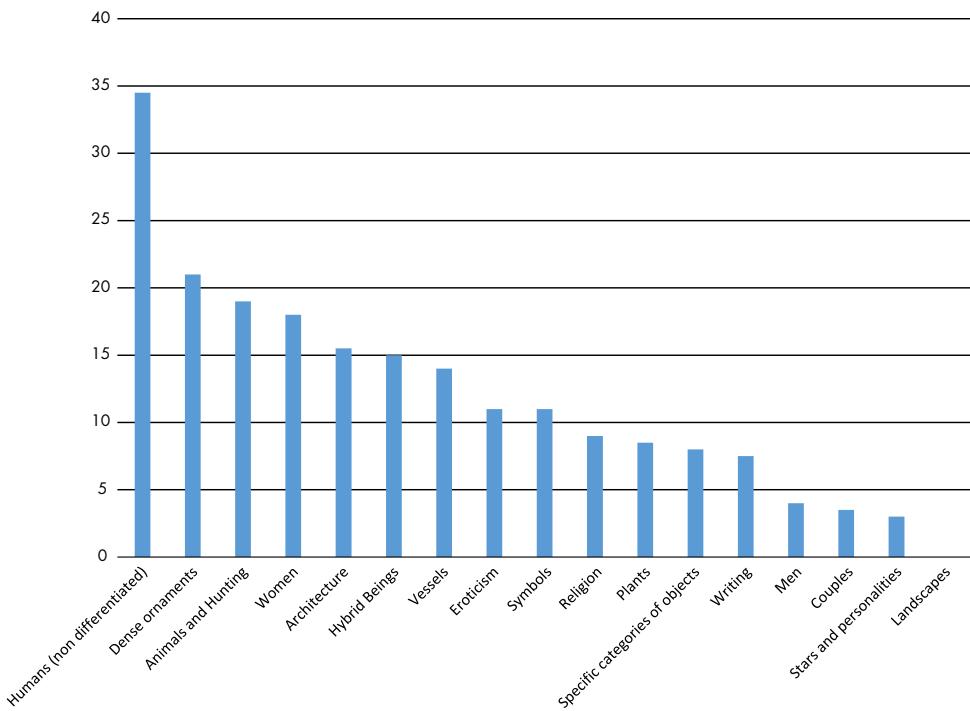


Fig. 2 | Statistics of the themes dealt with by the *Art brut* artists.

the representations differentiated by gender (male, female) or couples were added (see below) the proportion of human representations would be over half. After the depictions of humans, depictions of animals are the most frequent (17.5 %). Within the animal depictions, those of birds are by far the most frequent, appearing in almost 40 % of the animal pictures. All other types of animals (fish, cattle, horse, pig, elephant, insects, lion, mouse, and dog) play subordinate roles. This is followed in importance by various forms of monsters and hybrid creatures, with familiar themes such as mermaids, unicorns and sphinxes included here. This content category, which in case of *art brut* often leads us into the abysses of the human psyche, can be identified as an important oeuvre in 15 % of the *art brut* artists. Interestingly, the themes of architecture (15.5 %) and various types of vessels such as cars, tanks and trains to airplanes and rockets (14.0 %) also play a greater role among these artists. Religious, mostly Christian themes occur, but are rather rare with a total of 18 mentions. Various signs and symbols are common, with the Christian cross predominating (n = 10). All other symbols such as star, heart, wheel, cube and swastika are rare. Pictures of landscapes



Fig. 3 | Marcello Cammi – without title 1987; red wine and ballpoint pen on a sheet of paper stuck to cardboard. (Source: Collection de l'Art Brut, Lausanne, Inv. No. cab-10854, photo: Amélie Blanc, Ville de Lausanne).

are almost never found. Images of objects do occur, but they are very variable, with no discernible tendencies. At most, images of weapons play a certain role with men in the context of hunting scenes or personal fantasies. *Art brut* artists tend to accompany their works with characters, texts, or numbers, often covering the entire surface, but their share is clearly below 10 %.



Fig. 4 | Philippe Dereux – *Cassiopée* 1968; peelings, oil paint and gouache on paper.
(Source: Collection de l'Art Brut, Lausanne, Inv. No. ni-3182, photo: Amélie Blanc, Ville de Lausanne.
© VG Bild-Kunst, Bonn 2024).

A striking feature, less in terms of content than of form, is the tendency of *art brut* artists to cover their works with dense, often ornamental constructs, in which writing, numbers, figures and signs can also be interwoven. Such patterns, which are sometimes formally reminiscent of Aboriginal representations, are shown by as many as 42 artists, corresponding to 21.0 % of those surveyed (Fig. 4).

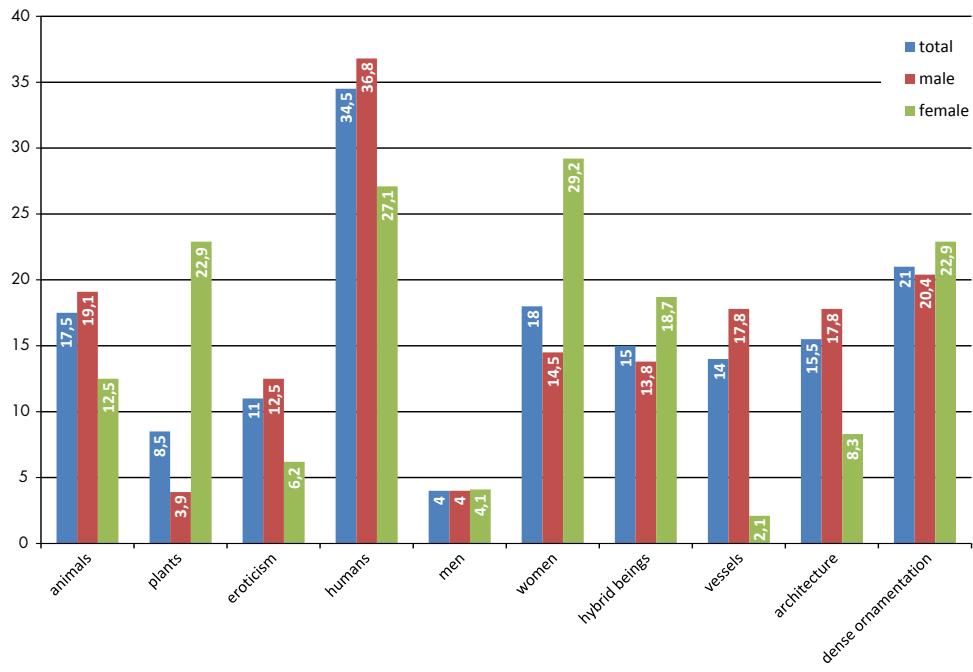


Fig. 5 | The themes of Art Brut artists (total, male and female artists).

We then carried out a gender-specific investigation, whereby we could only consider a binary division into men and women, following the names of the artists (Fig. 5). And here some very interesting differences emerge that seem to be of gender-specific origin. We would like to list here first those categories where the differences are not very pronounced. The dense ornamentation just described is represented in 20.4 % of the cases in men, in 22.9 % of the cases in women. The undifferentiated representations of humans are also relatively similarly distributed (total 69 out of 200 = 34.5 %, men 56 out of 152 = 36.8 %, women 13 out of 48 = 27.1 %). Mixed creatures of whatever kind also do not seem to be addressed in a gender specific way (total 30 out of 200 = 15.0 %, men 27 out of 152 = 17.8 %, women 9 out of 48 = 18.7 %).

There is one interesting category that is presented preferentially by women, and that is plants. While with an average value of 8.5 % (17 out of 200) plant representations play a role in only six out of 152 cases (3.9 %) for men, they take a much higher share with almost 30 % (11 out of 48) for women.

Among the themes preferred by men, representations of vessels and means of transport should be mentioned, which are represented here with 17.8 % while they are almost non-existent among women (2.1 %). The same applies to the depiction of diverse architecture, which is also represented in 17.8 % of the cases for men, but only in 8.3 % of the cases for women.

While depictions of plants are more frequent among women, those of animals and hunting scenes are clearly more frequent among men.

It is interesting to note that any sexualized themes, such as the depiction of erotic images or primary sexual organs, are twice as frequent among men as among women (12.5 % compared to 6.2 %).

As far as the explicitly recognizable depictions of the themes 'man' and 'woman' are concerned, very interesting results emerge. It can be seen that the topic of women is seen as much more interesting in its presentation than the topic of men. While the subject „man“ is completely underrepresented among both female and male artists and shows almost identical values (total 8 out of 200 = 4.0 %, men 6 out of 152 = 4.0 %, women 2 out of 48 = 4.1 %), women are depicted much more frequently. With an overall share of 18.0 % (36 out of 200), men are perhaps surprisingly below average at 14.5 % (22 out of 152), while women's depictions play a much larger role at 29.2 % (14 out of 48) (Fig. 5).

In the depictions of women by men, psychological complexes and unfulfilled desires often become apparent. Often women are depicted in oversized forms and the men submissively small. Breasts become weapons in the work of Giovanni Galli (Fig. 1), as they would be rockets or as in the so-called Fembots in Austin Powers films.

If we now wish to confront all these findings, with all reservations, with the evidence of Ice Age art, some striking parallels and perhaps even insights emerge: Here as there, there are themes that do not play a major role, such as landscapes and objects.

In view of the discussion about gender roles in the Palaeolithic and here the traditional, but today criticized idea that men hunted and women gathered, it is striking in this survey that the topic of plants is much more frequently addressed by women and the topic of animals more frequently by men. However, there are too many domestic animals depicted to draw any indisputable conclusions from this.

Another possible parallel to Ice Age art is that depictions of women are much more frequent overall than those of men! Women simply seem to be the more interesting, more exciting subject, with a greater appeal in terms of content and painting than men. And this is true for men as well as for women in particular.

Of course, we cannot draw any direct conclusions about Palaeolithic art from these results. Despite their remoteness, *art brut* artists still live in modern times, which can hardly be compared to Palaeolithic conditions. In view of the widespread discussion about who the creators of Ice Age art are, and here in particular the sexualised themes and the so-called Venus figures, it is interesting to note here that in our survey of outsider artists, men are more interested in explicitly erotic themes and women are more interested in the depiction of women as a whole. Thinking one step further, this could, with all caution, lead to the simple conclusion that both men and women are interested in the theme 'woman' and that it is therefore perhaps superfluous to discuss the gender-specific artistic implementation of this theme.

Conclusion

We have been building up an archive on *art brut* for several decades, with the ulterior motive of one day attempting an evaluation. We are aware that a comparison of this art with Palaeolithic art is problematic. There are many unanswered questions about Ice Age art because it is of course no longer possible to ask their makers about it. For this reason, we are attempting to draw on art genres that are as uninfluenced by the outside world as possible in order to find a genuine human language that can be understood despite all the differences across space and time.

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Appendix

1: Female and male artists in the survey (in alphabetical order)

Abella, Josef; Abrignani, Giovanni; Amar, Paul; Angkasapura, Noviadi; Arl; Arneval, Benjamin; Bachelard, Alexandre; Bachler, Josef; Badari, Fausto; Bailly, Carol; Bartlet, Morton; Beaudelere; Bentivegna, Filipo; Bertanzetti, Daniele; Bertoliatti, Dominique; Biazin, Clément-Marie; Blackstock, Gregory; Bojnev, Boris; Bonjour, Benjamin; Boschey, Édouard; Bosco, Giovanni; Bossert, Hermann; Boudin, Michel; Boussion, Charles; Bouttier, Marie; Braillon, David; Braz, Albino; Brunet, Guy; Brunetti, Luigi; Burland, François; Burnat-Provins, Marguerite; Byam, John; Carbonel, Pierre; Carles, Tolra; Carlo, Ignacio; Carré-Gallimard, S.; Chaissac, Gaston; Chand, Nek; Chawan, Kashinath; Corbaz, Aloise; Coulon, Berthe; Crepin, Fleury Joseph; Dammer, Aaltje; Darger, Henry; Dave, Michel; Delauney, Serge; Dereux, Philippe; Desmoulin, Fernand; Diego; Dubuffet, Jean; Ducollet, Philippe; Dudin, Jules; Duf, Gaston; Dufrène, Gael; Duhem, Paul; Elijah; End, Paul; Evans, Minnie; Fleuri, Yves; Florent; Forestier, Auguste; Fusco, Sylvain; Gabritschevsky, Eugen; Galli, Giovanni; Gallieni, Jill; Genk, Willem van; Gill, Madge; Gimel, Patrick; Gironella, Joaquim; Glastra, Siebe; Godi, Jules; Goetze, Helga; Goffin, Véronique; Gordon, Ted; Goux, Claudine; Grgich, Anne Marie; Grünenwaldt, Martha; Guallino, Patrick; Guo, Fengyi; Guyodo; Haus, Oscar; Hauser, Johann; Helmut; Hérion, Dominique; Herrera, Magali; Hertig, Werner; Hipkiss, Chris; Hirschter, Dunya; Hodinos, Emile; Hofer, Josef; Hollander, Jeroen; Iriarte, Joelle; Jacqui, Danielle; Jakic, Vojislav; Jonkers, Bertus; Juva; Kardol, Truuus; Katharina; Kocher, Pierre; Koochaki, Davood; Koopen, Marian; Koscy, Rosemarie; Krüsi, Hans; Lamy, Martine; Lanca, Bonifacio; Lanz, Madeleine; Lattier, Gérard; Lecocq, Sylvain; Lemaire, Philippe; Leonov, Pavel; Lesage, Augustin; Lib, Stanislas; Lobanov, Aleksander; Lonné, Raphael; Lorand, Joel; Maisonneuve, Pascal; Manca, Bonaria; Marcomi; Marye, Simone; Matsumoto, Kunizo; Merle, Auguste; Messou, Ezekiel; Metz, Reinhold; Miller, Daniel; Moindre, Joseph; Monsiel, Edmund; Moret, Marc; Morf, Jakob; Motooka, Hidenori; Müller, Heinrich; Naeff, Linda; Nedjar, Michel; Ni, Tanjun; Nikifor; Nitkowski, Stani; Oko, Ataa; Pankoks, Michael; Pelosi, Marilena; Perez, Nathalie; Perugi, Italo; Pietquin, Dimitri; Pigeon, Laure; Ploos van Amstel, Han; Podesta, Giovanni; Portrat, François; Pujolle, Guillaume; Raak, Ratier, Emile; Raugei, Marco; Robert, Yvonne; Robertson, Royal; Robillard, André; Roos, Brigitte; Saban, Ody; Salingardes, Henri; Sanfourche, Jean-Jos; Santoro, Eugenio; Savoy, Gaston; Schäfer, Gustav; Schöpke, Philipp; Schröder-Sonnenstern; Sendrey, Gérard; Shuji, Takashi; Silvin, Pierre; Simon, Victor; Smith, Lewis; Smith, Richard C.; Sorgente, Palmerino; Teuscher, Gaston; Titov, Yuri; Torre, Giuseppe; Tourlonias, Jean; Traylor, Bill; Tripier, Jeanne; Tromelin, Comte de; Trösch, Johann; Tschirtner, Oswald; Tsuji, Yuji; Valeiras, Ofelia; Victor, François; Vignes, Pépé; Vuitton, Pierre; Wagemann, Theo; Walla, August; Way, Melvin; Wenzel, Roy; Weree, Johnson; Wey, Alois; Wittlich, Josef; Wnek, Maria; Wölfli, Adolf; Yeomans, Brooks; Zablatnik, Erich; Zemankova, Anna; Zephir, Henriette; Zinelli, Carlo.

Beyond Art?

Recent Developments on the Conceptualization of 'Palaeolithic Art'

Abstract In this paper we reflect on why the concept of 'Palaeolithic art' remains widely used in archaeological research even though most anthropologists and archaeologists find the term misleading and outdated. For much of the twentieth century, scholars of Palaeolithic art drew on paradigms found in modern Western art history to theorize about and distinguish between categories of cave art and mobililiary art. Yet, since the 1980s, numerous archaeologists have problematized the Western concept of 'art', with its emphasis on aesthetics, as inappropriate for Pleistocene art research. Consequently, in recent years, a revalorization of the term 'art' and the expansion of the types of material culture encompassed, along with theoretical developments such as the 'ontological turn', have sought to offer new avenues of enquiry that not only challenge the hegemony of traditional Western categories, but which better reflect Indigenous conceptualizations of imagery. However, the use of the term 'Palaeolithic art' persists in the academy. Three main factors may explain this persistence. First, 'art' is a polysemic term that can be used flexibly in different ways. Second, it is a familiar term for the public. Third, it has a long history of customary use within the academy. Nevertheless, despite the traditional and practical convenience of the term, it is incumbent on scholars to balance its communicative value with critical analysis and responsible usage.

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Keywords Palaeolithic art, art history, anthropological and archaeological theory

Introduction

During most of the twentieth century, 'Palaeolithic art' remained an unquestioned category that generated little controversy among archaeologists and anthropologists. Broadly speaking, the term was used to describe those paintings, engravings and statuettes from the Palaeolithic period (such as the bison of Altamira (Fig. 1) and the figurines from Willendorf) that could be easily assimilated by our modern art. Despite heated debates about the dating, the meaning and the interpretation of Palaeolithic art, archaeologists generally agreed that these representations had an aesthetic value, had been made by 'artists', and conveyed a fundamental meaning. This consensus began to break down in the last decades of the twentieth century, as a number of archaeologists called into question the concept of 'art' in 'Palaeolithic art'. Mirroring similar developments in anthropology and art history, they argued that the term 'art' could not be used to refer to pre-modern representations. As a result of these critiques, an increasing number of archaeologists and anthropologists have, over the last two



Fig. 1 | Polychrome images of bison from Altamira. (Image courtesy of Pedro Saura Ramos, AI.005, Archivos de Arte Rupestre de Altamira).

decades, insisted that the Western concept of ‘art’ is obsolete and anthropocentric. Additionally, they have suggested alternative terms such as ‘images’, ‘depictions’, ‘symbolic expressions’ and ‘imagery’. However, despite the proliferation of new labels, a widely-accepted alternative concept has not emerged. The fact is that the term ‘art’ remains popular even among those who have long called it into question (Heyd 2012, 289). As a result, we are witnessing a paradoxical situation where “the term [art] is widely critiqued, but it is also widely used” (Robb 2017, 587).

In this paper we reflect on this dilemma: Why the concept of ‘Palaeolithic art’ is *still* extensively used in archaeological research if most archaeologists and anthropologists find it misleading and outdated? To answer this question, we begin by reviewing the traditional conceptualizations of Palaeolithic art. In particular, we analyze the connections between the concept of ‘Palaeolithic art’ and other analogous categories used in the fields of art history and anthropology. This review prepares the ground for the analytical discussion on recent debates on Palaeolithic art research. In this field, we distinguish two major current developments concerning the ‘art question’. First, from a *theoretical* viewpoint, it is generally agreed that the Western term ‘art’ (as it is employed in terms such as ‘Palaeolithic art’ and ‘prehistoric art’), with its emphasis on aesthetic and beauty, is inappropriate in Pleistocene art research. This critique is grounded on a number of contemporary developments in anthropology and art history. We illustrate this point by referring to the ‘ontological turn’ and its radical criticism of traditional Western categories. Second, from a *practical* viewpoint, we are witnessing a resurgence of the concept of ‘art’ in Palaeolithic art research. It is not only that this term is still used in the field (as Robb and others have pointed out), it is that this category is *used more than ever*. In fact, since the turn of the twenty-first century, the category of ‘Palaeolithic art’ has largely expanded to incorporate an impressive number of images, representations, depictions and objects. The example of personal ornaments and other traditionally overlooked objects can illustrate this point. To conclude, we offer some thoughts on these two apparently contradictory developments and on the future of the concept of ‘art’ in Palaeolithic art studies.

Twentieth-Century Conceptualizations of ‘Palaeolithic Art’ and the Modern System of Art

The category of ‘Palaeolithic art’ was modeled on the modern concept of ‘art’ that emerged in the eighteenth century as a result of the reconfiguration of the classical notion *ars*. In fact, since Antiquity, the Latin term *ars* was used to refer to any human activity performed with skill and grace, from war-making to painting (e.g., Kristeller 1951; Tatarkiewicz 1963; Shiner 2001). However, in the eighteenth century *ars* split into two main categories: The fine arts or ‘the arts’ (including poetry, painting, sculpture, architecture and music) and the crafts (including decorative and popular arts). It was said that “the fine arts [were] a matter of inspiration and genius and meant to be enjoyed for themselves in moments of refined pleasure, whereas the crafts and popular arts require[d] only skill and rules and [were] meant for mere use of entertainment” (Shiner 2001, 5). While the term ‘art’ was initially reserved for those Western achievements endowed with aesthetic appeal and beauty, it soon began to be applied to other people’s objects and representations. Problematically, of course, the colonial

ethnocentrism pervasive in the term ‘primitive art’ framed the artworks of Indigenous peoples, and indeed those of the peoples of the past, in evolutionary and Romantic terms (Layton 1991, 2). In the context of late nineteenth-century anthropology, with the ‘invention of primitive society’ came the illusion of ‘primitive art’ (Kuper 1988). In this setting, since the beginning of the nineteenth century, travelers, ethnologists and art historians have used the term ‘primitive art’ to refer to a heterogeneous sets of objects (including paintings, statuettes, monuments and masks) from Indigenous societies that could be ‘easily’ assimilated by the Western notion of ‘art’ (Rubin 1984). In such a colonial context, the term ‘primitive art’ served to reduce hundreds of images and artefacts to one of ‘our’ categories and, at the same time, to promote the idea that art was “an ahistorical, transcultural, universally valid category of object” (Errington 1998, 54).

With the discovery of a number of carvings, statuettes and rock paintings in Southwest Europe at the end of the nineteenth century, the notion of ‘art’ in general (and of ‘primitive art’ in particular) expanded to embrace a number of images made in prehistoric times. In short, the modern understanding of art was projected into the Palaeolithic in a number of different and complementary ways. First, terms such as ‘Palaeolithic art’ and ‘prehistoric art’ were used to describe the representations found on the walls of caves and rock shelters in France and Spain as well as to characterize those statuettes and carvings that had been discovered in the stratigraphy of several European sites. Second, and related to the previous point, Palaeolithic art was typically divided into ‘cave art’ and ‘portable’ or ‘mobiliary art’. The former referred to the paintings, engravings, and bas-reliefs found on the walls of caves and the latter included statuettes, ivory carvings and engraved bones and stones. As one of us has argued elsewhere, this distinction was somewhat reminiscent of the modern division between ‘Fine arts’ and ‘crafts’ (Moro Abadía 2006). Third, archaeologists and art historians typically assumed that “cave paintings and drawings required higher technical and cognitive skills than those involved in the making of portable pieces” (Moro Abadía and González Morales 2013, 279). For this reason, cave paintings played a preeminent role in the interpretation of Palaeolithic art and the importance of mobiliary artwork was typically overlooked. The different values assigned to cave and portable art were reminiscent of a number of ideas about ‘art’ dominant in Western countries during much of the twentieth century. In fact, “Palaeolithic art scholars inherited the modern fascination for the fine arts and, in particular, paintings. Similarly, if art theorists and historians denigrated crafts, archaeologists paid little attention to certain portable pieces” (Moro Abadía and González Morales 2013, 275).

Terms such as ‘art’, ‘primitive art’, ‘prehistoric art’ and, of course, ‘Palaeolithic art’ remained largely unquestioned for much of the twentieth century. For instance, until the 1950s, art historians generally assumed that ‘art’ (in the modern Western sense) was a universal human attribute found in many cultures and many times. This conceptualization of ‘art’ as a universal category was called into question by Paul Oskar Kristeller and Władysław Tatarkiewicz in the years after World War II (Kristeller 1951; Tatarkiewicz 1963). They suggested that the idea of ‘art’ was a modern notion that could be traced back to the works of Alexander Gottlieb Baumgarten and Immanuel Kant in the second half of the eighteenth century. In the 1960s and 1970s, art theorists such as John Berger and Michael Baxandall insisted on the idea that the history of art was made of periods defined by specific ways of seeing (Berger 1972; Baxandall 1972).

While these works undermined a number of traditional beliefs about ‘art’, it was not until the last decades of the twentieth century that the concept of ‘art’ came under considerable attack. It was in this context that the field of visual studies emerged as an attempt to overcome the pitfalls of the traditional art history (Mitchell 1986; Belting 1987; Elkins 2003). At the same time, authors such as Hans Belting and Arthur Danto provocatively announced ‘the end of art’ and asserted that “a certain kind of closure had occurred in the historical development of art [and] an era of astonishing creativity lasting perhaps six centuries in the West had come to an end” (Danto 1997, 21). Similar developments occurred in the field of anthropology. In fact, even if anthropologists had been long aware of the limitations of the Western conceptualization of ‘art’, it was only in the 1980s when they began to question the legitimacy of the traditional definition of ‘art’ to interpret the material culture of small-scale societies (e.g., Price 1989; Layton 1991; Errington 1994; 1998). These authors suggested that, in a number of non-Western societies, activities such as carving, sculpting and painting, as well as the product of those activities, were not well described in terms of ‘art’, ‘artists’ and ‘aesthetics’.

Needless to say, this is an oversimplification of the early twentieth-century conceptualizations of ‘Palaeolithic art’. While the distinction between “parietal art” and “portable art”, equated with the split between ‘fine arts’ and ‘crafts’, was important, there were other categories and conceptualizations that played an essential role in rock art research. For instance, as we have examined elsewhere (Moro Abadía et al. 2013), ‘naturalism’ significantly influenced the interpretation of cave art during most of the twentieth century. This term typically refers to the tendency, prevalent among twentieth-century art historians, to praise highly realistic images to the detriment of non-figurative representations. The prevalence of ‘naturalism’ explains why non-naturalistic artwork (such as ‘personal ornaments’) was typically overlooked by scholars of prehistoric art. Additionally, the different ways of understanding ideas such as ‘primitive’ and ‘religion’ played an essential role in different appreciations of Palaeolithic art (see Palacio-Pérez 2013).

While some anthropologists have claimed that the concept of ‘art’ is not completely unacceptable (Morphy and Perkins 2006), the Western sense of the term has been widely rejected. As we examine in the next section, these critiques have had a significant impact in the field of ‘Palaeolithic art’.

Recent Theoretical Developments on the Conceptualization of ‘Palaeolithic Art’

For the greater part of the twentieth century, terms such as ‘Palaeolithic art’ and ‘prehistoric art’ were used interchangeably, especially outside academia. Moreover, concepts such as ‘Palaeolithic’, ‘prehistoric’ and ‘art’ remained largely unchallenged in the fields of art history and anthropology. This situation began to change in the 1980s when some archaeologists called into question the traditional conceptualizations of ‘Palaeolithic art’. Spurred by similar critiques in the field of anthropology (it is not by chance that most of these archaeologists were American, a country in which archaeological and anthropological research are closely related), a number of scholars argued that the term ‘art’ “has contributed to condensing all the diversity of media and imagery

into a single category that is, furthermore, one of “our” categories” (Conkey 1987, 413; see also Tomášková 1997, Soffer and Conkey 1997; Davidson 1997; White 1997; 2007; Moro Abadía and González Morales 2008). Similarly, they have argued that this term is ethnocentric (it evaluates objects and representations from other societies through the lens of the Western culture), reductionistic (it reduces a great variety of images into a single category), anachronistic (it is a modern concept) and aestheticizing (it depicts a number of artifacts and activities in an idealized aesthetic manner). In this critical context, a number of voices have called into question the divide between ‘cave art’ and ‘mobilairy art’ in Palaeolithic art research. They have suggested that this split is not a *natural* way of conceptualizing Palaeolithic art, but rather a *historical* one that originated at the end of the nineteenth century. In this setting, and while the rock art/mobilairy art dichotomy made no explicit distinction about the quality of the art, it promoted a privileged view of rock paintings even if “these favored images are only some among thousands and thousands of others” (Conkey 2010, 273). For all these reasons, an increasing number of authors have rejected the term ‘art’ and have suggested alternative concepts such as ‘Palaeolithic imagery’, ‘material representations’ or ‘Palaeolithic visual cultures’. In this context, even those authors who have recently argued that different forms of ‘prehistoric art’ can be legitimately understood as ‘art’, they seem to agree that “as a distinct universal category, art becomes meaningless” (Porr 2019, 161) and “it is distorting to assimilate other people’s powerful objects to our ‘art’” (Robb 2017, 596). In short, while some authors have supported the concept of ‘Palaeolithic art’, most archaeologists are reluctant to use this term, at least in its modern sense that emerged in the eighteenth century.

The widespread rejection of the concept of ‘Art’ (with a capital ‘A’) may be illustrated by the increasing popularity of ontological approaches in archaeology and anthropology. Central to these approaches is the idea that different groups of people, in the present as well as in the past, not only perceive and perceived reality differently, but live and lived in different realities (Kohn 2015). The ontological turn has influenced archaeological research in many ways. For example, from within archaeology, the growing interest in ‘new materialism’ has led a number of researchers of prehistoric ‘art’ to focus on the practices of making and using artworks, and the materiality, relationality and agency of those artworks for the people who made and experienced them (e.g., Conneller 2011; Ljunge 2013; Sjöstrand 2017). By way of example, in the context of Neolithic red ochre paintings from northern Sweden, Sjöstrand has emphasised that artworks are experienced as ‘art’ through practices – practices which reveal the potential of the thing to function as ‘art’ and which require “strategies of maintenance” to perpetuate the thing’s continuance as ‘art’ (Sjöstrand 2017, 371). This, she claims, strips things of the modern Western notion of ‘art’ as an inherent property of something, and instead emphasises its role within wider cultural practices. From without archaeology, anthropology-inspired ontological approaches have helped to “reconfigure archaeology theoretically and conceptually on the basis of indigenous theory” (Alberti 2016, 164). In this setting, ontological approaches are having a significant impact on rock art research (Jones 2017). In particular, scholars interested in archaeology, especially in North America and Australia, have examined rock paintings through the lens of Indigenous concepts and by integrating Indigenous conceptions of landscape into the analysis of rock art (e.g., Creese 2011; Robinson

2013; McDonald 2013; McDonald and Veth 2013; Porr 2018). In particular, the concept of ‘animism’, as it has been reformulated in the last years (Bird-David 1999; Descola 2005; Sillar 2009; Viveiros de Castro 1998; 2012), has been analytically useful to assess the various agencies and roles of rock art in the negotiation of ongoing human and other-than-human relationships (e.g., Brown and Walker 2008; Porr and Bell 2012; Zawadzka 2019). Similarly, scholars interested in exploring ontological approaches have raised a number of topics that are relevant from the viewpoint of Palaeolithic art. For instance, one of the central issues in contemporary ontological theory is the ‘animal turn’. This turn “entails recognition of the fact that human and animal lives have always been entangled and that animals are omnipresent in human society on both metaphorical and practical, material levels” (Cederholm et al. 2014, 5). The ‘animal turn’ has fueled a number of non-anthropocentric studies of the relationships between animals and humans (e.g. Betts et al. 2012; Hill 2013). Since animals played a fundamental role in the ‘art’ of many Palaeolithic societies, these studies are significant from the viewpoint of Palaeolithic art specialists.

While ontological approaches have diverse research agendas, they all share a radical criticism of traditional Western categories, including the concept of ‘art’. Such criticisms have largely dismantled interpretations of prehistoric, Palaeolithic and Indigenous rock images as merely representational or purely aesthetic forms of expression, and have instead emphasised the performative nature of artworks and, in particular, the practices and assemblages through which artworks emerge and are subsequently used. Such performative aspects are, of course, not exclusive of Western notions and practices of art, and aesthetic tastes relating to subject matter and technique are also cross-cultural concerns (Anderson 1989, 193). However, recent ontological approaches have drawn particular attention to the agency and relationality of artworks, and in doing so, such approaches have challenged enduring Romantic and formalist positions, embedded as they are in modernity’s divides of nature/culture or abstract/material. Instead, the interest in the ontological multiplicity of artworks focuses on the ways in which they establish, sustain, or challenge networks of relationships.

The Widening of the Concept of ‘Palaeolithic Art’

While the abovementioned developments indicate a widespread rejection of the Western concept of ‘art’ at a theoretical level, the fact is this term is more popular than ever among Palaeolithic art specialists. To put it bluntly, archaeologists not only keep applying the label ‘Palaeolithic art’ to rock paintings and mobiliary pieces, but they now use this label to designate artifacts and images traditionally disregarded by rock art specialists, including personal ornaments, pieces of ochre, finger flutings and marks. The interesting point is that most of the attributes traditionally ascribed to ‘art’ and the ‘artist’ – such as creative imagination, inspiration, originality, freedom and/or genius – cannot be easily used to define most of these artifacts and images. Additionally, this widening of the concept of ‘art’ parallels other ‘widenings’ in the field of Palaeolithic art research including the globalization of the discipline and the diversification of Palaeolithic art specialists (Moro Abadía and González Morales 2013).

In the field of Palaeolithic art research, the expansion of the concept of ‘art’ began in the 1990s when a number of specialists became interested in personal ornaments

(Moro Abadía and Nowell 2015). It was at that time that some archaeologists began to consider these objects as evidence of artistic and symbolic behavior. The revalorization of personal ornaments was related to a number of developments. First, under the influence of cultural anthropology, some archaeologists recognized the symbolic importance of shells and beads in the context of small-scale societies. For instance, Iain Davidson and William Noble showed how, in Australia, 'decorative' objects were an essential part of symbolic communication systems (Davidson and Noble 1989; Noble and Davidson 1991). Second, the development of new technologies led archaeologists to look at personal ornaments with new eyes. For instance, Randall White and Francesco d'Errico first applied microscopic methods to the analysis of these artifacts in the 1990s (White 1989; 1995; d'Errico and Villa 1997). They demonstrated that some personal ornaments had a technical and conceptual base as complicated as any rock image. The interest in personal ornamentation received a powerful boost in 1998 with the publication of a paper on the Châtelperronian ornaments from *Grotte du Renne* (d'Errico et al. 1998). In this paper, the authors proposed the 'multiple species model' for the origins of modern behavior. This model states that many of the archaeological traits traditionally associated with anatomically modern humans were present among late Neanderthals in Europe (d'Errico 2003). In particular, according to these authors, Neanderthals were able to manufacture perforated and grooved teeth and beads. With this paper, personal ornaments entered into the evolutionary debate. In this setting, the last twenty years have witnessed a significant increase of scholarship on Palaeolithic personal ornaments, which today are widely considered as early evidence of symbolic and artistic behavior (e.g., Vanhaeren 2005; Kuhn and Stiner 2007; White 2007; Zilhão 2007; Vanhaeren et al. 2013). This has included the analysis of mineral pigments, decorated marine shells and avian feathers and claws used as adornments by some Neanderthal populations (Zilhão et al. 2010), although evidence for Neanderthal cave art remains to be conclusively demonstrated (cf. Hoffman et al. 2018; Aubert et al. 2018; Pearce and Bonneau 2018; White et al. 2020).

Discussions regarding personal ornaments thus have shifted the focus of Palaeolithic art research to an explicit interest in traditionally overlooked images and artifacts. If, until the 1990s, prehistoric art specialists were mainly interested in cave paintings, since 2000, a variety of materials have enjoyed the high status traditionally reserved for paintings and statuettes. It is important to note, however, that the theoretical resurgence of mobiliary art was sometimes related to relevant cave art discoveries. This was the case, for instance, of the Aurignacian mobiliary art from the Southwest Germany (some of which had been discovered in the 1930s), that became the object of discussion among prehistoric art specialist after the discovery and dating of *Grotte Chauvet* in December of 1994 due to the similarities in imagery. The discovery of two slabs of ochre engraved with geometric patterns at Blombos Cave in South Africa may also illustrate this point. The cave was first excavated in 1992. In the Middle Stone Age layers, archaeologists found thousands of pieces of ochre associated with Still Bay bifacial points and bone tools. Among these objects, they found two pieces of hematite (ochre) engraved with crosshatched designs. These pieces have been dated to about 77,000 years ago and they are widely considered to be among the earliest evidence of human art and symbolism (Henshilwood et al. 2004; d'Errico et al. 2005). The cases of *Grotte du Renne* and Blombos Cave illustrate a fundamental shift in the

study of Palaeolithic art. It is not only that archaeologists are increasingly interested in objects that are rarely included in art books, but it is also that these objects are now at the center of theoretical debates. It suffices to take a glance at journals such as the *Journal of Archaeological Science* or the *Journal of Human Evolution* to see how papers on ‘small things’ (personal ornaments, ochre, engraved pieces, finger flutings) are now more numerous and have a greater impact than those devoted to rock paintings.

The widening of the concept of Palaeolithic art has entailed a diversification of Palaeolithic art specialists. In fact, the more new materials are incorporated into the concept of “Palaeolithic art”, the more differently trained archaeologists are becoming specialists in prehistoric art. During the history of Palaeolithic art research, specialists in Palaeolithic art were almost exclusively devoted to the study of the cave paintings from Southern Europe. Needless to say, they greatly outnumbered their colleagues working on portable material culture. Although rock art researchers still maintain a privileged position in the field, the abovementioned tendency has been reversed and they are far less mainstream. Today, archaeologists, art historians, palaeoanthropologists, zooarchaeologists, and bioarchaeologists discuss Palaeolithic art and symbolism from many viewpoints. They have incorporated their technical, cultural and academic backgrounds to the analysis of a wide variety of objects and images. This diversity has generated new avenues of research that have transcended the narrow disciplinary limits that dominated the discipline for over a century.

On the Persistence of the Concept of Art: Critical Thoughts

As we have seen in this paper, the last twenty years have been marked by two seemingly contradictory developments: On the one hand, from a *theoretical* viewpoint, we have witnessed a number of critiques of the concept of ‘Palaeolithic art’. On the other hand, from a *practical* viewpoint, the concept seems in good health and it is used to refer to more and more materials, artifacts and images. How is it possible that these two developments are occurring *at the same time*? In other words, why do we keep calling into question a concept that we *constantly* use in our scholarship?

There are a number of reasons that may explain this situation. To begin, the term ‘art’ is not a monolithic category but a theoretically flexible label that scholars understand (and use) on different planes of meaning. On one level, which we might call the Western definition of the term, ‘Palaeolithic art’ is related to the European idea of ‘art’ that emerged during the Enlightenment and was believed to be universal for almost two centuries. In a globalized world aware of power differentials in the creation of knowledge, most archaeologists agree that this ethnocentric view is unacceptable (Robb 2017; Porr 2019). However, in prehistoric research, the term ‘art’ is also used in a variety of accepted ways. For instance, John Robb has distinguished three current theoretical perspectives in which the concept of ‘prehistoric art’ is operating in productive ways. First, influenced by Alfred Gell’s work (Gell 1998), a number of authors conceptualize art as affective material culture, that is “a specific kind of object designed to accomplish social tasks” (Robb 2017, 595). Second, other scholars define ‘art’ as a sociological system, that is as “the product of a specific set of social institutions and networks” (Robb 2017, 595). Third, some archaeologists think about ‘art’ in terms of aesthetic action and visual cultures. This perspective “centres around

the question of how art can mean something, either by looking at elemental aesthetic signification or by looking at vision as a socially constructed act laden with power and meaning" (Robb 2017, 595). Robb's analysis reveals that terms such as 'prehistoric art' and 'Palaeolithic art' are *Polysemic*; that is, they are capable of having several meanings to several people. The polysemy of the term 'art' seems key to its success.

Furthermore, the prevalence of the concept of 'art' and other related notions (including 'prehistoric art' and 'Palaeolithic art') keep their appeal in our contemporary world. In particular, the word 'art' is endowed with a charisma that operates at different interrelated levels. To begin, the term elicits a mix of curiosity and interest in the general public. We just need to think, for instance, of the millions of people who visit art exhibitions every year. This popularity explains why the word 'art' is systematically used by those people working with 'artwork', including book editors, museum curators, collectors, antiquarians, and so on. Archaeologists are certainly aware of the allure of the term and they use it in the title of their funding applications, courses, conferences, articles and papers. In this setting, even those who do not like this category for theoretical reasons, are somewhat obliged to use it in their mediations with a number of different actors and institutions.

Finally, as occurs with other concepts (such as 'science'), the modern idea of 'art' has formed part of the Western philosophical tradition since the eighteenth century. This means that this term summarizes, in an effective way, a number of (diffuse and rarely explicit) ideas about particular kinds of objects. For instance, the term 'Palaeolithic art' has been used for one hundred and fifty years to refer to a number of images and artifacts that are supposedly of a non-utilitarian nature. In this customary way, the term 'art' is convenient for practical purposes. For some archaeologists, despite the ethnocentric and anachronistic connotations of the term 'art', its continued application to prehistoric images has methodological and heuristic merit because it impels modern researchers "to take seriously the creative activity of their makers" (Heyd 2012, 288) while throwing a critical light on the intellectual foundations of modern thought (Porr 2019, 161).

In short, we have distinguished three arguments explaining the persistence of the concept of 'Palaeolithic art' in contemporary research: *The polysemic argument* ('art' is a polysemic term that can be used in different ways), *the public argument* ('art' is the term preferred by the public) and *the customary argument* ('art' is a term sanctioned by long usage). It is convenient, however, to conclude with some critical thoughts about these usages. To begin, without denying that art, *as any other word*, is polysemous, the fact is that the term itself has a history. In this setting, whether we like it or not, the word 'art' "carries a heavy load of conceptual baggage derived from ART" (Robb 2017, 590). We need to keep in mind that we actualize this conceptual gear every time we use it (this is the reason why scholars who use this term typically experience the need to justify their choice). Moreover, admitting that archaeologists feel a pressing need to communicate with the public, the communication between scientists and the public is not without problems. For instance, since public communication is typically mediated by mass media, sociologists of science have insisted on the increasing 'mediatization' of scientific research (Weingart 2012). In this setting, the argument that we must use the term 'art' because it is popular is epistemologically flawed. Instead, as professionals, we have a responsibility towards society in the way in which we use terms and concepts. Similarly, the fact that the term 'art' is convenient for practical

and customary reasons does not imply that we can use it in an irresponsible way. We speak within a tradition, it is true, but this does not mean that we cannot be *critical* of that tradition. With these considerations in mind, and accepting the popularity of the term 'art', we should try to think more critically about 'art' and explain, for instance, how the same archaeologists can reject the term in some contexts and embrace it in others. In this setting, we hope that this paper has contributed to the current discussion of the different ways in which the term is used as well as some of the problems related to these usages.

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PART II
**THE CHALLENGE
OF MATERIALITY**

The Animal Within

The Triple Inheritance of Late Pleistocene Rock Art

Abstract This contribution examines the multispecies matrix of parietal art-making in early human evolution. I draw on *New Materialism* and *Human-Animal Studies* and deploy the archaeological evidence from Upper Palaeolithic Franco-Cantabria and Late Pleistocene and Holocene rock art of South America to argue that our understanding of the origin, assembly and motivational background of this imagery can be enhanced if we begin to explore the active involvement of rock formations and nonhuman animals. Building on theoretical insights from Jane Bennett and others, I suggest archaeological evidence for parietal art-making supports the view that rock art is often a hybrid phenomenon and its genesis linked to shifting human-nonhuman assemblages and their varying ‘conactivisms’. Rock art frequently carries a triple inheritance – human, mineral and animal – and as such delineates a human-fashioned synthesis of nature and culture, where natural potentialities and agencies meet situated human behavioural and cognitive horizons. This alternative apprehension of early rock art has important consequences for the evolutionary status of human art-making. Rather than signifying a fundamental withdrawal from nature as encapsulated by the traditional image of the *Homo pictor*, image-making emerges as a powerful ecological practice with the potential to re-configure human-nature relations and to re-insert ‘nature’ into ‘culture’.

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Introduction

Pleistocene rock art is increasingly recognized as a global and universal human cultural heritage. Ongoing archaeological research is not only revealing that this kind of art-making¹ stretches back much further in time than previously thought (Pike et al. 2012; Hoffmann et al. 2018), it also shows that pre-Holocene rock art was widely distributed across the globe (Aubert et al. 2014; 2018a), spanning multiple continents and emanating out of varying material culture ecologies, with every new discovery, such as the hitherto earliest unambiguous hunting scene identified in Indonesia (Aubert et al. 2019), challenging the current *status quo* and considerably expanding the available body of knowledge (Roebroeks 2014). Whether or not these incipient image worlds are to be considered a hallmark of percolating anatomically modern *Homo sapiens* populations or (also) bear the legacy of other now-extinct Late Pleistocene hominin phenotypes, such as the Neanderthals, Denisovans or the recently proposed *Homo luzonensis* from island Southeast Asia (Détroit et al. 2019), remains a hotly debated issue (e.g., Aubert et al. 2018b; White et al. 2019). Although the contested hominin origin of Late Pleistocene rock art is a fascinating topic, with new early-dated evidence from Asia putting more and more pressure on the traditional single species model of art-making, the aim of this contribution is primarily to square the debate and to point towards the all-too-easily overlooked ‘more-than-human’ background of early parietal art-making practices. While there is good reason to view rock art as a quintessential human material, technical and aesthetic production with deep-historical roots, there is also an emerging consensus that nonhuman forces such as the implicated rock cavities themselves (e.g., Lorblanchet 2007; 2010; Robert 2007; 2011; 2017; Hussain 2013, 88–95; Pigeaud 2013a; 2013b; 2018), but also other animal agents, contributed substantially to the genesis, design and development of some Late Pleistocene image worlds (e.g., Hussain and Floss 2015; Porr 2015; Lorblanchet and Bahn 2017, 226–230; Hussain 2019; 2021).

This paper re-visits the influential notion of the ‘participating cave’ (*Cavernes participantes*), originally put forth by Leroi-Gourhan (1965; 1971), and revises its conceptual ramifications by drawing on nascent insights from *New Materialism* (e.g.,

1 Although employing the term ‘art’ in non-Western and/or pre-modern cultural contexts has been rightly criticized on numerous occasions (e.g., White 2003), and *visual culture* is probably the much better rendering (Conkey et al. 1997; Nowell 2017), I wish to conserve the field-specific connotations conveyed by the coinage of ‘rock art’ or ‘cave art’ here, insofar as both call attention to the distinct material substrate or medium on which early imagery is realized. I fully recognize that a contemporary understanding of art, e.g., implicating a separated sphere of action and consumption, a specialized artist, and – in the words of Danto (1964) – a larger, internally differentiated ‘artworld’, can easily mislead the archaeologist or image-anthropologist. Nonetheless, ‘art’, or ‘visual culture’ more broadly conceived may also be defined in a less-pretentious and narrow manner simply as a unique sphere of technical, aesthetic and cultural production (McIver Lopes 2007). Nonetheless, we have to be extremely cognizant, and epistemologically vigilant, about the possible colonial and normative underpinnings of the term ‘art’. Only an inclusive, flexible and amendable notion of art – as for example put forward and defended by Porr (2019) – can serve as a remedy here.

Henare et al. 2007; Bennett 2010; Coole and Frost 2010; Witmore 2014) and other momentous currents of *Speculative Realism* (e.g., Harman 2010; Bryant et al. 2011; Austin et al. 2012). I begin with a brief sketch of the philosophical motivation of this broader enterprise, criticizing the Western anthropocentric conviction that continues to overshadow most attempts of understanding early rock art. I subsequently turn to the idea of the participating cave and explore its connection with emerging approaches to the materiality and agency of caves and rock formations. I then introduce animal others as yet another layer of nonhuman agency and affectivity contributing to the formation, topology and design of early parietal art-making by drawing on the growing corpus of theories, concepts and insight from *Human-Animal Studies* (e.g., Haraway 2007; Kirksey and Helmreich 2010; Ogden et al. 2013). By bringing archaeological evidence from Franco-Cantabria and South America into productive dialogue with these emerging perspectives and theories, the paper develops a new argument for the triple inheritance of Late Pleistocene and Early Holocene rock art. This account not only offers a novel reading of the immense diversity and substrate-specificity of early rock art manifestations, it also facilitates the emphatic recognition of the embedded and ecological nature of rock art phenomena, and de-centres our interpretations from the supposed hominin protagonists. I finally consider the extent to which our understanding of this triple inheritance of early rock art benefits from a discussion and critical articulation of 'naturecultures' – a concept presently gaining currency across the environmental humanities – and briefly examine the consequences of my account for the place and significance of image-making in human evolution.

Beyond Philosophies of Access

Albeit *Speculative Realism*, a prolific current of contemporary Continental-inspired philosophy (Harman 2010; Bryant et al. 2011), is a highly textured, heterogeneous and ultimately dispersive enterprise (Morelle 2012), most of its branches, affiliates and figures share a conviction to overcome a series of long-perpetuated Western conceptual prejudices (Sparrow 2014; Morton 2017). The thrust of the critique is directed at the deep-seated philosophical legacy of Descartes and Kant, who are both diagnosed to foster 'correlative' thinking and various 'philosophies of access' (Latour 1991; Meilllassoux 2008; Harman 2010; DeLanda 2016). The former motivates correlationism, which, according to French philosopher Meilllassoux (2008), posits that we can only ever hope to have access to the positive, reactive interaction between thought and being and never to any of the two in isolation. The problematization and denial of so-called 'philosophies of access', schools of thought that stress the supreme epistemological vantage point of humans and their privileged position as knowing entities over other organisms, takes a similar line, making space for non-anthropocentric forms of knowledge and understandings of reality that do not back away from the limits of the human, however conceived (Harman 2010; Bryant et al. 2011). The leading intuition of *Speculative Realism* is that there must be much more to the world than we can grasp simply by employing human categories and default perspectives, recognizing the possibilities of being-different, otherness and radical ontological alterity (Meilllassoux 2008). The anthropomorphic rendering of non-human entities such as rivers, stones and animals – sometimes stigmatized as the 'pathetic fallacy' (Ruskin 2001) – is a common

symptom of correlative reasoning and its many excesses. Speculative realists are fundamentally concerned with dismantling this reification of human experience and thought, yet also never become tired of underscoring the ongoing co-fabrication of reality through heterogeneous forces and the experimental weaving of myriad resonating but often-conflicting strings of existence. *Speculative Realism* foregrounds the richness, uneven topology and multidimensionality of the world and its many lived realities, and promises to finally defuse the spectre of anthropocentrism, which haunts the Western intellectual enterprise since its early days.

Material Inheritance

While there is no doubt that rock art, and visual culture more generally, is primarily an *artefact* and by extension owes much of its existence to a hominin producer, narratives on the catalytic role of parietal art expressions in the ‘civilisatory’ process² and the making of humanity as we know it today tend to perpetuate a concept of prehistoric art-making that excludes or at the very least greatly downplays the contribution of nonhumans (cf. e.g., Bahn and Vertut 1998; Bahn 2006; Renfrew and Morley 2009; Petrognani 2013; Guy 2017). In part, this overemphasis of the anthropogenic character of ancient rock art is rooted in the long-standing proclivity to search for the *meaning* of Pleistocene images (for a similar critique, see already Conkey 2009) and discussing early visual culture in relation to the *cognitive* capacities of its makers (see esp. Mithen 1996; 1998; Clottes and Lewis-Williams 1998; Lewis-Williams 2002; Hodgson 2008). What these two influential and authoritative prisms have arguably belittled, however, is a broader, theory-driven concern with the *genesis* and *ecology* of early rock art. This is certainly ironic given the demonstrated aptitude of archaeology to make an important contribution on both of these fronts (e.g., Delluc and Delluc 1984; Lorblanchet 2010; Fritz and Tosello 2015). The traditional approach to parietal art has consequentially foregrounded the representational, emotive and expressive qualities of rock imagery and routinely pondered about their correlational references, delineating an ontological space in which the rocks and cavities *presenting* the images are at best delegated to a role as mere ‘media’ or ‘outlets’ of human ingenuity (Jones 2017). The rock body becomes a resource for art-making. The continuing pre-occupation with rock art in terms of cosmology, magic, religion and, more recently, shamanism (Clottes and Lewis-Williams 1998) further tends to reinforce deep-seated nature-culture stereotypes (cf. Dowson 2007) and to cast early image practices as imbuing dead and meaningless matter with significance and a cultural life, which is not, strictly speaking, their own. Non-signified matter is viewed as inert and passive, whereas art-bearing matter emerges as efficacious and as a crucial history-making

2 With Elias (2000), the ‘civilizing process’ consist of coupled *sociogenesis* and *psychogenesis*, eventually leading to profound changes in human behavior linked to the formation of the state and the emergence of civil societies at the end of the 19th century in Europe. Prehistoric art is often presented as a landmark precondition, a first stepping stone, for this modernity-making development. Note, however, that such portrayal of the significance of early art-making typically remains Eurocentric, presupposes strong evolutionary directionality, and primarily addresses the human.

device. The result is a reprehensible ignorance of the difference-making capacity of the rocks themselves.

The French tradition of rock art research potentially offers a way out of this dilemma. There is a long-standing recognition among French scholars that a cave or rock shelter is anything but a passive canvass for signs and pictures, but rather co-constitutes the rich image worlds we collapse within the term rock art (Lorblanchet 2000, 200–213; Pigeaud 2007; 2018; Bon 2009; Robert 2017). The inherent and genuine activity of matter and the self-organizational capacity of rock art (Pigeaud 2013a) was famously brought to prominence by Leroi-Gourhan's notion of the *Caverne participante* (1965; 1971), subsequently refined and expanded by Lorblanchet (1994; 2010). The fundamental, yet still underappreciated insight furnished by this dynamic research trajectory is that the form, structure, design and spatial organization of early parietal images cannot be separated from the rock matrices on which they are documented (Bosinski 2003; Lorblanchet 2010; Fritz and Tosello 2015). In the words of Bon (2009, 293, my translation), 'putting cave art into context has shown that the cavity [itself] is an essential actor in the development of its decoration'.

As Lorblanchet (1994) and others have shown in some detail, there is a pervasive connection between the 'mode of using' a cave in terms of both parietal *décor* and other practices not directly linked to the fabrication of imagery and the physical and perceptual qualities of the interior cave environment itself (Tosello and Fritz 2004; Robert 2007). Pastoors and Weniger (2011) have made a similar point when calling attention to the structured atmospheric conditions – including lighting, movement possibilities and visual affordances as well as chamber acoustics and anatomy – in relation to different parts of art-bearing underground and/or semi-underground cavities. These factors play a more-than-anecdotal role in the formation of early rock art and are constitutive of the various operational schemes employed by art-making hominins. It is indeed easily overlooked that *chaîne opératoire* theory framing much of this research explicitly recognizes the active and resonating role of the worked materials (Lemonnier 2012), underscoring the dialectic relationship between mind, technique and matter (cf. Hussain 2018; Hussain and Will 2021). The 'contextual turn' within rock art studies more broadly (e.g., Conkey 2010, 275) thus arguably paves the ground for a careful re-assessment of the agency and materiality of rock surfaces and cave interiors.

Recognizing caves, rock shelters and other rock formations as potential actors in the process of parietal art-making does not level their contributions with past hominins who deliberately ventured into these places and chose to engage with them, mediated by their sociotechnical horizons, in particular ways and not others. The agency of rock environments, in other words, is most likely of a different kind than human agency and it is important to acknowledge this fact right at the start. Rocks are non-intentional agents and their agency has less to do with deliberation than with entrapping or enchanting (*sensu* Gell 1992; 1998), and thus with making a difference with respect to those who interact with them. Rock configurations provide a range of specific material, cognitive and perceptual affordances and enact a drawing power that incentivizes receptive actions instead of non-receptive ones. This action is *indirect*, however, and the power dynamics between caves and hominins are unequal. Ling and Cornell (2010) for example try to acknowledge this circumstance by treating rock art

as a 'secondary agent'. Regardless of how precisely rock agencies are conceptualized, however, the biophysical and atmospheric character of cave interiors can fundamentally influence and shape parietal art expressions on various levels and spatial scales (Vialou 2004).

Rocks have poietic qualities (from the Greek word *poiesis*, which means 'to make'): they can for instance initiate human-cave interactions in the course of which something is 'brought into being that did not exist before'. I call this capacity *geopoiesis* to acknowledge the field-specific dispositions of rock formations to catalyse, mould, and scaffold the behaviour of other agents.³ Geopoiesis breaks down untenable nature-culture dichotomies, so that 'nature is no longer fixed at a distance but emerges within the routine interweavings of people, organisms [and rocks] as these [iteratively] configure the partial, plural [and sometimes tension-ridden] spacetime matrices of everyday living' (Hovorka 2008, 97). With Bennett (2010, ix), we can begin to cherish a view of 'vital matter' that counteracts human hubris and the consumptive and instrumentalizing fantasies of the industrialized West. Rocks can then come into view as 'affective bodies' constantly affecting but also being affected by other bodies that permeate and/or enter their local environment, including hominins – a mode of action that Bennett (2010, 23) refers to as 'conactivism'.

Following Bennett's seminal exploration of thing-powers (2010, 1–2), it seems important to distinguish between the negative power of rocks – their 'material recalcitrance' – and their positive, generative powers, if only to free our renderings of matter from their overly deterministic and mechanistic underpinnings. The key to better understanding positive rock-powers is to examine how rocks *connect* to humans, how they *infuse* human behaviour and creativity and how the possibilities they open up *overlap* or not with human horizons. This analysis of human-cave conactivism benefits from a discussion of the interplay between the material and the virtual (esp. Meillassoux 2011), and how the latter – most notably through field-specific capacities, potentialities and tendencies (DeLanda 2015) – modulates the realization of image forms, patterns and compositions (cf. Grosos 2017).

In sum, the material inheritance of early rock art is often underestimated, yet provides a potent agential and motivational background of art-making. There are undoubtedly a myriad of ways in which material factors can influence the human lifeworld and intervene with human action, but scholars have only started to explore these aspects in connection to Pleistocene image worlds, let alone through the lens of *New Materialism*. As I have tried to show in this section, there is much untapped synergetic potential between research into prehistoric rock art and the nascent body of material agency theory and 'ontological' thinking (Herva and Ikäheimo 2002;

³ The inspiration for the term *geopoiesis* comes from Bachelard's seminal phenomenological theory of space and dwelling, initially formulated in *La poétique de l'espace* (1957). Now considered a milestone in architectural and spatial design, the theory posits a close link between the physical make-up of spaces, human modes of dwelling and the imaginary power of specific locations. Bachelard's relational understanding of spatial significance with a particular focus on imagination paves the ground for recognizing the active contribution of natural spaces – in terms of a distinct form of making (*poiesis*) – to the (human) cultural histories they anchor in space and time.

Jones 2017); archaeologists have now moved into the unique position to make a substantial contribution to the growing multidisciplinary endeavour of de-centering our deep-historical narratives from the human, to fully recognise the active involvement of different nonhuman forces in the construction and perpetuation of the deep past, and to ultimately expose the implicated modalities and temporalities.

Animal Inheritance

There is a long-standing consensus in rock art research that animal agency features as a key inspirational background for many early parietal practices (e.g., Mithen 1999; Tosello 2003; Shipman 2010; Lorblanchet and Bahn 2017), given that the large majority of iconical motives from the Pleistocene refers to animals, while humans, landscape components and other environmental qualities such as weather or climate seem to play much less important roles, at least in numerical terms (Sauvet 2019). Still, animals are not merely important when the thematic and symbolic content of early parietal art is considered, their behaviour, ecology and action is often implicated in the composition and design of the imagery and they actively participate in the fashioning of the various rock formations and underground environments on which the art can be found (Lorblanchet and Bahn 2017, 226–230). The overlay between the materiality of rock art, the latter's structure, form and design, as well as the affects and affectivities of animal others thus provide a potent 'conactive' matrix for the emergence of particular images. Again, the involvement of animas can take different forms and their interference introduces a subaltern mode of agency with a wide range of possible effects, yet the accruing 'contact zone'⁴ inevitably transforms the conditions and dynamics of human-rock interaction, and hence art-making. At least three axes of human-animal-cave conactivity may be explored in this regard:

1. *Rock formations and underground cavities as a living space for animals.* Even though this point may sound tautological to some, the rock environments in which early parietal art is encountered are far too often and readily cut off from the web of life in which they are enfolded and thus are effectively treated as a hollow physical container. As material media of image-making practices, rock formations and deep caves are easily cast as Newtonian space-time grids, in which each rock mainly occupies a unique geolocation. This view obstructs the relational qualities of rock structures, which are intimately entangled with the life cycles of various living organisms including fungi, animals and plants. These relationships, often mutualistic in character, can be critical, however, not only for the workable qualities of the rock surfaces

4 According to Pratt (2008, 7), 'contact zones' delineate a 'social space where disparate cultures meet, clash, and grapple with each other, often in highly asymmetrical relations of domination and subordination – such as colonialism and slavery, or their aftermaths'. Haraway (2016) co-opts this notion to describe the interstices of multispecies encounter and to theorize how biocultural and interspecies synthesis is made possible within specific historical contexts (see also Wilson's (2019) application of the notion in her critical multispecies scholarship on Empire and oceans).

in question, but also for the experiential and associative drawing powers of the places they circumscribe. The overall attraction and quality of such localities can be said to derive at least in part from their materiality, but also from the specific lifeworld intersection between hominins and animals who use these places and/or interact with them. This intersection is always *situated*, and depends for example on hominin-employed subsistence practices or sociotechnical contact zones and possibilities. Animals that regularly or even habitually occupy specific rock cavities and underground structures or visit them for particular purposes, e.g., for hibernation such as in the case of the cave bear, may then emerge as meaningful agents with a vital capacity to influence processes of art-creation.

2. *Rock matrices as a document of past animal activity.* The co-presence or pene-contemporaneity of animal others may also be evoked through the many different physical traces they leave behind. Animals who visit or temporarily occupy underground spaces or live close to the target rock formations can re-configure these places or imprint them with their behaviour-specific materialities, spawn so-called 'ichnofossils' or elicit and manipulate diagnostic theriofacts (cf. Hussain 2024). Hominin-rock encounters are for example mediated by owl pellets, cave bear claw marks and so-called *Bärenschliffe*, the surfacing remnants of long-deceased animals including cave bears who died during or shortly after hibernation. Animal action may disturb or re-arrange these material configurations as well as interfere with installations or other products of previous hominin visits (Camarós et al. 2017). Such material clues bear witness of the behaviour of significant nonhuman co-dwellers in the hominin environment and entrap the nascent image-makers in a thicket of references, metaphors and meanings. They also document the *nonhuman history* of these places and as such may provide a powerful anchor of hominin story-telling and memory-making. The important point is that both the materiality and visuality of rock structures, but also their aptitude of 'make-belief' (*sensu* Wollheim 1998) cannot be fully appreciated if we approach them as Cartesian units severed from the rest of nature. The 'conactive' matrices in which these rock formations are embedded render them hybrid localities in which the categories of society and nature merge and overlap. These places are *material and animate* at the same time, they record and perpetuate a dynamic sense of life which is lost if we over-focalize on negotiating the relative contribution of human and material factors in the formation of the early rock art in question.
3. *Rock formations and underground structures as a product of animal behaviour.* This final point calls attention to the circumstance that the agency of animal others is sometimes implicated in a much more direct and powerful manner in early parietal art-making practices than many traditional views acknowledge. Some animals literally *create* the rock or underground environments in which early rock art is encountered. This deliberate and ongoing animal fabrication of rock morphologies, structures and surfaces may affect the local and global environment of rock art – it can e.g. shape the location and design of images on an individual rock panel or affect the distribution, positioning

and alignment of early imagery on a landscape-scale. Especially animals who are potent *niche constructors* or *ecological engineers* (e.g., Jones et al. 1994; Wright et al. 2002) can become conactively involved in processes of parietal art-making (cf. Hussain 2024). In North America and elsewhere, megaherbivore rubbing behaviour has for example generated super-polished and highly reflective rock surfaces scattered across the landscape (Haynes 2012; Parkman and Erickson 2010), not only providing a well-suited undercoat for rock imagery, especially incisions, but also greatly enhancing the visibility and thus potential significance of the respective localities. A particularly striking example comes from the Late Pleistocene and Early Holocene of South America – and I will return to this case in the subsequent section of the chapter: large borrow-building mammals, probably ground sloths and giant armadillos, are being held responsible for large underground structures dug into rock substrates such as weathered granites, basalts, sandstones and other consolidated sediments (Vizcaíno et al. 2001; Frank et al. 2012a). These borrows and sinuous tunnels have become an integral part of South American paleolandscapes and the characteristic scratches and grooves they bear enwrap them in vibrant animal relationships (Lopes et al. 2017). Such spaces appear to be fundamentally imbued with animal behaviour and thus represent ‘animate’ places *par excellence*. When signified with hominin rock art, they become a paramount example of how nature and culture merge through the interweaving of heterogeneous material, animal and hominin agencies. The ensuing rock art, in other words, emanates from a multi-vocal symphony of natural and cultural forces, vigorously collapsing the boundaries between the human-made and the productions of other biophysical landscape agents.

Taken together, it is surprising that no theory-driven framework currently exists to better link the materiality, animality and humanity of early rock art. Such a framework would not only facilitate the global comparison of rock art ecologies and help to disentangle their heterogeneous geneses in order to elaborate a more inclusive perspective on early parietal imagery, it would also be instrumental for integrating presently isolated theoretical and empirical efforts of bringing the various contributions of nonhumans back into the discussion on early human evolution. As I have attempted to show here, we do not have to embrace a strong notion of animal agency to accommodate this goal: it would be enough to recognise that animal others, through their actions and activities, can substantially shape and transform the behavioural, perceptual and cultural horizons of art-making hominins and in this way influence the form, structure, design and distribution of parietal art expressions. The *chaîne opératoire* of parietal art-making, in other words, is constantly tempered by affective nonhumans, who shape past environments, possibilities and experiences.

Early Rock Art as Natureculture

The observations and arguments outlined in the foregoing sections demonstrate the importance of critically re-considering the nature-culture interface as a *generative* matrix for understanding early image worlds (Herva and Ikäheimo 2002; Hussain and

Floss 2015; Jones 2017; Hussain 2019). Especially parietal art with its tripartite inheritance comprising the cultural horizons and actions of past hominins, the ecological agency of animals and the perplexing drawing powers of rock substrates showcases that a Cartesian, exclusivist rendering of ‘nature’ and ‘culture’ often leads to an interpretive impasse, rather than issuing perspectives which propel the discussion further, can readily be linked up with insights and theories from other fields, or more productively be integrated with the emerging evidence from wider human origins studies. It should not come as a surprise, then, that rock art is firmly situated at the nature-culture interface, neither delineating a purely cultural production nor a natural phenomenon unaffected by human interference. Instead, parietal art-making draws into focus the complex, relational interweaving of heterogeneous inputs from both fields of reality and hence forcefully collapses long-standing Cartesian dualities.

While the quality and extent of these inputs is an open empirical question and should be expected to vary across cases and periods, early rock art can then come into view as ‘bioculture’ (Simberloff 2018), ‘ecoculture’ (Hussain 2019), ‘sociornature’ (Hovorka 2008, 97) or ‘natureculture’ (Haraway 2003, 1–5; see also Stache 2017; Malone and Ovenden 2017), absorbing, integrating and synthesizing the actions, affections and materialities of hominins, animals and rocks. As shifting assemblages of humans and nonhumans, deep-historical instances of parietal art-making refer hence back to the wider *ecology* of human life on Earth, disclosing the *distributed origins* of the hominin capacity to make images (Bredekamp 2017). The process through which rock art comes into being may thus be described as *allopoeisis* – defined here as the eco-systemic coalescence of non-identical agents co-fabricating something qualitatively different from the initial configuration. Ignoring the system-theoretical bearings of the term for a moment (Esposito 2001, 249), *allopoeisis* may also be recognized as a generative capacity of bringing forth novelty by relying on specific articulations and inter-modalities of multiple physical and agential qualities.⁵ With Kirksey (2015), we may then posit that rock art forms a diagnostic part of the ‘emergent ecology’ of shared Late Pleistocene lifeworlds, bespeaking of the growing significance of nonhuman others and the momentous re-assembly of human-world relations more generally.

Rocks as Quasi-Agents in Franco-Cantabrian Cave Art

Delannoy and colleagues (2013) have recently re-centred attention in Pleistocene rock art studies on the active involvement of rock morphologies and geologies in the creation of parietal images and rock art spaces more generally (cf. Delannoy et al. 2018). Drawing on instructive examples from Chauvet cave in Southeastern France and the rockshelter of Nawarla Gabarnmang in Northern Australia, which both document hominin activity stretching back at least 30,000 years, the authors convincingly show that image-bearing rock environments are everything else but ‘inert’ natural spaces. Their analysis not only exposes the deep history and complexity of hominin rock manipulations, it also indicates that the specific material engagements documented

⁵ Allopoeisis highlights the production of difference and novelty, while the making-together, the co-production of art through the tangled actions of heterogeneous entities, can be framed as a process of *sympoiesis* (‘making-with’) as outlined by Haraway (2016).

at these sites are shaped by the vibrant materiality of the attendant rock environments themselves. Although Delannoy and colleagues' (2013) examination remains underpinned by a Cartesian 'nature' vs. 'culture' dialogue, their careful morphogenetic analysis of *The Cactus* – a multicomponent stalagmite structure in the Cactus Gallery of Chauvet cave – nonetheless reveals a bidirectional pathway of human-cave interaction, mediated by the dynamic formative history and perceptual salience of the cave body itself. *The Cactus* is shown to originate from a natural arrangement of stalagmites and collapsed roof slabs, in turn attracting hominins and motivating them to further modify the structure, augmenting its geometry and visuality, dislocating rock slabs and intentionally depositing a flint tool within a natural cavity of the emerging structure (Delannoy et al. 2004; 2012; 2013, 15–20). Rather than regarding *The Cactus* merely as an instance of socially constructed, image-bearing underground spaces (*aménagement*), the enigmatic structure from Chauvet's interior may be recognized as a potent testimony of a defiant *Caverne participante* and the creative potential of *geopoiesis* merging hominin cultural, cognitive and behavioural horizons with rock affordances, drawing powers and potentialities.

Similar examples of participating rock matrices and the co-fashioning of parietal art through hominins and rocks are widespread in the Late Pleistocene and are particularly well-documented in Upper Palaeolithic cave art of the Franco-Cantabrian region (Lorblanchet 1994; 2010; Tosello 2003; Bon 2009). Previous and ongoing research shows that the agential qualities of the participating cave bodies are expressed on various spatial scales (Vialou 2004), ranging from the positioning of individual images, panels and image compositions in relation to larger underground cave systems and their atmospheric, physical and hydrological peculiarities to the location, design and execution of specific images on smaller wall segments and rock structures or within more complex pictorial arrangements. Following Robert (2007; 2017) and others, it seems useful to distinguish between larger rock 'structures' in which the parietal images are embedded and their concrete rock 'supports' – i.e., the micro-surfaces which hold the images and sometimes serve as their undercoat (Lorblanchet 1999; Fritz and Tosello 2015). The role of rock features in the formation of parietal art can vary dramatically from case to case (Lorblanchet 2000, 200–213) and it is thus often instructive to compare the precise link between images and rocks with respect to these and cognate categories. Discriminating between *image integration* and *image framing* as two modes of hominin-cave interaction may delineate a valuable point of departure:

1. *Image integration* describes the degree of synthesis between images and rocks, the extent of material amalgamation and structural assimilation, the formal dependency between images and rock substrates and the quality of co-evocation (Robert 2007; Lorblanchet 2010; Fritz and Tosello 2015). In a prototypical case of image integration, selected components of the image-bearing rock surfaces or their structure become an integral part of the image itself, often completing the image, endowing it with shape and depth, or anchoring it within the topology of wall segments. Clefts, ravines, ridges or the natural shape and morphology of wall edges are often important material references in this context (Robert 2017), but image integration may also be achieved in a more

holistic fashion, e.g., with respect to the larger *Gestalt* – both physical and imagined – of the encountered rock shapes and structures. Thus, image integration can be ‘pregnant’ or ‘discrete’ (Sauvet and Tosello 1998), the former often characterized by incomplete motifs and tinkering with associative and imaginative possibilities as well as the many ambiguities, equifinalities and multivocalities of shifting image-rock transactions.

2. *Image framing* describes the way in which an image is mounted onto, wrapped in or encased by a larger rock structure. The frame is typically made up by natural rock morphologies and surfaces such as fissures, protrusions and segmented areas or by varying granularities and textures of the involved superficies. In Franco-Cantabrian cave art, the employed frames range from natural colour transitions or contour lines that delimit or contain the *visual field* of an image to carefully constructed image boundaries that invoke the modern concept of the ‘picture frame’ as a means of focusing attention. The frame defines the immediate frame of reference and manipulates the visual experience as well as modulates attendant non-visual sensations. Image framing thus sheds light on the decisive, co-constitutive role of local rock configurations in processes of parietal art-making and reception. Prototypical natural image frames tend to exploit the affording, associative and metaphorical character of rock structures, while other framing modalities reflect prior hominin surface preparation or rock modification, sometimes but not always conjured by the rocks themselves. Another mode of image framing is based on the exploitation of a matching, complementary or prominent *fulcrum* anchoring and orientating the image within a larger rock matrix (Lorblanchet 2010; Robert 2017). In contrast to the possible exploitation of a natural rock lynchpin for purposes of image integration, here the fulcrum does not become an integral part of the produced image itself, but instead plays a central role in the definition and organization of the image’s visual field. The traditional rendering of Western European Upper Palaeolithic cave art as ‘freely floating in space’ and lacking a pictorial baseline, or shared layout, is ultimately rooted in the long-standing neglect of image framing, obtained through the deliberate incorporation of the difference-making and evocative qualities of nonhuman rock formations. The contribution of these rocks is less direct and palpable than in the case of image integration, but it is no less critical and shows that the agency of rockshelters and cavities is complex and multidimensional. Media-theoretical and visual culture approaches to the role of frames in channelling visual communication, setting a non-verbal agenda, articulating salience and negotiating meaning – sometimes conferred under labels such as ‘frame theory’ or ‘frame analysis’ (e.g., Goffman 1974; Fairhurst and Sarr 1996; Scheufele 1999) – have therefore great but hitherto underappreciated potential to fertilizing the investigation of image framing logics in Pleistocene rock art research.

Given this general disparity in the logic, goal and functioning of image integration and image framing, it is perhaps not surprising that the two often play different and at times antagonistic roles in fashioning the image space of Upper Palaeolithic cave art in Franco-Cantabria. There is a broad tendency, for example, of widely tapping into

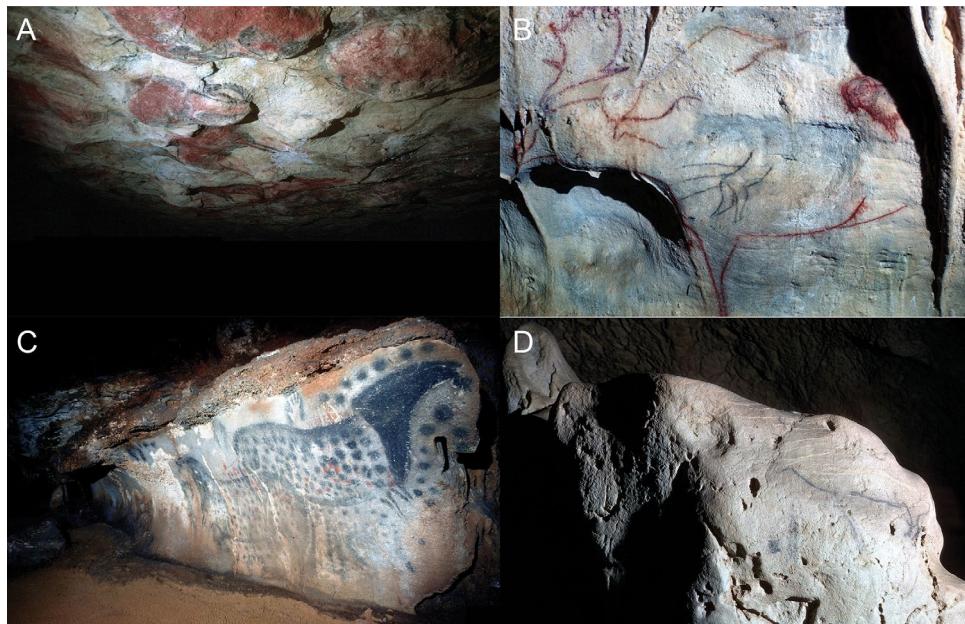


Fig. 1 | Examples of figurative image integration from Franco-Cantabrian Upper Palaeolithic cave art. The elicited images/motifs are inseparable from the structural, morphological and visual characteristics of the rock surfaces on which they are mounted. A: polychrome ceiling of the Sala de las picturas in Altamira where the famous wisent images are placed on salient rock protrusions; B: large deer (megaceros) from Cougnac, France, whose lower cervical line is formed by a prominent rock shoulder; C: panel of the two horses from Pech-Merle, France, with the left head anchored into a cliff mimicking the outline of a horse head; D: black bison drawing from Ekain, Spain, suspended on a rock edge evoking its dorsal morphology. (A–D: Photographs: Heinrich Wendel, ©Wendel Collection, courtesy Neanderthal Museum Mettmann). No scale.

image integration possibilities when figurative art is created, especially zoomorphic and anthropomorphic motifs, and to strongly capitalize on image framing when signs and icons are placed and composed (Robert 2017). Elsewhere, I have referred to this mode of human-rock interactions as *embedded art-making* (Hussain 2013; cf. Hussain and Breyer 2017), during which the confines of the human and nonhuman, but also of the living and non-living, become increasingly blurred, and are likely (re-)negotiated.

Striking examples of figurative image integration in Franco-Cantabrian Upper Palaeolithic rock art comprise the chromatic wisent depictions placed on bulging ceiling structures in Altamira, the large megaceros from Cougnac whose outer neckline is defined by a shadow-casting stalactite curtain and whose right limit is framed by a prominent sinter pillar, the black bison line drawing from Ekain whose dorsal line is constructed by a salient rock edge, the famous dotted horses from Pech-Merle whose right head is suspended to a cliff edge mimicking the outline of a horse head (Fig. 1), and the complex rock structure from Les Fieux whose *Gestalt*, texture and shadow patterns anchor an ibex, pre-empting part of the limbs and body outline, and resembling two larger mammoths filled with drawn mammoth contours and signs (Lorblanchet 2010, 316; cf. Fig. 5B). Further examples include the so-called ‘masks’ from the *Cola de Caballo*, the depths of Altamira, whose integration into attention-provoking, plastic



Fig. 2 | So-called 'masks' evoking the human gaze from the depth of Altamira, Spain. Image-integration follows the morphological *Gestalt* of rock shapes and the act of painting/drawing is minimally invasive and schematic. One may therefore reasonably speak of a practice of working out, highlighting, conjuring or convoking what is already implied, contained or referenced within the rock arrangements themselves. A and B: two masks from the *Cola de Caballo* of Altamira, Spain, taking advantage of the associative, metaphorical and morphostructural drawing powers of rock surfaces. (A-B: Photographs: Heinrich Wendel, © Wendel Collection, courtesy Neanderthal Museum Mettmann). No scale.

and well-defined rock protrusions invoke the human gaze (Fig. 2), the projected head of a doe mounted on top of a deep cleft forming the lower cervical line (Lorblanchet 2000, 94; Fig. 3), the carefully shaped head of a horse from Cormarque following the natural structure of the rock matrix on which it is mounted (Bahn and Vertut 1998, 99), the vertical wisent head from El Castillo which completes two converging natural rock fissures on the wall (Lorblanchet 2000, 104), or the bird depiction from



Fig. 3 | Examples of Upper Palaeolithic parietal images organized or co-assembled by natural rock features. A: Owl finger tracing from Chauvet cave, France, mounted on top of an overhanging rock-edge invoking a sitting posture (redrawn from Chauvet et al. 1996, Fig. 33); B: schematic ibex next to a vertical row of red dots from Le Travers de Janoye, France, embedded in a salient rock-edge convexity (redrawn from Lorblanchet 2000, 187); C: painted black head of a doe from Altamira, Spain, suspended on a prominent rock cleft completing the figure (redrawn from Lorblanchet 2000, 95). No scale.

Altxerri whose dorsal line and peak are suspended on a protruding rock structure (Robert 2017, Fig. 4).

Notable instances of image framing in Franco-Cantabrian rock art encompass the panel of the five mammoth engravings from Rouffignac placed and oriented in parallel to a band of flint inclusions separating the figures from geometric lines and finger drawings on top of the inclusions, the red horse from the *Galerie Jammes* of

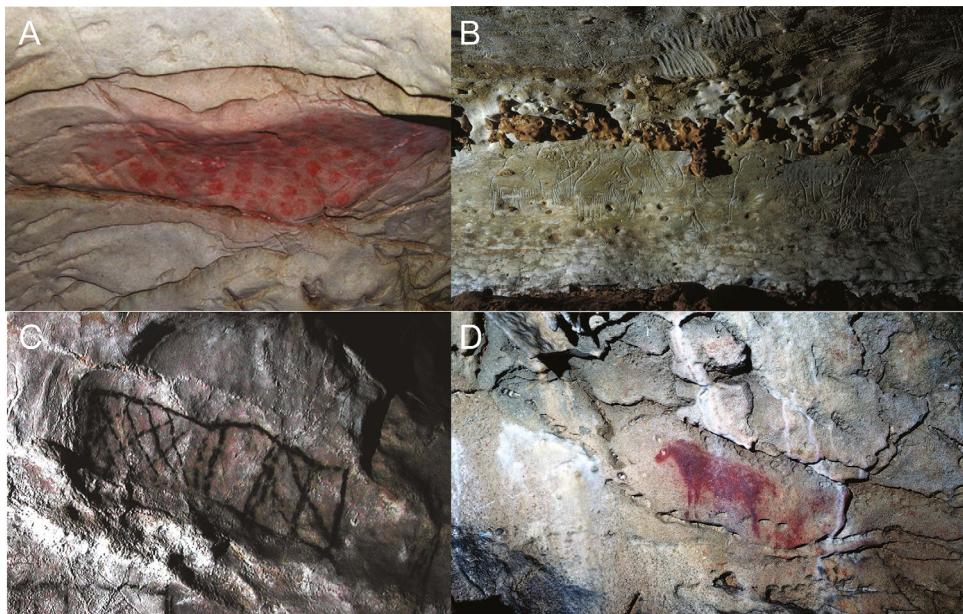


Fig. 4 | Notable instances of image framing from Franco-Cantabrian Upper Palaeolithic cave art. The shown images and image compositions are either delimited by natural rock features, so that their wider visual field is co-determined by the visual affordances and details provided by the local rock environment on which they are found, or their placement is a direct function of these rock characteristics, which then serve to anchor or encase the respective imagery. A: group of red dots from La Pasiega, Spain, edged by a triangular wall segment; B: panel of the five mammoths from Rouffignac, France, bounded to the top by a flint bearing rock layer; C: rectangular sign from Las Chimeneas, Spain, inserted into a natural rectangular rock depression; D: red horse from Le Portel, France, enframed by a natural wall segment. (A, C: Photographs: Eric Robert, reproduced with permission from Robert 2017, Fig. 2; B, D: Photographs: Heinrich Wendel, ©Wendel Collection, courtesy Neanderthal Museum Mettmann). No scale.

Le Portel, which is inserted into a physically outstanding rock segment of the wall, a rectangular sign from Las Chimeneas squarely embedded into a rock depression, and a group of dotted signs from La Pasiega encased by a triangular rock segment underneath a prominent rock shoulder (Fig. 4). Other examples include a bison engraving from Niaux, whose dorsal line is directly attached to a natural rock fissure and whose visual field is strictly delimited by surrounding clefts and rock ridges, a sign with four engraved circles from Faume de Gaume situated in the centre of a prominent rock concavity, a horizontal alignment of red dots from Travers de Janoye following the protruding edge of a central rock formation (Robert 2017, Figs. 4, 6–7; Fig. 3), the panel of ‘swimming reindeer’ from Lascaux exploiting a curved natural rock shoulder to denote the surface of the water (Aujoulat 2004, Pl. 129; Fig. 5), and the arrangement of individual motifs and animal groups on the lion panel from Chauvet cave structured by various natural clefts, depressions, protrusions, surface transitions and other segmenting wall elements (Chauvet et al. 1995, Tafel 81). A similar pattern has been observed on the right wall of the passage sector in Bernifal cave, where a group of mammoths with signs and geometric lines is separated from individual bison and horse figures as well as a complex palimpsest motif by different wall surfaces and

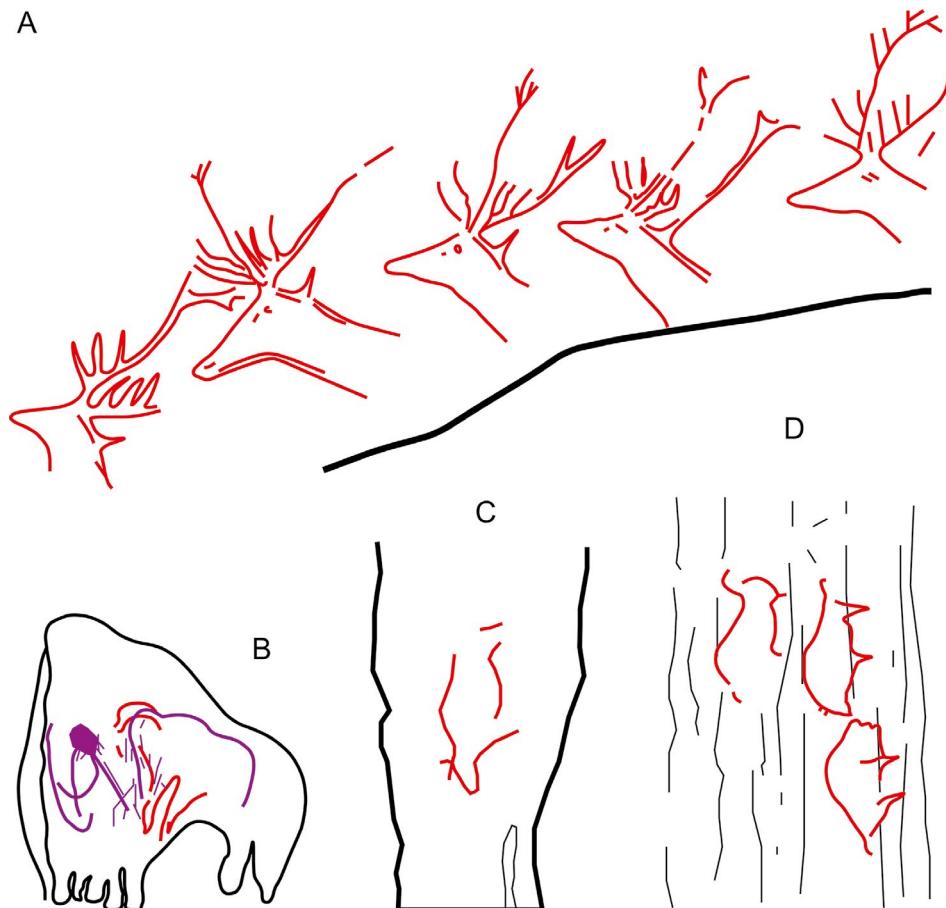


Fig. 5 | Examples of Upper Palaeolithic parietal images structured, arranged or co-assembled by natural rock formations. A: Group of 'swimming (rein)deer' from Lascaux, France, where a natural ravine completes the image (redrawn from Aujoulat 2004, Plate 115); B: stalagmite structure from Les Fieux, France, resembling the body of an animal, possibly a mammoth, and housing an integrated ibex engraving (first stage, red), a backline of a mammoth and a mammoth trunk completing the outline evoked by the stalagmite arrangement (second stage, purple; redrawn from Lorblanchet 2000, 206); C: red bovine depiction from La Pasiega, Spain, oriented according to the prime visual-physical axis of the image-bearing wall (redrawn from Lorblanchet, 2000, 204); D: black vertical wisent images from Santimamiñe, Spain, inserted into the natural layering of a cascading stalagmite curtain (redrawn from Lorblanchet 2000, 204). No scale.

rock morphologies (Robert 2017, Fig. 9). Recent re-examination of Upper Palaeolithic hand stencils from El Castillo and La Garma has revealed a strong locational pattern of these motifs within the interior of the two caves: the makers of the stencils were apparently concerned with 'gripping' rock convexities and other ergonomically fitting concavities, yet also with framing the stencils with or centering them on natural rock fissures or stalagmite structures, letting the authors of the study conclude that not only visual and atmospheric features of cave interiors were constitutive for the images, but also more palpable and visceral qualities of touch and direct grasp (Pettitt et al. 2014; Fig. 6). In all of these cases – and many more could have been enlisted – the cave



Fig. 6 | Red and black hand stencils from the *Salle I* of Gargas, France. The images are placed on a rock surface naturally framed and thus thrown into relief by various rock structures including protrusions, ridges as well as calcite and other highly textured surfaces. (Photograph: Heinrich Wendel, ©Wendel Collection, courtesy Neanderthal Museum Mettmann).

emerges as an *active participant* in the formation of Upper Palaeolithic parietal art. It is through the poignant synthesis, tension-ridden assimilation and explorative merging of natural and cultural inputs that this early rock art comes into being. These images are as much ‘cultural’ as they are ‘natural’: they powerfully illustrate that early image work draws on multispecies registers and is sometimes even *collaborative*, placing the respective rock art firmly into the realm of ‘natureculture’.

Animals as Transitive Agents in the Construction of Rock Art in Upper Palaeolithic Europe and Late Pleistocene South America

Animals provide another complementary window into the *allopoietic* origin of rock art. As discussed in the previous section, animals may be implicated in parietal art-making in multiple ways and just like in the case of supposedly inert rocks, their contribution can be analysed on varying spatial scales, ranging from the animal shaping of entire rock surfaces to the role of localised animal traces in anchoring and organizing different images and image-panels. In most cases, however, animals are not directly involved in the genesis of early rock art – i.e., it is usually difficult to render a strictly *theriopoietic* context of image formation plausible. The animal contribution to rock art tends to be indirect and is for the most part, albeit not exclusively, tied to the tangible interference of animals with parietal art-housing rock surfaces. The relationship between animal agency and the location, structure and design of early parietal art is therefore

mostly *transitive*.⁶ For this reason alone, the animal input to parietal image worlds is easily overlooked, even though animal others constitute an irreducible pillar of the wider ecology of past hominin behaviour, sociality and visual culture (cf. Hussain 2019; 2021; 2024). The role of the cave bear in shaping Upper Palaeolithic parietal art in Franco-Cantabria provides a first inroad to the allopoietic involvement of animals with the creation and spatial coalescence of early rock imagery.

While most underground cavities conserve some kind of animal markings, for example faint yet often widely distributed scratch marks of bats, the claw marks and characteristic surface polish (*Bärenschliffe*) of cave bears are by far the most prominent and attention-eliciting animal traces (Bednarik 1994). Some of these claw marks have erroneously been identified as human parietal productions in early rock art research (Lorblanchet 1989; Ladier et al. 2003), for example in the context of supposed ‘injuries’ and so-called ‘wounded’ figures which were integral to the classic hunting-magic interpretations of Upper Palaeolithic rock art (cf. esp. Lorblanchet 1999, 42). Yet, the obsession of discriminating between anthropogenic products, by implication considered ‘art’, and cave geofacts or theriofacts, by implication re-cast as coincidental and meaningless background activity (cf. Hussain 2024), has obstructed the exploration of how early parietal imagery – both in terms of its design and formation history – actually *relates* to these traces of nonhuman behaviour. Collapsing the nature-culture boundary while remaining cognizant about the foundational heterogeneity of possible inputs to parietal art-making might then offer a way forward. Just as other physical features of the underground world, cave bear claw-marks are often integrated into parietal images or larger image compositions (*image integration*), frame and anchor these images (*image framing*) or organize the formation and layout of the rock art in less-tangible ways (Lorblanchet and Bahn 2017, 229).

In the cave of Aldène, for example, Early-to-Middle Upper Palaeolithic people integrated a series of superimposed claw marks resembling the coat and limbs of a large fur-wielding animal into a synthetic mammoth engraving simply by adding a distinct dorsal line and the characteristic outline of the head and trunk (Sacchi 2003; Fig. 7). The same cave features a cave bear claw mark anchoring the shoulder line of a feline depiction and integrating ‘a series of four prints with a circular engraved construction made with four lines, equal in number to those of the initial claw mark’ (Sacchi 2003; Lorblanchet and Bahn 2017, 229). Other examples where claw marks play a notable role in the co-construction of Upper Palaeolithic image spaces include a hand motif from Bara-Bahau incorporating a claw mark (Lorblanchet and Bahn 2017, 229) or La Croze à Gontran and Margot where human engravings clearly imitate or complete older bear markings (Delluc and Delluc 1983; 1985, 60; Pigeaud 2018, 104). In some

⁶ A transitive relationship describes an indirect tie involving at least three nodes. In the archaeological case concerned above, the idea is that whenever human rock art (HRA) implicates or refers to an animal other (A), it also implicates or refers to a specific material state (M) which is correlated with or a consequence of the respective animal relationship, so that, set-theoretically speaking, whenever $A \in \text{HRA}$, and $M \in A$, then $M \in \text{HRA}$. In other words, the contribution of nonhuman animals to situated instances of early rock art becomes a matter of *material mediation*, and is thus only rarely expressed directly in the formal and structural properties of the art in question.

cases, the relationship between parietal imagery and cave bear markings is possibly numerical. In the *Galerie Combel* in Pech-Merle, for instance, one encounters a panel in a niche bearing five bear claw marks in close neighbourhood to five red rubbed hands (Lorblanchet 1999, 15; Fig. 7); some of these bear markings are covered with traces of red ochre and the total configuration of human and nonhuman incisions at a prominent position above a narrow passageway suggests that the composition is far from incidental and that humans deliberately imitated the vestiges and gestures of cave bears (Lorblanchet and Bahn 2017, Plate XX).

Albeit difficult to establish with any certainty, the link between early parietal imagery and cave bear markings may indeed go far beyond spatial and formal referencing. Some of the claw mark signatures of bears initially misidentified by prehistorians and speleologists as parietal art in fact bear strong resemblance to engraved or painted signs, especially tectiforms (cf. Ladier et al. 2003; Lorblanchet and Bahn 2017, Fig. 78). This articulation may be taken to signify that at least some of these signs and sign fields were regarded as ‘pregnant’ or ‘imbued’ with cave bear significance, so that the resulting images may be difficult to separate from the animal ecology of past caving experiences. The burial of an Upper Palaeolithic individual in a cave bear hibernation pit directly adjacent to the engraved rock walls of Cussac may support this interpretation (Pigeaud 2018, 105–106), underscoring once again that past and penecontemporary animal agency provided a key motivational background for the formation and spatial assembly of early rock art and its behavioural context.

The second example of animal involvement in the emergence of early rock art that I wish to briefly discuss here brings us to the Late Pleistocene of South America with large, now-extinct herbivores as the main protagonists. Mainland South America houses a rich tradition of rock paintings and engravings but also geoglyphs (large open-air ground images often fully graspable only from an airborne perspective) stretching back at least into the final phase of the Pleistocene period (Podestá and Strecker 2014). Parietal imagery in mainland South American comprises both figurative and geometric motifs and bridges various ecozones and elevations, yet is so far absent from the dark interior of deep-running underground cave systems (Podestá and Strecker 2014). While the enigmatic rock art from the Sierra da Capivara in Northeastern Brazil has been proposed to date back some 48,000 years ago (Guidon 2007) and the Serranía de Chiribiquete rock paintings from Amazonian Columbia estimated to be at least 19,500 years old (Podestá and Strecker 2014, 6831), the presently available direct and reliable chronometric evidence points to an onset of parietal art-making on a continental scale only between ca. 12,000 and 10,000 years ago (e.g., Prous 2013; Neves et al. 2012; Whitley 2013). The emerging picture therefore suggests that the lower temporal horizon of South American rock art overlaps with the distal segment of the Pleistocene geoclimatic period, when the continent’s diagnostic assemblages of large-bodied mammals and birds – including various elephant species, the largest bear in history (*Arctotherium*) and so-called ‘terror birds’ of the *Phorusrhacidae* family – gradually went extinct, and many ecosystems experienced dramatic reconfigurations because of this (cf. Barnosky et al. 2016; Doughty et al. 2016).

Some of these long-vanished animals had a strong impact on the physical and vegetational make-up of the landscape, with large ground sloths and perhaps giant armadillos being responsible for the construction of monumental underground structures

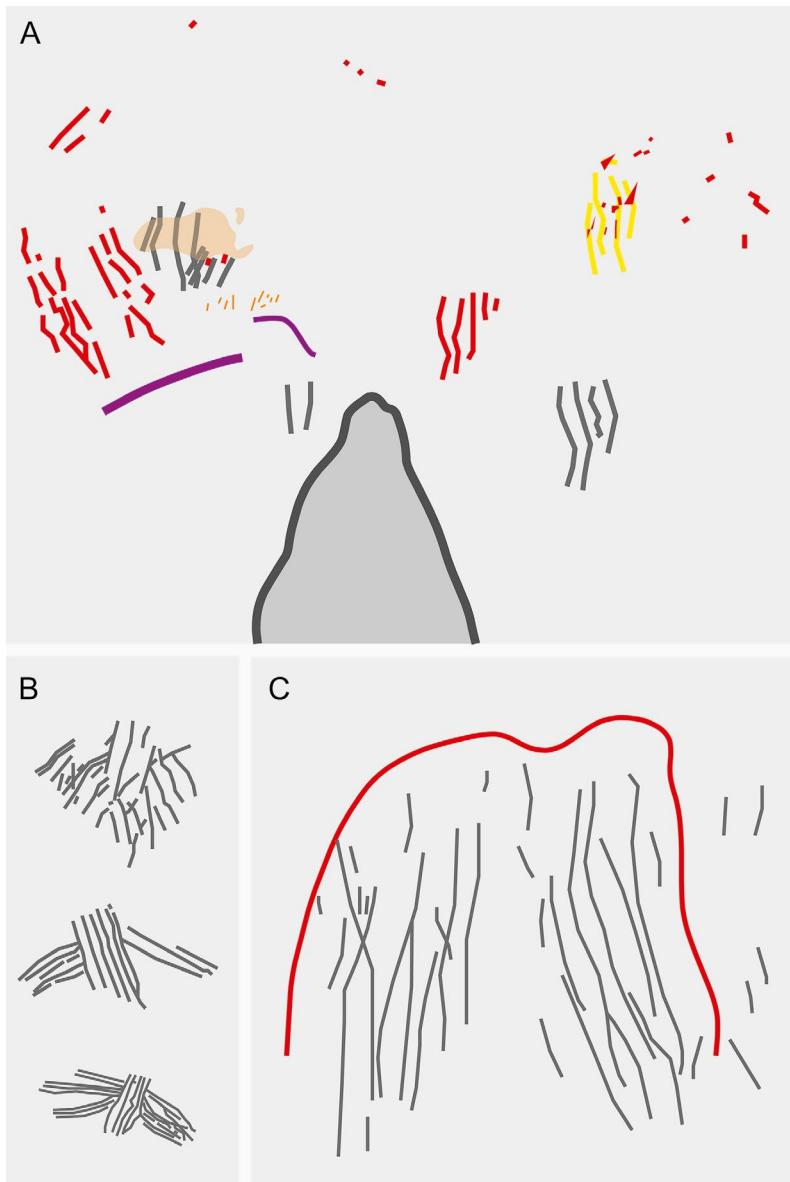


Fig. 7 | Integration, utilization, extension and imitation of cave bear claw marks in Franco-Cantabrian Upper Palaeolithic parietal art. A: Association of possible Gravettian age bear claw marks (dark grey), two engraved lines (purple) as well as human finger drawings, ochre traces and rubbed hands of varying preservation and intensity (yellow-to-red gradient) in the Combel gallery of Pech-Merle cave, France (contour lines of the narrow crawlway anchoring the configuration of natural, anthropic and hybrid images are given in black). B: cave bear claw marks resembling tectiform signs from Rouffignac, France; C: mixed assemblage of a human-engraved cervico-dorsal line (red) and cave bear markings (dark grey) from Aldène, France, forming a mammoth-like image of possible early-to-mid Upper Palaeolithic origin. (A: redrawn from Lorblanchet and Bahn 2017, Plate XX; B: redrawn from Lorblanchet and Bahn 2017, Fig. 78; C: redrawn from Lorblanchet and Bahn 2017, Fig. 79). No scale.

distributed across South America, especially Southern and Southeastern Brazil and Eastern Argentina (Vizcaíno et al. 2001; Lopes et al. 2017) with some notable discoveries in Uruguay and Peru (Hostnig 2019). These widely dispersed subterranean tunnels and burrows come in different shapes and sizes, perhaps suggesting that more than a single species was involved in their construction (Frank et al. 2012a). Even though these animal-made structures are not always easily distinguished from natural rock formations and karst phenomena, they tend to bear salient grooves, claw marks, osteoderm impressions and polished or smoothed-out surfaces, sometimes exhibiting distinct weathering-related colour trajectories, linked to the digging activities of past megafauna (Frank et al. 2012b; Lopes et al. 2017). The morphology, architecture and markings of these underground palaeostructures but also their geographic spread is compatible with *Megatherium*, *Eremotherium*, *Pampatherium* and perhaps *Holmesina* (Cione et al. 2009; Frank et al. 2017; Lopes et al. 2017; Fig. 8) – animal genera known for their notorious burrowing behaviour and heralded as potent *ecological engineers* with matching body-size, physiology and a powerful frontal digging apparatus (Vizcaíno et al. 2001). Most of these potential nonhuman palaeoburrow constructors incrementally disappeared from South American environments at the Pleistocene-Holocene

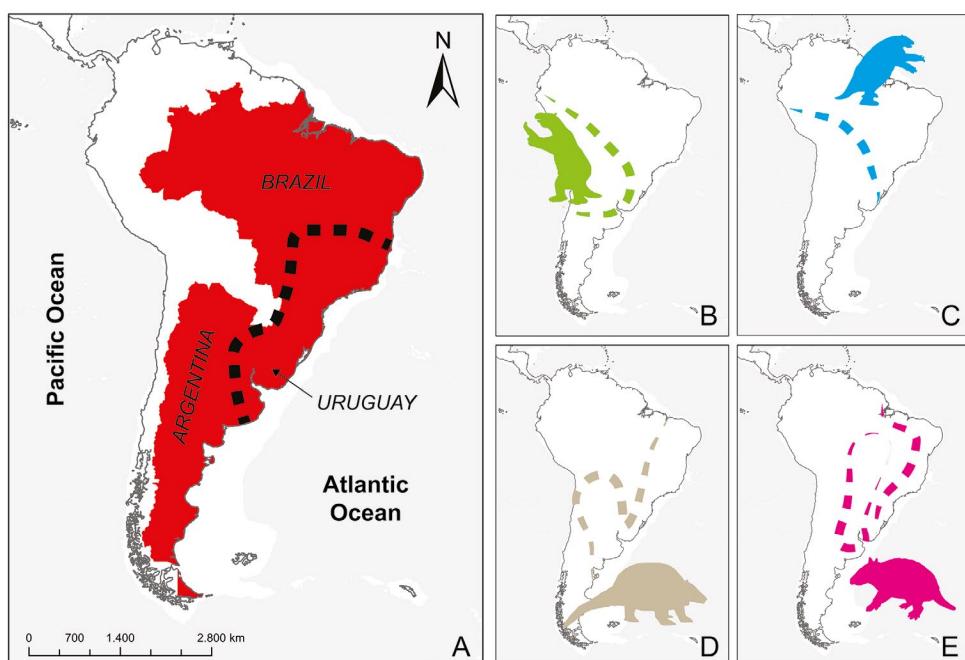


Fig. 8 | Geographic distribution of recorded animal-dug palaeoburrows and tunnels in Eastern South America and reconstructed ecoranges of their possible nonhuman constructors. Area highlighted in red designates the countries in which these animal palaeostructures have so far been identified. A: Black dashed line indicates the area in which over 1,500 animal-made palaeostructures have been documented, spanning the present-day countries of Brazil, Uruguay and Argentina (based on palaeoburrow data by Lopes et al. 2017); B: inferred palaeorange of *Megatherium* (after Cione et al. 2009, 7.4C); C: inferred palaeorange of *Eremotherium* (after Cione et al. 2009, 7.4C); D: inferred palaeorange of *Pampatherium* (after Cione et al. 2009, 7.4E); E: inferred palaeorange of *Holmesina* (after Cione et al. 2009, 7.4D).

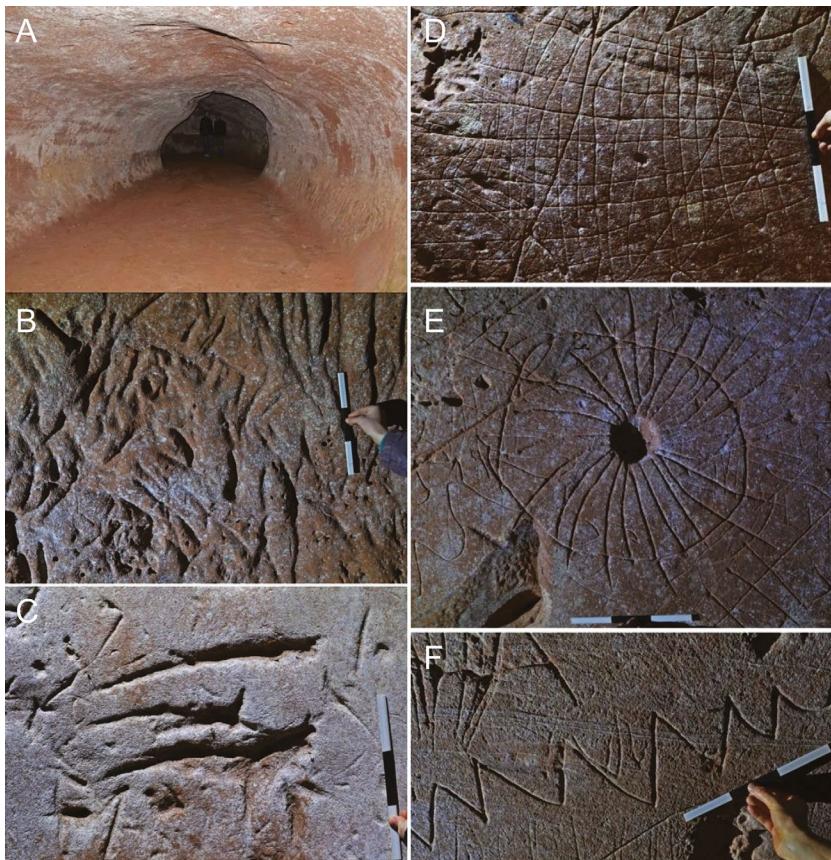


Fig. 9 | Rock art-bearing palaeoburrow of Toca do Tatu, Santa Catarina, Southeastern Brazil. The left row shows some of the main natural features of the underground structure including megafaunal claw marks, the right row presenting a selection of the documented early Geometric art. A: View from the entrance into the North Tunnel of Toca do Tatu; B: characteristic wide grooves documenting past animal digging activity; C: deep parallel wide digging marks; D: engraved geometric grid of human origin; E: anthropic radial grooves; F: human-incised angular ripples. Note that the shown rock art motifs are placed on animal-polished, smooth surfaces bearing a diagnostic white weathering-related coat indicating their antiquity. (A: Frank et al. 2012b, Fig. 3, courtesy Heinrich T. Frank; B-C: Frank et al. 2012b, Fig. 7, courtesy Heinrich Frank; D-F: Frank et al. 2012b, Fig. 9, courtesy Heinrich T. Frank).

transition, although some giant ground sloths for example seem to have persisted on Caribbean islands until as late as between 6,000 and 4,000 years ago (Steadman et al. 2005). The important point is that some of the respective animal-fabricated underground cavities were *co-opted* by early humans to serve as vital places of parietal art-making, image engagement and perhaps cultural commemoration (e.g., Corteletti 2013, 55; Frank et al. 2012a; Lopes et al. 2017).

In the large sandstone-dug palaeoburrow of Toca do Tatu in Southern Brazil, for example, researchers have recently discovered a set of geometric motifs of human origin with close stylistic affinities with the so-called Geometric and Southern Traditions of the region (Frank et al. 2012b; Fig. 9). Caverna do Rio dos Bugres, another

underground structure in the state of Santa Catarina formed by animal palaeoactivity, similarly hosts a small assemblage of early human engravings with likely similar formative history as the Toca do Tatus imagery (Padberg-Drenkpol 1933). Albeit contextual archaeological evidence is currently lacking for these and other instances of early rock art encountered in palaeovertebrate tunnels (Corteletti 2013, 55), it is reasonable to assume that the images can be attributed to human societies of the Terminal Pleistocene or Early Holocene. While the potential interrelationship between the design, structure and spatial arrangement of this early South American rock art and the animal markings within the subterranean paleostructures themselves opens up an intriguing avenue for future research, it is notable that this parietal art is inextricably bound to human engagement with durable artefacts of transformative and enigmatic animal agency. The fact that the nonhuman creators of these monumental natural places had already vanished from South America or were facing extinction when the images came into being certainly adds an additional mnemonic layer to the materiality of the underground structures and might have imbued them with a 'more-than-human' and possibly ancestral temporality. The paleoburrows may have then easily been perceived as remnants of a long-perished world in which potent metamorphic others roamed the surface of the Earth, and thus as a place to engage and possibly interfere with this sunken past.

In any case, the link between this expression of early South American rock art and the large-scale subterranean rock and soil constructions of large ground sloths and giant armadillos illustrates that animal behaviour has the capacity to directly shape rock art landscapes and compose places of special material significance. In Southeastern Brazil, Eastern Argentina and perhaps elsewhere in South America (cf. Hostnig 2019), large borrowing animals have *pre-furnished* the physical environment of early human rock art, thus becoming an irreducible component of the motivational background of early parietal art-making in the region. The entanglement of humans, underground tunnels and large burrowing paleovertebrates again underscores the significance of human-nonhuman conactivism in the formation of early rock art traditions. These image worlds, although unmistakably human-authored, carry an important animal legacy, which has to be taken into consideration if the goal is to develop a nuanced and comprehensive understanding of the origin and long-term evolution of the respective rock art landscapes. The meaning-making process conveyed by South American paleoburrow-hosted rock art can at least not be separated from the qualities and consequences of past animal ecologies, and must hence be recognized as a signature product of nature-culture synthesis.

General Ecology and Early Human Image-Making

Just as the *Homo faber* escapes essentialistic and self-contained renderings (Hussain 2018; Ihde and Malafouris 2019), *Homo pictor* (Jonas 1961) emerges as a figure fundamentally shaped by the dynamic interplay of the human and the nonhuman. I have tried to show here that early forms of parietal art-making in the hominin lineage have to be understood against a generative background of *triple inheritance* – both rocks and animals participate in their own ways in the formation and organization of early imagery (Fig. 10). In contrast to Jonas' (1961; Schirra and Sachs-Hombach 2010)

original rendition of the *Homo pictor*, however, this understanding of the status of early image-making in human evolution foregrounds *co-construction*, *coordination* and *mimicry*, instead of a leaping disclosure of near-infinite horizons of human symbolic freedom (cf. Ulama 2012). The triple inheritance perspective on early rock art stresses processual modulation and cross-calibration between heterogeneous actors as a key locus of imagination, creativity and meaning-making. The resulting *Homo pictor* consequentially frames a ‘world-open’ (*weltoffen*), inclusive and ecological human art-making condition: human artistic freedom and the exploration of novelty via image-making are *negotiated* through ongoing conversations between shifting hominin horizons and nonhuman agencies. Ironically, then, through the prism of rock art – a long-standing and well-defended stronghold of human exceptionality – the creation and economy

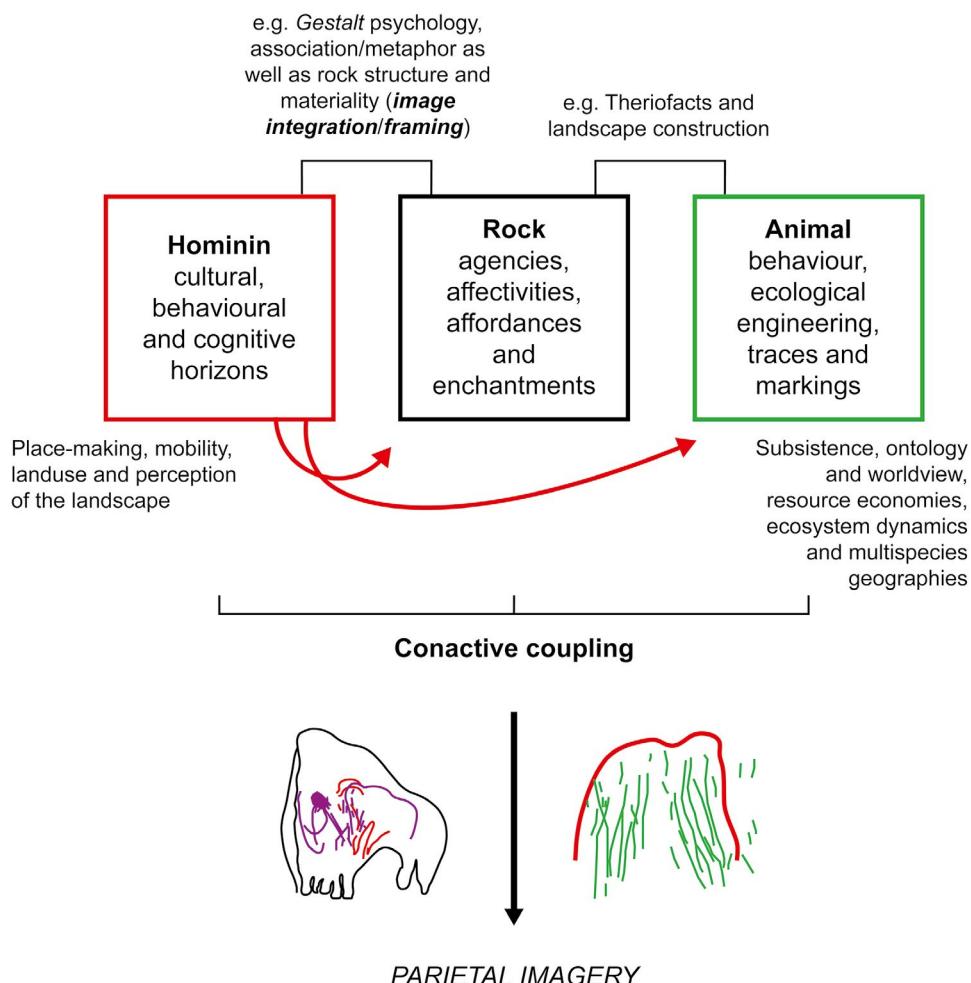


Fig. 10 | Triple inheritance theory of early rock art formation. Parietal imagery comes into view as a situated co-production of humans, animals and rock structures. Albeit the contribution of each trajectory of inheritance may differ dramatically, the organizational, formal and locational patterns of early rock art are hypothesized to be a result of the shifting interweaving of the horizons, behaviours, materialities and ecologies of these three agents.

of meaning can thus hardly be separated from its ‘natural’ framing, serving both as a scaffold and vibrant alterity mediating seeing, acting and knowing in the visual world. Rather than ‘leaving nature behind’ or evolving into a creature ‘out-of-nature’, the nascent *Homo pictor* may then bring about a fundamental re-configuration of the human-world nexus.

As a game-changing datum in human evolution, hominin image-making furnishes the capacity to *remodel* ecological relationships, *amplify* specific interactions and not others, radically *re-imagine* the role and significance of nonhuman others as well as to *thicken* and *variegate* the web of affordances, references and tacit meaning regulating how hominins engage with nature and perpetuate their everyday, social and seasonal rhythms of life. In this view, the *Homo pictor* is nothing less than a derivative of prolonged multispecies⁷ life, sharing and co-habitation, yet *Homo pictor* also becomes a decisive actor in the continuous *crafting* of novel human-nonhuman assemblages and historically unprecedented ecological relationships and articulations. Image-making, from this point of view, thoroughly transforms what it means to be in-the-world – it becomes an *instrument* of experience, vision and action (Joyce 2008, 37) – yet nonetheless fails to eclipse our *ecological condition* – the fundamental human susceptibility, openness and sensibility for nonhuman others and their agentivity. The theory-driven analysis of early expressions of parietal art offered here bespeaks of this constitutive ‘ecological transparency’ of visual culture and the human lifeform as a whole, showing that approaches underpinned by so-called ‘philosophies of access’, which cast the world into subject-object binaries, tend to fall short in recognizing the multispecies dynamics contributing to the formation, design and perpetuation of some of the earliest practices of art-making documented in human evolution.

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⁷ Multispecies refers to the diverse agential qualities mustered by nonhumans, who co-inhabit time and space with humans and variously contribute to the formation of a shared lifeworld, recognized here as the fundamental baseline of seeing, acting in and knowing the world. The term ‘multispecies’ is thus maximally inclusive and amendable to different lifeforms, both living and non-living. The term is thus mobilized in a similar way as Haraway’s (1991; 2007) convocations of ‘humanimal’, ‘emergent natureculture’ and ‘multispecies’, which all stress the textured, heterogeneous constitution of life incorporating the agencies and affectivities of animals, materials and technologies.

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Insights from the San: a Role for San Aesthetics in the Archaeology of Art

Abstract The ‘shamanistic interpretation’ of ancestral San rock art, as spearheaded by the archaeologist Lewis-Williams, has featured significantly in discourse on Palaeolithic and Neolithic rock art across the world. Lewis-Williams has emphasised that there is no role for aesthetics within this shamanistic interpretation. An unfortunate consequence of this assertion, is a neglect of approaching San art from a San aesthetic perspective. By drawing on detailed San ethnography I argue that San rock art cannot be understood without factoring in a San way of being, in which aspects of aesthetics including inspiration, feeling, morality, beauty and care, cannot be disentangled from the everyday life that backgrounds the making of rock art. On this basis, I argue that aesthetics provides a valuable lens for interpreting San rock art. Furthermore, on the basis of shared common human biology and subsistence strategies, I argue for the value of aesthetics as an approach to the art of other ancient hunter-gatherers.

Keywords Ethnography, aesthetics, neuroscience, rock art

Introduction

When making a case for the ‘shamanistic interpretation’ of ancestral San rock art, Lewis-Williams frequently asserts that ‘the aesthetic approach’ has no role. While it can be argued that it is entirely appropriate to avoid interpreting San art and other ancient rock art from an essentially Western aesthetic viewpoint, an unfortunate consequence of this assertion is a neglect

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of approaching San art from a San aesthetic perspective. In this chapter, I outline what this San aesthetic perspective might look like by drawing on anthropology and ethnography of the San plus recent neuroscientific work on feelings and emotions to support an argument that inspiration, feeling, morality, beauty, and other essentially aesthetic qualities, lie at the heart of 'ordinary' San life and, by implication, their artistic endeavours. By illustrating the profound links between aesthetics and hunter-gatherer ways of being in the world, I conclude that an aesthetic lens is a valuable tool for discussing San rock art. The conclusion holds broader implications for Stone Age art and the emergence of creativity and consciousness.

The anthropologist Tim Ingold and the archaeologist David Lewis-Williams have both discussed the relationship of 'art' to images made by hunter-gatherers. Both scholars affirm that depictions of hunter-gatherer peoples are not strictly speaking 'art' because 'art' is a construct from a particular Western time and place. Human beings have not, they determine, evolved with some species-defining artistic instinct that is universal and culture free (Ingold 2000, 111; Lewis-Williams 2002, 42–44; 2014). Essentially, what is considered art in the modern urban world is not the pinnacle of a primitive innate ability come to fruition in the glory of Western Civilization.

Lewis-Williams elaborates that the concept of art has its roots in European eighteenth and nineteenth century society and is linked to the emergence of aesthetics, Fine Arts, and ideas of *art pour l'art*, all of which he considers equally inappropriate lenses for the analysis of rock art. Rather than tracing aesthetic qualities in Late Stone Age San art, Lewis-Williams is variously interested in symbolic meaning, where concepts behind the art came from, and why people wanted to make images in the first place (Lewis-Williams 2014, 626). In contrast to this, Ingold explores how hunter-gatherer art making is a probing for meaning in the world, which he roots in human feeling and situates within 'a mode of active, perceptual engagement' (Ingold 2000, 23, 111–131).

Mindful of the difficulties of ethnographic analogy, I explore a position somewhere between these two by drawing on San anthropology and ethnography, coupled with insights from neuroscience. Like Lewis-Williams, I am interested in the meaning and context of San art. However, in contrast to his position, I emphasise that much can be added to current interpretation if we recognise the centrality of aesthetics in San life. Ultimately, my work edges more towards that of Ingold as I explore relationships between feelings and effective and appropriate ways of behaving. By thinking more carefully about the role of feelings in San art I not only hope to inform the reading of both ancestral San art and that of other palaeolithic contexts, but to draw attention to the critical role of feelings in the broader history of human evolution.

Of course, we must be cautious when using recent San research to inform interpretation of European Palaeolithic peoples or even Late Stone Age San ancestors. Nonetheless, the San are prominent among contemporary hunter-gatherer groups for being, rightly or wrongly, linked to accounts of human origins by both archaeologists and geneticists (Mitchell 2012). On this basis alone, taking closer scrutiny of claims made about the San in contexts of rock art and human origins seems a valuable exercise.

Extensive genetic research undertaken among the San has linked their ancestry to the emergence of *Homo sapiens* in southern Africa 260–350 kya (Schlebusch et al. 2017). In the light of finds at Border Cave, San material culture has been traced back to around 44,000 kya and recognised as "arguably the oldest instance of modern culture" (d'Errico

et al. 2012, 13218). Further still, as Wurz informally observes, 'San like' material culture is evident in finds from Klasies River Mouth stretching back possibly 120,000 years ago (Parkington and Wurz 2018). From an archaeological perspective it is hard not to be at least intrigued by the continuity between the engraved ostrich eggshells found at Diepkloof (c. 60,000 ka) among other sites, and recent San ostrich eggshell water flasks. However, a more salient argument for flagging issues of continuity lies in the recognition that many San when introduced to such ancient artefacts unhesitatingly recognise them as having been made by their ancestors. To ignore these ancestral links would be firmly out of step with current ethical and moral archaeological practice.

Southern Africa is renowned for the extent and richness of its rock art, which ranges from a few hundred years old to 30,000 years old (Rifkin et al. 2015). For at least three decades Lewis-Williams has been the lead proponent of a shamanistic interpretation of the art that has served as the major interpretative paradigm for rock art archaeologists in southern Africa. Because the shamanistic theory brings together biology, the emergence of consciousness and rock art, it has a universal hermeneutic quality. This has enabled Lewis-Williams to argue its relevance in global contexts, particularly including the European Palaeolithic (Clottes and Lewis-Williams 1996). Similarly, the shamanistic theory has been adopted by other archaeologists working in very different Palaeolithic contexts, from north America to Australia (Keyser and Whitley 2006; Sales 1992). Perhaps not surprisingly, the applicability of the theory to both European and other global contexts is not uncontested (Layton 2000; Solomon 2008).

Lewis-Williams stresses that unlike contemporary art, ancient art has nothing to do with an aesthetic sensibility and an innate desire to produce beautiful things (Lewis-Williams 2002, 42). Alternatively, Proto-San art represented shamanic hallucinations which carried coded meanings. Fixing images on rocks was, he argues, all about working with shared meaning, hence, only meaningful animals were represented and there is little evidence of idiosyncratic art making. Only at an unclear point in later history did art become associated with beauty and aesthetics.

Both Ingold and Lewis-Williams recognise that concepts such as art are historically contingent but remain, nevertheless, useful, if we treat them as starting points or loose categories of enquiry rather than precise correspondences. Working out in this way from the limitations of our language categories is a common problem for historians of ideas. It is, for example, the approach adopted in a study of classical aesthetics by Destrée and Murray who observe that, although "the term "aesthetics" was not invented until the eighteenth century", this in no way limits its usefulness for exploring the ancient world (Destrée and Murray 2015, 1). Significantly, however, despite this being Lewis-Williams' position in regard to the word 'art', his overriding focus on symbolism as the key to interpreting rock images, underpinned his repeated emphasis that 'the aesthetic approach' has no role to play in the analysis (Lewis-Williams 1996, 12–21; cf. Lewis-Williams and Dowson 1994, 3; Lewis-Williams 2002, 73; Lewis-Williams 2014, 626). This position, however, had the unfortunate effect of discouraging the interpretation of San rock art from a San aesthetics perspective. In the following, I start to address this neglect by exploring the importance of aesthetics through personal ornamentation and symbolism, perfume, and the healing dance.

Scholars repeatedly polarise body adornment along the lines of 'simple' 'non-symbolic decoration', which is non 'utilitarian' and worn for 'visual effect', versus

complex ‘concept-mediated symbolism’ (for example, Pettitt 2011, 148–9; d’Errico and Vanhaeren 2009, 37). Time and again what is emphasised about decoration is its social role, pitched within the emergence of social identity and symbolism (typically, Zilhão 2011, 113). If one, however, interrogates why the San wear adornments, ideas of abstract symbolic social signalling must be situated within flowing energy, adornment worn to make things happen and a social world entangled in the wider environment. Body adornments are worn to work with real relational unities and flowing powers; they are not about disconnected symbolic messages or simple whims of beauty.

What I have to say of the San relates to how people all over the world feel and interact with adornment, it is essentially something used to change how people feel and act. Among the San though, notions of useful power being inherent in things, are far more front of stage than is typical in at least Western cultures. As I will show, working with this power is a part of everyday life and the practice links directly to San subsistence strategy, lifestyles, and cosmology.

Just as personal ornamentation is rarely interrogated for meaning (cf. Moro Abadía and Nowell 2015; Baysal 2019) and persistently treated as something so simple it requires little further thought, so too is perfume. Here again, San use of perfume or strong smells overlaps with those of other cultures, including ‘Western’ cultures, but San practices emphasise what happens around those smells. Perfumes are based on smells that change how people feel and how others feel about them. The fact that Chanel No. 5 includes the extremely strong-smelling castor sac secretions, or castoreum, of beavers, reminds us that Western perfume history, like San practices, is intrinsically bound to a biological world of scent marking and power. In San cultures what happens around smell is magnified and scent serves as both a tool and a profound explanatory mechanism for action at a distance (Low 2008). Among the San, strong smelling plant and animal parts play a key role in how San hunt, heal and work well in their community settings. San collect anal glands and other strong-smelling parts, secretions and excretions and regularly wear them and sniff them. The leader and healer Dawid Kruiper (pers. comm.), for example, sometimes wiped polecat anal glands down his face at the commencement of healing sessions to mobilise healing power. The way the San use these resources remains entangled with behaviours of territory marking, beauty and other evolutionary traits that we share with the wider natural world. The San remind us all where we come from and where we belong.

When we think of ornamentation among the San, we must think about the properties of what is being worn. Those properties may enter the wearer as power or, in a San idiom, as the ‘wind’ of the object. This is particularly true of ostrich eggshell body ties or parts of eland worn by babies. Equally, personal ornamentation tells others about how a person is behaving, that they are doing things as expected and in harmony with the group, that the wearer is linked to good living and proper behaviour, that they are behaving nicely and are attractive. There is, therefore, a moral dimension to personal ornamentation.

Very recently, a young Khoe lady described to me that her mother always told her to make a beautiful smile because it brings people to her. Again, we can brush this off as something we all know, but San are explicit about these ways of working in the world. San cosmology is all about working with things that make things happen

and the flow of invisible powers known by their actions. In San ontology the power of the smile sits within wider knowledge of how power moves with wind, smell and invisible arrows serving as a primary explanatory mechanism.

In what follows I emphasise that for the San, at least, there are essential links between their subsistence strategy and the way they make sense of and live in the world. Hunting, foraging, and living in small bands that must work 'nicely' (Low 2014a, 357–8) together, underpins their healing, cosmology, and everyday life. When San wear ornaments they are working with powers of beauty, attraction, and repulsion as they seek to make life predictable by pursuing balance. The idea of working nicely relates to doing everything in the right way to have the right effect, whether it be greeting a relative with spit that carries personal essence, to making a fire with the right coaxing words or knowing that you must return from a good hunt with a humble demeanour. As concern with balance, power, life's predictability, and social equanimity are so central to the San, it seems unimaginable that these concerns are not inherent one way or another in their rock art. How then should we go about exploring such diverse and inherent meanings in art and ornament? Aesthetics, I believe, is a particularly good route to begin such an inquiry.

In ways that overlap with this chapter, Iliopoulos (2020) has also recognised a need to draw aesthetics and feelings into the analysis of symbolism and early body ornamentation. In the following I do not, however, explicitly engage with this work. This is partly for reasons of simplicity and expediency, but it is more because this paper tries to focus on an ethnographically rich and body-centred approach to human origins, cognition, and art as a counterbalance to the theoretical discussion of symbolism that currently dominates discussion.

The third pole of my research that has led me to consider aesthetics is the San 'shamanic' healing dance. In my earlier work I framed the San as having 'a listening disposition', by which I meant that as hunter-gatherers, the San listen very carefully to their environment in terms of what resources or dangers are present. After participating extensively in healing dances, I realised that this same sort of listening is exactly what San apply to themselves. San listen very carefully to knowledge that comes from inside themselves (Low 2014b), whether this be feeling healing energy or arrows waking up during the dance or interpreting twitching back muscles as a sign that something might happen or recognising dreams as sources of divine knowledge. Becoming a San healer involves pursuing techniques for stimulating experiences in their body and in other San bodies to produce feeling and hence information. They dance to open themselves up to God. This enables San to see sickness, pull out sickness, put in healing power or negotiate with ancestors or God for the health of a sick person. Further still, it enables shamans to fetch rain and turn into lions, and they do all this on the basis of what they feel inside themselves.

In terms of aesthetics and rock art, these contexts of knowledge production, flow, and consumption, have considerable relevance not only to the shamanistic inspiration that underpins shamanistic painting and engraving, but to how images were physically made and how they were shared and worked with. Thinking about Lewis-Williams' critique of aesthetics provides a good framework for exploring a set of neglected themes in the topic of ancient art, including consciousness, feelings and knowledge, performance, morality, inspiration, and beauty.

Consciousness and Rationality

In the shamanistic hypothesis, neuroscience is used as a bridge to early human behaviour. Within this context Lewis-Williams directs us away from interpreting the past in terms of rationality and intelligence. What is needed, he suggests, is greater emphasis on the emergence of consciousness (Lewis-Williams 2002). I similarly use neuroscience as a way into questions of consciousness, but my starting point is different. By returning to themes of embodied cognition theory and the San (Low 2015) and research by neuroscientist Lisa Barrett (2018) on the neuroscience of emotions, I explore how biological feelings are intrinsically interwoven with social feelings. This provides a basis for understanding how San 'artists' worked with feelings. They made sense of their world and behaved in their world in ways that were simultaneously pragmatic, situated, moral and sensitive.

To begin to discuss feelings we need a basic definition that most scientists agree on, and that starting point is 'affect'. Affect consists of two qualities, 'valence' and 'arousal'. Barrett defines affect as "the general sense of feeling that you experience throughout each day" and "a fundamental aspect of consciousness". The feelings that come from inside the body are information regarding what is required to keep the body still or moving. Any movement of the body involves movement inside the body, such as changing the heart rate or glucose levels. It is changes in the internal environment of our bodies that we experience as feelings of valence and arousal. Valence is how pleasant or unpleasant we feel something is or how we just feel. Arousal is how calm or agitated we are (Barrett 2018, 66, 72–74). When we think about feeling among our ancient hunter-gatherer ancestors, valence and arousal provide as firm a footing as we can get.

Barrett simplifies her analysis of emotions by describing the brain as managing the "body budget" or managing what is required in terms of input and output for the body to function. When sensory information becomes conscious it equates to feelings and when feelings reach a certain threshold, they become emotions. When information is received by the brain it acts by stimulating the appropriate internal and gross movements of the body, be it hormone secretion or running away as fast as a person can. In order to deal quickly enough with all the information reaching the brain, the brain operates through a mechanism of prediction. If information comes in that is familiar enough the brain will cease processing new information and predict what is being sensed including "the sensory consequences of movements inside your body". The brain therefore predicts what the body experiences and it predicts to a very significant degree. The brain "generates predictions to perceive and explain everything you see hear, taste, smell and touch". When the body needs something, or the budget is unbalanced, "your affect does not instruct you how to act in any specific way, but it prompts your brain to search for explanations" (Barrett 2018, 60, 67,73).

Barrett's findings from embodied or grounded cognition theory build well on earlier conclusions of Ingold, which he linked to the ecological psychology of Gibson (1979). In grounded cognition theory, a concept is a remembered, coalesced assemblage of physiological and psychological information. A concept holds information from perception, bodily states and situated action. This understanding contrasts with standard cognition theories wherein 'representations in modal systems are transduced into amodal

systems' (Barsalou 2008, 617). For 'modalists', concepts crucially involve sensorimotor information, whilst 'amodalists' draw on computational views of the mind and envisage concepts as abstract, language-like symbols, not connected to internal affective states.

Whilst the modal/amodal dichotomy has some problems (Michel 2020), the explanatory mechanism it proposes fits well with anthropological evidence that insists that the sensual body informs our meaning-making and action in the world at the profoundest level. Archaeological discussion of human origins consistently flags the importance of abstract and symbolic thinking and particularly so when explaining the significance of personal ornamentation (Moro Abadía and Nowell 2015; d'Errico and Vanhaeren 2009; Iliopoulos 2020). But this sort of approach makes little sense in terms of San relationships with ornamentation and San evidence suggests feelings play a far more important role in high functioning behaviour than most archaeologists permit. The current archaeological position seems to reflect a now dated fashion for amodal cognitive theories. With increasing evidence that emotions play a significant role in even abstract concepts (Vergallito et al. 2019), current understandings of how the San operate in the world supports recent cognitive theories that place feeling, and not symbolism, and by association loaded Western ideas of 'rationality', at the heart of how we think and who we are.

In Ingold's arguments for perception we see further linking up of bodily states or what a person is doing to thinking. Ingold recognises that: 'what we perceive must be a direct function of how we act' and 'the kind of activity in which we are engaged, attunes us to picking up particular kinds of information' (Ingold 2000, 166).

Feelings and Knowledge

In grounded cognition theory, feelings play a fundamental role in how individuals form concepts about the world. Ingold's insights direct us to locate feeling and concept formation within particular ways of moving that generate particular perceptions. Collectively this tells us that if bands or larger groups of people share feelings about the world and move in similar learned ways, then they will also share concepts and, by implication, ideas. In a discussion of shared taste, the philosopher of aesthetics Jerry Levinson remarks, in a supporting vein, that people from a particular background, age, sensitivity or humour are likely to find the same things 'aesthetically good' (Levinson 2017, 20). Levinson's observation provides a track from people who feel similarly and think similarly to people who share aesthetic, morally weighted, sensibilities. When we think about San rock art it is generated and consumed by people who share experiences, ways of doing things, ways of perceiving and ways of feeling. Their shared concepts cannot be disentangled from shared aesthetics – good and right ways of moving, looking and feeling that contribute to effective community living, operating within their constructed realities. San shamanism and the rock art inspired by its practices is a manifestation of, and generator of, San ways of doing and thinking and it is inextricably tied to feeling.

As part of her argument, Barrett identifies affective realism as a subset of naïve realism, or the belief that the senses provide an accurate interpretation of reality. Affective realism is when you experience affect without knowing what the cause is. In such instances the affect or feeling is likely to be treated as information about the world

(Barrett 2018, 75). A ‘gut feeling’ about someone is affective realism. Biologically, your gut feeling is telling you how your body is feeling not what another person is like. In affective realism the affect becomes treated by us as “a property of an object or event in the outside world, rather than as our own experience”. Barrett goes on to observe that people “employ affect as information, creating affective realism, throughout daily life” She gives the examples of food being delicious or bland, paintings being beautiful or ugly and people being nice or mean (Barrett 2018, 75).

If we apply this notion of affective realism to the San shamanic dance, this suggests that San search for information by putting their body under stress and taxing their body budget. Under these conditions the brain is looking for explanations, and the feelings that people generate, such as the ‘boiling’ *n|om* and shifts of awareness and thought sought in Ju|’hoan healing dances, become interpreted as good information from God or the intervention of good and bad ancestors, spirit travelling or other characteristic shamanic experiences. The images that shamans represent on rock surfaces are examples of affective realism generated in shamanic practices becoming information and manifesting in culturally familiar ways. Rock paintings represent perceptions and feelings coming out of a person and being fixed onto rocks in stylized ways that carry valence and arousal. These expressions tap into shared values of meaningful, powerful, appropriate, right, good, and bad behaviour.

Becoming a San healer is all about learning how to generate particular feelings and experiences, which are then recognised as information in the context of San cosmology and beliefs. Examples of such feelings might include that of climbing up to God in the clouds or turning into a lion. Training involves working through pain and fear to open up to God’s love, at which point the healer works around the group pulling out sickness, distributing healing energy, such as *n|om*, and drawing the group together. As they work healers are constantly seeking balance between bad things and good things; things that make the individual or the group well, or dysfunctional or sick. The dance is underpinned by correct ways of doing things to ensure a good outcome. Learning involves moving in the right ways to generate recognisable feelings, having singers who are strong to drive the healer on, and behaving appropriately, such as wearing the beads of a healer, using a ‘fly whisk’ like other healers do or whistling in the right way to open the mind to the ancestors and God. The images such healers made on rocks were feelings channelled into recognisable and culturally acceptable forms that made sense to individuals and to related groups.

Inspiration

In Lewis-Williams’ critique of the aesthetic approach to rock art he emphasises that art is a social activity. His aim is to distance rock art from ideas of personal inspiration that are inherent in aesthetics of the eighteenth century and onwards. To support his point, he notes that there is little sign of idiosyncrasy in San art, the vast majority involving the same themes which were executed in similar ways. In terms of ‘social activity’, this is a reasonable point but unless we open things up, we are in danger of missing the key role of the individual in San social life and shamanism.

San ontology is rooted in the value of the individual. Each person is given a specific breath or ‘wind’ of life from God and concepts of individuality revolve around the

particular mixture of winds or gifts each person has. San contextualize the thoughts, pictures and feelings that 'just come to them' as gifts from God, and often as, 'winds'. San gifts and feelings are both substantiated as, and carried by, overlapping ideas of wind, breath, smell and by extension, words. Bad thoughts and bad words can enter another's heart. A strong smelling lady can kill an unborn child. The winds of strangers can kill. When a San shaman opens up, they are opening up to the gifts of God and are, in a very idiomatic sense, literally being 'in-spired'.¹

Destrée and Murray observe that in classical times you could not ask "is this good art" but you could ask, "is this a good performance?" (Destrée and Murray 2015, 6). This framing seems equally relevant to the San. In classical contexts things we might consider art were performances that worked with potencies; good statuary pleased the gods and poetry was good when the rhythm had a psychagogic or soul guiding effect (Destrée and Murray 2015, 3, 8). Among the San a good healing dance is one that similarly, if it is performed well, brings in spirit, potencies, and information.

Like other hunter-gatherers, San place great store on personal knowledge gleaned from personal experience (see Gardner 1966). Among healers it is common practice to dream what remedies to use or to be given a spirit message when asleep, or in an altered state of consciousness. The message reveals why someone is sick and how to heal them. One well known example of a San lady being given such a gift of knowledge concerns Beh. Once, when alone in the bush, Beh saw a herd of giraffe running before an approaching thunderstorm and she interpreted the sounds of the hooves as a gift of a medicine song being given to her by the great god, G||aoan. Beh told her community about this song and they, recognizing the value of this gift, began to dance the Giraffe dance (Biese 1993, 67–8). The dance consequently filtered out all over the Kalahari. Receiving a *n|om* song in this manner involves an inspirational and 'visionary element' (Biese 1993, 69; Keeney et al. 2016, 140; Katz et al. 1997, 131).

A good example of inspiration involves a Ju'hoan healer I met who was extremely sick. The whole time he was sick a huge bull elephant stood right near his hut. After some days his sickness passed, and the elephant left. He and his village knew that this elephant was an ancestor, and the sickness was the giving of a gift. From that time on he had *n|om* or healing potency. He became a healer. Megan Biese affirms the value of such personal knowledge gained in personal ways, in her observation that 'the rendering of individual kerygmatic accounts into culturally shared images is a highly important process in the religious unity of Ju/'hoansi and other hunter-gatherers' (Biese 1993, 72). Being inspired is then a very appropriate way of thinking about how the San learn.

In view of the importance San place on personal knowledge and experience it is not altogether surprising that San often say they have tried something because they 'felt like it'. Whilst in the Western world 'because I felt like it' is considered an irrational and unacceptable excuse, to be drilled out of children from an early age, among the San it is a valued justification. 'Just feeling' is to accept the gifts of God or the ancestors. In a similar way we should be careful not to play down the importance

1 'Spiration' being 'the action of breathing as a creative or life-giving function of the Deity' and spirit being 'the animating or vital principle...the breath of life' OED.com

of 'simply copying'. Many dancers and healers attribute their introduction to dancing and healing to their desire to copy others and have a go because they 'felt like it'. To recognize and act on this feeling is also to honour the gift. As Katz and his colleagues observe, copying is a "process of honouring". It entails "humility" and "a lack of personal credit" "The primacy of spiritual knowledge and guidance in the creative process is acknowledged" (Katz et al. 1997, 133). Accordingly, if copying is something that San artists did, we should not dismiss this as something simple and value free. Copying reveals the following of feelings, not empty imitation. Copying art for the San is a spiritual and respectful act of right or good behaviour.

Adherence to such right behaviour is essential when people rely so much on each other's skills and companionship. If a group breaks down through lack of skill or arguments, disharmony and death is a very real possibility. Bieselete recognizes similar concerns when she highlights that San life is all about "mediating between undesirable and desirable states" (Bieselete 1993, 88). A very San way of thinking about doing things desirably, in the right way, is to say, 'doing it nicely'.

Doing It Nicely

Doing things 'nicely' is an expression I repeatedly encountered when working through my interview translations of many years. I then, consequently, noticed just how frequently the word cropped up in historical ethnography and recent anthropology of the San. Taking a closer look at the diverse San contexts in which the word occurs reveals that something more than an incidental translational quirk is at play. What this seemingly innocuous word conveys is a combination of care and conscious or unconscious awareness that something is being done effectively. Doing things nicely is achieving an aim in ways that are good in a sense of behaving the right way; the way that promises the most predictable outcome. The way that actualises a code of behaviour that is passed down from the ancestors and the old people, morally sanctioned by day-to-day engagement with elders and by everyday behaviour, whether it be gathering, hunting, joking, sharing meat, playing, making tools or telling stories. Indicative of this link, Beesa Boo, a well-known Ju'hoan translator, noted that the Ju'hoan word *||au* means both nicely and carefully; *||au du ka* means 'do it nicely'.

In a well-referenced publication from 1911, Bleek's and Lloyd's, *Specimens of Bushman Folklore*, the word 'nicely' appears thirty-five times. It is used in contexts including clever children understanding nicely, stars standing nicely, a hartebeest sitting down nicely, people calling and not calling nicely, a fox avoiding a dog nicely, putting the bones of a dead animal aside nicely, springbok dividing nicely and people making huts nicely.

The anthropologist Lorna Marshall has also suggested that something significant was at play in the word 'nicely'; she commented in regard to the Eland Bull Dance:

One woman made the sound of eland footfalls by clinking two metal ankle ornaments together. We were told that this sound not only represented eland footfalls, but would make the menstruating girl "hear nicely", so that when the girl would be asked to do something, such as to fetch water from the water hole, she would obey and respond cheerfully (Marshall 1999, 199).

Marshall's account of the dance draws us to an appreciation of how beauty lies within a person moving right, looking right and acting right. 'Hearing nicely' is a common idea and it sits within a wider context of working with the senses in a highly receptive, effective and right manner. In a similar frame, Paul Myburgh recounts in his intriguing book on his time among G|uikhwe, the importance of understanding the world by "seeing nicely" (Myburgh 2013, 61–2, 138). Katz, Bieselet and St Denis (1997, 55) provide a further example in the words of a San shaman, †Oma Djo: "In the morning, you may see me arriving nicely with a happy heart. You'll know that in my night travels [to check on the people] I have found everyone well".

Petrus Kruiper (Khoolabar), a †Khomaní San man, provides a further example. Petrus described what to do when you wake up on a sand dune with a lion in your face: 'He stands by you and he wants to smell in your face and his beard pricks you and you must not wipe your face, you must just open your eyes nicely. He has got a long beard. When you look at the lion then he retreats, he turns and he goes'.² When Abraham Malgas, also †Khomaní, said, 'come let me tell you nicely, properly', he was opening up on serious matters. When David Cisje Kgao (Ju/'hoansi) told about returning from a successful hunt he uses nicely as a shorthand for mood, community co-operation and skill, all bound together: 'If I come home I am not going to tell them directly – I say "I have used my arrow and bow and can people come and look nicely and help and look for it".

In a final example from Ou Debe (Ju/'hoansi) about the 'devil wind' we are reminded of what it actually means when we speak of San having a personal relationship with the weather: 'if you see it does not respond to insult, you must talk nicely to it'. Ou Debe means that his talk must show respect, care and a little filial charm towards the dangerous whirlwind.

The point is that doing something nicely is important to the San in ways that bind right social behaviour with body use and effectivity. This can be summed up by how one should walk into a San encampment. If you come in being loud, abrasive, and arrogant; striding and very physical, covered in wealthy possessions, staring everyone in the eyes, instructing and not listening – your reception will be completely different from walking in quietly, slowly and humbly, dressed in a very everyday manner, head a little down, talking to the children and coming with a happy open heart. The latter is doing things nicely.

Doing things nicely involves a profound mingling of nature and culture as the body and attention are applied in a particular way to a situation or task. Hearing nicely and seeing nicely are not just about listening with your ears and looking with your eyes. The right sort of movement and attitude brings the right results among people who share understanding of feelings, share the facts those produce and work with affective outcomes, whether it be walking nicely, dancing and singing nicely, sitting nicely, firing a bow nicely or any other behaviour. A good way of thinking about this composite action is, 'being in the mood'. Being in the mood involves focus and application and might involve some ritualistic habits to get a person there. A writer might have their espresso at 10.30 am or a San dancer might use a flywhisk, "to provide an

2 This seems to be a characteristic of Kalahari lions. See Elizabeth Marshall (2016, 55).

aesthetically pleasing sense of balance" (Lewis-Williams and Dowson 2000, 43). The San do things to get in the mood and do things because they are in the mood, and mood has surely played a profound role in the hunter-gatherer peoples before them.

Beauty

Lewis-Williams interprets San rock art images as symbolic representations rooted in "the daily life of ordinary people" (Lewis-Williams 2014, 625) and explores how San rock art relates to social solidarity, harmony, sharing and morality within the San. Yet, questions of how rock art relate more directly to San aesthetics in everyday life and San relationships with beauty remain neglected. Admittedly it is not easy to move from observations of beauty in wider San life to assumptions of beauty in San rock art, but the wider context at least flags the importance of beauty and the cultural spaces where it figures. Turning to this wider context suggests beauty in the art might lie in the patterns of what goes with what, in what particular things are represented, like eland, snakes and beads and other qualities ranging from glistening surfaces to rounded full forms and smooth lines. As relationships with beads indicate, care and time taken also figure in appreciation of ornamentation and very probably in artistic expression. And we learn that copying is an act of respect, honouring and working nicely in the world. Similarly, the process of manifesting art from within is to channel and work nicely with ancestors and God.

Drawing on Kant, Levinson defines two types of beauty, the most common being "dependent beauty" and a second being beauty of pure patterns and forms. Dependent beauty depends on "viewing the object under a certain sort of concept". The second kind of beauty he characterizes as "abstract beauty" and suggests it comes close to Kantian "free beauty" (Levinson 2017, 24).

To understand the San requires rejecting this split and recognizing the continuity between perception of patterns, a rightness in things that go together and concepts inherent in San ontology and everyday life. Things that scholars might deem abstractions are tethered through chains of invisible connections. If we call these connections metaphorical and wish to talk of symbolism, we must remember that the San know there are real connections between such separate entities, such as an animal's track and the animal, or between an eland necklace and the powers of the eland it was made from. In contexts of San ostrich eggshell necklaces, which have played so significant a role in archaeological discussion of cognitive evolution, these cannot be understood without appreciating the role of the essence of the ostrich. It is this essence that is worked with individually and socially when ostrich eggshell necklaces are worn. To understand the beauty of ostrich eggshell necklaces requires appreciating the multitude of ways in which ostriches are known that relate to birth, strength, fertility, and healing (Low 2009). It relates to the care and time invested in making the ornamentation, the care taken in sharing such items and investing in relationships, and the care taken to look right, move right and behave nicely. Being beautiful means participation in personal and community flourishing and working with powers that engage and attract.

That concepts of the world cannot be separated from how people live is affirmed in cognitive affective realism. In Barrett's term, "believing is seeing", we feel what our brain believes. Barrett elaborates that everything you feel is based on prediction

from what you know and from your past experiences (Barrett 2018, 77–79). Being a hunter-gatherer is to feel patterns in the world that you can work with and if you work nicely with them, outcomes become as predictable as possible. When outcomes are not good you either did not listen nicely to your feelings or perhaps, the ancestors, Tricksters, or God intervened. As hunters, trackers and foragers, San persistently ask ‘what is this trying to tell me?’ They work with the world by searching for contingent meaningful patterns around them and inside themselves. Their realities are built from the patterns they learn to attend to. The patterns are informed by prior generations and if San work with them in the right technically, socially, and morally ascribed ways, they are patterns known to promise the best outcomes.

The promise of patterns as the answer to everything has a rich history. It is notably prominent in the cybernetic and ecological work of Gregory Bateson who proposed a conception of God as ‘an immanent informational pattern that connects everything in a cybernetic pantheism’ (Brier 2008, 229). In terms of neuroscience, patterns are central to how the brain processes and makes predictions about the world and, to some scientists, like Mattson, ‘superior pattern processing’ is “the fundamental basis of most, if not all, unique features of the human brain” (Mattson 2014, 1). Pattern recognition is, therefore, essential to who we are.

For hunter-gatherers the familiar is workable, it is right and there is a profound and meaningful satisfaction in making sense of things or finding the patterns. Unknown, unknowable, and irregular things are dangerous. When things are right, life is good. In line with our wider recognition of the revelatory character of feelings ‘coming out’ of a person as knowledge, at least for the San, it seems highly likely that seeing and feeling patterns and making patterns on rock surfaces held a revelatory and visionary element. Patterns were very probably intriguing to San ancestors because seeing or manifesting them through performance has something of the gift about it. Patterns arrived for ancient artists if they opened up and the intrinsic regularity and resolution of patterns would have promised safety and rightness with inseparable qualities of beauty.

Thinking about beauty in San contexts highlights profound links between San environments, cosmology, and behaviours. For the San a good life is all about the interwoven qualities of plenty and beauty. San concepts of beauty and objects of beauty are visible in a run of inter-related phenomena that ‘go together’, including God, rain, green vegetation, fertility, fat and meaty animals and a particularly strong link between fat eland, snakes, and fat women. In the highly gendered San world, which is to say nothing about the remarkable equality between the sexes, women are linked to fat, meat, blood, sex, cool fluids, soft rain, and foraging, in a similar way to men being linked to hunting, heat, hard rain and even long thin paths. These sorts of qualities and relationships potentially lend themselves to satisfying patterns and arrangements of images, lines, and flow in rock art.

I have previously cited the Eland Bull Dance in relation to a pubescent girl being given the gift of hearing nicely so that she obeys requests cheerfully. The dance is a gift of grace and beauty that carries promise of fat, plenty and a good life. Related ideas are found in Ju’hoan folklore where the particular beauty of python girl, G!kon//’amdima, or “beautiful and honoured woman”, is attributed to her smooth glistening skin and fatness. As Bieselete observes, Hoernlé noted a similar desirability of girls becoming fat with smoothly shining skin among the Khoikhoi (Bieselete 1993, 148).

In San folklore standards and norms of beauty are given currency with every storytelling. In a story of the beautiful elephant girl (related to python girl) recorded by Biese, for instance, we are told how a grandmother:

ground ochre and spread it on the young woman's face. She replaced her old rags with soft, new skin clothing and hung her all over with ornaments. Then the old woman tied copper rings in her granddaughter's hair the way people used to tie them long ago. She fixed her up so that she was the beautiful elephant girl again (Biese 1993, 144).

Within San folklore beauty plays a key role in accounting for the world and describing correct behaviour. The act of creation that ushered in current time, when people separated from animals, revolved around some animals being given beautiful and desirable qualities and others ugly or difficult traits. Further still, the trickster-like figures that populate Khoisan folklore often play with beauty in their acts of deception. As Sigrid Schmidt observes, Haiseb, a trickster figure of the Hailom, frequently transforms himself into a beautiful maiden or repulsive crone (Schmidt cited by Guenther 1999, 105).

For the San it is inappropriate to try and tease apart beauty from what works and are right and good ways of behaving. Things that are beautiful, like jewellery and smiles, play with power, they make things happen. Katz notes for instance that beautiful singing in the healing dance attracts spirits and the right, powerful and beautiful way for a woman to behave is to "stand and quiver beautifully" (Katz 1982, 166). To make the dance work is to "create artistic beauty" because this is what has effects and brings in the *n|om* power of God (Katz et al. 1997, 126). Biese similarly observes that the song given to the Ju'hoan lady, Beh, was an "artistic creation" given by the great God, !Xu (Biese 1993, 131). The song was taken up by people because "it is beautiful and because it works, it has efficacy as a trancing song" (Biese 1986, 102).

Conclusion

In 2010, art historian Peter Stupples observed that it was time to stop "re-adapting Kant and Hegel to an appropriate present" and time to start "exploring the ground for a theory of culturally inclusive aesthetics", and he went on to highlight what such a contextualized aesthetic reading might mean. Similar to others who are rethinking aesthetics, Stupples recognises that the meaning of aesthetics has been far from consistent and stable over time, but it remains, nonetheless, possible to identify its main persistent meaning: "the way we understand, feel about, judge, appreciate and apprehend works of art". Aesthetics, Stupples affirms, concerns qualities of artworks and the disposition of the viewer and key themes at its heart often include good taste, being beautiful and what is worthy (Stupples 2010, 34–35).

In the foregoing, I have pursued a contextualized view of aesthetics that goes some way to addressing Stupples's call for a culturally inclusive aesthetics. Stupples provides examples of the sorts of information and orientations such a reconfiguring of aesthetics might throw up and much of what I have identified among the San sits well within his outline. Stupples, for instance, suggests that different meanings of beautiful might include "effective in ritual", "ordered" and "at peace" (Stupples

2010, 36). In this San example I have similarly linked beauty to things that work and correct behaviour that supports social equanimity. I have also linked this behaviour to the right ways to behave and hence drawn moral dispositions into my argument, and this again sits well with Stupples's reading. Further still, Stupples notes that "art is not so much a representation of invisible powers but a manifestation of them" (Stupples 2010, 39). I have similarly argued that among the San, performing well, being inspired, and actually making art all relate to working with divine gifts that manifest divine power but also involve an absorption with making feelings as a way of exploring the world and generating information. To this extent my findings further align with Ingold's interpretation of hunter-gatherers as people who use art to probe the world and keep relationships alive (see also e.g., Ingold 2000, 61–76, 111–131).

What Ingold has to say in relation to art is important as it pushes interpretations of art historians deep into a sensitive reading of the hunter-gatherer contexts. Yet it seems to me that neither the work of art historians nor Ingold drills deep enough into what actually lies at the nub of aesthetics – the relationship of feelings to perception, concept making, the generation of knowledge and information, body movement, moods, techniques, and wider culturally specific behaviour. And even, ultimately, the role of feelings in human consciousness. Such a broad and ambitious remit might be too much for the category, but 'aesthetics' potentially holds a key to discovering far more about who we all are than is typically recognised.

This San example indicates that beauty, attraction, identity, procreation, theories of illness, inspiration and ideas, all link to aesthetics in ways that collapse boundaries of biology and culture. In this analysis I have sought to steer around the dangers of a universalising aesthetic, but it is important to recognise that there is a distinction between aesthetics as ideology and aesthetics as situated performance rooted in a common biological humanity. I have turned to grounded cognition theory because, through ideas of valence and arousal, and the direct linking of body use to thought, situated biology provides a strong way to broaden out interpretation of art in all contexts, including those of hunter-gatherers. And when we apply this approach to hunter-gatherers, remaining mindful of their shared subsistence strategy with early humans, what is most highlighted is the entangled way in which we all belong in this world.

For archaeologists the clearest message to come out of this analysis is the need to avoid temptations of thinking of anything as simply decorative or simply operating in a symbolic sense, without recognising the need for more subtle understandings of how people fit in the world. Linking aesthetics to sensation, cognition, and consciousness, emphasises how language and symbolism might help us understand how we differ as animals. Ultimately, however, aesthetics actually emphasises how we are especially embedded in, if not preoccupied with, feeling. Far from aesthetics being just an historically contingent category of Western analysis, the term leads us closer into understanding both the everyday life of the San and, in related ways, the everyday of all of us.

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PART III
BEYOND EVOLUTION
AND HISTORY

Semiosis, Niche Construction, and How We Can Better Engage Palaeolithic 'Art' in Human Evolution

Abstract Discerning the patterns and processes of the emergence of symbolic behavior has been linked to our ability to determine the emergence of humanity in the archeological record. In this paper, we place engagement with Palaeolithic 'art' in the context of the human niche and discuss how the study of palaeolithic art can be approached by using semiotic theory. We argue that moving away from a reliance on identifying symbols and towards a view of meaning making in the human niche is a useful way to understand the place of materials labeled as Palaeolithic art. This perspective emphasizes the role of semiosis and niche construction in the expansion of the human cultural niche across the Pleistocene.

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Introduction

In the preface to *Dorian Gray*, Oscar Wilde famously commented that "All art is quite useless." Later, in a letter to a fan, Wilde explained that he meant that

A work of art is useless as a flower is useless. A flower blossoms for its own joy. We gain a moment of joy by looking at it. That is all that is to be said about our relations to flowers. Of course, man may sell the flower, and so make it useful to him, but this has nothing to do with the flower. It is not part of its essence. It is accidental. It is a misuse. All this is I fear very obscure. But the subject is a long one (source: <http://www.lettersofnote.com/2010/01/art-is-useless-because.html>).

Since the discovery of Palaeolithic art, scholars have tried to deduce what exactly these images mean. As the papers in this volume suggest, 'art' is a problematic notion. How we define art, and what we assert about its meanings, perhaps says more about our own cultural and linguistic biases than about the cognitive capabilities of Pleistocene humans. In fact, the frequent use of materials assumed to be 'art' as indicator of the presence of true (or 'modern') human beings points to contemporary human hubris, and leads to a subsequent misrepresentation of the capacities of populations of Pleistocene *Homo* (McBrearty 2007; Shea 2011; Kissel and Fuentes 2017, 2021). As Monnier (2006) shows regarding the Lower/Middle Palaeolithic periodization, the index fossils used to distinguish these periods do not provide clear 'breaks' in the archaeological record. She argues that we "often forget that they are artificial boundaries designed to provide structure to a complex record" (Monnier 2006, 709). To not admit gradation and overlap between the diverse populations that make up our genus across the last half of the Pleistocene is to ignore the genetic and material records and to disarticulate continuities in the human niche (Ackermann et al. 2016). We must be aware of the boundaries that we draw on what is and what is not art and attempt to derive testable formulation for any such cleavages.

There are also a host of colonialist and racialized sentiments in earlier approaches to this topic, obfuscating the actual distribution and meaning of the data. One can ask why, in many museums in the United States, Native American art is found in Natural History museums while European art is placed in art museums and how that has shaped how we judge the cognitive and intellectual impetus for the creation of meaning-laden items, what is 'primitive' and what is 'refined', and why we strive to rank meaning-laden expression into such categories in the first place. These issues abound in the identification of, and discussion about, Palaeolithic art. In this paper we take a different approach. Rather than ask what Palaeolithic 'art' might mean, we ask how *can* such material mean? In other words, what about the images informs us about what let members of Pleistocene *Homo* (hereafter, humans) to create and send messages to themselves and others. How were they able to 'read' these messages in the way in which they were meant to be read? Modeled after Charles Peirce's (1859–1914) work in semiotics (Peirce 1958; 1992; 1998), and emerging work in defining and describing the human niche (Whiten and Erdal 2012; Fuentes 2015; 2016; Deacon 2016), we suggest that elucidating the semiotic nature of these objects many call 'art' can help paint a picture of the lives and voices of Palaeolithic peoples.

Most of the debates about Palaeolithic art center on whether or not something can be identified as a symbol. Most have concentrated on the earlier examples of items such as ochre (Henshilwood and Marean 2003, but see Dapschauskas et al. 2022), beads (Chase and Dibble 1987; Malafouris 2008), and other artifacts that may be flickerings

of symbolically mediated behavior. What, however, can we say about Palaeolithic art that is not tied to the generally un-provable assertion of "symbol"? Without access to a time machine to offer insight into how early humans defined, used and developed their symbols it remains impossible to correctly identify what was meant and why they meant it. Here we re-iterate our argument (Kissel and Fuentes 2017) that one can apply a semiotic analysis without assuming the abilities of the humans who made the art were explicitly being symbolic (to be clear, we think that they are symbolic, but wish to take a strict scrutiny approach here (e.g., Wynn and Coolidge 2009)).

The Human Niche and Semiosis

Our understanding of human evolution can never be complete
without taking into consideration this process where people and
things are inseparably intertwined and co-constituted
(Ihde and Malafouris 2019, 198)

In contemporary ecological theory the niche is the structural, temporal, and social context in which a species exists. In the most basic sense it includes space, structure, climate, nutrients, and other physical and social factors as they are experienced, and restructured, by organisms and via the presence of competitors, collaborators and other agents in a shared environment (Wake et al. 2009). The human niche, then, is the spatial and social sphere that includes the structural ecologies, interfaces with other species, social partners, and the larger local group/population for humans. But human niches, at least today, also involve ideologies, institutions, and practices. Human niches are the context for the lived experience of humans and their communities, where they share kinship and social and ecological histories, and where they create and participate in shared knowledge, social and structural security, and development across the lifespan (Fuentes 2015; 2016; 2017). In humans, since at least the later Pleistocene, the niches we occupy, structure and interact with also include the perceptual contexts of human individuals and communities—the ways in which the structural and social relationships are perceived, signified, and expressed via behavioral, symbolic and material aspects of the human experience (e.g., Deacon 1997; 2016; Mithen 2005; Rossano 2009). Terry Deacon offers us an effective description for this key facet of the human niche describing it as the "great ubiquitous semiotic ecosystem in which we develop" (Deacon 2016, 135). Our ecology is simultaneously material, imagined, perceived and constructed. Meaning matters, and it is evolutionarily relevant (Kissel and Fuentes 2018; Overmann and Wynn 2019).

Across the Pleistocene the human lineage acquired a distinctive set of neurological, physiological, and social skills that enabled us to work together and think together in order to create and collaborate at increasing levels of complexity. This interfaced with our expanding ecologies developing a system that continues to shape, and being shaped by, the human niche. This collaboration intrinsically involves a capacity for imagination, the intensification of the use of signs and the creation and use of materials as symbol. Terry Deacon (1997; 2016) notes humans are a 'symbolic species', analogous to the way one might characterize birds as 'aerial species' and dolphins as 'aquatic species'. But, he argues, unlike these ecologically specialized lineages, the symbolic

‘ecology’ that humans evolved is not external to the human lineage; it is inextricably part of it. It is our niche and its development, and the feedback processes within it, that are central to an explanation for how humans came to be the way we are (Fuentes 2017).

Since at least the mid-to-later Pleistocene (~500,000 years ago), human niches also include novel perceptual interfaces developed via our lineage’s structural and social relationships with the material world and with one another (Galway-Witham et al. 2019; Overmann and Wynn 2019). These interfaces are perceived and expressed via behavioral, symbolic and material aspects that emerge in the development and expansion of human culture.

It is clear that by the later Pleistocene materials traditionally classified by contemporary scholars as ‘art’ or ‘symbolic’ are abundantly present and make up a significant component of the perceptual, material and behavioral lives of many members of the genus *Homo*. But is ‘symbolic’ the best way to refer to these materials? No (Garofoli 2015a; Iliopoulos 2016; Garofoli and Iliopoulos 2017; Kissel and Fuentes 2017).

A material is symbolic if the connection between it and whatever it stands for (is a symbol of) is predicated on convention, rather than by similarity or contiguity (that is, different from it being an icon or index, respectively). So, to truly know if a specific material item is a symbol, we need to know the cultural context (the conventions that predicate and construct it) in which it was created: by its very nature, a symbol must be read and interpreted within a system of meaning. We do not have access to the systems of meaning (cultures) of Pleistocene populations of the genus *Homo*. In actuality, most of what we refer to when talking about Pleistocene symbols are materials we infer to have meaning for archaic humans: they are signs (Kissel and Fuentes 2017; 2018). Thus, rather than asking if materials are symbols/symbolic, it is more salient to ask how they functioned as signs. This involves semiotics.

Umberto Eco, in his *A Theory of Semiotics*, defines semiosis as “the process by which empirical subjects communicate, communication processes being made possible by the organization of signification systems” (Eco 1976, 316). Humans (and other animals (Kohn 2013)) live within a complex web of semiosis and meaning-making; but humans are especially adept at creating and developing materials into signs. How we interpret signs is a product both of cognitive capabilities and our cultural context. An organisms’ Umwelt (von Uexküll 1934 [2010]) is the semiotic world that it creates and reshapes throughout its life, and for humans much of that is facilitated by the creation and use of material signs. The semiotic facets of the niche can be a critical component, even a target, of evolutionary processes (Peterson et al. 2018).

When applying a semiotic suite of ideas to Palaeolithic art, non-semioticians run into an ocean of complex terms and theories, such as *representamen* and talk of *Dicent Indexical Sinsigns*, with complex and often opaque theories behind them. Here we provide a short overview of these topics to help the reader understand the salient facets while admitting that semioticians often disagree on the exact definitions and interpretations.

Semiotics

The first step in a semiotic analysis is to understand how the sign is functioning. To do this, we first need to know what a sign *is*. This is important, as whether one interprets via a Saussurian or Peircean framework affects the types of analysis possible. Under

Saussure’s theory, signs are linguistic and dyadic. For Saussure a sign has two parts: the *signifier* (something that is acoustic) and the *signified* (the concept). Importantly, the connection between the two is arbitrary. Thus, the word for an apparition of a dead person in English, Spanish and Dutch; *ghost*, *el fantasma*, and *spöke*. Saussure’s theory applies to linguistic signs. This makes it useful in some instances, but difficult to apply when used paleoanthropologically since we often do not know the linguistic capabilities of earlier humans.

Peirce, on the other hand, saw signs not as dyadic but as triadic (see Fig. 1). While scholars disagree on interpreting Peirce, in general we can think of these in the following way: The *representamen* (what we might call the sign itself) is something that represents something else; the *object* is the thing that the representamen represents; and the *interpretant* is the understanding that one has between the representamen and the object.

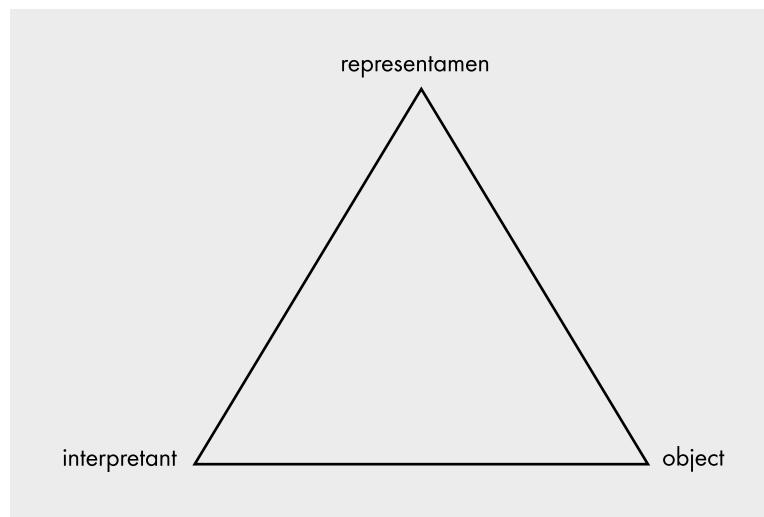


Fig. 1 | Visual representation of Peirce’s triadic system of signs

So, what is a sign? Peirce defined a sign as “something which stands to somebody for something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the interpretant of the first sign. The sign stands for something, its object” (Peirce 1958).

The best-known aspect of Peirce’s semiotic work is his conceptualization of how the representamen and the object are related (e.g., Deacon 1997). Importantly, his system allows for connections between the sign and its object to be non-arbitrary, contra Saussure. This leads to what is currently termed his ‘second’ trichotomy, Icon-Index-Symbol, which is how semiotics has been traditionally applied to much of the archaeological and paleoanthropological literature.

We are somewhat skeptical of the application of Peirce’s second trichotomy to paleoanthropology (Kissel and Fuentes 2017). For one, the ground (the basal relationship) between a sign and its object is often unknown in the archaeological literature. While with a detailed culture history it may be possible to untangle the connections between the representamen and its object (see Hendon [2010] and Joyce [2007] for

an example of this can be done well), doing so in ‘deep time’ seems to reach issues of equifinality and is rife with uncertainty.

For example, a classic image from cave art are images of animals. What are these in the Peircean system? They could be icons as they represent by similarity its object. The fact that we can often discern what animals are being depicted suggests that they have at least an iconic ground (the images represent the animals they depict). However, they could also be indexical. An index is something where the link between the sign itself and the object is due to a causal link; based on contiguity. Does it stand for the animal’s sound? Its movement? Its meat? Finally, many assume that there is symbolic ground in these images. The fact that there are so many images of similar animals suggests to a semiotician that there is something going on. Maybe the convention was that these images told a creation story. They could have even been linked to words. However, we have no way to assess the validity of such assertions.

One example of this difficulty can be seen by the famous handprints in cave art. We can view it as icon and index, but we cannot know the symbolic link. In other words, if we do not know the conventional ground which link an object to a sign, we can’t interpret it correctly. However, we may be able to infer its existence. This proves problematic. We cannot disprove that a particular artifact is symbolic by showing that it is an index, as symbols, by their very nature, embed iconic and indexical thinking within them. This leaves us with not insignificant problem of figuring out to *prove* something is a symbol. As Richard Parmentier notes:

Attempts to place certain objects in the baskets of ‘icon,’ ‘index,’ and ‘symbol,’ similarly, miss the critical point that these Peircean terms are not types of signs but stages or moment in the hierarchical complexity of semiotic functioning; a symbol necessarily embodies an index to specify the object being signified, and an index necessarily embodies an icon to indicate what information is being signified about that object (Parmentier 1994, 389).

We agree that there is much to offer from Icon-Index-Symbol and do not want to belittle its use. However, in a Peircean approach the *first step* is not looking at the sign-object connection but rather examining the sign itself. To fully investigate how this might help us in looking at Palaeolithic “art” we must delve a bit deeper into Peircean semiotics and understand the nature of his system of categories of thought, which differs from Kant in that there are three ontological categories rather than four: Firstness, Secondness, and Thirdness. Just what he meant by Firsts, Seconds, and Thirds are hard to understand and hotly debated.

Firstness has to do with qualities and can be understood as the feeling of being in a meditative state concentrating on only one thing (Short 2007; de Waal 2013).

“A feeling, then, is not an event, a happening, a coming to pass... A feeling is a state, which is in its entirety in every moment of time as long as it endures” (Peirce 1958, 151 [1.305]). A first corresponds to emotional experiences without a specific cause. You could be feeling hot in a car before you recognize that it is because you turned on the heater by accident, or cold before you find out that the back window was left open. That feeling, without thinking about the cause, is a first. Peirce sometimes used the word ‘quality’ instead of firstness. For him these emotions include feelings

[...] such as the color of magenta, the odor of attar, the sound of a railway whistle, the taste of quinine, the quality of the emotion upon contemplating a fine mathematical demonstration, the quality of feeling of love, etc. I do not mean the sense of actually experiencing these feelings, whether primarily or in any memory or imagination. That is something that involves these qualities as an element of it. But I mean the qualities themselves which, in themselves, are mere may-bes, not necessarily realized (Peirce 1958, 151).

Gorlée (1994) provides a useful explanation "Firstness is experienced in [Peirce's examples] of the feeling of acute pain, an electric shock, a thrill of physical delight, the sensation of redness or blackness, the piercing sound of a train whistle, a penetrating odor, or any other impression which is forced upon the mind and compels its total attention" (Gorlée 1994). An aesthetic feeling is a First.

As an example, imagine yourself in a dense fog, where you can't see anything but the fog and, after a while, feel one with the fog. That would be an example of firstness. Now imagine that you are gently floating through the fog, still even unaware of your body, when you smack right into a lamppost. That smack, which brings you out of your firstness, is a secondness. Secondness, then, is the interruption of firstness; it is thought in relation to something else. Secondness is also referred to a 'reaction' by Peirce. At the moment, you do not know what happened. Thirdness comes about when you recognize that the smack was due to hitting a lamppost. Thus, it is what allows a person to draw connections between the firstness and secondness. Almost everything else in Peirce derives from these ideas. So, a *representamen* is a first, the *object* is a second, and the *interpretant* is a third.

In the assessment of Pleistocene meaning-laden materials, those objects categorized as 'art', can benefit from engaging what was actually Peirce's first trichotomy in which there are three sign types: qualisigns, sinsigns, and legisigns. Qualisigns are derived from qualities (i.e. firsts). "[T]he color embodied in a cloth sample; in itself, that color is a mere possibility, its actually occurring in the sample being an addition to it; and what it represents is nothing other than itself" (Short 2007, 209). To put it another way, a sign that is a qualisign signifies something though the quality it has. Qualisigns do not signify anything except as they are embodied in an object or event (Short 1982). It is the tone of the sign, to use another Peircean term. So, something that is a qualisign can only relate to an object on a level of firstness. The second type of sign-vehicle is the sinsign, which contains several qualisigns (EP 2:291). When a sign-vehicle uses what Peirce refers to as essential facts, this is a sinsign. When smoke is acting as a sign of fire it is a sinsign. The third type, a legisign, is when the sign vehicle signifies based on convention. This is not a symbol in that we are not concerned with what the convention is, simply that the legisign is defined by it. If we do not know the convention then how can we assume the legisign's signification is based on such a process? Legisigns occur as replicas, an individual instance of a legisign. They can be seen as a special category of sinsigns, where their significance is based on both being a replica of a legisign and on the features of its occurrence (Short 1982). Legisigns define the characteristics of their replicas.

When signs are unique occurrences they are sinsigns and when they have some regularity, when they are governed by an overarching contextual pattern, they are

legisigns. In other words, one-off occurrences in the archaeological record could be sinsigns. For instance, the engraved clam shell of Trinil (Joordens et al. 2014) or early examples of beads. However, when we see multiple and similar occurrences of sinsigns, such as the modified shells of Blombos (Vanharen et al. 2013) or the repeated use of engraved shell at Diepkloof (Texier et al. 2013), we have evidence of legisigns existing that ‘control’ the way the replicas are formed. A change in the pattern of use is a change in the legisign regimentation. A string of beads, then, can be both an index of the wearer and a replica of a broader indexical sinsign. The large collection of beads of similar type across space and time demonstrates the existence of replicas created from a particular perceptual template and thus the presence of a legisign (see Peterson et al. 2018).

Applying this Perspective

Figurines

Between around 18–35,000 years ago across much of western, southern and eastern Europe, multiple instances of remarkably similar small, carved anthropomorphic female figurines were found. The figurines are not identical but share many features in shape, texture, size and style of creation. Understanding the *function* of these objects has been the topic of much research. Conard (Conard 2009) reports on an early example from Hohle Fels Cave at 35,000 years ago of a female statue and suggests links to later figurines. Many of the features, including the extreme emphasis on sexual attributes and lack of emphasis on the head, face and arms and legs, call to mind aspects of the Venus figurines well known from the European Gravettian, which typically date from between 22 and 27 kyr BP” (Conard 2009, 250).

Many studies have suggested these objects were used in a social context (Knapp and Meskell 1997); they could have been used to maintain social alliances or in ritual (Gamble 1982; Soffer et al. 1993; Coward 2016). “Although there is a long history of debate over the meaning of Palaeolithic Venuses, their clearly depicted sexual attributes suggest that they are a direct or indirect expression of fertility” (Conard 2009, 251). Nowell and Chang (Nowell and Chang 2014) suggest that interpretations of these figurines reflect the socio-political contexts of their times. Iliopoulos further suggests we may see these as icons (or as secondary iconic signs) “because prior knowledge of their significative function in some particular system of interpretation would have been required for perceiving their similarity with particular mother goddesses” (Iliopoulos 2016, 116). But how can we actually know any of these assertions about the meanings of these figurines are correct?

In the example of anthropomorphic female figurines, we may be able to see the iconic significance but not the indexical or symbolic ones, as the cultural context had been lost. As Joyce (2007) notes, there is a difference between asking “what do figurines mean” and asking “*How* do figurines mean?” Art had a different ground for those contemporary people who saw them. Thus, we do not have to see them as fertility goddesses, sex objects, or whatever. Without the context we cannot know their symbolic ground. Nowell and Chang recognize this when they note that “In archaeology, as in life, context is critical to understanding meaning. It is clear that “Venus” figurines should be studied in the same manner as other Palaeolithic artifacts...” (Nowell and Chang 2014).

We suggest that these figurines are better seen as replicas of legisign. Remember, a legisign is a representamen that acts as a sign based on convention. It is a sign that we can see has a specific meaning because it shows up in multiple copies that evoke the same perceptual response. That is, if there are multiple examples of the same type of human-created material item that conveys or contains and/or evokes similar or identical sensations, then we can say it reflects a convention amongst the group or groups making the items in that they are intentionally replicating the making of a material item with the same or similar characteristics. We assume with the same intended impact, but we cannot prove that or know why that impact was desired. It may be a symbol, but we cannot know that. We can, however, assert that the legisign did mean something to those who made it as evident via the repeated creation of specific items, which evoke specific sensory responses across space and time. Presence of legisigns offers evidence of meaning making, whether symbolic or not. They offer an indication that multiple groups of people were creating material objects that represented a set of shared sensations and/or mutually understood (and/or perceived) meaning. The point is that the creator(s) had an aim:

A person who wishes to convey a meaning intends to produce a particular sort of interpretant in the thought, the behavior, or the emotions of a person he is addressing, and he intends to do this by replicating a legisign with which he [she] assumes the person addressed is familiar (Short 1982, 293).

While we cannot see the legisigns (the shared 'templates') that were used, we do know that these figurines were produced for a reason and that there was a shared intentionality to them. Perhaps the similarities in the Gravettian figurines are replicas of a legisign. This semiotic move allows us to talk about meaning-making and capabilities without assuming the behavioral repertoire of people in the past was the same as it is today.

Faberstein (2011) examined over 550 Pavlovian art objects from 28,000–24,000 (BP, uncorrected dates), detailing characteristic such as the subject matter of the art, raw material, and the type of surface incision. Such detailed analysis allows for the tracking of specific types or, from a semiotic perspective, qualisigns. She notes the importance of studying the full range of materials, rather than simply one type. This *chaine opératoire* approach allows us to see how different qualisigns may be embedded in the art, such as the orientation and placement of engravings. The high percentage of engravings on the convex rather than the concave side of ivory lamellae at Pavlov 1 may be the result of socio-technological behavior. It also is a qualisign. The preference of this side only exists embedded in the sinsign of the artifact. The socio-cultural uniformity she and others see are the result of these sinsigns with embedded similar qualisigns, which suggests the artifacts are replicas of a legisign.

Examining representations of the horse in Magdalenian sites, Rivero and Sauvet (2014) distinguish seventeen attributes such as the manner of drawing the outline and details of the sense organs. This allows them to discern three main groups of figures. Another way of looking at this study is to see these attributes as qualisigns. If hatching is used, it is a particular qualisign.

We do not want to suggest that qualisign is a better way to describe these attributes. But we do think that seeing the analogies to the horse figurines having embedded

qualisigns, and that the presence of many bundled qualisigns means that these figurines are replicas of a legisign.

Beads

While not often described as art *per se*, the use of beads as personal ornaments may fall into this category. The exact definition of what makes something a bead is far from clear, but marine shells with evidence of perforations and/or use-wear have been found in northern and southern Africa and southwest Asia between 130–100,000 years ago (d'Errico et al. 2005; Bouzouggar et al. 2007; Bar-Yosef Mayer et al. 2009).

Vanhaeren and d'Errico (Vanhaeren and d'Errico 2006) use 157 bead types at almost 100 European Aurignacian sites to identify a “definite cline sweeping counter-clockwise from the Northern Plains to the Eastern Alps” (Vanhaeren and d'Errico 2006, 1105). For them, this illustrates ethnolinguistic diversity. The ability to locate these cultural entities via personal ornaments is important, given how much cultural preference is seen in beads (Wilkie 2014).

Another way to look at this is to think of a bead itself. Each bead is composed of bundled qualisigns. As Savan explains a paint chip is a qualisign. “The color chip is perhaps made of cardboard, rectangular, resting on a wooden table etc., etc. But it is only the color of the chip that is essential to it as a sign of the color of the paint” (Savan 1988, 20). You can't give someone a qualisign since it doesn't exist separate of other things. Keane (2003) notes if someone likes the color red you cannot simply give them that color. Rather, it has to be embodied. However, it is also true that what it is embodied in may matter less than the qualisign itself. Perhaps they might like a red cup, red plate, red painting, etc. The fact that qualisigns must be embodied in something mean that they must be “bundled” (Keane 2003) with other qualisigns. And how qualisigns are bundled together can change their meaning. We argue that in the distribution of beads across space and time in the later Palaeolithic we are likely seeing different legisigns, different ways of making beads that have meaning(s) for the makers. This approach is useful as even if we cannot assume a specific pattern of culture exists, we can know that legisigns do. When beads can be seen as replicas, they demonstrate that a legisign exists. They are being created to produce a specific reaction in another person. Legisigns thus abound in the Pleistocene, from ways to string beads (Vanhaeren et al. 2013) to preferences in bead types (Bar-Yosef Mayer 2015).

Vanhaeren and d'Errico (2006) look at raw material, morphology, mode of suspension, dimension, and species. So, each bead has these qualities embedded in them. Individuals making them may have chosen beads for specific reasons, some of which were culturally determined. We do not know these reasons, but the qualities that are embedded can be deduced via analysis. Each shell, by itself, is a sinsign. It is a one-off example. But when we have a site with multiple shells that have the same or similar qualities, they are replicas of legisign (just as seeing a word one time in a text of a foreign language doesn't necessarily mean it is a useful word, but seeing it multiple times clues us into its importance in the overall legisign of the language). As an example, the data in Vanhaeren and d'Errico shows that the “figure-eight-shape” is rare, found only at three sites in the database (2 from Belgium and 1 from Germany). They note in their analysis that these are among the sites that “have in common a number of bead types absent in the other sites of their sets” (Vanhaeren and d'Errico 2006, 1118). Is

this a specific favoured qualisign? Similarly, there are only 2 sites that have decorated beads (Tuto de Camalhot and Souquette, both in France). As this is not common it does not indicate a legisign but may point to a specific local practice.

Semiosis and the Human Niche Make Palaeolithic 'Art' More Meaningful

We know that art is not only created by contemporary humans. But what can we say about how to understand early 'art'? We have a unique situation in that no one seems to doubt that what scholars have often termed 'modern humans' made cave art. Moreover, no one, as far we know, has argued that cave art was just doodling to pass the time. But, interestingly, when art has been argued to be present for 'non-modern' humans, such as Neandertals (Pike et al. 2012) or *Homo erectus* (Joordens et al. 2014) the possibility is either rejected or suggested to not be art, apparently based on the belief that only modern humans can do it. This is patently absurd given the current data at hand (Kissel and Fuentes 2017). Maybe it helps to think of art as a first. The aesthetic experience we want is that first. Once we try to understand the Third, we may reach difficulty since we do not know how people in the past interpret it, but at least we have a way in that is assessable using the material remains we have and not reliant on assuming that we know can the culture of the past humans who made them.

Parmentier provides the useful concept of 'downshifting', which refers to the idea that certain types of sign-object classes tend to be apperceived at lower semiotic levels over time. Something that had an indexical ground may, over time, be perceived only on the iconic level. He applies this to the example of artwork. A regular museumgoer (one who is not a specialist in art) could view an image of the Madonna from the 15th century and interpret the ultramarine as an iconic sinsign. In other words, they would not read too much into it besides the color being an icon for that color in 'real life.' However, imagine that same museum goer was viewing the image at the time it was first painted. She would know that that color was both rare and very expensive and thus it would, for her, function as indexical sinsign that pointed to the wealthy patron who paid for the work. Importantly, the "passage of time corresponds to a lowering of the rank of the sign, as the richness of "collateral knowledge" available to the viewer decreases" (Parmentier 1994, 19).

The same thing is true in an archaeological context. Without detailed knowledge it is difficult to know the indexical, let alone, symbolic, aspects of a sign. Archaeologists who have applied a semiotic approach at this level such as Hendon (2010) and Lau (2010) are able to do so due to ethnohistoric research which allows for a fine-grained approach.

Thinking about how art functions in the Pleistocene can be accomplished in a number of ways. We can track the spread of specific patterns, analyze the *chaîne opératoire* at different sites, and seek to understand the meaning behind the art. Rivero and Sauvet (2014) argue that "Style should be considered as the particular form and design given to manufactured objects by individuals or groups of individuals to inform others about their identity, affiliation and status. Style acts as a visual sign playing an active role in the processes of information exchange, communication and social interactions" (Rivero and Sauvet 2014, 65). As such it can be used to infer social groups in the past. For example, Tostevin's (2007) use of a "taskscape visibility" approach, which suggests that when, where, and for whom a cultural task is performed can affect its

transmission, opens up avenues of research. So too can the application of semiotic analysis. The styles and types archaeologists identify are analogous to a sign's "modes of being" (Jappy 2013, 49). We suggest that to apply Peirce researchers should focus on his First Trichotomy (qualisign-sinsign-legisign). As others have shown (Garofoli and Haidle 2014; Garofoli 2015a; b; Iliopoulos 2016; Garofoli and Iliopoulos 2017) a semiotics-driven archaeology can lead to productive research.

Furthermore, this semiotic approach may allow us to discuss art without many of the culturally-laden and problematic terms. Take the example of the so-called 'Venus' figurines discussed above. As noted by Athreya and Ackermann (Athreya and Ackermann 2019), this appellation stems from a racist and sexist perspective (and thus is both), as its use refers to Sarah Baartman, a Khoi woman put on display in London and Paris as an example of a "living savage."

What is considered art is often biased by the assertions of specific meaning given to it by scholars. This hampers our endeavors to gain insight into past worlds. Invoking a Peircean perspective offers another approach. Since we think in signs, and we communicate through them, we can ask how specific signs (beads, engraved ochres, pendants, etc.) functioned without giving a value judgement on, or culturally-laden meaning to, their aesthetic qualities. Moreover, it removes the common duality that suggests an object can be exclusively either utilitarian or symbolic. A sign can be an icon, an index, and a symbol. Just as humans today embody complex meaning into everyday objects (the reason why one can purchase a \$4,200 Reinast Luxury Toothbrush) people in the past may have done the same thing. The trade and circulation of raw materials, decorated objects in the Magdalenian (Schwendler 2012) may represent both an interest in ornamentation and the benefits of trade partners. Perhaps Gravettian figurines did the same.

In 1997, Ofer Bar-Yosef asked why there are so few examples of symbolic expressions in Later Prehistory of the Levant. He noted the lack of sites (in comparison to Western Europe), the likelihood that symbols may have been made of perishable materials, and that socioeconomic changes at the Natufian precipitated the emergence of complex symbolic behaviors. He suggests "we need to reverse our questions and ask why artistic/symbolic manifestations proliferated in Upper Palaeolithic Eurasia and Australia while in other parts of the world, it emerged in the terminal Pleistocene and proliferated during the Holocene" (Bar-Yosef 1997, 181). More than twenty years later we have more evidence of art in different parts of the world. Another way to answer his question is to reframe the debate. Rather than wonder why art/symbolism is or is not present we can ask how different populations re-made their world through the creation and dissemination of objects imbued with meaning. The effect that the art they made had on them is important not to undersell (Malafouris 2013; Ihde and Malafouris 2019):

[M]uch of what we identify as human intelligent behaviour never happens entirely inside the head of the individual but is distributed, enacted and mediated through a variety of socio-material forms and material engagement processes (Ihde and Malafouris 2019, 204).

We may not know the exact function art had in pre-Holocene populations. But Peirce gives us a way forward. Thinking on *how* these objects were able to give meaning, rather than on *what* that meaning was, is a worthwhile endeavor.

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Derivatives of Ritual

Investigating the Origins of Palaeolithic Art from the Perspective of an Evolutionary- Psychological Archaeology

Abstract The history of research into the origin and meaning of Palaeolithic art is long and complex. Most investigators either try to decipher the symbolic meaning of the depicted motifs or concentrate on questions about chronology, style and technique. Yet this leaves a large explanatory gap: the underlying human psychology and its evolutionary depth. At this level of analysis, art seems to be a conglomerate of psychological building blocks originating from ritual behavior coupled with our evolved aesthetic sense and the psychology of prestige. Especially the relationship among art and ritual seems highly relevant for understanding the origins of Palaeolithic art because this relationship manifests itself not only psychologically but also archaeologically. Here we discuss the deep evolutionary relationship among these peculiar phenomena of human behavior and relate it to the archaeological record. In doing so, we offer possible directions for a fruitful interdisciplinary cooperation between Palaeolithic Archaeology and Evolutionary Psychology – a relationship that is still surprisingly underdeveloped.

Keywords cluster concept of art, psychology of ritual, evolutionary aesthetics, psychology of prestige

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Introduction

Looking at the more than one hundred years of research history attempting to interpret Palaeolithic art and shine light on its origins, one gets the impression that the field is trapped between two extremes. On the one hand,

there have been numerous efforts to develop all-encompassing theories about its function: art for art's sake, totemism, sympathetic hunting magic, fertility and sex, sanctuaries structured after an ideal blueprint, shamanism and trance, information storage for teaching and storytelling, and many others. Although there may be grains of truth in each of these approaches, they received thorough criticism no later than the next generation of researchers. All of these theories have been accused of being highly speculative, ultimately unverifiable, bending the archaeological evidence or selectively choosing ethnographic comparisons just to make them fit the respective theory (Conkey 2018; Solomon 2018; Bahn 2016, 275–336; 2010; Cruz Berrocal 2011; Francfort et al. 2001; Halverson 1987). On the other hand, not least because of this long history of controversy, there are many researchers today who try to avoid large-scale interpretative schemas altogether, as they are considered unproductive for scientific progress. These scholars prioritize chronological and technological aspects, the surrounding archaeological context, and comprehensive digital documentation. (e.g., Brady et al. 2018; Pastoors and Weniger 2011; Lorblanchet 2010; Pettitt and Pike 2007; Chalmin et al. 2003).

This situation is unfortunate for the progress of knowledge with respect to the question posed by the organizers of the 2018 International Senckenberg Conference: *What can we learn from Palaeolithic art?* We suggest that there might be a third way to approach the two intermingled problems of interpreting archaeological remains and investigating the evolutionary origins of art in general by adopting an evolutionary-psychological approach. This requires:

1. A shift in the level of analysis from the possible content and symbolic meaning of Palaeolithic art to the underlying psychological mechanisms;
2. An abandonment of overly relativist and constructivist positions about art in general;
3. A proper anchoring in evolutionary theory.

Furthermore, a truly interdisciplinary evolutionary-psychological archaeology of the 21st century should also integrate findings from neuroscientific research on the human brain with respect to the visual, auditory, reward, mirror neuron, and memory systems (Janik and Kaner 2018; Smedt and Cruz 2010; Watson 2009). After all, the field of *Neuroaesthetics* has developed rapidly in recent years (Demarin et al. 2016; Kapoula and Vernet 2016; Pearce et al. 2016; Huston et al. 2015; Lauring 2014; Chatterjee and Vartanian 2014; Zeki 1999). Neuroscientist Anjan Chatterjee (2014, xi–xii) put it nicely when he said that Neuroscience tells us the “how” of aesthetics, and Evolutionary Psychology the “why”. We would like to add that Archaeology tells us the “where” and “when” – and even sheds light on important evolutionary precursors. While we agree that neuroscientific findings need to be incorporated into a comprehensive understanding of the evolution of art, we would like to defer this level of description due to the enormous complexity of such an enterprise. Likewise, we cannot offer a full-fledged model about the origins of art on a higher level of abstraction. Rather, the goal of this contribution is to sketch out theoretical starting points and potential directions for interdisciplinary cooperation between Archaeology and Evolutionary Psychology while focusing on the relationship between art and ritual.

Defining Art

Starting Problems

To investigate a phenomenon from an evolutionary perspective, it must first be defined and distinguished from other phenomena. Establishing a comprehensive and universally valid definition of art is a notoriously difficult undertaking and loaded with a long and complex history of thought (Adajian 2018; Davies 2013; Chatterjee 2014; Carroll 2000). Influenced by Wittgenstein's (1953) philosophy and the cultural relativism particularly prevalent in US-American Cultural Anthropology (e.g. Boas 1927; Mead 1928; Benedict 1934) and accompanied by the erroneous psychological theory of the human mind as a blank slate (Pinker 2002), many scholars in the second half of the 20th century have declared every attempt for a universal definition of art to be unproductive, if not outright impossible (e.g. Weitz 1956; Geertz 1976; Novitz 1998; Weiner 1998). The concept of art is seen essentially as a construct of Western civilization because, it is argued, other languages and cultures do not have an equivalent term or the same abstract conceptualization. But as Morales (2005) and Dutton (2000) have pointed out, a lack of a special word for art in a certain language or a lack of an abstract concept of art in a particular culture does not equate with a lack of art as a distinct behavioral pattern (and its material results). The boundaries of a particular dictionary are not identical to the boundaries of cognition, emotion and behavior of the respective speaker (Pinker 2007).

Some archaeologists raised and trained in the second half of the 20th century were heavily influenced by these intellectual currents. This led them to the position that it is better to avoid the term 'art' for prehistory altogether (Conkey 2009, 182; Gendron 2007, 262; Lewis-Williams 2005, 386; White 1992, 539; Davidson and Noble 1989, 128: fn. 2). Instead, they used substitute terms such as "image making", "graphic behavior", "rock marking", "material/visual representation", "decoration", "figurative depiction", among others. However, it is questionable whether these terms serve archaeological investigations about this peculiar human behavior and the pursuit of knowledge about its evolutionary origins better than the term 'art'. This tactic rather shifts the problem of defining terms to other words. Perhaps a better strategy could be to use the word 'art' as a catch-all term for the decoration and aesthetic manipulation of different materials whatever its motivation or function (Bahn 2016, vii; Whitley 2011, 23–24). This may indeed be more practical for the everyday work of archaeologists as they catalog artifacts and features. Yet such a strategy is not helpful for understanding the evolutionary origins of this phenomenon. Without a conceptual definition (even if only preliminary), we cannot know what kinds of behavior (and underlying mental mechanisms) require an evolutionary explanation.

How do we get to a useful working definition for pursuing scientific research? First, to establish a definition for art, it is important to distinguish between the constantly shifting meaning of the word 'art' in the English language (or *Kunst* in German) and universal behavioral phenomena (Moravcsik 1991). The former is a subject for linguists and philosophers of language, while the latter is observable in most societies and social strata and can be studied empirically.

Second, evolutionary explanations should not use European fine arts, modern art or contemporary postmodern art as starting points. These are historically conditioned categories used by a fairly circumscribed social elite in specific socio-cultural contexts.

Such categories can hardly be transferred to other times and cultures (Junker 2013, 14–15). Relativist and constructivist views consider either everything as art, as long as it is seen as such by any person or group. Or, conversely, nothing can be called art if it is deemed ‘non-Western’. In contrast, the naturalistic-evolutionary view assumes that art, like language or tool use, is a universal and delimitable pattern of behavior grounded in our evolved psychology (Dissanayake 2013; Dutton 2013). An evolutionary explanation must therefore take a bottom-up approach that can be applied across cultures (and subcultures), to most contemporary, historical and prehistoric manifestations including the ornamentation and ritualization of other species. From this perspective, the fine, modern, and postmodern arts represent very recent and locally confined instantiations of a much broader phenomenon (Miller 2000, 265–267; Dutton 2009, 4).

Third, such a bottom-up approach does not allow for sharp boundaries between art and other aesthetic activities such as the embellishment of human bodies, clothing and tools. Evolution occurs through gradual transitions and not miraculous leaps, although some transitions were faster and more consequential than others (Dennett 2017). Thus, transitional phenomena that are difficult to categorize should be expected. For example, because the transition from design to art is gradual, it is difficult to define a specific point when this happens, as is the case with the development of symmetrical and colorful handaxes. In general, it can be said that in design the functionality of an artifact predominates, whereas in art the free play with shapes and materials is paramount (Schmidt-Salomon 2014, 193).

Fourth, a useful working definition should not be based on rare outliers. The philosopher Denis Dutton (2009, 47–51) criticized that contemporary art theory has maneuvered itself into a dead end, not only in focusing on modern and postmodern art, but on its extreme fringes (e.g., Ready-mades, Dada). Theory building was therefore not properly oriented towards the central characteristics of a worldwide phenomenon. A naturalistic-evolutionary approach should consider art as a field of activities (including the associated experiences and material objects) which occur *commonly* in human life across cultures and times, without the explicit help of academically trained art theorists or art museums. The same strategy can be suggested for *defining* Palaeolithic art: controversial phenomena such as quasi-geometric engravings on ochre pieces, notched bones, pecked pebbles or isolated cupules on a rock should not be the starting point. Rather, the basis should be undisputed core phenomena such as the thousands of known figurative cave paintings and statuettes of the Upper Palaeolithic. From this solid ground, the less clear manifestations that necessarily appear within the soft transitions between categories can then be investigated.

Based on these conditions, a number of useful efforts have been made in recent years to define and understand art from an evolutionary perspective with somewhat different strategies. Although no real conceptual consensus exists yet, there seems to be a degree of overlap among them, because they operate under the broad umbrella of Darwin’s theory of evolution by natural and sexual selection. The different hypotheses can be used as starting points for further theory building and empirical testing. Moreover, there are also different views on whether artistic creation is an adaptation directly shaped by natural (Dissanayake 1992) and/or sexual selection (Miller 2000), a by-product of other adaptations (Hodgson and Verpooten 2015; Pinker 2002), a meta-phenomenon of genetic and cultural drift (Chatterjee 2014), or a mixture of these views (Dutton 2009). Regardless

of what holds true, the evolutionary perspective indicates that art is a cross-cultural, universal behavioral phenomenon deeply rooted in our evolved psychology.

Cluster Criteria

To help us understand a complex phenomenon scientifically, we can use the strategy of disaggregating its elements into separate building blocks. With the ongoing progress of scientific research, we are then able to adjust the details and may discover important elements that are now invisible to us. But how do we break down such a complex and heterogeneous phenomenon like art with its soft boundaries into individual parts? Some philosophers suggest the use of cluster criteria where a conceptual category is not defined by a core essence but rather by a list of properties that are connected through a web of family resemblances (Longworth and Scarantino 2010; Dutton 2009; Gaut 2005; 2000). This means, for a phenomenon to belong to a conceptual category, all properties on the list do not have to apply simultaneously, nor does one of the properties represent a necessary condition. Some manifestations will meet all criteria; others only part of it. Some will share numerous properties with each other; others will overlap only slightly. If one creates such a list for the category of art, then it is not necessary for every work of art or artistic performance to satisfy *all* criteria – but only *some* of them. The rule of thumb is, the more criteria are met, the more a real-world phenomenon belongs to this conceptual category. This allows for a flexible terminological umbrella with soft transitions at the periphery. Conversely, individual criteria on the list do not belong exclusively to the defined conceptual category. They are typically situated on a continuum with non-artistic patterns of behavior. In this way, a useful guideline is created on the basis of which difficult marginal phenomena can be discussed on a case-by-case basis. The obvious disadvantage of this approach is that there will be many examples for which no final decision can be made as to whether they belong to the category or not.

A frequently cited and well thought through proposal for a cluster concept of art comes from Denis Dutton (2009, 52–59). He assembled the following 12 criteria:

1. Direct pleasure: Art is enjoyed for its own sake, not for practical purposes.
2. Skill and virtuosity: Art requires and showcases special talents and abilities.
3. Style: Art follows rules of form and composition, allowing for both recognition and innovation.
4. Novelty and creativity: Art is valued for its originality and ability to surprise.
5. Criticism: Art is evaluated by audiences through a range of critical judgments.
6. Representation: Art symbolically represents human experiences and emotions.
7. Special focus: Art creates an intense focus of experience which is often separated in time and/or space from mundane activities of everyday life.
8. Expressive individuality: Art allows for individual expression and recognition of outstanding artists.
9. Emotional saturation: Art elicits emotions through content and form.
10. Intellectual challenge: Art engages multiple intellectual capacities.
11. Art traditions and institutions: Art is embedded in historical and cultural contexts.
12. Imaginative experience: Art creates and explores imaginative worlds and ideas.

Finding the Core

Other evolutionary attempts to tackle the conceptualization problem follow a different path. They try to uncover a specific behavioral core grounded in the deeper universals of mental structure which underlies artistic creation across cultures. This entails searching for the essence of art which the cluster concept tried to avoid. The core is seen either as an adaptation shaped by natural and sexual selection or as a side effect thereof. Such approaches conceptualize art primarily on the basis of action and perception, not so much in terms of its material outcome. The identification of such a behavioral core is not intended to explain all aspects of artistic creation and the vast variety of cultural expressions. The goal is to narrow down those aspects which might have a biological origin. The disadvantage here is that *definitions* of art slip into evolutionary *explanations* for art. This is conceptually imprecise, but difficult to avoid when searching for an evolutionary core (Chatterjee 2014, 171).

Ellen Dissanayake can be considered a true pioneer in this particular field of enquiry (Dissanayake 2018; 1992; cf. Chatterjee 2014, 166; Miller 2000, 259). In her extensive work she developed the concept of “making special” as *the core element* of art, which she believes has originated from ritualized behavior during human evolution. In her account, people of all cultures sometimes turn everyday things (e.g., objects, materials, movements, words, sounds and ideas) into something special. Every artform, regardless of its genre or its cultural or historical context, always surpasses what is common and mundane. This “making special” is achieved by changing color, shape or sound, by repetition, exaggeration, patterning, formalization, dynamic variation or surprise. These techniques are designed to be highly attention-grabbing for human perception. The artist elevates the mundane to express emotions, feelings and thoughts that are difficult to articulate abstractly in normal language. Dissanayake argues that simple preforms of this “making special” are already recognizable in early mother-infant interactions as well as in the ritualized behavior of many other species, thus pointing to a biological origin. In her account, art is adaptive because it fundamentally serves as a social glue holding cultural groups together – just like collective rituals do from which art originated. In fact, Dissanayake’s distinction between art and ritual blurs because she sees “making special” as the behavioral core of both.

Recently Henrik Høgh-Olesen (2019) proposed that the core of art is a universal *aesthetic impulse*, which is based on the *Optimal Stimulation Level Theory* of cognitive motivation. According to this theory, humans and animals seek a species-specific ideal balance between change and stability, novelty and familiarity. Humans have a significantly higher optimal stimulation level than other species, which could explain our perpetual engagement in aesthetic activities. However, aesthetic actions are not solely a response to restlessness and boredom but are also associated with beauty, pleasure, and surprise. Thus, the *aesthetic impulse* is accompanied by a corresponding *aesthetic sense* – the ability to appreciate and enjoy works created by the aesthetic impulse. How and why the aesthetic sense evolved is a subject for evolutionary aesthetics.

Evolutionary Aesthetics

Evolutionary aesthetics conceptualizes the aesthetic sense as a bundle of universal preferences for particular properties of natural environments, bodies, faces, sounds, vocalizations, colors, materials, artifacts and social relationships (Voland and Grammer 2003). Their cross-cultural universality points to a shared evolutionary origin which is empirically investigated through a plethora of controlled experiments and survey measures. This type of empirical data represents an important line of evidence which challenges the long-held view that our aesthetic preferences only reflect arbitrary standards of beauty set by socialization (e.g., Mehr et al. 2019; Falk and Balling 2010; Little et al. 2007). A second line of evidence pointing in the same direction comes from experiments with newborn infants, toddlers and pre-school children to determine universal innate predispositions which are subsequently molded by developmental factors (e.g., Thompson and Goldstein 2019; Franklin et al. 2008; Schellenberg and Trehab 1996). A third important empirical basis for the evolutionary perspective is cross-species comparison, especially with regards to other primates (Saito et al. 2014; Snowdon and Teie 2010; Westergaard and Suomi 1997).

Although summarized under one terminological umbrella as *the* aesthetic sense, many of the aesthetic preferences will have their own evolutionary history, shaped by processes of natural and sexual selection as well as culture-gene-coevolution during different periods in the Pliocene and Pleistocene. Overall, these preferences, it is argued, helped our hominin ancestors determine which things in their environment had properties to potentially enhance fitness. The aesthetic sense not only includes the perception of such properties connected to corresponding positive emotions, but also their active advertisement to potential cooperation and, especially, mating partners. Undoubtedly, Darwin's second great discovery, sexual selection, will have played a prominent role in the evolutionary origins of art. Sexual selection may be the evolutionary root of those elements of art which are lavish, flamboyant, costly and attention-grabbing (Dutton 2009, 151–157; 2000, 258–291).

Pinker (2002, 405; 1997, 524–545) argued that some aspects of art developed through cultural evolution into pure pleasure technologies – completely decoupled from their original evolutionary benefit. Sound, image, olfactory and tactile patterns are used to artificially trigger our inner reward systems which originally evolved in response to problems unrelated to art. From this perspective, art functions like drugs, erotica or fine cuisine, as a method of concentrating and intensifying pleasurable stimuli in a highly dosed form just for pleasure's sake. A number of authors additionally pointed out that in the context of cultural evolution forms of art can emerge which not only have no direct evolutionary advantage for the biological organism but can even be maladaptive to some degree – until they are countered by the much slower operating mechanism of natural selection (Hodgson and Verpoorten 2015; Chatterjee 2014).

Evolutionary Aesthetics is now an established branch of Evolutionary Psychology, but collaboration with Palaeolithic Archaeology remains underdeveloped. However, if we want to ground our understanding of the evolution of art on as broad an empirical database as possible, we cannot rely solely on experiments and survey measures with contemporary humans or primatological comparisons. The oldest material remains should also be integrated into our considerations, because they represent the only

tangible evidence of how, when and where this evolution *actually* took place. The first promising attempts at integrating archaeology into this field of enquiry include the emergence and development of aesthetics in early tool technology (Hodgson 2019; Wynn and Berlant 2019; Mithen 2003), the underlying color psychology in early pigment use (Dapschauskas et al. 2022), the possible impact of sexual selection on rock art aesthetics (Varella et al. 2011) and the evolution of decoration with respect to saliency, memorability, reproducibility and expressiveness in style (Tylén et al. 2020).

Art as a Special Mode of Communication

Evolutionary Aesthetics is mainly concerned with the deeper, pre-symbolic, culturally invariant, phenomenal core properties of art. But on top of the sensory level there almost always exists an additional symbolic or meta-cognitive layer in which the actual meaning is embedded. A number of scholars proposed converging hypotheses about the possible evolutionary function of this meta-level: communicating content and meaning that is difficult to express in words. We are an ultra-social species with a highly developed *theory of mind* that is deeply interested in the inner life of others (Wellman 2014; Keysers 2011; Hrdy 2009). Because art opens a window into another mind and its thoughts, emotions and personality, it can generate intense interest, enjoyment, entertainment and excitement, and thus generate strong emotional reactions (Dutton 2009, 235). Chatterjee (2014, 182) hypothesized that one of the reasons why art is able to express emotional content that is hard to convey in words is that it often weaves several different emotions simultaneously into nuanced and complex compositions. Junker (2013) sees art even as a special kind of language with which a person is able to communicate emotional and motivational content not only difficult but also dangerous to express verbally and directly, such as secret wishes, desires and fears. Thus, he argues, art made it possible to practice dealing with social conflicts in a playful way without immediately endangering the social fabric, as well as to store and pass on this important information to others in the group. Aesthetic forms (rhythm, rhyme, symmetry, colors, etc.) support the transmission and memorization of this kind of unarticulated knowledge. This take on art is closely related to the psychoanalytic perspective of Peterson (2017). He sees art as the mediator between the known and the unknown – a psychological technique of exploration of potentially dangerous but also rewarding things in the natural and social world we do not (yet) understand in a fully articulated manner. This includes how people act – and more importantly – how they should and shouldn't act. Art emerged in the form of images, rituals, mythological stories and music because for the longest time during our evolution we were not able to describe such knowledge abstractly – and even today are only partially able to do so. What draws us to works of art are not just sensory experiences but their deep emotional and symbolic content. German philosopher Michael Schmidt-Salomon (2006, 44) summarized this point in a nutshell: art makes the meaning of life sensuously tangible. For Schmidt-Salomon art is not only a powerful instrument of social communication but also of social change. Through the use of deeply anchored emotions, the conveyed messages are loaded with an additional powerful force for changing the inner states of others (Schmidt-Salomon 2014, 194–195). This is the reason, he argues, why art is not only concerned with the beautiful, pleasurable and appealing,

but also the ugly, unpleasant, dangerous, painful and terrifying. With art, people are able to communicate the full range of their desires, experiences, norms, conflicts and worldviews with sweeping emotional power. Because of this emotional power, many societies use art for ideological purposes and often restrict it by censorship. Conversely, works of art are capable of challenging existing norms and perceptions of the world, pointing out contradictions, confronting the existing circumstances with alternative solutions, anticipating the not-yet-possible, thus becoming a major engine of cultural evolution.

Prestige

This digression has already made it clear that art is not a one-dimensional phenomenon. It concerns sensory perception, emotion, cognition, action and symbolism simultaneously. But there is more. Pinker (2002, 400–420; 1997, 521–524) pointed out that one of the reasons why art is so difficult to define may be that it is not only related to aesthetics and emotional communication but also to the *psychology of prestige*. This brings with it an additional dynamic of a constant urge for distinction and the desire to redefine conceptual boundaries.

Sociologists like Thorstein Veblen (1899) and Pierre Bourdieu (1996) have elaborated on the expensive uselessness of art, which makes it best suited to emphasize the merits and high social status of the artist or the owner of the artwork. Art is used for conspicuous consumption, conspicuous leisure, conspicuous waste (Dutton 2009, 154–163). Status symbols are usually made of rare and expensive materials with high craftsmanship or they are displayed in wasteful contexts. We should expect that in prehistoric hunter gatherer societies expensiveness was not measured in terms of monetary value, but with rarity, high procurement and production efforts, personal skill, virtuosity, special/secret ritual knowledge, and so on.

The psychology of prestige emerged in our lineage as consequence of cumulative cultural evolution (Henrich 2016, 117–139) and is tightly intertwined with costly signaling – a central building block of ritual and art (see below). However, it may be possible to trace the emergence of the psychology of prestige independently from Palaeolithic art in the archeological record, albeit only indirectly. Henrich (2016, 288) argues, that with the occurrence of particularly rich Acheulian sites such as Gesher Benot Ya’aqov (Israel), material culture became so complex and demanding, that it cannot be explained without cumulative cultural evolution that was already based partially on prestige-biased imitation (see also Paige and Perreault 2024). Hence one could argue that a distinct psychology of prestige already emerged in archaic hominins of the Acheulian long before the emergence of Upper Palaeolithic art.

The Relationship between Art and Ritual

The central focus of our paper is the close relationship between the evolution of both art and ritual. We would argue that this is deducible not only from a historical and psychological but also from an archaeological perspective. However, we are not the first to point out a deep evolutionary connection between these two phenomena (Brown and Dissanayake 2018; Dissanayake 2018; 2013; 1992, 43–52; Hodgson and

Verpoeten 2015; Rappaport 1999, 384–385; McConachie 2011). What we add to these excellent studies is an archaeological perspective, while proposing possibilities about how material remains of the Palaeolithic might be integrated into a broader evolutionary-psychological framework.

There is no agreement between scholars on whether the arts evolved as a by-product of ritualized behavior, or whether art and ritual can be traced to a common origin – the aforementioned behavioral core (e.g., “making special”, the “aesthetic impulse”). The latter possibility would make a conceptual distinction between art and ritual very difficult for the Palaeolithic. In some ways, we think that both positions are correct. On the one hand, art and ritual share several psychological building blocks which might represent aspects of their common evolutionary origin. On the other hand, if we adopt a cluster concept of art, we see that the archaeological and primatological evidence show that ritualized behavior is significantly older than the parietal and portable art of the Upper Palaeolithic.

Historical Observations

First, it should be pointed out that from a historical standpoint an explicit behavioral separation between art and ritual is a relatively recent development. One of the founders of the *Performance Studies*, Richard Schechner (1974), speculated about the origins of modern theater from collective ritual on the basis of his observations in the highlands of New Guinea. He argued, that during the Renaissance, a transition from ritual-centered to entertainment-centered cultural practices began, giving birth to modern theater. In general, the Renaissance was a critical precondition for the emergence of modernity, in which the power of religion and the priesthood began to shrink in Europe (Roeck 2017, 23). But as its name suggests, the first flowering of naturalism can be found in ancient Greek civilization, without which the Renaissance would be unthinkable. For this reason, the beginning of the philosophical and social process through which art emerged as a separate category independent from the sphere of ritual and religious mythology must be sought in the historical context of ancient Greece (Dutton 2009, 31–36, 66; Tanner 2006; Tatarkiewicz 1979). Some parallel processes may be observed in high cultures of Asia, such as the development of the largely secular theater forms *Nō*, *Kyōgen* and *Kabuki* in medieval Japan, whose roots also lie in more ancient rituals (Pinnington 2019; Salz 2016). Whether ancient Greece, Renaissance Europe or medieval Japan, these historical developments are extremely recent phenomena compared to the evolutionary periods of interest here – not to mention movements like *l'art pour l'art* in 19th century France. A similar historical analysis could be made for music and dance (Brown and Dissanayake 2018; Kowalzig 2007) or competitive sports (Decker 2012). From a historical viewpoint, they are all derivatives of ritual.

Anthropological Observations

Since the mid-20th century, the cultural anthropology of art repeatedly emphasized that the sharp distinctions between the ‘sacred’ and the ‘profane’ or the ‘natural’ and the ‘supernatural’ make little sense when investigating non-European art, since many

traditional societies do not consider such conceptual distinctions (Otten 1971). On the other hand, anthropologists have also criticized that individual art objects from traditional societies exhibited in Western museums would in themselves make little sense to a local viewer because they are torn from their context – one that is almost always ritualistic in nature (Förster 2006, 229–230). As Dissanayake (1992, 48) notes, ritual and art share many similarities and are virtually always linked together in practice. Understanding ritual is critical to understanding art.

Brown and Dissanayake (2018) later pointed out the striking similarity in scale and scope between the complex conglomerates of arts employed during ceremonial rituals in indigenous cultures and what modern aesthetic philosophers later would call “total works of art” or *Gesamtkunstwerk*, a performance spectacle that synthesizes multiple artforms into a unified work (Smith 2007). The authors propose a thought experiment. If all the arts used in traditional ceremonial rituals, such as music, dance, visual ornamentation, chemical arts, special language, role-playing, etc., were removed piece by piece, there would soon be nothing left. Moreover, ritual makers and participants exploit the same aesthetic preferences and (dis)inclinations of our evolved psychology to attract attention and evoke certain emotions as artists do (Dissanayake 2018). In view of these similarities, Brown and Dissanayake argue for a co-evolution of ritual and the arts, whereby ritual is regarded as the older phenomenon.

Taking the historical and the ethnographic perspective together, we see that a full separation of individual artforms from an original ritual context seems to be a relatively rare and late phenomenon which first occurred in some complex and structured sedentary societies with a highly organized division of labor and where naturalistic intellectual currents could develop (e.g., ancient Greece, medieval Japan). Even in today’s Western societies some artforms like rock concerts, raves, pilgrimages to famous exhibitions and cultural sites, or attending a theater performance are still almost indistinguishable from collective rituals. For these historical and anthropological reasons, it seems plausible to assume that a significant part of the material remains that we address as Palaeolithic art were, too, deeply embedded in ritual in one way or another, and on a meta-level probably also in the symbolic-mythological context that was associated with the ritual action. In the absence of written sources, however, the concrete symbolic messages on the meta-level remain largely unknown to us. Nevertheless, the recognition of a coherent notation system (Dutkiewicz et al. 2018; Petzinger 2016) or a careful deduction of the “symbolic ecology” derived from anthropological, psychological and zoobiological comparative data is not impossible (cf. Hussain and Floss 2015).

Shared Psychological Building Blocks

Over the last 25 years, the rapidly growing field of *Cognitive Science of Religion* – an amalgamation of anthropology, evolutionary biology and psychology committed to a naturalistic study of religion and ritual (Sloné and McCorkle 2019; Martin and Wiebe 2017) – has managed to successfully break down the phenomenon of ritual into its individual psychologically active components. Researchers investigate these parts intensively using quantitative methods in the laboratory and the field (Hobson et al. 2018; Legare and Watson-Jones 2016; Whitehouse and Lanman 2014; Whitehouse

2013). Ritual is seen as a “psychologically prepared and culturally inherited behavioural hallmark of our species” (Legare and Nielsen 2020, 1) which exploits various aspects of our evolved psychology. Accompanied with insights from primatology and the archaeological record of the African Middle Stone Age (MSA), especially with respect to early pigment use, we are now able to paint a coarse picture of early ritual evolution (Dapschauskas et al. 2022).

If we compare the different psychological building blocks of ritual with Dutton’s cluster criteria for art, we are able to recognize a significant number of derived elements (Tab. 1).

Tab. 1 | Shared elements of ritual and art (number of Dutton’s properties in parentheses)

properties of ritual (after Dapschauskas 2023)	derived properties of art (after Dutton 2009)
goal demotion, causal opaqueness	direct pleasure (1)
costly signaling	skill and virtuosity (2), novelty and creativity (4), expressive individuality (8)
framing	special focus (7)
sensory pageantry	emotional saturation (9)
symbolism	representation (6), intellectual challenge (10), imaginative experience (12)
repetition, formality, rule-boundedness	style and art traditions (3, 11)
performance	criticism (5)

Goal demotion, causal opaqueness

A central component of art stressed by many scholars is its fundamental non-utilitarian nature (Dutton’s criterion (1) “direct pleasure”). Interestingly enough, even if art theories in the Humanities and Evolutionary Psychology can hardly be reconciled in terms of the definition of their object of investigation, most disputants seem to agree that a central characteristic of art lies in its independence from immediate basic needs and pragmatic considerations (Junker 2013, 45–47; Dutton 2009, 52; Pinker 1997, 521; Bourdieu 1996, 285; Adorno 1970, 27–28). This building block of art is closely related to central properties of ritual action, namely ‘goal demotion’ and ‘causal opaqueness’ – technical terms used in Cognitive Science of Religion to describe that “rituals either lack overt instrumental purpose, or their constitutive actions themselves are not immediately causally linked to the stated goal of ritual.” (Hobson et al. 2018, 261). The correct execution of the action sequence is prioritized over the achievement of a physical outcome (Nielsen et al. 2018, 343). Thus, an external observer “cannot link what the actor does with what his or her intentions might be. Instead of being guided and structured by the intentions of actors, ritualized action is constituted and structured by prescription, not just in the sense that people follow rules, but in the much deeper sense that a reclassification takes place so that only following the rules counts as action.” (Humphrey and Laidlaw 1994, 106). Despite this lack of instrumental purpose, ritualized actions are almost always imitated exactly by other group members. They exploit our evolved proclivity for overimitation – that is, copying causally irrelevant

actions from others despite the presence of clear causal information and implicit interpretation of such actions as highly normative since early childhood (Nielsen et al. 2018; Keupp et al. 2013; Nielsen and Tomaselli 2010). This central property of ritual fosters the transmission of cultural norms, symbols and shared fictions (Schjoedt et al. 2013; Rossano 2012).

Costly signaling

Dutton's criteria (2) "skill and virtuosity", (4) "novelty and creativity" and (8) "expressive individuality" represent costly signaling in various forms: large amounts of resources, time, effort and talent are invested into a non-utilitarian activity. The lavishness not only elevates artistic expressions above everyday life (Dissanayake's "making special"), but also demonstrates the availability of surplus resources for those who can spend their time creating, collecting and enjoying art. The artist or the collector demonstrates effectively that they obviously do not need those resources, energy or time for survival concerns. This is tightly linked to our evolved psychology of prestige.

Furthermore, skill, virtuosity, creativity, intellectual capacity and expressive individuality are difficult to fake with a cheap trick. Thus, they become honest signals of the true genetic and social quality of the signalers as well as their commitment to the task (Miller 2000, 296–299). As many researchers have noted and further investigated quantitatively, most rituals are also very costly for the participants in one way or another, because they may involve a great quantity of material resources, time, repetition, physical and intellectual effort, risk taking, physical suffering and other personal sacrifices. Although the nature and severity of ritual costliness varies highly among different ritual types and societies (Kapitány et al. 2020; Atkinson and Whitehouse 2011; Sosis et al. 2007), a consensus is emerging. The mechanism of costly signaling represents an effective psychological technique to test and signal true social, emotional and moralistic commitment to the group. This deters free-riders, fosters group cohesion and promotes prosocial behavior towards group members (Sosis 2019; Rossano 2015; Whitehouse and Lanman 2014). The difference between costly signaling in ritual and art might be the degree of individuality. While rituals usually follow more or less strict rules, more individuality might be expressed in art.

Costly signaling and goal demotion manifest themselves in the archaeological record in many ways: in the form of procuring special materials from distant sources (Watts et al. 2016; Coulson et al. 2011); the use of otherwise valuable nutritional resources for non-utilitarian means (Villa et al. 2015; Henshilwood et al. 2011); the equipment and the great effort needed to produce works of art (Rossano 2015); the repeated production and intentional destruction or discarding of artifacts without using them as tools (Coulson et al. 2011); the intentional removal of difficult to produce art objects from the human sphere through hiding or burying (Wolf 2019) and the risks and physical efforts involved when procuring raw materials (Murphy et al. 2010) or visiting difficult to reach places in deep and dark cave systems equipped only with lamps or torches where artistic and ritual activities were performed (Bahn 2016, 316–333; Pfeiffer 1982). All of these activities were performed for non-subsistence, non-practical purposes, and simultaneously served to grab the attention of human perception (cf. Rossano 2015; Watts 2009). This combination of behavioral properties is central to both ritual and art.

Framing

Another common feature between art and ritual that immediately catches the eye is the spatial, material and temporal separation from everyday life – what Dutton calls “special focus” (criterion 7) and what ritual theorists call “framing”. Junker (2013, 73–74) points out that even today, art is usually presented to the public in special “cult buildings” like museums, galleries, theaters, stages, cinemas, and churches. Spatial and temporal framing has not yet received the same attention in the Cognitive Science of Religion as other ritual components. What can be said is that being together in a special place (often decorated with symbols of group identity) and mentally focusing on the same thing helps to synchronize the emotional states of the participants: we are here together, we see the same, we think the same, we feel the same, we are one. Through a shared special focus and emotional synchronization, the distinction between the group and the self is attenuated and thus the feeling of oneness, group affiliation and social bonding enhanced (Jackson et al. 2018; Mogan et al. 2017; Launay et al. 2016). From an evolutionary perspective, a precondition for the ability to share a special focus with others, supported by spatial and temporal framing, could be the capacity of shared intentionality in the human lineage (Tomasello et al. 2012).

The aspect of spatial framing is especially interesting for archaeology because it can manifest itself in the archaeological record. Examples include art found in special cave areas or on hidden surfaces (Wolf 2019; Bahn 2016, 312–320; Pastoors and Weniger 2011; Bégouën et al. 2009; Lorblanchet 2010, 2009; Arias 2009), the building of special structures (Clottes 2018; Jaubert et al. 2016; Delannoy et al. 2012; Arias 2009; Arias et al. 2003) or the separation between living spaces and art/ritual spaces (Bahn 2016, 63; Floss 2015, 125; Ontañón 2003; Bégouën and Clottes 1991).

Within the large cave systems of the Franco-Cantabrian region, various forms of spatial framing can be found. Most striking is the contrast between visible/public and hidden/secret (Bahn 2010, 152–156). Several pictures have been placed in easily accessible positions and are visible from some distance (Fig. 1: Isturitz). In some cases, dripstones and concretions even seem to have been intentionally broken to make certain pictures more visible, such as in Cougnac and Candamo (Bahn 2016, 314–317). In contrast to that, other motifs were deliberately placed in hidden and/or difficult to access places (Fig. 1: Aitzbitarte; Garate et al. 2020; 2001, 63–64).

Overall, the images of the Upper Palaeolithic rock art themselves should only be understood as one part of the sensational experience leading to a special focus of the mind. Reaching the respective cave chambers in the dark zone, equipped only with small lamps or torches, the extraordinary sensory impressions (absolute darkness, silence, reverberation, change of temperature, sounds of dripping or flowing water) and the occasional dangers, such as large carnivores using the cave, difficult squeezing, crawling and climbing passages or the labyrinth-like structure of some cave systems causing possible loss of orientation and claustrophobia, must all be considered part of the experiential process (Bahn 2016, 331–332; Pfeiffer 1982).

A totally different form of special focus may be represented in inter-regional “aggregation sites” (Conkey 1980). They are evidenced in exceptionally large concentrations of tool production remains, other settlement waste and portable art objects in the direct vicinity of easily accessible rock art. The occurrence of portable and parietal

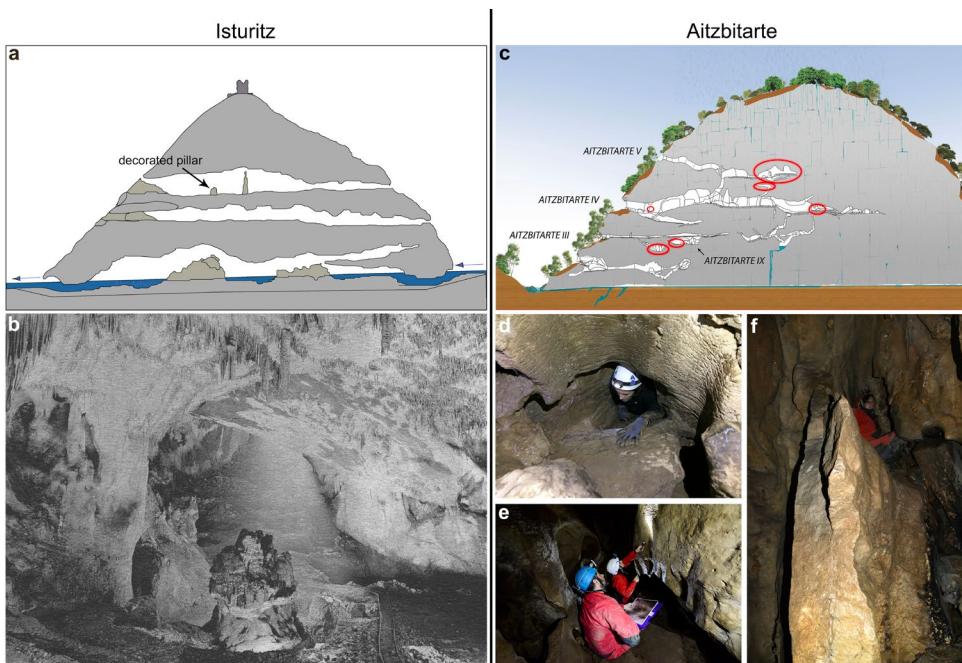


Fig. 1 | Two contrasting types of framing. The Grande Salle of Isturitz (Département Pyrénées-Atlantiques, France) with its iconic decorated central pillar was easily accessible from the broad original entrance, which was visible from afar. With an area of more than 1500 m² and ceiling heights as great as 15 m, the cave offered enough space for a larger group of people to assemble and was partially illuminated by daylight (a, b; modified after Garate et al. 2013, Fig. 3 & Garate et al. 2016, Fig. 6). In contrast, some of the newly discovered decorated panels of the Aitzbitarte caves (País Vasco, Spain) are very difficult to reach even with modern equipment and are located in the dark zone (c; the decorated sectors are indicated with a red circle). The photographs d, e and f show the very narrow maze of passages leading to eleven decorated panels of Aitzbitarte III. (Modified after Garate et al. 2020, Fig. 2 & 3).

art in the same locality is rare in the European Upper Palaeolithic and therefore speaks to the importance of these places. Supra-regional connections between different groups are indicated by artistic, lithic and faunal evidence (Bourdier 2013; Bahn 1982). It is conceivable that such socio-economic centers served as meeting places for seasonally recurring rituals, thus pointing indirectly to temporal framing (cf. Ross and Davidson 2006, 320–321). Among the best-known candidates are Isturitz (Fig. 1: Isturitz), Le Mas d’Azil, Enlène, Trois Frères including nearby Tuc d’Audoubert and, to a lesser extent, Altamira and Castillo (Bahn 2016, 63).

These very different forms of special focus or framing may point to different ritual types. For example, one can imagine communal rituals with larger groups of people at the localities with ‘public’ art displays and at aggregation sites – to strengthen social ties between different local groups and exchange goods and ideas. In the case of secret and difficult to reach locations, rites of passage for a small number of specially selected initiates seem more likely.

Sensory pageantry

To Dutton's criteria 9 and 10 (emotional saturation and intellectual challenge) a direct parallel can be drawn to the high sensory pageantry (sensual stimulation and emotional arousal) and the embedding in culture specific symbolism of high-arousal rituals. Cognitive Science of Religion quantitatively investigates memory formation and the generation of different types of bonding mechanisms in relationship to the intensity of the ritual pageantry (Whitehouse 2022; Kapitány et al. 2020; Xygalatas et al. 2013). On a neurophysiological level the multisensory stimulation, combined with behavioral synchronization and physical exhaustion, leads to the release of endogenous opioids and monoamine neurotransmitters which induce feelings of euphoria and a positive sense toward other group members (Tarr et al. 2015; Fischer et al. 2014). Archaeologically, the multisensory stimulation can be explored through the analysis of the often exceptional acoustic properties of decorated caves (Waller 2019; Fazenda et al. 2017; Till 2014; Reznikoff 2012; Reznikoff and Dauvois 1988) and other large halls which are directly associated with Palaeolithic music making such as Hohle Fels (Conard et al. 2009) or the experiential impact of flowing, standing or dripping water (Lorblanchet 2010, 140–146; Arias 2009, 268; Bahn 1978). Another aspect is the impact of darkness (Dowd and Hensey 2016; Moyes 2013) and the effect of flickering light from fire and Palaeolithic lamps on the perception of the images and engravings (Bahn 2016, 197–200; Coulson et al. 2011; Pastoors and Weniger 2011; de Beaune 2000; 1987). Furthermore, the deliberate use of three-dimensional surface-shapes, natural symmetries around entrances, cracks and fissures or the dramatic association of particular motives with "bouches d'ombre" to create impressions of "appearing" are effects that ancient masters cleverly exploited (Bahn 2016, 312–319; Clottes 2010; Lorblanchet 2001; García 1987). Insofar as the depicted motifs and signs represented specific symbolic systems of meaning and/or referred to mythological stories (see section style and tradition), they constituted not only sensory stimulation but also intellectual challenge (Dutton's criterion 10).

Repetition, formality, rule-boundedness

Dutton's criteria 3 and 11 (style, art traditions and institutions) are closely related to central properties of ritual action: the repetition of formal and rule-bounded, non-utilitarian and socially transmitted behavior (Hobson et al. 2018; Whitehouse 2013; Rappaport 1999). In ritual cultural norms, symbols and stories are shared, transmitted and internalized through the dramatization and continual repetition, rhythmicity, (over-)imitation, and synchronization on the basis of trust, feelings of oneness and a shared identity created through ritual action (Legare and Watson-Jones 2016, 835; Rossano 2012; Dennett 2006, 146–151). Repetition is an essential aspect of rituals. It reinforces formality and adherence to culturally-learned, invariant rules. These rules, in turn, give rise to long-lasting traditions that lend legitimacy to the rituals and demonstrate participants' submission to the social norms of their group (Rossano 2012; Rappaport 1999).

The repetition of rule-bounded, non-utilitarian and socially transmitted behavior is clearly recognizable in the Franco-Cantabrian rock art of the Upper Palaeolithic. First, there is a certain thematic unity throughout the entire period. Based on the analysis of thousands of motives from hundreds of sites the caves were decorated with a limited selection of animal species following certain hierarchical combination rules

(Sauvet 2019), which is – interestingly enough – often not reflected in the subsistence strategies of the hunter-gatherer groups responsible for the art (Bahn 2016, 284–286). Second, the animals are almost always shown in profile. This clearly reflects a culturally transmitted style. However, some have argued that the similarity between the 35,000 year old animal depiction from Maros (Sulawesi) with those from Franco-Cantabria may point to an underlying universal neurological constraint (Hodgson and Watson 2015). Third, the development of extensive databases has also shown that particular motifs are depicted over and over again, especially horses and bison. These animals are also often found in combination with each other (Sauvet 2019; Bicho et al. 2007; Sauvet and Włodarczyk 2000–2001; 1992). On the other hand, certain combinations are rare or do not occur at all in the entire Franco-Cantabrian rock art of the Upper Palaeolithic: bison and aurochs, bison and stag (male deer), mammoth and hind (female deer), aurochs and reindeer (Bahn 2016, 309–310; Sauvet and Włodarczyk 1992). Nor are human depictions arbitrary but seem to follow certain rules related to the incidence of light (Bahn 2016, 309; Pales and Saint Péreuse 1976, 153–155). Granted, these patterns are subject to regional and chronological variations, and there are often interesting exceptions. However, the basic selection of species seems to remain stable throughout the entire Upper Palaeolithic (Sauvet 2019). Fourth, sometimes a repetition on individual rock faces and stone slabs is clearly recognizable. The evidence, including reiterative finger markings, hand stencils, hand rubbings, striated areas, hammering impacts, reworkings and superimpositions of images and engravings, indicates that the repeated enacting of ‘art making’ was at least as important as viewing (Feruglio et al. 2019; Mélard and Airvaux 2017; Pettitt et al. 2014; Lorblanchet 2010, 282–305; Mélard 2008; Fritz and Tosello 2007). Repetition in connection with standardized selection of motifs and techniques is also clearly present in the production of the thousands of decorated plaquettes from several Upper Palaeolithic sites such as Parpalló (Roldán García et al. 2016; Villaverde Bonilla 1994), La Marche (Chisena and Delage 2018; Mélard 2008), Enlène (Bégouën and Clottes 2008; 1991; Bégouën et al. 1984; 1982; Bahn 1983), Foz do Medal (Figueiredo et al. 2014), Gönnersdorf (Bosinski and Fischer 1980; 1974) and others. Some of the plaquettes even seem to be intentionally broken or burnt (Bahn 2016, 133–134), thus additionally pointing to costly signaling (although other explanations are possible).

Overall, the decorated caves and the portable art of the Upper Palaeolithic in Western Europe do not represent an arbitrary conglomeration of motifs, styles, themes and techniques. Rather, they reflect culturally transmitted rules – with local variations on a superordinate meta-theme. Bahn summarizes: “In short, there seems to be a definite system or ‘grammar’ at work” (Bahn 2016, 310). This constant repetition of rule-bounded, non-utilitarian (= goal demoted) and socially transmitted behavior *in combination* with framing, costliness, sensory pageantry and symbolism shows the close phylogenetic relationship between ritual and art from an archaeological perspective.

Performance

Ritual often yields performative properties: it is presented to an audience which observes, evaluates and judges. Sometimes performers and spectators are the same people; other times, the latter is imagined to be a supernatural being. Regardless of the details, an essential quality of ritual is that the performance *must be presented to*

someone (Grimes 2006; Rappaport 1999, 37–46). This aspect of ritual is reflected in Dutton's art criterion 5: criticism. Brown and Dissanayake (2018, 1) point out that the audience of art often undertakes long journeys to admire certain concerts, theater performances, paintings, sculptures or architecture just like ritual participants do in pilgrimages. Whether an audience was present during the production of Upper Palaeolithic art and what role it played are very difficult questions to answer archaeologically. What can be said is that certain localities with rock art were better suited for the gathering of larger groups than others, such as the monumental panel halls at Chauvet and Lascaux (Aujoulat 2004; Chauvet et al. 1996) or the Salon Noir in Niaux (Clottes 2010). Moreover, the symbolic level of rock art refers not only to the meaning of the motifs, which is largely inaccessible to us today. As Ross and Davidson (2006, 319–320) emphasize, rock art created or used in the context of a ritual also leaves a lasting message to the community and/or supernatural agents that the ritual was *actually* performed.

Reaching a High Evidentiary Threshold

The fact that all these psychological properties are shared by art and ritual, and are recognizable to some degree in the archaeological record of many Upper Palaeolithic sites with parietal and portable art, speaks to the close evolutionary relationship between these two phenomena. But that doesn't mean that we can assume *a priori* that every single decorated slab or dot on a wall was created in a ritual context. Only if it is possible to show through a proper investigation of the entire archaeological context that multiple building blocks of ritual action are simultaneously present, can an interpretative connection between the art at the site and ritual behavior be warranted. The same rule of thumb applies here as for the cluster concept of art: the more properties detected, the more plausible the categorization. This strategy has the benefit that it does not require speculation about the symbolic meaning of the depicted motifs – although in rare cases a connection to ritual may be also apparent on this level of analysis, for example in the case of therianthrope figures with combined animal features and human attributes (Wolf 2019; Bahn 2016, 266–269; Tymula 1995).

At some phases or in some places during the 30,000 years of the Upper Palaeolithic, with its pronounced climatic oscillations and substantial cultural changes, it may be possible that certain artforms slowly began to separate themselves from their ritual ancestors. This might be reflected in cases where artistic expressions are found amidst residential areas (Arias et al. 2011; Ontañón 2003) or on elaborately decorated stone slabs whose working surfaces show signs of practical use (Mélard 2017, 367; Terberger 1997, 90; Bosinski and Fischer 1980). With some tools, the practical merges with the artistic, for example, the beautifully decorated Magdalenian spear throwers (Uthmeier 2017, 289; Bahn 2016, 10, 144–146; Stodiek 1993) – although it cannot be ruled out that these highly decorated weapons were connected to certain hunting rituals. Some authors justifiably warn against the inflationary use of the label 'ritual' as a vague blanket term for "strange" behavior which we just do not understand from today's perspective (Howey and O'Shea 2006, 261–262; Insoll 2004, 1–2). We agree with this concern. Thus, we must provide sufficient evidence for a ritual interpretation in every single case – ideally based on cluster concepts properly grounded in Evolutionary Psychology and Cognitive Science of Religion.

An Evolutionary Precursor: Ochre Use in the African Middle Stone Age

That the blossoming of Upper Palaeolithic art derived from ritual and resulted from a long evolutionary process seems plausible from a theoretical standpoint. Today this can also be recognized by looking at the archaeological record of the African Middle Stone Age. A plethora of new evidence concerning (quasi-) geometrical engravings (Henshilwood et al. 2014; 2009; Henshilwood and d'Errico 2011; Texier et al. 2010), personal ornaments (Bar-Yosef Mayer et al. 2020; Steele et al. 2019; d'Errico and Backwell 2016; Dapschauskas 2015; Vanhaeren et al. 2013) and ochre use (Dapschauskas et al. 2022) has accumulated over the last 25 years. Of these three categories, ochre is quantitatively by far the most abundant and can be interpreted as largely the material remain of ritual activity. In a recent collaborative research effort, we reviewed the African archaeological record for indications of when and where ochre use became a habitual part of the behavioral repertoire of early modern humans (Dapschauskas et al. 2022). Ochre use, which had been expanding since about 500,000 years ago, became a habitual and geographically widespread cultural practice around 160,000 years ago, which we view as a proxy for increasing ritual activity in expanding *Homo sapiens* populations (Fig. 2). On the basis of several lines of empirical evidence from archaeology, psychology and ethnography, we argued that large parts of the material were used in ritualized displays probably related to body decoration.

If our ritual interpretation of the majority of ochre use in the African Middle Stone Age is correct, then a deep evolutionary relationship between art and ritual is again archaeologically evident, with the record suggesting that ritual predates art – at least when viewed through a cluster concept. This is also indicated by primatological comparisons since elaborated ritualized displays are common in many primate species, and art is not (e.g., Dal Pesco and Fischer 2020; Perry and Smolla 2020; Tennie and van Schaik 2020; McGrew 2017; Kühl et al. 2016).

Furthermore, the archaeological record indicates that perceptual and psychological biases towards the color red played important roles in the evolution of collective ritual (Dapschauskas et al. 2022; Watts et al. 2016). Fittingly, cross-cultural experiments on contemporary human subjects (Wu et al. 2018; Elliot 2015; Elliot et al. 2013) as well as primatological studies indicate a deep evolutionary basis for at least some (pre-symbolic) emotional and motivational effects of red stimuli. In the realm of primate social and sexual signaling, researchers observed and experimentally tested the role of reddened skin (Gerald et al. 2007; Waitt et al. 2006; 2003; Bielert et al. 1989). Interestingly, where reddened skin plays a role, signaling often occurs in the form of ritualized displays (Petersdorf et al. 2017; Dixson 2012, 130–149; Higham et al. 2012; Setchell and Wickings 2005). Such deep-seated evolutionary reactions to the color red constitute a psychological starting point upon which colorful and attention-grabbing ritual performances with an additional symbolic meaning could later be built – with the help of material culture and through cultural evolution. Therefore, it is possible that red ochre applied to the body, face, hair or clothes initially played a role as an *artificial amplifier* of sexual signals in mating contexts, dominance in cases of competition, or warning in contexts of danger or death, thus exploiting ancestral cognitive biases in primates. It seems likely that with red ochre, these artificially amplified signals were used ever more strategically in ritualized displays as the “social brain” (cf. Gowlett et al. 2012) evolved during the Pleistocene.

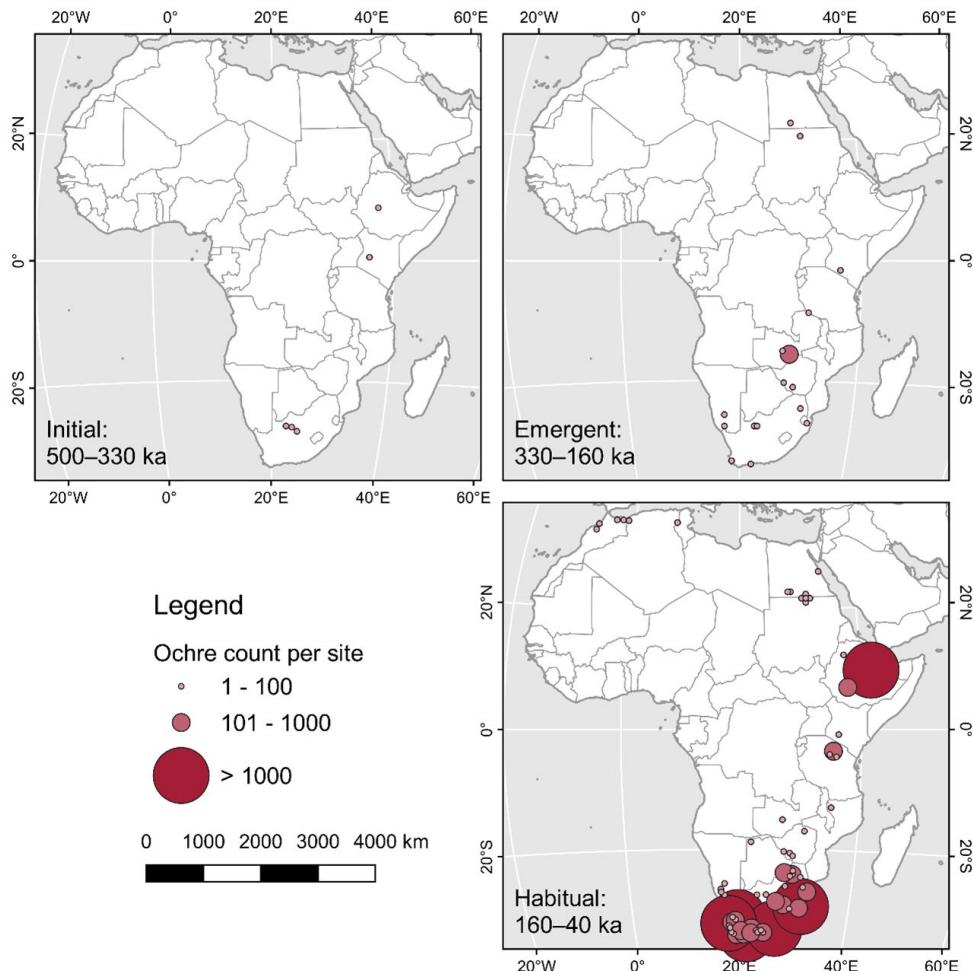


Fig. 2 | Maps of the three phases of ochre use in the African Middle Stone Age showing the geographical distribution of ochre sites and the number of ochre pieces per site for each phase (Dapschauskas et al. 2022).

Overall, the archaeological record of the African Middle Stone Age demonstrates that the application of artificial coloring agents by hominins had a long history before the emergence of Upper Palaeolithic art and was already deeply incorporated into the cultural repertoire of anatomically modern humans when they arrived in Australia 65,000 (Clarkson et al. 2017) and in Europe 42,000 years ago (Wolf et al. 2018). There is also robust evidence that some Neanderthal groups used red and black pigment to a noticeable degree (Hoffmann et al. 2018; Dayet et al. 2014; Bodu et al. 2014; Roebroeks et al. 2012; Zilhão et al. 2010; d'Errico 2008; Demars 1992). Strikingly, the color choice in Upper Palaeolithic parietal art is fairly restricted to red and black as well. The painted motives are mostly *either* red *or* black. Bi- or polychrome drawings are rare (Bahn 2016, 273–274; Geoffroy 1974; but see Petzinger and Nowell 2014). In the case of abstract signs, the color red usually dominates (Bahn 2016, 273; Petzinger 2016, 120; Geoffroy 1974, 47, 57; Clottes et al. 2005, 139). The flickering glow of fire

in dark caves would have also had an effect on color perception. Since red is better seen in the faint shimmer of Palaeolithic lamps and torches than black, one factor in color choice could have been this: certain signs and motifs should be deliberately emphasized over others (Bahn 2016, 200, 273).

Social Networks and Identity

The adaptive function of collective ritual for group cohesion, cooperation, prosociality and the transmission of cultural norms is now well established within an evolutionary framework (Whitehouse 2022; Legare and Nielsen 2020; Hobson et al. 2018; Legare and Watson-Jones 2016; Whitehouse and Lanman 2014). In our work we hypothesized that human collective ritual evolved by amalgamating the older building blocks of costly signaling and ritualization with several new psychological adaptations as a consequence of encephalization (Dapschauskas et al. 2022). The main benefit of collective ritual as a new social institution was its positive effect on binding larger cultural groups together beyond the older mechanisms of kinship, social grooming and reciprocity. Collective rituals enabled the expansion of social networks significantly and increased the number and reliability of internal connections in those networks. Thus, they may have played a crucial part in facilitating cumulative cultural evolution and the demographic expansion of *Homo sapiens* populations – signified in the quantitative and geographical expansion of ochre use during the Middle Stone Age. Here lies another deep connection between art and ritual. Many scholars stress the identity-establishing power of art in general (Høgh-Olesen 2019, 129; Junker 2013, 27, 138; Dilly 2008, 16; Dissanayake 1988, 62–64) and for the Upper Palaeolithic period in particular (Conard and Kind 2019, 166–167; Bourrillon and White 2015; Bourdier 2013; Floss 2009). Moreover, through its sheer longevity, which may outlast many human generations, rock art can contribute to the formation of tradition and become important for the construction of a local identity. Even if the original symbolic messages are no longer understood, the motifs can be reintegrated and reinterpreted in later symbolic systems (Ross and Davidson 2006, 326). Insofar that Palaeolithic art supported prosociality by creating broader cultural group identities, it again represents a direct psychological derivative of ritual.

Connecting the Dots

Now we can return to our original premise posed at the beginning of the paper and ask again: What is this phenomenon called ‘art’ from the perspective of an evolutionary-psychological archaeology? Clearly, we have learned that art is not just one thing. It consists of multiple psychological building blocks likely of different evolutionary age. The arts are essentially derivatives of ritual, intermingled with our evolved aesthetic sense, enriched by the psychology of prestige and accompanied by an additional communicative and symbolic meta-layer. However, only in their mature phase did the arts allow more leeway for individual creativity than their ritual predecessors and develop into an independent mode of expression and communication – a liberation process that took its first small steps during the Upper Palaeolithic, but which only reached full bloom much later in human history.

A Call to Interdisciplinarity

Due to substantial progress over the last 25 years in the fields of Evolutionary Aesthetics, Cognitive Science of Religion, and Palaeolithic Archaeology a synthetic partnership now seems more promising than ever. To tackle the evolutionary origins of particularly challenging phenomena of human behavior such as art, a broad interdisciplinary approach is indispensable. This requires not only the interweaving of empirical research and the forming of theory from these different disciplines – each with its own unique research history. It is also necessary to shift the focus from the weakest point of archaeological research – unverifiable speculations about the symbolic content of early art based on the “ethnographic snap” (Bahn 2016, 336) to something that can be grasped archaeologically – behavioral patterns. A close cooperation between Archaeology and Evolutionary Psychology substantially expands our understanding of material remains resulting from certain patterns of behavior with their underlying psychological mechanisms. Such expansion in interdisciplinary knowledge may also lead to new insights concerning the complex cognitive evolution of our lineage. Much progress has already been made by Cognitive Archaeology in this direction, especially with respect to tool use and subsistence behavior (Henley et al. 2019; Overmann and Coolidge 2019; Wynn and Coolidge 2017; Haidle et al. 2015; Lombard and Haidle 2012). In order to tackle fuzzier behavioral phenomena such as art, we emphasize that not only do we need cognitive modeling in archaeology; we also need more psychological embedding in terms of perception, emotion, motivation and social bonding. After all, humans are not only a *thinking* species. We are also a *feeling* species exhibiting behaviors unshackled from physical practicality and economic rationality.

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PART IV
PERCEPTION, PRACTICE
AND PERFORMANCE

The Lady and the *Lionmen*

An Experimental Study in Body Language of the Upper Palaeolithic Anthropomorphic Figurines of Hohle Fels Cave, Hohlenstein- Stadel Cave and Geissenklösterle Cave, Swabian Jura

Abstract All known anthropomorphic figurines from the Upper Palaeolithic display specific postures: they show body language. In 2010/11, an experimental study was conducted involving a group of twelve professional German actors and an independent group of four Vietnamese students.

This empirical approach – intended as a first step towards a more representative study – uses one of the traditional practices of professional acting to break down the enigma of a character into discernible communicational building blocks. The results around the emotional significance of the figurines were strikingly consistent between both groups. They generally underline mainstream academic interpretation of the Aurignacian figurines as representations of power and dominance (Hahn 1986). The analysis of the figurines' gestural composition though, allows some divergent or hitherto overlooked information to be gathered. The paper concentrates on the results given for the anthropomorphic figurines of Hohle Fels, Hohlenstein-Stadel and Geissenklösterle, three caves in the Swabian Jura, Germany.

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Introduction

All Upper Palaeolithic figurines, be it animal or human, display body language. Gestures and movements are key to communicating with conspecifics. The body language we use to navigate through our social surroundings is influenced by multiple factors like culture and gender, social class, education, clothing style, etc., but its basis is a set of universal elements¹ that form part of our intrinsic nonverbal communication system as *homo sapiens*. (Tomasello 2008, 60ff.; Watzlawick et al. 1967, 63f.). All these factors combine to shape our bodies and our capacity for emotional expression.

While the purely physical functions for us humans as a species are always the same, perception of the 'body within the world' and redefinition of gestural meaning vary across cultures. Our sedentary lifestyles are maximally distant from those of the mobile hunter-gatherers of the Upper Palaeolithic (Borić et al. 2013, 34f.). Different lifestyles shape fundamentally different ways of thinking, feeling and the expression of a perceived reality (Lévy-Strauss 1962). The key question is: can we grasp at least fragments of communicational events which took place in cultures lost to us? Our nonverbal communication system is one of the key elements to form a theory of mind. Although their physical presence is long perished, Upper Palaeolithic people left gestural traces *frozen*, as it were, into their figurative art. If we apply two renowned hypotheses: firstly, every artistic behaviour is a communicational act (Eibl-Eibesfeldt 1984, 923f.; Haidle 2009, 242–43) and secondly, all works of art elicit emotional responses (Gell 1989), then the answer is a tentative yes.

Performing Arts have developed and honed a series of mental and physical techniques in order to understand, built and reproduce syntax and semantics of gestures through emphatic understanding and close imitation². We humans have the special ability to observe ourselves through inner distancing (self-monitoring) while interacting with our surrounding. This particularly human capacity can be compared to a two-part mirror, reflecting and integrating the image(s) of one side into the image(s) of the other and vice versa. Every work of art is such an instance of 'double mirroring'. Any work of art is human-made reflecting a human mind. Other characteristics of all art are their amazing longevity and the flexibility with regard to interpretation. Best examples are the numerous exhibitions and discussions around Palaeolithic art. Resurrected after millennia, Palaeolithic art attracts, fascinates and at the same time frustrates any attempt to objectively grasp the artefacts' 'original' meaning. Moreover, although they keep puzzling us, we discover in them – as happens with all artistic work – facets of significance that speak to our very present.

Unfortunately, we also almost inevitably inscribe our own culturally groomed notions into prehistoric art: in order to sidestep this trap as best as possible, the experimental setup excluded any questions around gender roles, social³ status or

1 For a discussion on two types of basic human gesturing: pointing (directing attention) and pantomiming (directing imagination) see Tomasello 2008, chapter 3.

2 According to Michael Tomasello, close imitation is a central learning method of our species in order to pass on cultural achievements which accumulate from generation to generation: he termed it the "ratchet effect" (Tomasello 2008, 29 after Tomasello et al. 1993)

3 Social status, which is mainly shaped by one's functions within society, is different from individually perceived (personal) status.

metaphysical meaning. Gender roles in particular are fraught with almost inextricable cultural bias and very difficult to view in a detached, open manner.

In the sections below, the experimental setup is described in short terms⁴. Summaries of the results on the figurines' body language are followed by a chapter discussing some alternative interpretations of the postures and the role of space as agent. These considerations are briefly summed up at the end.

The Figurines' Body Language

The Experimental Setup

This investigative approach is a first tentative step into a completely new direction of studying prehistoric anthropomorphic artefacts. It is not a representative study on which to ground a robust hypothesis yet. More tests would be necessary and a range of cultural aspects should be taken into consideration. The initial experiment studied five figurines from the Upper Palaeolithic. This paper concentrates on the three Aurignacian figurines from the Swabian Jura:

- a) The female figurine of Hohle Fels Cave (Conard 2009a) (Fig. 1)
- b) The Hohlenstein-Stadel Cave therianthrop, or *Lionman* (Hahn 1970) (Fig. 2)
- c) The Geissenklösterle Cave half-relief or *Adorant* (Hahn 1988) (Fig. 3)

All three figurines are carved from mammoth ivory. Also, all three of them are associated with the oldest Aurignacian levels of their respective sites: The *Hohle Fels Lady* at approx. 42 ka calBP (Conard 2009a; Floss 2015, 7 after Higham et al. 2012), the Geissenklösterle *Adorant* at approx. 41–43 ka calBP (Hahn 1988, 36; Higham et al. 2012) and the *Lionman* at 39–41 ka calBP (Wehrberger 1994; Kind et al. 2014, 133).

Professional actors are familiar with the process of investigating gestures and postures⁵ and can consciously reflect and reproduce their emotional impact. In 2010 and 2011, an experimental study was conducted involving a group of twelve professional German actors and an independent group of four Vietnamese students (Schebesch 2013). The German group consisted of six male and six female actors of various ages. The Vietnamese group included 2 male and 2 female young adult students. The Vietnamese part of the experiment was led by the author's colleague, Beverly Blankenship, and took place in Hanoi.

Each participant was questioned separately. First, photographs and a posture sketch of the respective figurine was presented, then the participant was asked to imitate the posture as closely as possible. After a few moments of adjustment in order to let the associated emotion(s) surface, five basic questions were asked:

- Extrovert or introvert? (Is your attention directed outward or inward?)

⁴ For a detailed discussion of the experimental setup and the theoretical background of the theatrical techniques applied, see Schebesch 2013, 70–72.

⁵ Posture comprises the whole physical information emanating from a body in a given moment, while gestures are performed through parts of the body.

- What is your personal status? (In contrast to social status this is about self-esteem.)
- What kind of space are you in? (Space is always significant.)
- Can you imagine other beings there? If so, how many?
- What emotions do you feel coming up? (Emotions⁶ are almost never pure and distinctly separated but merge with each other.)

In order to sidestep any preconceived ideas as to the symbolic meaning of the figurines, no contextual information was given. All participants were explicitly asked to disregard the figurines' sex.

Results

1 The *Lady of Hohle Fels* Cave

Generally, this figurine's posture evoked good, positive feelings of self-esteem and sensuality (See table 1, Fig. 1). Some inhibition was perceived in the arm position, a protective or self-protective component was reported. The focus was mainly perceived as directed outwards, with alert senses and an inclination for interaction with the environment. Status was generally judged to be high, except once where the protective component was perceived as dominant. Some of the female participants voluntarily expressed a very positive sensation of sensual femininity: "I feel sexy."

Table 1 | Summary of the participants'⁷ comments for the *Lady of Hohle Fels* (see Fig. 1)

	Majority	Minority	Additional remarks
Extrovert or introvert?	Extrovert to very extrovert	Also, possibility of introvert considered (1)	There is a protective component
Personal status?	Generally high status	Low status but contextually dependent. (2)	Also perceived as domineering
What kind of space?	Stoic but watchful, generally wide perception of environment	Very much alive, like "budding spring" (1) Exposed (1) Closed in (1)	"At peace" or "peaceful" was mentioned several times
Any communication partner(s)?	Inclined to dialogue with others and self, gently provocative	(2) perceived as distanced	The inflated ribcage may be read as aggressive
Emotional complex	Self-confident, powerful, very erotic	Defensive but still down-to-earth (1)	Like "the Earth"

6 Specific gestures are often associated with 'their' specific emotions. Gestures evoke emotions, and vice versa. Notwithstanding, there is a wide motor spectrum covering an emotion. Additionally, there are always cultural influences to consider. For a comprehensive discussion concerning the link between gesture and emotion from the performer's point of view, see Čechov 1990.

7 Numbers in brackets in the section 'Minority' are the number of participants who proposed the aspect. Both groups' answers are combined here.



Fig. 1 | Top row: Left: The original figurine *Lady of Hohle Fels* (Universität Tübingen, photo: Hilde Jensen). Right: posture sketch. Bottom row: Video stills of participants imitating the posture⁸.

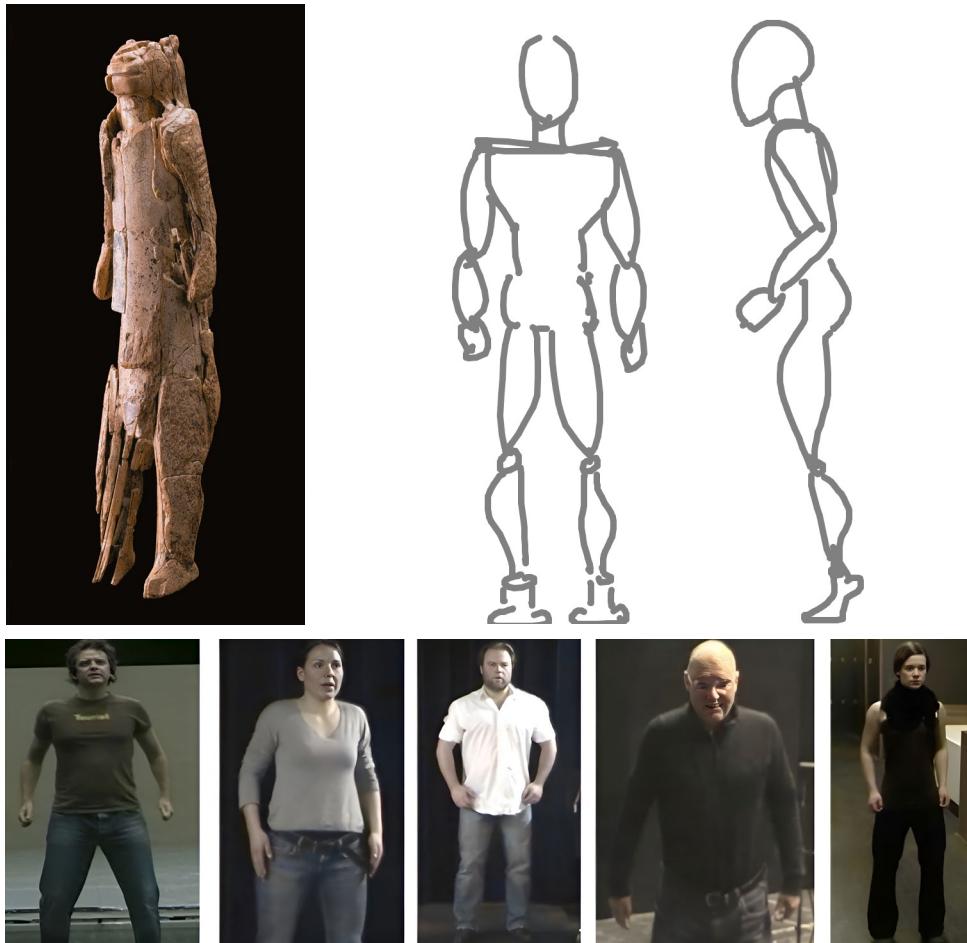
2 The Lionman, Hohlenstein-Stadel Cave

In contrast to Joachim Hahn's interpretation as a static posture with hanging arms (Hahn 1986, 195), the figurine called *Löwenmensch* (*Lionman*) evoked a feeling of high muscular tension about to erupt into intense dynamic action. The posture radiated physical power that may be interpreted as aggressive or dance-like. A dynamic focus was perceived with a readiness to communicate with others. An intention to seize something or to reach out towards an imaginative goal was also detected. One participant who had been an Olympic gymnast strongly associated this posture with the initial stance before springing into action. The status was generally assumed to be high, with well-developed self-esteem. Attention is directed outward into the surroundings (see table 2, Fig. 2).

⁸ Due to technical problems with the conversion of the original video, the still images can only be displayed slightly distorted.

Table 2 | Summary of the participants' comments for the *Lionman*, Hohlenstein-Stadel (see Fig. 2)

	Majority	Minority	Additional remarks
Extrovert or introvert?	Extrovert, very dynamic		High muscle tension, aggressive or dance-like about to erupt into action
Personal status?	High to very high status	Straining for high status, ambitious (2)	
What kind of space?	Moving forward, outward into environment		Pace setter, intense focus directed towards a goal
Any communication partner(s)?	Will or readiness for communicating with others		Standing alone, lonely, or being singled out
Emotional complex	Alert, powerful, goal-oriented, high self-esteem	Very aggressive, "something is wrong" (1)	Joy of fighting, Capoeira-like

**Fig. 2 |** Top row: Left: Original *Lionman* (© Landesamt für Denkmalpflege im RP Stuttgart und Museum Ulm, photo: Yvonne Mühleis). Right: Posture sketch of the *Lionman*. Bottom stills of participants engaged in the posture.

3 The Half-Relief Adorant of Geissenklösterle Cave

This figurine was perceived as deliberately ambivalent in its intentions with a range of associations, from 'mage' to 'victim'. The posture was described as expansive. The presence of one or more imaginary counterparts were felt, also a tendency to communicate with 'someone outside'. Various status levels from high to low were offered with several actors suggesting ambivalent or context-dependent status. The not unambiguous gesture of the hands, whether fists or open palms, were felt as decisive for interpretation. The two Vietnamese male students were positively confident of a high status and a sensation of great power. The extremely open posture strongly influences breathing. The muscle tonus was perceived as very high, especially through the position of the open legs. Unfortunately, much of the figurine's surface is damaged, which frustrates any further detailing (see table 3, Fig. 3).

Table 3 | Summary of the participants comments for Geissenklösterle Cave half-relief (see Fig. 3)

	Majority	Minority	Additional remarks
Extrovert or introvert?	Ambiguous, very much context dependent, either very high or very low	Very extrovert (4)	Difference between German and Vietnamese groups: Vietnamese: very extrovert
Personal status?	Ambiguous: either very high or very low.	Vietnamese: very high status	
What kind of space?	Huge space afforded, very dynamic, to all sides		Between the worlds; liminal being, expansive gesture comprising or connecting heaven and earth
Any communication partner(s)?	Inviting interaction, intensely dynamic	"Not here", maybe communication with another realm(2)	
Emotional complex	Very open gesture, sensitive areas like solar plexus and genitalia unprotected – open perception but no consensus as to what end: fear, joy, pride, defensiveness, high alertiveness,	Difference between front (vulnerable) and back (hard="armoured") (2) Threatened (1) or being punished, victim (2)	Great range of action: triumph, fighting, dancing, also submission, high Adrenalin; which gesture of hands: clenched fists? Open palms?

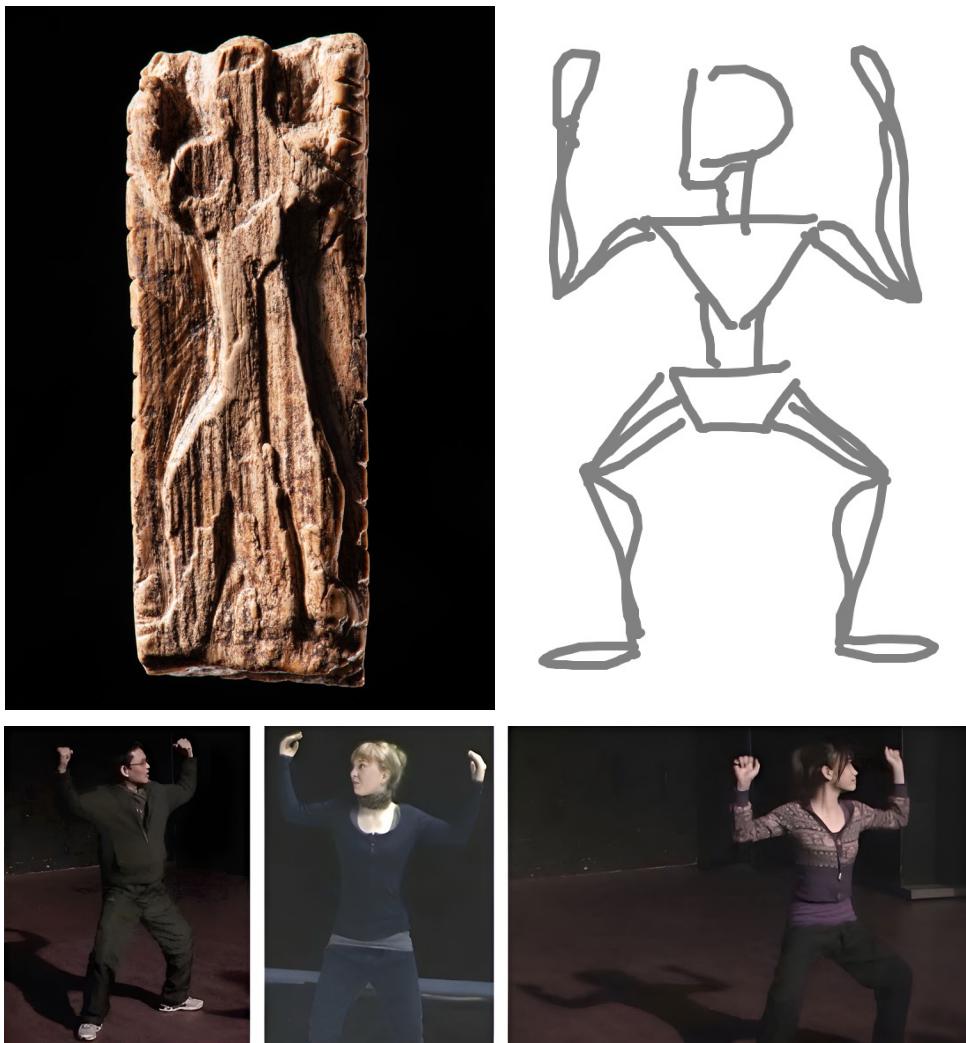


Fig. 3 | Left: Geissenklösterle half-relief Adorant (Landesmuseum Württemberg, photo: Hendrick Zwietasch). Right: Posture sketch. In retrospect the posture sketch is not fully accurate as it does not show the asymmetry of the stance. Bottom row: video stills of participants as Adorant. Note the shadow on the ground in the left and right stills.

Some Further Aspects

Reading gestures – particularly isolated gestures or postures appertaining to an unknown cultural context – yield only a small range of valid results as there is nothing but the face-value impression to go with. The study of nonverbal communication through body language is currently met with great scientific interest across a range of disciplines, yet to the best of the author's knowledge it has never been applied to the study of palaeolithic or prehistoric figurative art.

There are practice-oriented professions such as professional acting or criminal investigation, where the acquirement of empirical knowledge of body language on

a day-to-day basis is key. But the contextual embedment of nonverbal behaviour remains a crucial factor to a correct reading of gestural clues in communication. Although body language plays a vital part in all social interaction (Goffman 1967; Tomasello 2008), one might argue that the study of body language will hardly ever attain the status of hard science – the subject being dependent on too many parameters. Once the original situational context is lost, we are left with a whole range of plausible interpretations, yet the *original* meaning will escape us. Interpretation will depend on how the individual researcher reconstructs the constellation of known factors. Also formal aspects – size, material and chosen medium – will inevitably elicit a variety of gestural responses from spectators as well, the analysis of which might prove informative. For example, a tiny figurine like the Geissenklösterle half-relief or the *Lady of Hohle Fels* can be viewed by only one or maybe a few people at once, while the *Lionman* is big enough to be exhibited to a crowd. In both cases the spectators' attitudes will differ considerably. Yet, these figurines have two important particularities in common: They are portable and they are made of a highly durable material: mammoth ivory. They can be passed on and travel with different owners or may be handed down through generations. Cave paintings on the other hand elicit utterly different gestural responses and attitudes (Clottes 2011, 175ff.). So, even if the proper cultural narrative, the *original* meaning as it were, behind these works of art is lost, a comprehensive gestural study delivers different possible scenarios from which in turn valuable basic clues as to their initially intended social function can be gathered.

The *Lady of Hohle Fels*

The Air of Confidence and the Position of Arms: Self-awareness or Protection?

At first glance, the figurine is all breasts, upper torso and pelvis: No head, no feet or legs, apart from thigh stumps. The back is clearly worked out with very flat buttocks. In order to imitate her stance, one has to draw the shoulder blades back and together. At the same time the chest opens up thus allowing for more intake of air. The 'air of confidence' as it were. This movement is counterbalanced by arms held close to the body with bent elbows. The hands, palms flat with closed fingers, lie on both sides of the lower part of the ribcage. Criminal investigators describe this as a self-grooming gesture indicative of emotional tension (Navarro 2019). Some participants interpreted the closely held arms as self-protective. Does it also have an (auto-)erotic undertone? The hands do not touch the breasts, yet several participants commented on the figurine's perceived erotic confidence. In this context, the self-soothing gestures of the upper extremities add an aspect of self-containment, a gentle limitation of the emotional dazzle. Only one participant considered the portrayed age, although no questions were asked in that direction. That participant felt being reminded of very young women symbolizing the "frothing glory of budding spring" (personal communication). Any assessment of the intended age carries a notion of the speculative. Nevertheless, the best indication for age are the prominent, high breasts which could be either swelling with milk – Dr. Gaëlle Rosendahl associated the figurine with "moments of blissful exhaustion after giving birth" (personal communication via phone) – or they may be due to the youthful, elastic tissue of a body in good shape. If the figurine was originally meant to be reclining – despite being probably worn as a pendant – this would also



Fig. 4 | Hohle Fels figurine detail of lower abdomen with deeper incisions. Left: original (Universität Tübingen, photo Hilde Jensen). Below: two detail shots of a replica. Mark the difference between the meticulous horizontal lines on the abdomen and the deep cuts marking the vulva in front running up in a slight angle.



account for the high breasts. In that case, the air of physical firmness conveyed by the strong torso and the plump arms is indicative of a pleasantly relaxed muscle tonus and the figurine's flat back and non-existent buttocks are a formal convenience.

Incisions: Working Gestures of Varying Intensity?

Like all artworks of the Swabian Aurignacian, she is covered with engraved signs. Many explanations as to the meaning of the incised patterns on the Aurignacian figurines have been offered (Dutkiewicz 2021; Floss 2007; Hodgson 2006; Müller-Beck and Holdermann 2001a, 59–63). A discussion as to what they may signify is beyond the scope of this paper⁹. However, two different kinds of the artisan's and/or the owner(s)¹⁰ gestural traces can be observed: The majority of 'smooth' patterns cover the whole torso and arms. There are also incisions on the lower abdomen which seem to have been carved with stronger pressure leaving deeper traces: Left and right of the navel there are two

⁹ For an extensive discussion on the subject see: Dutkiewicz 2021. *Zeichen: Markierungen, Muster und Symbole im Schwäbischen Aurignacien*. Tübingen: Kerns.

¹⁰ In 2015 the author visited the collection of African art at the British Museum. With one particular puppet-like exhibit there was a short explanatory text which drew the author's attention. To paraphrase it from memory: As long as the artefact was being used and reworked, it played a fixed role in the community's social life. Once people stopped handling and reworking it, its 'life' had expired and it was either thrown away or buried. This anecdotal footnote serves to illustrate the diversity of social functions ascribed to works of art.

indentations. On the right side there is a bigger, deep triangular notch, on the left a smaller hole, both going deeper than the navel. The symmetry suggests intention.

The cleft depicting the vulva shows particularly deep incisions as if having been repeatedly and vigorously worked upon (see Fig. 4). Varying pressure in gestural traces may simply be a matter of working the hard material, but it may also be indicative of emotive impulses intensifying the crafter's movements. It may imply a variety of very different impulses: from aggression to highlighting the area as special.

No Head and Many Faces

There is a puzzling particularity: The figurine has no head. Instead, there is an eyelet slightly to the right of the centre. Traces of wear suggest its use as a pendant (Conard 2009b, 269). The human head is not only the seat of 'me' – four of our five senses lie in the head plus, of course, the brain, the organ for processing all information. When worn as a pendant, an interesting phenomenon occurs: the wearer lends an ever-cocked head and face to the *Hohle Fels Lady*'s body. From the gestural point of view the slight asymmetry translates into a gently mocking but friendly attention towards an interactive partner. As she could have been handed down from wearer to wearer, one might say the Lady doesn't have a head but many faces. There is also the possibility that the head had been damaged and the figurine was reworked or a now lost head of different material was fixed above the loop (Stannard and Langley 2020). Another striking feature is her nudity, which applies to the majority of Upper Palaeolithic anthropomorphic depictions¹¹ (Schebesch 2015, 63). Academic discussion oscillates between the metaphorical and the biological: as a symbol of fertility and motherhood (Conard 2013a, 138), as the "reproductive sexuality ... not erotic" (Cook 2013, 38) or the biologically motivated, hormonally induced sexual impulses (Guthrie 2005, 304ff.). But neither the metaphor nor the overtly erotic are mutually exclusive (see also Conard 2014a, 132–38).

The *Lionman*, Hohlenstein-Stadel

The Gesture of Being Ready for Action

Standing at 31.1 cm and carved out of the right tusk of a young or female mammoth (Ebinger-Rist and Wolf 2013) the *Lionman* cuts a particularly impressive figure among the generally much smaller figurines of the Swabian Jura. The archaeotechnician Wulf Hein, an expert in experimental archaeology, attempted to replicate the *Lionman* using original tools (Hein and Wehrberger 2010). He invested 360 working hours of hard work (Hein 2018, 440). From this, one may conclude that the Aurignacian artisan had to be a skilled crafter. Skilled craftsmen usually don't leave anything to chance. Thus, one may assume that every aspect of the *Lionman* was premeditated and fully intentional. It is very unfortunate that the figurine is so fragmented. Large parts of the surface are missing with the genital area no longer intact except a small triangular platelet which shows traces of handling. The figurine's overall shape though, is suggestive of a male. Wherever preserved, the surfaces show traces of much handling (Ebinger-Rist et al. 2013, 69).

11 For a comprehensive overview of anthropomorphic figurative art of the Upper Palaeolithic see: Cohen 2003, Delporte 1979 and Guthrie 2005.

The figurine's dynamic attitude derives from the level head, the squared shoulders and the slight inward curve of the long body. In order to physically imitate this inward curve, one has to engage the middle section of the abdominal musculature. The back muscles function as antagonists by elongating and thus creating the sensation of a 'drawn bow'. The high tonus of the squared shoulders, neck and chest muscles also translate into the arm muscles right down to the fingertips. One of the participants who had been an Olympic gymnast, identified this stance as the "moment before springing into action" (personal communication). Two participants with a background of martial arts equally described this stance as 'being about to engage'. The interpretation of the *Lionman*'s upper extremities as feline (Ebinger-Rist et al. 2013, 68) does not influence the gestural reproduction.

The Gestures of Audiences: Orienting the Figurine in Space

At first sight the *Lionman* seems to be 'drawn out' like Giacometti's statuettes (Fig. 5). This is effected by the very long torso fitting more the proportions of a great cat than a human being. The figurine is a mix between a felid, very likely a lion, in the upper body and a human from the navel down. The sturdy legs are nicely worked with ankles, calves and hollows of knees. The feet are flexed downward as if the figurine is standing on the balls of the feet. The *Lionman* cannot stand on its own, which begs the



Fig. 5 | A. Giacometti with one of his bronze sculptures. Biennale, Venice, 1962. (Photo: Erhard Wehrmann. Kunststiftung Poll, CC BY-SA 3.0 DE <<https://creativecommons.org/licenses/by-sa/3.0/deed.en>>, via Wikimedia Commons)

question as to his spacial orientation. Was he propped up on a support e.g. a wall? He would squarely face his audience then. In theatre this is known as a supreme status stance or 'king's attitude'. Or was he laid down? In which case lateral supports would be needed. Here, the spatial orientation seems rather at odds with his perceived status: a cradled *Lionman* reminiscent of a new born child.

There is a third option: The *Lionman* is fashioned out of a section of mammoth defense where the nerve canal runs centrally from the top of the head through the body ending in the crotch (Ebinger-Rist and Wolf 2013, 57). The fragmented figurine was excavated from the back part of Hohlenstein-Stadel cave together with a part of a left mammoth defense and sections of reindeer antlers (Wehrberger 1994, 42). Hohenstein-Stadel cave is not particularly deep, therefore not completely dark, but if you consider a suspension with additional lighting by fire, the effect might have been dramatic. Was he suspended in the cave? One can imagine the *Lionman* floating above ground in flickering fire light, his shadow dancing on the walls. All three possibilities involve 'preparing a space' for him. His unusually big dimensions for Aurignacian figurines suggest a somewhat prominent function attracting a 'bigger audience'.

The Geissenklösterle Half-Relief *Adorant*

Asymmetry

Symmetry gives us the aesthetic pleasure of balance. Asymmetrical things, movements or gestures on the other hand, instantly attract our interest. We actively watch anything asymmetrical or moving because there *might be something coming that we don't see yet*. This coarse generalization aims to highlight one of the particularities of the Geissenklösterle figurine:

It is asymmetrical in its stance (Müller-Beck and Holdermann 2001a, 49). The right leg is a bit longer than the left and slightly more bent at the knee (see Fig. 3). The left side appears to be straighter. Also, the raised right arm seems to be bigger and somewhat lower than the left. This asymmetry invokes the impression of perspective. Müller-Beck and Holdermann describe this movement "... as if the figure is about to step out onto the right side. ... [the expansive stance is a] ... greeting into the distance" interpreted as a "gesture of adoration" (Müller-Beck and Holdermann 2001a, 49f.) in accordance with the figurine's familiar nickname *Adorant*. Due to the small dimensions of the ivory badge, the apparent perspective could be a product of chance. Intended perspective or not, the asymmetry adds to the figurine's dynamic expression. A quite similar but symmetrical posture can be detected in Iron Age daggers with anthropomorphic handles. Equally expansive in gesturing, the high symmetry of the dagger handles' anthropomorphic shapes suggests a more ceremonial and static stance (Glunz-Hüsken and Schebesch 2015, 308). In contrast, the Geissenklösterle figurine is *being engaged* in a sweeping gesture occupying or conquering the space around it.

Gesture of Audience: How Close?

The badge-like half-relief is diminutive with its 3.8 cm by 1.4 cm. It easily fits into the palm of a hand (Fig. 6). In order to comfortably view the sweeping little figurine one has to bring the hand relatively close to one's face. Only one or two 'spectators' can regard it at a time. Was it coloured? The excavator Joachim Hahn noticed traces of



Fig. 6 | A replica of the *Adorant* in the author's hand.

ochre and manganese on it (Hahn 1988, 36). The relief's function is unknown. If one were to observe someone regarding the figurine, it is a rather intimate gesture. Was it meant to trigger associations or memories?

Clues and Links Between *Adorant* and *Lionman*: A Significant Myth?

The half-relief was discovered in the Aurignacian layer IIb in an area of bone ashes (Hahn 1986, 36). Although the surface is damaged, the half-relief is not a fragment as such: the frame is worked. There are fine horizontal incisions running around the frame and on the back there are four vertical rows of 13 incised points. Whether these incised dots are a calendrical counting (Müller-Beck and Holdermann 2001b, 65) or of another significance escapes our knowledge. Nevertheless they are part of a series of clues that link the *Adorant* to the anthropomorphic figurine fragment *Löwenmenschle* (*little Lionman*) of Vogelherd Cave (Riek 1934) with its incised three vertical rows of 9 picks, very upright posture and feline-shaped head, which in turn links to the *Lionman* and to the diminutive *little Lionman*¹² (Conard 2003, 830; Conard 2014b, 139) with an equally upright, proud posture, feline-shaped head and broad shoulders; viewed together, similarities can be detected (Hahn 1986, 191) despite differences in height and quality of crafting (Fig. 7). The lion is a universal symbol of strength and power, stored in folk biology as the 'essence of lion' (Wynn et al. 2009, 77). One may assume that the half-relief of Geissenklösterle cave is also a *Lionman* depiction (Fig. 6). Hahn (1986, 196) interprets the figurine's head as looking straight ahead, therefore dubbing it *Adorant*. He also highlights the high probability of it being another *Lionman*. The Aurignacians' preference for feline predators (Delpaepe 2009, 152) corroborates this possibility. In short, four figurines with striking similarities to each other were found in the caves of the Swabian Jura. As N. Conard (2013b, 139) points out, there is only a slim chance of finding *one* such figurine. The discovery of four within a relatively small area could be a clue as to a significant cultural '*Lionman* myth' of the Aurignacian in the Swabian Jura.

¹² Excavated by N. Conard in 2002. The figurine, only 2.5 cm high, was found in Aurignacian layer IV.



Fig. 7 | Four Aurignacian anthropomorphic figurines of the Swabian Jura: four *Lionmen*? (Not to scale: *Lionman* from Hohlenstein-Stadel – Landesamt für Denkmalpflege im RP Stuttgart und Museum Ulm, photo: Yvonne Mühleis; figurine from Vogelherd – Universität Tübingen, photo: Hilde Jensen; figurine from Hohle Fels – Universität Tübingen, photo: Hilde Jensen; *Adorant* from Geissenklösterle – Landesmuseum Württemberg, photo: Hendrick Zwietasch)

The Adorant's Unusual Stance: Three Possibilities

Like the *Lionman*, the Geissenklösterle half-relief has an exaggeratedly long body, a proportionally small, cat-shaped head and – as far as one can guess – bulging upper arms and a broad chest. The similarities don't end here: The raised arms of the *Adorant* bear six horizontal incisions on the left arm, the damaged surface of the right arm still bears traces of three. The *Lionman*'s left upper arm also bears seven – originally probably more – horizontal incisions. Between the parted legs of the Geissenklösterle figurine there is a longish, undefinable object or body part. A tail? A penis? Or a piece of cloth? Due to its badly damaged surface the significance of this part remains a mystery. The puzzlement of the German actors with respect to status and intention drew the author's attention to the fact that this is a very unusual stance, nowadays confined to the world of sports and martial arts: It figures most prominently in the traditional opening haka of New Zealand's All Blacks Rugby Team (Fig. 8). A haka is a Maori ceremonial dance. Choreographies may vary but each haka is composed of a majority of 'warlike' dynamic and often repetitive movements linking together different postures. While engaged in dancing the haka, the performers also recite a ritual text invoking the triumph of life over death¹³. Hakas are performed on special social occasions like weddings, funerals, official visits, etc. The intense emotional impact on everyone involved is remarkable.

Ethnological comparisons should certainly be employed with great caution. Is it possible at all to interpret this posture without a clue to its situational backdrop? Is it a half-relief because it would not have been feasible to carve such a small 3D-figure

13 <https://en.wikipedia.org/wiki/Haka>. Accessed June 17, 2024.



Fig. 8 | Example of the Geissenklösterle figurine's posture employed today: The All Blacks perform the haka before the All Black vs South Africa test match at Westpac Stadium, Wellington, NZ. 30 July 2011 (Jo Caird/RugbyImages, CC BY-SA 2.0, <https://www.flickr.com/photos/30291646@N03/>).

engaged in such a sweeping movement or is it a half-relief because space is a signifier? With respect to the latter, several different scenarios suggest themselves:

- As a vaulting figure seen from below. The surrounding space here would be the sky.
- Viewed from above: a prostate figure lying on the ground.
- Viewed face-to-face: A dynamic figure about to engage in action within an unknown but significant environment.

Why a Relief?

The very fact that we are looking at a half-relief draws attention to the surrounding space. The author suggests that reliefs always refer back to at least two spaces: firstly, the physical space of depicted action and, secondly, the cultural environment as a manifest space. These two interconnected spaces form a complex narrative web that can only be properly appreciated with the necessary background knowledge. What is to make of the Geissenklösterle relief? We see an expansive gesture *in space*, presumably signifying an important moment in its narrative. Other than that, we can only guess as to what kind of space it is. What do the four rows of 13 pics on the back signify? Or the indentations running around the frame? If Müller-Beck's and Holdermann's (2001b, 65) interpretation of calendrical counting is employed here within a broad context, the figurine's expansive gesture does not only conquer space but in some mysterious way time as well.

Concluding Remarks

Investigating the body language depicted in the figurative art of lost cultures cannot provide exhaustive answers as to those cultures' symbolism; yet, as a process, it may provide insight into communicational patterns. Treating the figurines as 'interesting strangers': trying to understand what they are, communicating through imitating their gestures shifts the point of view; it is a shift from distanced interpretation within one's own modern cultural terms to an appreciation of a whole spectrum of emotive information which we share as humans and which otherwise is likely to escape attention. If the initial experimental approach of 2010/11 can be developed further through more representative, multi-cultural studies, it may prove its worth as a valuable working method for obtaining more information contained in prehistoric artworks. There is no way of reconstructing 'the truth' about the figurines, but what has been gathered so far? Generally, the *Hohle Fels Lady*'s posture evokes good, positive feelings of self-esteem and sensuality. The vigorously carved vaginal area stands out: Strong traces of processing suggest equally intense working gestures. The genital area is not only the seat of procreation; its sensitivity can provide a surge of intense sensations. Were those working gestures meant to be an invocation of sexual pleasure or, may be its other extreme: were they meant to be destructive? The figurine's expression combines the hint of a strong sensuality with the possibility of a fertility symbol, the two of which are by no means mutually exclusive. The histories and traditions of Western cultures have a deeply ingrained ambiguity towards the appreciation of the sexual. Even today, calling her a pin-up girl¹⁴ has some derogatory tinge to it, an instance of involuntary modern judgementalism which may have been alien to her artisan. This is why, during the experiments, the author explicitly excluded any questions concerning gender. Gender issues have always been a crucial part of cultural identity and each culture has accordingly claimed sovereignty of interpretation. We simply cannot know the Upper Palaeolithic take on them.

Connections between the *Lionman*, the Geissenklösterle half-relief (*Adorant*) and the other two *lionmen* have long been recognized (Conard 2003, 830; Conard 2014b; Hahn 1986, 191). But here again, a reconsideration of nonverbal communication via posture may lead to new clues about the importance of space which the *Lionman* and *Adorant* in particular seem about to move through. It may be the multi-layered spacial reality of shamanistic travel (Clottes and Lewis-Williams 1998) or the mental echo of hunter-gatherers' movements through their environment(s) made visible and tangible (Borić et al. 2013). The figurines of the Upper Palaeolithic are enigmatic works of art. Simultaneously, they are tools as well, like a scraper or a blade. They are spiritual tools to reflect on our history as humans. We have been doing that for millennia and we do it best through telling stories. Stories, though, are never completely rigid. They change with their narrators and with their audiences. How we perceive the Aurignacian anthropomorphic figurines reflects back on us. To pick up and belatedly answer the subtitle of the initial conference "*What can we learn from Palaeolithic art?*", the answer may be: The Upper Palaeolithic figurines are great storytellers; as we try to decipher *their* story, they teach us *ours*.

¹⁴ See the title of the 2011/12 URMU exhibition: *Urmutter contra Pin-Up-Girl*.

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PART V
FROM DIGITAL
DOCUMENTATION
TO MEANINGFUL
ANALYSIS AND
PROTECTION

3D Models of Some Figurines from the Swabian Aurignacian

New Insights into the Markings

Abstract 3D scanning is an advantageous technique for the documentation and conservation of archaeological remains. In 2017, the State Office for Cultural Heritage of Baden-Württemberg in cooperation with the respective museums produced 3D laser scans and Structure-from-Motion (SFM) photogrammetric images of the Aurignacian figurative artworks from the cave sites of the Swabian Jura (SW-Germany) (Steffen and Steffen 2017). The laser scans provide 3D models of the objects' surface topography. In addition to the shape, the SFM images document the color of the objects in high resolution. Both methods combine the high geometric resolution of the surface with the high-quality color textures. Besides the documentation and the conservation of information about archaeological finds, 3D models are a very useful tool for the study of small and fragile objects. The figurines from the Swabian Aurignacian are among the oldest evidence of figurative art, dating to 43,000 to 34,000 cal BP (Conard and Bolus 2003; 2008; Higham et al. 2012). An extensive study of the markings on the figurines and tools from this assemblage has been recently completed using analysis of the originals and microscopic 2D images (Dutkiewicz 2021). In this paper, I will use the 3D models of some selected figurines from Vogelherd and Hohle Fels Caves to analyze the markings, compare the 2D and 3D images, and point out the advantages and disadvantages of both documentation methods.

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Introduction

The last decade saw an enormous increase in digital methods of 3D documentation, analysis, reconstruction, and exhibition of archaeological remains (e.g. McPherron, Gernat, and Hublin 2009; Ahmed, Carter, and Ferris 2014; Heidenreich and Steffen 2014; Shott 2014; Bourdier, Fuentes, and Pinçon 2015; Younan and Treadaway 2015; Mélard et al. 2016; Fuentes, Lepelé, and Pinçon 2019). These methods are applied to sites, surfaces, features, or artifacts. While traditionally, archaeological objects have been drawn or photographed, methods of 3D-documentation and visualization allow us to experience the appearance of objects that were designed in three dimensions in a more “accurate” way. In 2017 and 2018, the State Office for Cultural Heritage of Baden-Württemberg (Landesamt für Denkmalpflege im Regierungspräsidium Stuttgart) in cooperation with the respective museums, produced 3D laser scans and Structure-from-Motion (SFM) photogrammetric images of the Aurignacian figurative art from the cave sites of the Swabian Jura (Steffen and Steffen 2017). The laser scans provide 3D models of the surface topography of the objects. In addition, the SFM images document the color information in high resolution. The combination of both methods makes it possible to merge the high geometric resolution of the 3D scan with the high-quality color texture from the photogrammetric method (<https://sketchfab.com/ladbw/collections/ice-age-art>, Landesamt für Denkmalpflege im Regierungspräsidium Stuttgart 2018).

An extensive study of decorated artworks and tools from the Swabian Aurignacian has recently been completed (Dutkiewicz 2021). These objects derive from four cave sites of the Swabian Jura, southwest Germany, close to the city of Ulm. Hohle Fels and Geißenklösterle Caves in the Ach Valley, and Hohlenstein-Stadel and Vogelherd Caves in the Lone Valley are mainly known for figurative artworks: Small to medium-sized figurines of humans and Pleistocene animals, mainly made from mammoth ivory and dating to around 43,000 to 34,000 cal BP (Conard and Bolus 2003; 2008; Higham et al. 2012). One striking feature of these figurines is the deeply incised markings. They appear on almost all of the figurative artworks as well as on certain tools. These are mostly parallel lines, notches, dots, or crosses. There are some good arguments that some of these depict fur patterns or other typical features of the animals, but also abstract markings, are present (Conard 2003; 2009; Conard, Malina, and Münzel 2009; Conard et al. 2015; Wolf 2015; Dutkiewicz and Conard 2016; Dutkiewicz et al. 2018; Dutkiewicz, Wolf, and Conard 2018; Dutkiewicz 2021). One difficulty in analyzing these markings is that they are applied to three-dimensional surfaces, and therefore, documentation in two dimensions, through photographs and drawings, always misses parts of the whole picture. It is necessary to choose the views on the object, and consequently, only a selection of the markings visible; Some markings might appear reduced or not fully recognizable.

In this study, I analyze several figurative artworks from the cave sites of Vogelherd and Hohle Fels using 3D models. The goal is to pinpoint the advantages and disadvantages of 3D models for scientific research after having analyzed the same objects working with the original finds and with 2D methods before. With the newly gained data, I highlight some of the markings and features of these highly detailed figurines and provide a deeper insight into the work of the Aurignacian artists from the region of the Swabian Jura.

Vogelherd

Vogelherd Cave was first excavated by Gustav Riek in 1931, where he found ten ivory figurines and one antler artifact with a relief of a mammoth in the Aurignacian layers V and IV (Riek 1932a; 1932b; 1934). Riek excavated the entire cave and left the backdirt in front of the entrance. From 2005 to 2012, a Tübingen team under the direction of Nicholas Conard re-excavated this backdirt. It seemed to be necessary, as Riek worked for only three months at Vogelherd and did not sieve or water-screen the sediment, so that many finds were expected. This excavation completed the assemblage of artworks and other finds from Vogelherd. Nowadays, more than 60 figurines and fragments of figurines are known from this cave (Conard, Zeidi, and Janas 2016; Conard et al. 2015; Dutkiewicz 2021).

Horse

The figurine of a horse (*Equus ferus*) is one of the most well-known figurines from Vogelherd. It was excavated in 1931 in the lower Aurignacian layer V (Riek 1934). The left side of the figurine is complete, except for the legs, which are preserved about to the half. On the right side, the head and neck, as well as the base of the tail, are preserved. The horse is depicted in a particularly elegant and expressive way. The noticeably lowered head is narrow and shows a slight S-curve when viewed from the front. The nostrils, mouth, eyes, and ears are carved out anatomically correct. The animal has a standing mane as is typical for wild horses and the neck is curved and separated from the withers by a kink. The body is slim and shows distinct muscles. The tail is only partially carved out, the typical long tail hair is absent. The right front leg points slightly forward as if the animal is taking a step; the hind leg points slightly backward.

Along the mane on the ridge of the neck, there is a series of at least 17 short notches. These are largely leveled by polish and difficult to see. Occasionally it was stated that it is a series of crosses (Hahn 1986; Müller-Beck 2001), but the notches are too poorly preserved to be identified as such. A row of 13 crosses runs from about the middle of the back over the rump to the base of the tail. This part is also heavily polished, but still well recognizable. Often, an inverted V-sign is described on the left side breast (Hahn 1986; Marshack 1976; 1989; 1991). Marshack (1976) even speaks of a ritual killing of the animal because of the fresh appearance of the mark. In the photography of this part, the supposed V-mark appears prominently, as it disrupts the blue color of the surface (Fig. 1a and 1b). The color derives from the deposition in the sediment, where minerals fed into the material and resulted in the blue and brown hues of the patina (Reiche et al. 2000; Wolf 2015). However, arguments against the interpretation as intentional marks are to be discussed. First, no features of intentional marking are present; the mark has no clear structure that indicates a deliberate fabrication (Dutkiewicz 2021; Dutkiewicz and Conard 2016; Dutkiewicz, Wolf, and Conard 2018). The two lines are very thin and irregular and do not show repeated cutting and are therefore not to be interpreted as intentional markings. The profile of the cutmark does not show a V-shape, but rather an irregular U-shape, which is typical for natural causes (Steguweit 2003; 2009). This observation is confirmed by the 3D model. Here, the lines of the supposed V-mark are barely visible (Fig. 1c). Therefore, I conclude that

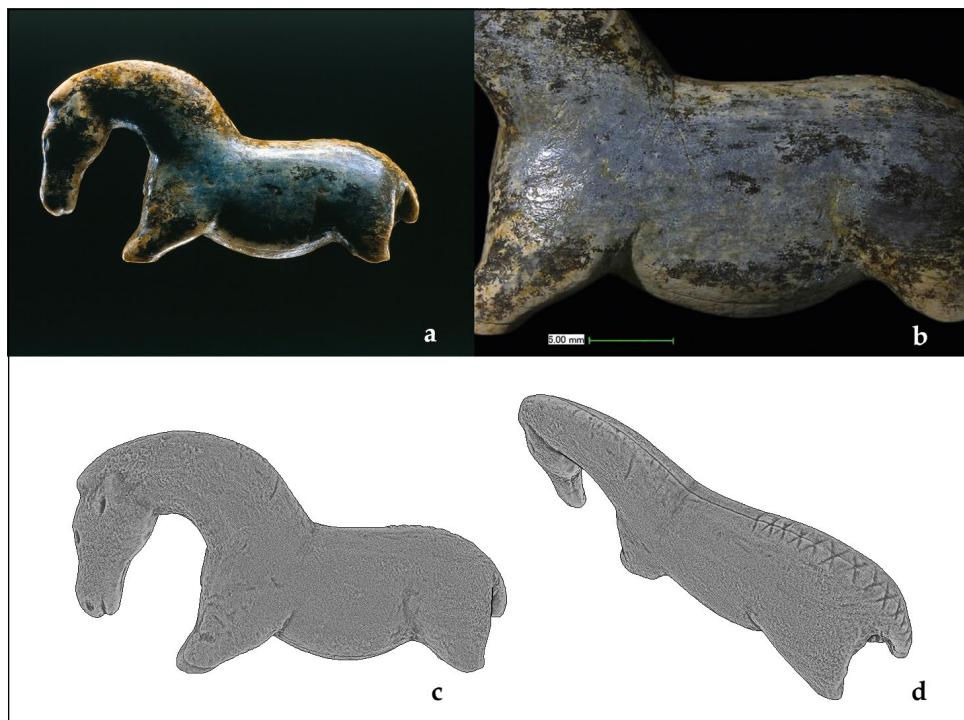


Fig. 1 | a) Vogelherd, horse figurine found 1931, mammoth ivory, length 4.8 cm. (Photo: J. Lipták, Universität Tübingen). b) Detail of the left body side using Keyence VHX-500. (Photo: E. Dutkiewicz, Universität Tübingen). c and d) 3D model of the horse figurine. Radiance Scaling: Grey Descriptor, Enhancement 1.00. (Scanning and processing: M. Steffen and C. Steffen, Landesamt für Denkmalpflege im Regierungspräsidium Stuttgart; picture: E. Dutkiewicz).

this V-mark is not intentional; rather, these are superficial scratches resulting from damage during the use, accident during the fabrication of the figurine, or the result of taphonomic processes. Fig. 1d shows the neck and back part. As described above, the markings on the neck are too heavily worn, presumably from long-term handling, to be recognized as a distinct pattern.

Felid

This figurine of a felid (*Panthera* sp.) was discovered in Vogelherd layer V during the excavations in 1931 (Riek 1934). The right side of the animal is largely preserved, with only the cheek and neck flaked off. The back part of the left side is missing. Three legs are preserved at their bases. Large parts of the surface are heavily weathered; two longitudinal cracks run through the body. The well-preserved parts show careful working and polishing. Although large pieces of the figure are missing, the outline is completely preserved. The felid is depicted with its head stretched far forward. The body is elongated and has a straight backline, only the withers are slightly humped upwards. The legs point straight down and show the animal standing still in its place. Both eyes are facing forward, the preserved ear is laid back. The animal's nose is separated from its mouth by a dip. It is noteworthy that two further incisions follow



Fig. 2 | Above, 3D model of a felid figurine from Vogelherd, found in 1931, mammoth ivory, length 6.8 cm. Lit Sphere Radiance Scaling, Enhancement 0.50, Transition 1.00. (Scanning and processing: M. Steffen and C. Steffen, Landesamt für Denkmalpflege im Regierungspräsidium Stuttgart; picture: E. Dutkiewicz). Below, detail of Panel of the Lions, Grotte Chauvet. (<https://archeologie.culture.fr/chauvet/en/mediatheque/lion-panel-6>, accessed January 5, 2021, detail).

below, although anatomically only one is necessary to show the mouth (Dutkiewicz 2021). Although the mouth part of this figurine is poorly preserved, the 3D model helps recover the original details. We see a separated nose and upper lip and the lower lip with the chin. The mouth is open, and it appears that the tongue is stretched out, giving the impression that the animal is roaring. This representation is reminiscent of the lions from Grotte Chauvet (France) some of which are depicted with open mouths as well (Fig. 2). As in many other examples, this figurine proves that the Pleistocene animals of the Swabian Aurignacian were depicted in special moments or actions (Dutkiewicz 2021).

Anthropomorphic Figurine

The so-called Anthropomorphic figurine was found in Vogelherd layer IV in 1931 (Riek 1934). The left side of the figure is completely preserved. Riek discusses whether this is a semi-finished product and argues that it may be. As arguments for this, he cites the roughly worked out and not further trimmed head, as well as the coarse and completely unsmoothed leg/knee area. However, the smooth surface and the rows of dots on the body suggest careful finishing. The figure is worked in the longitudinal direction of the ivory piece. Both ends were nicked and then broken off. Although

the fuselage is smoothed, numerous working traces are visible. The head is narrow and set off from the body by a notch. The eye, ear, and mouth are represented schematically by notches. The top of the head is sunken, creating the impression of pointed (animal) ears when viewed from the front. This and the protruding mouth could be indications that a hybrid being, perhaps of lion and man, comparable with the well-known figurines of the Lion Man from Hohlenstein-Stadel and the miniature version from Hohle Fels (Conard, Langguth, and Uerpman 2003; Ulmer Museum 2013; Kind et al. 2014; Dutkiewicz 2021). The body is long, cylindrical, and, apart from a drawn-in thinning of the back, has no further formations. The figurine has no legs, but a button-like, unworked thickening at its lower end. The interpretation as a human figure is given by the upright, elongated body shape without the front and rear legs of an animal, by the head sitting perpendicular to the body axis and the thinning of the waist in the back.

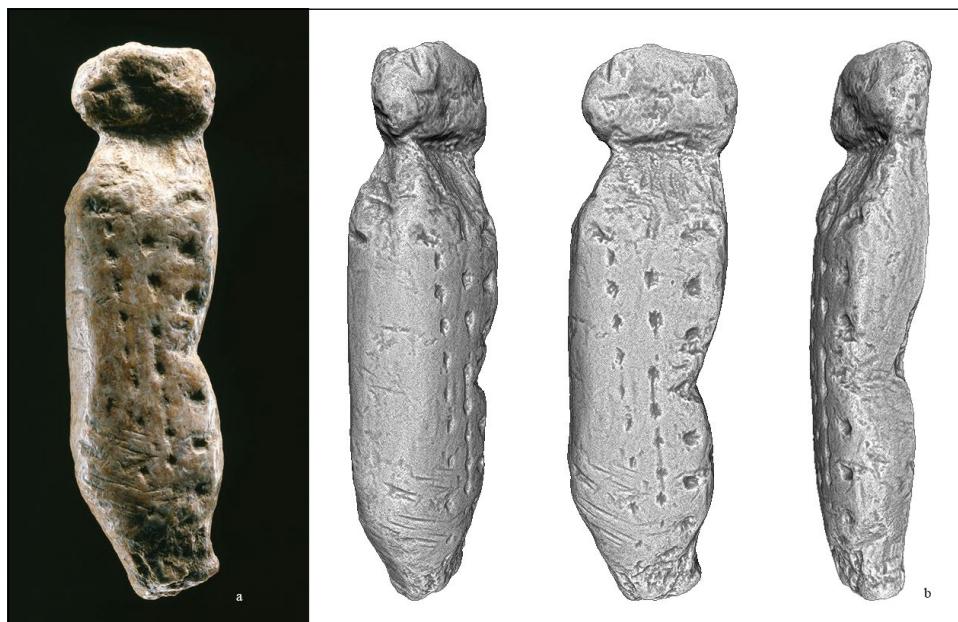


Fig. 3 | a) Vogelherd. Anthropomorphic figurine found 1931, mammoth ivory, length 6.9 cm. (Photo: J. Lipták, Universität Tübingen). b) 3D model, Radiance Scaling: Grey Descriptor, Enhancement 1.00. (Scanning and processing: M. Steffen and C. Steffen, Landesamt für Denkmalpflege im Regierungspräsidium Stuttgart; picture: E. Dutkiewicz).

In the 3D model, the working traces are clearly visible (Fig. 3). Particularly the difference between the head and body is apparent. The sculpting traces on the neck, head, and bottom of the figurine are rough, while the body appears well elaborated and finished. Notches at the head show roughly cut features like eye and mouth. The fine finish of the body, despite a few cut marks, suggests that the figurine was deliberately worked in a rough manner. This stands in contrast to most of the other figurines from the Swabian Jura that are quite elaborately finished. The front of the figurine bears an oblique V-sign on the upper chest, as it has been described in Dutkiewicz (2021).

Additionally, two dots in the front are visible in the 3D model. They are placed on the chest and might depict nipples. This provides further evidence that the figurine is anthropomorphic. The rows of dots on the right side are visible. Besides the hitherto described rows of 9 in the front, 8 in the middle, and 6 or 7 (3/4+3) dots in the back (Dutkiewicz 2021), the 3D model reveals even finer dots reaching the bottom of the figurine. Altogether there are 10 to 11 dots in the first row, including the uppermost dot that might be a nipple. The middle row might have an additional dot at the bottom as well. Due to the rough carving in the lower part, the definite number remains uncertain. Connecting lines between the dots in the middle row are clearly visible. The three uppermost dots are all separate, in the lower part the upper two followed by the lower three are connected. This might represent some symbolic connection of the individual dots, maybe counting or notation of some interconnected events or the like.

Felid

This figurine of a felid was discovered in 1931 in Vogelherd layer IV (Riek 1934). It broke along the longitudinal axis, and only the left half, with the outline of the torso and the head, is preserved. The fracture surface is convex and covered with fine scratches and polish. Therefore, and for the overall flat appearance of the animal, it was previously assumed that the figurine was designed as a relief. In 2013 a heavily weathered fragment of the head was found (Conard and Zeidi 2014). It belongs to the right side of this figurine, proving that this figurine was also designed as a round sculpture. The outline of the animal is almost entirely preserved, only the legs are rudimentary. The trunk is massive and elongated, but noticeably narrow in depth. The long ears are semi-sculpted and laid back and the mouth is shaped with a deep cut. The eyes consist of approximately vertical, elongated incisions. The slightly lowered head with its chewing muscles is set apart from the short and thick neck that merges into a massive shoulder area. The upper arm muscles are pronounced and appear particularly strong. The backline gently slopes down from the highest point on the ridge towards the buttocks; the thigh and the buttocks appear flat. The most remarkable feature of this animal is the area of the ribs and abdomen, the surface of which bulges inwards with a large pattern. It consists of ten diagonally crossing long lines forming a grid. This is the only case in the Swabian assemblage that the decoration of a concave surface has occurred. Additionally, 95 dots are applied over the entire left side of the body. There are two V-patterns in the neck area, one pointing upwards, the other downwards. Another V-pattern is just behind the left ear. Below the mouth, there are two short, parallel notches that run from the mouth to the chin and probably depict the whiskers.

In this example, the characteristic grid pattern on the left side of the body provides a good basis to discuss different documentation and analysis methods. In the photograph (Fig. 4a), the placement and overall appearance of the pattern within the composition of the figurine is best shown. The microscopic photograph allows for a detailed examination of the pattern (Fig. 4b). The starting points of the engraved lines, with their deep and abrupt beginning, may hint at the use of pre-treatment—likely watering—of the ivory during the carving process, as comparisons with experimentally applied lines suggest (Dutkiewicz 2021). Nevertheless, the detailed microscopic

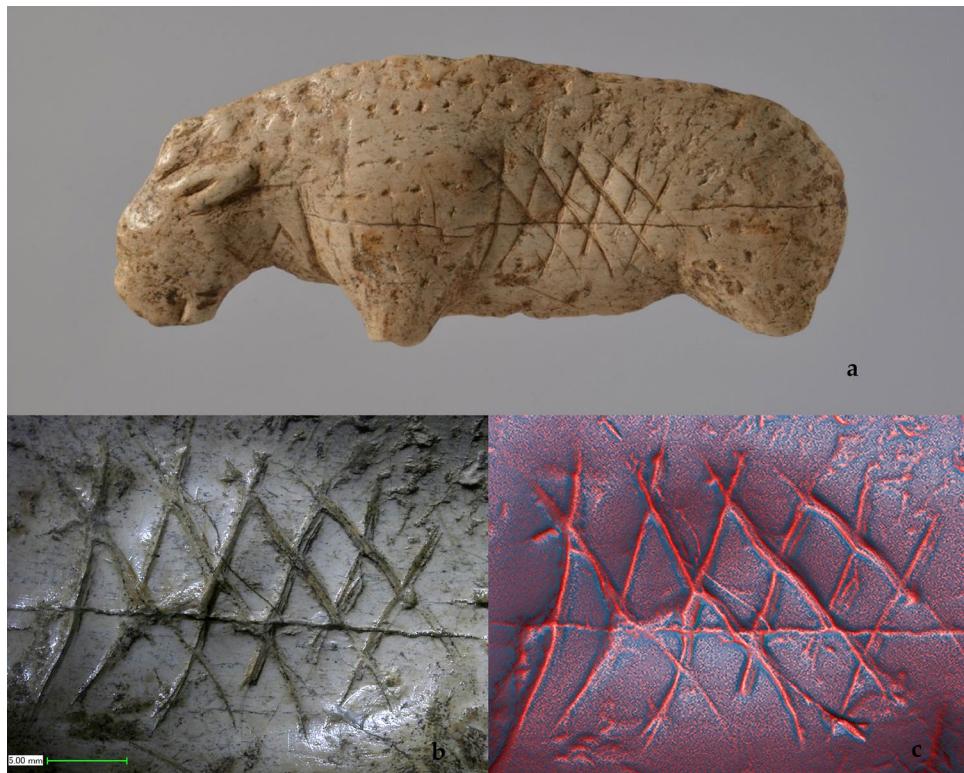


Fig. 4 | a) Vogelherd. Felid figurine, found in 1931, mammoth ivory, length 8.7 cm. (H. Jensen, Universität Tübingen). b) Detail of the grid-pattern, using Keyence VXH-500. (Photo: E. Dutkiewicz, Universität Tübingen). c) 3D model of the grid pattern. Radiance Scaling: Lit Sphere Radiance Scaling, Enhancement 0.60, Transition 0.70. (Scanning and processing: M. Steffen and C. Steffen, Landesamt für Denkmalpflege im Regierungspräsidium Stuttgart; picture: E. Dutkiewicz).

photograph is difficult to interpret when it comes to the succession of the lines. In this case, the radiance scaling and enhancement of the 3D model, excluding the original color information of the surface, provide a better view (Fig. 4c). First, six lines running from top right to bottom left were applied, crossed by four lines from top left to bottom right. Additionally, the working process becomes clearer, showing repeated carving to achieve the desired depth of the lines. Dots on the right and the upper parts of the grid pattern superimpose the lines, indicating that the latter were applied first.

Relief of a Mammoth

This object was discovered during Riek's excavations in 1931 in layer IV (Riek 1934). It is the only figurative representation from Vogelherd that is made from antler and designed as a relief. The base of a reindeer antler serves as the raw material (Leroy-Prost 2002; Dutkiewicz 2021). The object has an elongated, oval shape. The cancellous bone protrudes clearly on the upper side, while the backside forms a smooth, curved surface. At the pointed end, there is a perforation that broke out. This piece was probably worn attached to a string. The cancellous surface forms an oval field in which the

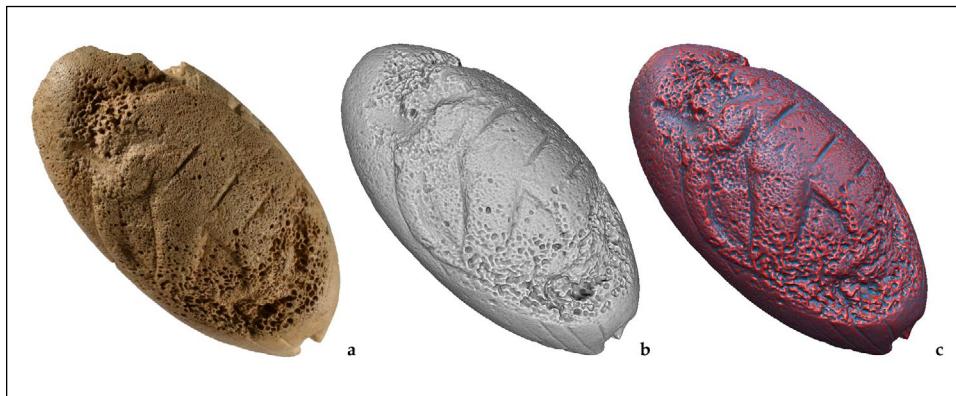


Fig. 5 | a) Vogelherd. Relief of a mammoth, antler, length 6.9 cm. (Photo: H. Jensen, Universität Tübingen). b) 3D model. Radiance Scaling: Lambertian Radiance Scaling 0.30 and c) Lit Sphere Radiance Scaling, Enhancement 1.50, Transition 1.00. (Scanning and processing: M. Steffen and C. Steffen, Landesamt für Denkmalpflege im Regierungspräsidium Stuttgart; pictures: E. Dutkiewicz).

relief of a mammoth (*Mammuthus primigenius*) is located. The trunk, the mouth, the front leg, and the belly line of the animal are visible. The hind leg is only indicated cranially; the surface is too spongy in the caudal direction, so that the outline is not visible here. The backline starts roughly at the top of the head and runs in a strongly curved line to the base of the buttocks. The towering skull and the typical saddle on the neck are missing, the tusks are not represented. These characteristics distinguish this mammoth as a young individual. Originally, ochre residues were visible in some grooves, depressions, and the broken eyelet (Riek 1934), but are no longer preserved.

This is one of the most difficult representations to read. The structure of the cancellous bone blurs the figure, and the concave surface makes it necessary to rotate the object to fully see the animal (Fig. 5a). Here, the 3D models help a lot. Not only is it possible to freely rotate the object without touching it, but the Radiance Scaling also allows for a better view of the representation. As shown in Fig. 5b, the outline of the relief becomes more visible. Additionally, the use of the natural relief of the surface in the figure's design is evident, a technique often described in Palaeolithic rock art, such as in Altamira (Breuil and Obermaier 1935; Beltrán, Saura Ramos, and Bosinski 1998). Fig. 5c highlights details of the irregular surface visible in the 3D model. Previously deemed too blurry to be recognizable, parts like the head now exhibit a meticulously designed and well-chosen appearance. The cheeks of the animal are well incorporated into the surface, as well as the morphology of the head. Particularly striking is the eye, which has not been described in previous analyses but is clearly visible in the 3D model. The position is anatomically correct, the bone around the eye is pronounced, and fits well into the elaborated design of the head.

Felid

This figurine of a felid was found in 2006 during the excavations in front of Vogelherd Cave (Conard, Lingnau, and Malina 2007). About half of it, a large part of the left side, and the uppermost part of the right side are preserved. The fracture extends in the



Fig. 6 | a) Vogelherd, felid figurine found in 2006, length 5,6 cm. (Photo: H. Jensen, Universität Tübingen). b-d) 3D model of the felid figurine. Lit Sphere Radiance Scaling, Enhancement 0.50, Transition 1.00. (Scanning and processing: M. Steffen and C. Steffen, Landesamt für Denkmalpflege im Regierungspräsidium Stuttgart; pictures: E. Dutkiewicz).

longitudinal axis along with the natural ivory. In this figure, a felid with a narrow and elongated body is shown. The withers bulge remarkably upwards and give the impression, that the animal is sneaking up on something. The legs are not preserved. The muscles of the shoulder and buttock areas are carefully modeled; the tail is preserved only at the base. The neck is long and stretches forward with the head lowered. This again speaks to the sneaking attitude of the animal. The forehead, the left ear, and the base of the right ear as well as the left eye are preserved, a tear duct runs from the eye. Despite the fragmentary state of preservation, the fine elaboration of the head is a testament to the masterful carving. Overall, this figure makes a very fine and slim impression. A deeply cut row of crosses runs along the back. Less visible are two vertically arranged rows of dots along the left shoulder. This pattern is also present on the right shoulder, as evidenced by two remaining dots (Dutkiewicz 2021). In the photographs, the row of crosses on the back is well visible (Fig. 6a and c). The rows of dots on the shoulder, however, are less clear due to the black spots of patina on the surface. Here, the 3D model gives a better overview of the composition of the markings by enhancing them using Lit Sphere Radiance Scaling. The pattern consists of two parallel rows of elongated dots, running vertically over the shoulder. The cranial row starts with a V-mark followed by seven preserved dots. The caudal row shows seven preserved dots (Fig. 6b); the two preserved dots on the right side are clearly discernible in the 3D model (Fig. 6d). The details of the head, the ears, the left eye, and the corner of the mouth are also plainly visible in the 3D model, providing an excellent impression of the finely carved features of this figurine.

Hohle Fels

Hohle Fels is a large cave with a long research history. Modern standards excavations at this site began in the late 1970s with the work of Joachim Hahn (Hahn 1989). From the late 1990s until today, Hohle Fels has been excavated annually by the University of Tübingen under the direction of Nicholas Conard. Mobile artworks in the form of ivory figurines have been found in different Aurignacian layers (e.g. Conard and Uerpmann 1999; Conard and Malina 2008; Conard and Janas 2018; Conard et al. 2015). The most spectacular find is the female figurine from the basal Aurignacian layer Vb, discovered in 2008 (Conard 2009; Conard and Malina 2009; Conard and Wolf 2020).

Female Figurine

The female figure made of mammoth ivory is almost completely preserved; only the left arm and shoulder are missing. The figure is worked out asymmetrically, with the right shoulder slightly raised. There is no head; instead, there is an eyelet above the left shoulder. Below the broad shoulders, large breasts protrude forward. Both arms are held close to the body. The carefully designed hands rest below the breasts on the upper abdomen. The oversized vulva is shown with the labia open. The thighs are small, and the legs end below the knees (Conard 2009; Conard and Wolf 2020). The figure bears markings everywhere except for the legs and buttocks. In addition to the cuts that reflect anatomical details, the figure also has numerous additional patterns (Dutkiewicz 2021). On the front, ten long, almost parallel lines running horizontally across the entire abdomen are initially noticeable. There are 12 very thin radial lines on the lower abdomen, radiating out roughly from the navel. On the upper back of the figure, there is a long, curved line that runs along the shoulder girdle. Vertical parallel notches were attached to this line at regular intervals, of which only nine have been preserved. The area of the left shoulder is not preserved, so the sequence could have included one to three more notches. A few lines are loosely scattered over the entire back, with a concentration in the waist area. A pattern of four U-shaped, concentrically arranged long lines extends from the tip of one breast across the flat upper chest to the other breast. In the shoulder area, three long parallel lines appear on each side. On the outside of the right breast, there are two sequences of parallel vertical lines—one with six and one with four. Further, there are four parallel, vertical lines on the outside of the left chest and three on the inside. The right arm also bears several markings. Starting at the shoulder, a sloping line is accompanied by two parallel lines directly below it. There are six parallel lines along the upper arm and four more on the forearm. At the wrist, two rows of dots are present—one with three or four and one with two. It can be assumed that the left arm, which is not preserved, was also decorated with similar markings, since the patterns in this figurine are overall arranged symmetrically.

Although the visibility of most of the markings on the female figurine is good, the 3D models improve them significantly. Due to the fragmented state in which the figurine was found, cracks and scratches disturb the surface in some parts and make it difficult to recognize some patterns, such as very fine lines on the lower abdomen. Additionally, the style of the markings is quite rough, meaning that the cuts are

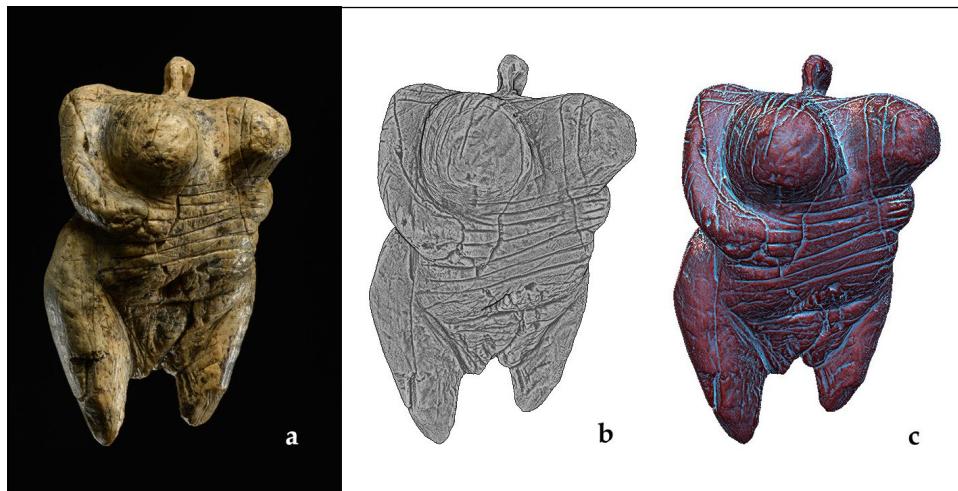


Fig. 7 | a) Hohle Fels. Female figurine, found in 2008, mammoth ivory, height 6 cm. (Photo: J. Lipták, Universität Tübingen). b) 3D model. Radiance Scaling, Grey Descriptor, Enhancement 0.75, and c) Lit Sphere Radiance Scaling, Enhancement 0.75, Transition 0.50. (Scanning and processing: M. Steffen and C. Steffen, Landesamt für Denkmalpflege im Regierungspräsidium Stuttgart; pictures: E. Dutkiewicz).



Fig. 8 | a) Detail of the female figurine from Hohle Fels using Keyence VXH-500. (Photo: E. Dutkiewicz, Universität Tübingen); b) 3D model. Radiance Scaling, Grey Descriptor, Enhancement 1.0, and c) Lit Sphere Radiance Scaling, Enhancement 0.75, Transition 0.90. (Scanning and processing: M. Steffen and C. Steffen, Landesamt für Denkmalpflege im Regierungspräsidium Stuttgart; pictures: E. Dutkiewicz).

executed in a not very accurate way, and many side-lines scatter around the marks. The 3D model eliminates the disturbing information, making the overall composition of the markings better visible. In Figure 7b and c, for example, the composition of the markings is clearer than in the photograph. Nevertheless, some of the cracks are difficult to distinguish from the markings. Therefore, the comparison and adjustment with the original figurine remain very important to interpret the information correctly. This is evident when looking at the dots on the left wrist, for example. While the dots were fairly visible to the naked eye and in photographs—though not as clear as other markings—the 3D model does not provide enough detail to recognize this part clearly. This is because the markings are applied on a rough surface and are not very deep. However, in Figure 8 the lower abdomen and parts of the vulva highlight the difference in the photograph and 3D model very well. In the photograph, it is difficult to differentiate between markings and cracks in this damaged area, whereas in the 3D model

the entire composition is clearer and easier to identify. The radially applied fine lines are well visible. Additionally, the rough-cut marks in the pubic area, which differ from the deep and precise cuts on the abdomen due to the coarse cutting technique, are clearly recognizable. I interpret this as a different use/purpose of the markings. While the lines on the abdomen have a fixed, stable character and very likely relate to body decoration or even pregnancy-related calendrical notations, the vulva bears rough cuts that seem more indicative of an action applied to this area, possibly a kind of “opening” of the vulva in connection with symbolic birth-giving (Dutkiewicz 2021; 2023; Dutkiewicz, Wolf, Velliky, and Conard 2024). The variations in the engravings across different zones of the figurine are clearly discernible in the 3D models.

Discussion

3D models of the figurines from the Swabian Aurignacian have added very useful information about the markings to the data already obtained through analysis of the originals, photographic documentation, and drawing of the objects (Dutkiewicz 2021). Many previously unclear or questionable parts have now become more visible, allowing for a better understanding of the overall composition of the markings. Working with the originals is indispensable, but restricted to a certain time frame, as handling them poses a danger to the objects and access is limited. Additionally, some of the objects are very small and fragile, and therefore cannot be touched or analyzed extensively. Furthermore, the originals show influences of taphonomy, such as weathering, patina, scratches, or the like, and recognizing all those factors and differentiating them from intentional anthropogenic manipulation is not always possible when studying the objects for a limited amount of time. There is always a risk of misinterpretation or overlooking certain aspects. To document the features, photographs are very useful. The difficulty is that certain views and sections must be selected, with a high chance of missing other important parts. Although this method is fast and not labor-intensive, during the process one tends to select already recognized features, while potentially overlooking unidentified parts. Although producing many pictures helps a lot, these are still fixed, and recognizing overlooked parts is limited to the selected view, light, and quality of the photograph. Another issue is the three-dimensionality of the figurines; much of the overall impression is lost when viewed in two-dimensional pictures. Drawings help to erase the misleading information from cracks, patina, or broken parts, but are also restricted to certain views and, of course, subject to individual interpretation (and talent) of the person who is drawing.

Many of the addressed problems find solutions in the use of 3D models. First, they allow constant access and the possibility of rotating, zooming in, and enhancing parts of the objects, without the need to access the originals. It is possible to check unclear parts very quickly. Views from different angles, changing light intensity or light incidence help to recognize details of the three-dimensional figures much better than a two-dimensional picture. Plus, disturbing information like color, patina, and scratches, and cracks can be erased or limited, giving a much better impression of the original design, and reconstructions of missing parts can also complete the image. The recognizability of markings, as well as features of the topography of the objects, are significantly improved. Furthermore, programs allow measurements of distances, surfaces, profile views, etc.

However, depending on the technique and the processing, the resolution of microscopic details might be insufficient. For example, details of the engraving technique are often not recognizable, and shallow depths are sometimes not recorded. As shown in the example of the dots on the wrist of the Hohle Fels female figurine, the model does not clarify the composition as much as desired. However, in other cases, like the V-sign on the horse, the 3D model supports the interpretation that these are scratches and not marks. Although the 3D model is very helpful in many cases, the analysis of the original object, photographs, and drawings remain necessary and should go hand in hand to get the best results. Another important point is, that although 3D models appear very realistic, and the astonishing details and different views give the impression of being close to reality, one must keep in mind, that digitization is not objective, and an enormous amount of editing must take place during the production of the 3D model—“they are just a hypothesis of an artifact or space” (Younan and Treadaway 2015, 241). And while the scanning itself might be a quick process, the processing of the data is tedious and labor-intensive. The storage and future accessibility of the data (computers, programs, etc.) must be considered as well.

Summary

The 3D models of the figurines from the Aurignacian cave sites of Vogelherd and Hohle Fels allow some interesting insights into details of markings and surface features. Comparing them with the analysis of the originals and photographs, some hitherto unclear parts were clarified. In the horse figurine, a supposed V-sign on the shoulder was identified as a scratch and excluded from the intentional markings the 3D model supports this interpretation. One of the felid figurines found by Gustav Riek in 1931 has some remarkable characteristics in the design of the mouth that was difficult to interpret. The 3D model shows that the animal is presumably represented with an open mouth. The Anthropomorphic figurine that has been interpreted by Riek as a probably semi-finished product, appears well designed in the 3D model. Some additional, hitherto unknown markings were recognized in this study. Details on the felid figurine, which used to be considered as a relief before a part of the back side was found in 2013, show that, by using different techniques of documentation, different aspects of the grid pattern on the side of the body become evident. While the photographs using a digital microscope show details like the starting points of the lines, which suggest pre-treatment of the ivory through watering, the 3D model points to compositional aspects like the succession of the lines, that is not as clear in the photographs. Astonishing insights were gained from the 3D models of the mammoth relief from Vogelherd. The convex and spongy surface of the cancellous part of the antler piece, on which the mammoth is engraved, makes it difficult to fully recognize the animal. Some parts are even obscured due to the blurry surface. However, the 3D model helps reveal the overall composition and highlights exceptionally well-designed details of the head. An eye, previously overlooked because it “hides” in the spongiosa, is now clearly visible. Like in Palaeolithic rock art, the artist included the natural surface to carve the animal. The 3D model of the felid figurine discovered in 2006 shows the potential to spot markings that may be heavily blurred through the color of patina. Finally, the example of the Hohle Fels female figurine demonstrates that 3D models can

enhance fine markings in challenging areas, such as the lines on the lower abdomen. However, in the wrist area, the markings are less distinct than expected, and the dots, which are clearly visible in photographs, are less defined in the model.

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The Path to UNESCO World Heritage

Caves and Ice Age Art in the Swabian Jura

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Abstract On July 9, 2017 in Kraków, Poland, the World Heritage Committee of the United Nations Educational, Scientific and Cultural Organization (UNESCO) designated the landscape of parts of two valleys in the Swabian Jura of southwestern Germany as a World Heritage (WH) site. The idea and initial planning for nominating the serial site which comprises the Ach- and Lone Valleys dates to the late 1990s when the Outstanding Universal Value (OUV) of this site began to come into focus in connection with a series of new excavations and new scientific results. Here, we give an overview of the process by which the Lone Valley with the archaeological sites of Vogelherd, Hohlenstein and Bockstein caves as well as the Ach Valley with Geißenklösterle, Srgenstein and Hohle Fels caves became a WH site. These two river valleys provide a rich record of human settlement in a unique Ice Age landscape, but they are best known for early figurative artworks and musical instruments from the Aurignacian period dating to roughly 40,000 years ago. These finds count among the earliest examples of figurative, mobile art and musical instruments known worldwide.

Keywords UNESCO World Heritage, Swabian Jura cave sites, Aurignacian, Figurative artworks, Musical instruments

Introduction

The UNESCO awards the title of World Heritage (WH) site to places that are world-renowned for their state of conservation, their uniqueness, authenticity and integrity. To be inscribed in the WH list the site has to fulfill one or more of ten criteria (i–x) defined in the UNESCO WH Convention (<https://whc.unesco.org/en/criteria/>). The WH status of the Swabian cave sites is based on criterion (iii) *to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared*. The caves of the Ach- and Lone Valleys are the first Palaeolithic World Heritage sites to be inscribed in Germany.

Four caves of the Swabian Jura of southwestern Germany are known for early figurative artworks and musical instruments that date to the Aurignacian period 42,000 – 35,000 years ago and count among the oldest of their kind worldwide. These sites are Hohle Fels and Geißenklösterle in the Ach Valley and Vogelherd Cave and Hohlenstein-Stadel in the Lone Valley (Fig. 1). Together with finds from two other cave sites, Sirgenstein in the Ach Valley and Bockstein in the Lone Valley, researchers have reconstructed the Ice Age landscape and its dynamic ecosystem during that period in detail. Over more than a decade, the State Office for Cultural Heritage Baden-Württemberg (LAD) and the University of Tübingen (UT) have jointly developed a strong portfolio for the serial nomination of these cave sites and the surrounding landscape as a WH site under the name of “Caves with the oldest Ice Age Art”. In July 2017 in Kraków (Poland), the WH Committee of the UNESCO asserted the authenticity and integrity. Each successful nomination for WH status must also meet

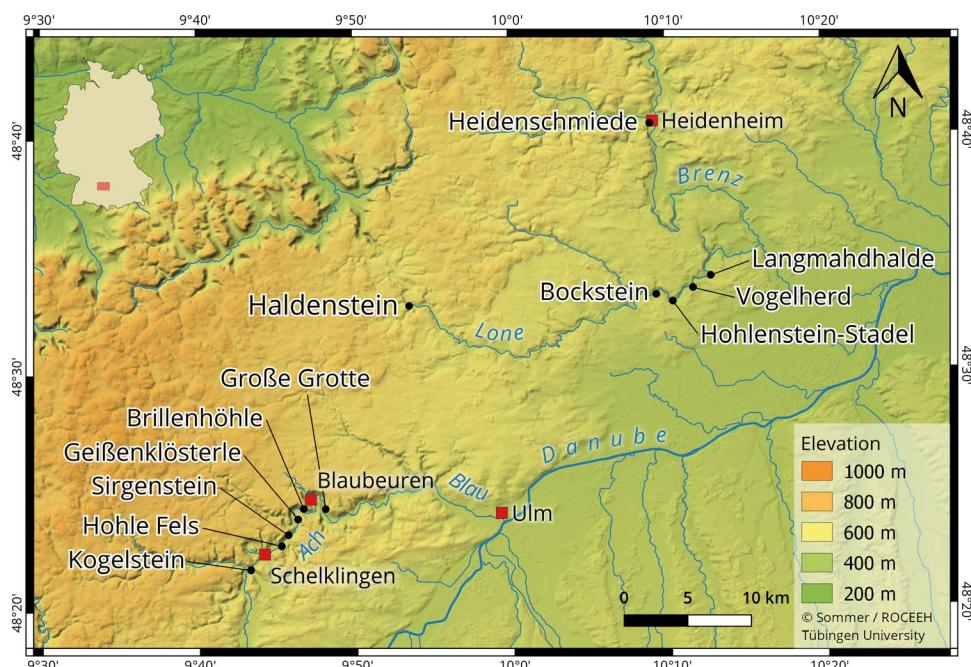


Fig. 1 | Map of the Swabian Jura (southwest Germany, Ach-, Brenz- and Lone Valleys) with major sites that yielded prehistoric remains. Four sites provided Aurignacian figurative art: 1, Vogelherd Cave; 2, Hohlenstein-Stadel; 3, Geißenklösterle; 4, Hohle Fels. (Map: C. Sommer, ROCEEH Tübingen University).

Table 1 | Time table for Caves and Ice Age Art in the Swabian Jura becoming World Heritage

March 2009	UNESCO-HEADS meeting on Human Evolution in Burgos, Spain
April 2009	Representatives decide to start the candidature process of the cave sites for World Heritage
September 2009	Opening of the Major State Exhibition of Baden-Württemberg on Ice Age Art
February 2012	Start of work on the World Heritage application in the LAD
December 2012	Submission of the tentative list proposal to the Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany
February 2013	International UNESCO meeting: Human Origins in Eurasia and the World Heritage Convention in Tübingen
February 2014	Appraisal by a committee of experts of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany
June 2014	The „Caves with the oldest Ice Age Art“ are placed at number 1 of the German tentative listing for World Heritage
September 2014	Meeting of all stakeholders with State Secretary Ingo Rust MdL in Rammingen near the Hohlenstein in the Lone Valley for the coordination of the further procedure
June 2015	Meeting of the stakeholders, information event in Ulm
September 2015	Official submission of the candidature to the World Heritage Center in Paris
January 2016	Submission of the final application including the management plan
August–September 2016	ICOMOS expert commission evaluates the application locally at the Swabian Cave sites
July 2017	The World Heritage Committee of UNESCO decides on July 9, 2017, to inscribe the Caves and Ice Age Art in the Swabian Jura in the World Heritage List

the central criterion of being of Outstanding Universal Value (OUV) for all people worldwide. Of this ensemble of landscape and caves, the WH Committee granted the respective sections of the valleys the status of WH site. Table 1 presents some of the main landmarks on the road to become WH.

Ach- and Lone Valleys – Brief Research History of Six Cave Sites

Ach Valley

The first scientific excavations at Hohle Fels Cave near Schelklingen were conducted in 1870 and 1871 by Oscar Fraas (Fraas 1872; Desor 1872). After these initial archaeological investigations, further smaller excavations were carried out at Hohle Fels. Gustav Riek from the UT and Gertraud Matschak from Schelklingen excavated the site from 1958–1960. A team headed by Joachim Hahn from the UT excavated Hohle Fels from 1977–1996 with short interruptions, and since 1997 Nicholas Conard from the UT has led annual excavations (Blumentritt and Hahn 1991; Conard et al. 2000; Hahn 1989) (Fig. 2). At this site, the Aurignacian layers have provided calibrated radiocarbon dates between 42,000 and 35,000 years BP (Conard and Bolus 2003; 2008; Conard 2009; Bataille and Conard 2018). The cave is internationally known for a female



Fig. 2 | Ach Valley between Hohle Fels and Geißenklösterle. (Photo: C. Meister).



depiction carved from mammoth ivory (Conard 2009) and the perhaps earliest musical instrument known worldwide, a flute made from the radius of a griffon vulture (Conard et al. 2009) (Fig. 3), both of which were excavated in 2008. In addition, a depiction of a Lion Man, a sculpture of a waterfowl, and an animal figurine that probably depicts a cave bear, all carved from mammoth ivory (Conard 2003) (Fig. 4, 5), and numerous other finds such as lithic artifacts or tools made from bone and ivory have been recovered at this site (Conard and Wolf 2020).

Robert R. Schmidt excavated Sirgenstein Cave, which is located in the Ach Valley between Hohle Fels Cave and Geißenklösterle Cave, in 1906 (Schmidt 1907; 1912) (Fig. 6). The Aurignacian layers here are designated IV, V and VI. Calibrated radiocarbon dates obtained from finds of these archaeological layers fall in the range between

Fig. 3 | Hohle Fels. Female figurine. length: 6.0 cm, and griffon vulture bone flute, length: 21.8 cm. (Photos: H. Jensen, © University of Tübingen).



Fig. 4 | Hohle Fels. Figurative art found between 1999 and 2002: 1, animal head; 2, waterfowl; 3, miniature Lion Man. (Photos: H. Jensen, J. Lipták, © University of Tübingen).



Fig. 5 | Hohle Fels. Refitted figurative fragments into a bear figurine in 2023 (animal head, excavated 1999 and rump part, excavated 2022). Length: 7.6 cm. (Photo: R. Litzenberg).



Fig. 6 | Sirgenstein Cave. Main entrance. (Photo: C. Meister).



Fig. 7 | Geißenklösterle. Flute made from a swan radius. Length: 12.7 cm. (Photo: H. Jensen, © University of Tübingen).



41,000 and 34,000 years BP (Conard and Bolus 2003; Bertacchi et al. 2021). Sirgenstein represents part of the same settlement system documented for the Middle and Upper Palaeolithic at Hohle Fels and Geißenklösterle, although some aspects about the site are not well known, due to its early date of excavation (Conard and Bolus 2003; 2008). Schmidt's publications on Sirgenstein make it the first site within today's German borders in which the French terminology for prehistoric cultures was applied (Bolus and Conard 2012). The site also formed the basis for Schmidt's synthesis of cultural developments during what we today call the Middle and Upper Palaeolithic. Schmidt also deserves recognition for identifying an occupational hiatus separating the find horizons left by late Neanderthals and those left by early modern humans (Conard and Bolus 2003; 2008).

Building on work of Gustav Riek and Eberhard Wagner, Joachim Hahn conducted excavations in the Geißenklösterle Cave between 1974 and 1991 and documented a rich Upper Palaeolithic sequence and Middle Palaeolithic deposits (Hahn 1988; Conard et al. 2019). In 2001 and 2002, Conard continued the work at the site focusing on the deposits from the base of the Aurignacian until bedrock was reached (Conard and Malina 2002; 2003). Similar to the sediments of Hohle Fels, the Aurignacian layers II and III have been dated to ca. 42,000–35,000 years BP. These dates are based on calibrated radiocarbon ages that have been confirmed by a range of other radiometric dating methods (Conard and Bolus 2003; 2008; Higham et al. 2012; Richard et al. 2019; Richter et al. 2000). Four figurative artworks carved from

Fig. 8 | Geißenklösterle. Flute carved from mammoth ivory. Length: 18.7 cm. (Photo: J. Lipták, © University of Tübingen).

mammoth ivory are known from Hahn's excavations at Geißenklösterle. These are a therianthropic depiction known as the "Adorant" – meaning worshipper, a standing cave bear, a mammoth and a bison or muskox (Hahn 1986; Dutkiewicz 2021). The proportions of the therianthropic relief has proportions that are reminiscent of the Lion Men from Hohlenstein-Stadel and Hohle Fels. At Geißenklösterle, excavators recovered three flutes, two made from swan bones and one from mammoth ivory, that highlight the importance of the region for the study of the origins of music (Hahn and Münzel 1995; Conard et al. 2004) (Fig. 7, Fig. 8). Like the artworks from the Swabian Aurignacian, which are often both sophisticated and beautiful, the Aurignacian flutes point to a highly developed musical tradition during this period.

Lone Valley

The Lone Valley is also a valley of the Danube. The next larger city is Heidenheim at the Brenz River. The ca. 5 km long portion of the valley containing the sites of Vogelherd Cave, the Hohlenstein complex and the Bockstein complex is highly relevant in this context. During his excavation in the Vogelherd in 1931, Gustav Riek completely emptied the site of sediments in roughly 12 weeks, dumping the backdirt onto the slope adjacent to the cave (Riek 1934) (Fig. 9). The layers richest in finds were Aurignacian layers IV and V, dating between ca. 40,000 and 35,000 years BP (Conard and Bolus 2003; 2008). Riek worked quickly but carefully for the time, recovering ten figurative artworks made from mammoth ivory and one made from bone (Fig. 10). These artworks mainly depict animals from the Ice Age, but an anthropomorphic representation is also present in the assemblage. Between 2005 and 2012 as well as 2022 and 2023, teams from the Department of Prehistory and Quaternary Ecology at the University of Tübingen under Conard's direction re-examined the backdirt sediments



Fig. 9 | Lone Valley. View between Bockstein and Hohlenstein: (Photo: H. Schlaiß).



Fig. 10 | Vogelherd Cave: Figurative art discovered in 1931: 1, horse; 2, mammoth; 3, animal body; 4, cave lion; 5, mammoth; 6, cave lion or bear (head found in 2012). 1–4, 6, mammoth ivory, 5, bone. (Photos: H. Jensen, J. Lipták, © University of Tübingen).

of Riek's excavation. This work was begun in the context of the preparations for the Major State Exhibit on the Ice Age scheduled to open in September 2009. One goal of this phase of fieldwork was to determine if Riek's team had overlooked important finds in 1931. The new excavations succeeded in recovering a great abundance of artifacts, especially small finds that Riek's team had overlooked.



Fig. 11 | Personal ornaments carved from mammoth from the Swabian Aurignacian. 1, double perforated bead; 2, double perforated bead with wedge-shaped extension; 3, single perforated bead; 4, discoid bead; 5, ring-shaped bead; 6, basket-shaped bead; 7, eight-shaped bead; 8, not perforated, constricted bead; 9, pinecone-shaped bead; 10, globular bead; 11, single perforated bead with round extension; 12, incised, triple perforated bead; 13, preform of a bead; 14, bandeau. Hohle Fels: 4, 5, 7, 8, 11–14. Vogelherd: 1–3, 6, 9, 10. (Photos: S. Wolf: 1–10; H. Jensen, © University of Tübingen: 11–14. Montage: G. Häussler).

Aside from vast new collections of lithic and organic tools, the new finds from Vogelherd include hundreds of personal ornaments, many dozen fragments of figurative art and multiple fragments of bone and ivory flutes (e.g., Conard et al. 2007; 2010; Conard and Kind 2017; Wolf 2015). These artifacts from Riek's backdirt, however, have a poor stratigraphic context. Refits of both, lithic and organic artifacts help to link the old and new phases of excavation. When studied in tandem with finds from sites in the vicinity with well-documented stratigraphies, the shear wealth of material makes Vogelherd a key site for our understanding of the Central European Aurignacian. As with the finds from Riek's excavation, the great majority of the finds from the backdirt can be assigned to the Aurignacian, and numerous radiocarbon dates fall within that period. Additionally, the recovery of a remarkable richness of characteristic Aurignacian artifacts like double perforated beads that had been overlooked by Riek's team contribute to the site's unique scientific importance (e.g., Wolf 2015) (Fig. 11). Many fragments of figurative artworks and bone and ivory flutes count among the exceptional finds from the recent



Fig. 12 | Vogelherd Cave. Figurative art carved from mammoth ivory found 2006–2012: 1) bovid (?); 2) hare (?); 3) cave lion; 4) mammoth body; 5) animal body; 6) cross-section through a mammoth. (Photos: J. Lipták, © University of Tübingen).



Fig. 13 | Vogelherd Cave. Mammoth carved from mammoth ivory excavated in 2006. Length: 3.7 cm. (Photo: J. Lipták, © University of Tübingen).

excavations at Vogelherd (Fig. 12). Most prominent is a complete mammoth figurine carved from mammoth ivory (Fig. 13) (Conard and Seidl 2008; Conard et al. 2007).

Hohlenstein-Stadel contains Aurignacian layers dating to the same period as the other Aurignacian sites in the region. It is most known for its sole figurative artwork, the Lion Man, a therianthropic figurine that shares human and lion attributes, which the carver produced from a single mammoth tusk (Hahn 1986; Schmid 1989; Kind et al. 2014). Although the first excavations at Hohlenstein date back to Oscar Fraas' early palaeontological studies in the 1860s (Fraas 1862), the first significant archaeological investigations at Hohlenstein-Stadel took place between 1935 and 1939 under the direction of Robert Wetzel from the UT and his assistant Otto Völzing (Wetzel 1961). Between 2008 and 2013 Claus-Joachim Kind and Thomas Beutelspacher from the LAD led excavations in front of and inside the cave (Beutelspacher et al. 2011; Beutelspacher and Kind 2012; Kind et al. 2014; Kind and Beutelspacher 2010; Kind 2019). Ivory finds from the recent excavations facilitated a new reconstruction of the Lion Man (Ulmer Museum 2013) (Fig. 14), after it had already been restored twice in the past (Hahn 1970; Schmid 1989). Unlike the other finds of Aurignacian artworks from the region that have been found among rich domestic debris, the 31 cm tall Lion Man was discovered together with personal ornaments. The composition of the feature and the position in a cache in the rear of the cave is suggestive of ritual behavior (Wolf 2019). The Lion Man has often played a key role in discussions of early religious beliefs and shamanism (Lewis-Williams 2002). Hohlenstein-Stadel is also the only Swabian cave that has yielded Neanderthal skeletal material. The femur recovered by Wetzel and Völzing has been the focus of important novel studies on the genetic history of Neanderthals (Posth et al. 2017).

Excavations at the Bockstein complex (Fig. 15) occurred on and off throughout the late 19th century through to the first half of the 20th century (Bürger 1892; Schmidt 1912; Wetzel 1954; Wetzel and Bosinski



Fig. 14 | Hohlenstein-Stadel. Lion Man carved from mammoth ivory, fragments found in 1939 and between 2009 and 2013. Length: 31.1 cm. (Photo: Y. Mühleis © Museum Ulm).



Fig. 15 | Bockstein Cave. View from the inside over the Lone Valley. (Photo: H. Schlaifß).

1969). The finds recovered from Bockstein Cave by Ludwig Bürger's excavations in 1883–1884 represent the first record of Aurignacian material from the Swabian Jura. The excavation of the cave and its entrance (Bockstein-Törle) delivered Aurignacian artifacts, however, the stratigraphic resolution of these early digs is poor (Wetzel 1954; Krönneck 2012). The radiocarbon dates obtained from archaeological horizons IV to VI vary considerably. However, we know from the diagnostic finds that these layers should be attributed to the Aurignacian (Conard and Bolus 2003; 2008). The sites from the Bockstein complex have yielded particularly rich cultural material from the Middle Palaeolithic that is intimately connected with Neanderthals lifeways in this region (Čep 2014).

Viewed together, the WH sites of the Ach- and Lone Valleys provide one of the best records of the archaeology of late Neanderthals and early *Homo sapiens* in Eurasia. The key finds of early personal ornaments, figurative art, mythical imagery, and musical instruments are inseparably connected with the archaeological sites and landscape. They provide an exceptional record of the origins of art, music and insights into a system of beliefs, especially during the Aurignacian. All of these features subsequently became universal aspects of cultural life of humans around the world. Thus, they constitute a perfect example of OUV, which is a prerequisite for the inscription of sites in the WH list.

The Path to UNESCO World Heritage Inscription

Since some of the most important sites for the investigating the Aurignacien in the Swabian Jura, Hohle Fels, Geißenklösterle and Sirgenstein, are located within the boundaries of the two towns Blaubeuren and Schelklingen, it is not surprising that

the interest in prehistoric research was considerable in these cities. Georg Hiller, who served as the mayor of Blaubeuren during the early phases of the nomination, and Reiner Blumentritt, the vice mayor from nearby Schelklingen, fully supported the WH nomination. However, interest in and support for the prehistoric research within the region has a long tradition. In 1965, the Urgeschichtliches Museum Blaubeuren (URMU) was founded in Blaubeuren by Gustav Riek, who, in addition to Vogelherd, excavated other important Palaeolithic sites of the Swabian Jura such as Hohle Fels, Brillenhöhle and Große Grotte. Today, the URMU represents the central museum for the Palaeolithic, exhibiting many examples of art and musical instruments in Baden-Württemberg. The great success of the URMU can be attributed to its administrative director, Stefanie Kölbl, its scientific director Nicholas Conard, many members of the UT, as well as the numerous local and regional supporters (Kölbl et al. 2014; Hiller 2015). The Urgeschichtliches Museum Blaubeuren, as well as other museums which exhibit figurative art from the Aurignacian period, such as the Landesmuseum Württemberg in Stuttgart, the Museum Ulm and the Museum der Universität Tübingen (MUT), have aroused great interest in the Palaeolithic through various exhibitions on the latest finds and research results.

The idea of pursuing WH status goes back to a large exhibition on Ice Age art in the late 1980s. Then in the late 1990s Hansjürgen Müller-Beck, the former director of the Department for Prehistory at the University of Tübingen and Nicholas Conard worked closely with the county commissioner of the Alb-Donau County, Wolfgang Schürle, to organize a traveling exhibit on Ice Age art (Müller-Beck et al. 2001; Conard 2017). This was about the time that the excavations at Hohle Fels, situated in Schelklingen in the Alb-Donau County, began to yield important finds of Ice Age art. These discoveries initially included examples of painted pieces of limestone from the Magdalenian (Conard and Uerpman 2000), and the above-mentioned bear, waterbird and the smaller version of a Lion Man from the Aurignacian layers (Conard 2003). Commissioner Schürle lent his vigorous support to the goal of having the Ice Age art of the Swabian Jura be the topic of a Major State Exhibition, which opened with considerable fanfare in the autumn of 2009 (Archäologisches Landesmuseum Baden-Württemberg and Abteilung Ältere Urgeschichte und Quartärökologie der Eberhard Karls Universität Tübingen 2009).

Thus, while researchers in Tübingen were making progress with excavations and scientific research, the museums with Aurignacian art in Blaubeuren, Tübingen, Stuttgart and Ulm continued to generate more interest while updating their exhibits to keep up with the wealth of new scientific results. This in turn played a central role for the recognition of the importance of the archaeological findings in the Swabian caves in Baden-Württemberg and beyond.

The procedure for WH nominations in Germany is initiated by the 16 states and city states (Bundesländer), which may suggest sites with potential OUV for the WH list. Out of those sites put forward, the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany (Cultus Ministers Conference, KMK) agrees upon sites that will be placed on the German tentative list. This list is requested by the UNESCO in order to prioritize the sites of each country over a period of five to ten years. Thus, the first hurdle for achieving WH status is always at the state level. For Germany a tentative list had been agreed upon in 1998

by the KMK for the years 2001 to 2010 and beyond. Out of 21 proposals, the State of Baden-Württemberg was able to nominate three sites, Heidelberg Castle and Town, Schwetzingen Summer Residence and as a serial nomination in collaboration with the Netherlands and with the states of Hesse, Bavaria and Rhineland-Palatinate, the Upper German-Raetian Limes as part of the Frontiers of the Roman Empire (Decision of the KMK 1998). The latter was included in the list in 2005, while the Schwetzingen and Heidelberg nominations were not inscribed due to their lack of OUV. Further sites in Baden-Württemberg were induced in 2011 with the Prehistoric Pile Dwellings around the Alps as part of a multinational Swiss transboundary serial nomination and in 2016 with two buildings in the Weißenhof settlement in Stuttgart for the Architectural Work of Le Corbusier, a French transboundary serial nomination. By 2011 most of the nominations put on the German tentative list set in 1998 had been processed or rejected. A new list then needed to be assembled for the following decade. At the beginning of 2012, the KMK called upon the Federal states to submit, by December 2012, a maximum of three proposals each, for rounding off the German tentative list. During this process the “Caves with the oldest Ice Age Art” were included by the State of Baden-Württemberg, with a decision pending at the end of 2014 (Decision of the KMK 2014).

This nomination process put forward a very interesting conceptual discussion on how to overcome the false dichotomy between movable and immovable heritage when setting up the OUV of a site for a Palaeolithic nomination. Moreover, as the years passed, several developments occurred that gradually confirmed the OUV of the Swabian caves. These developments included at least three factors: 1) the dating of the Palaeolithic layers in the Swabian caves repeatedly showed that they counted among the oldest examples of figurative art anywhere in the world; 2) each year, new finds of Aurignacian artworks and musical instruments underlined the importance of the region’s finds; 3) the State Exhibition on Ice Age Art in 2009–2010 under the leadership of the Archäologisches Landesmuseum Baden-Württemberg did much to draw attention to these sites as providing the earliest examples of mobile figurative art and music worldwide.

At a more tangible level, the discoveries from the new phase of excavation at Vogelherd between 2005 and 2012 generated a groundswell of support for this WH nomination from the Lone Valley communities and the County of Heidenheim, in which the site is situated. The region undertook a major effort to market these finds and particularly the newly discovered mammoth in 2006, which was exhibited across Baden-Württemberg starting in 2007 (Conard and Seidl 2008). This movement ultimately led to the construction of the Archäopark Vogelherd Niederstotzingen, which opened on schedule in 2013. The newly founded Society for Ice Age Art in the Lone Valley provided important financial support and helped to mobilize both political assistance and private funding for the research in the Lone Valley.

Much like the role played by the excavations in recent years at Vogelherd, Claus-Joachim Kind’s excavations at Hohlenstein-Stadel made important contributions to the work relevant for preparing the nomination for the Swabian caves. His reinvestigation of Hohlenstein-Stadel led to the above-mentioned new reconstruction of the famous Lion Man. The excavation again highlighted the important finds housed in the Museum Ulm. These originated from the excavations of Robert Wetzel in the middle of the 20th century (Ulmer Museum 2013; Kind et al. 2014).

In the Ach Valley, discoveries in Hohle Fels and Geißenklösterle continued to generate momentum for discussion of a potential WH listing of the Swabian caves. The exceptional discoveries in 2008 of a female figurine (Conard 2009) and a well-preserved flute in Hohle Fels (Conard et al. 2009) represent particular highlights in the process of the caves gaining wide international recognition. The annual grants from Heidelberg Cement and the generous support from the Museum Society of Schelklingen and its chair, Reiner Blumentritt, should be noted here. This support together with ample funding from the Ministry of Science of Baden-Württemberg, the German Science Foundation and the German Academy of Sciences and Humanities created an ideal research environment for studying the Palaeolithic prehistory of the Swabian caves.

Around the same time, local and regional stakeholders, such as the mayors of the communities Asselfingen, Herbrechtingen, Niederstotzingen, Öllingen and Rammingen in the Lone Valley, and Blaubeuren and Schelklingen in the Ach Valley, the commissioners of the counties Heidenheim and Alb-Donau joined forces with the representatives of the Ministry for Economics and Finances, the State Office for Cultural Heritage, the directors of the involved Museums and the University of Tübingen. The working group "Caves" united the key players and official representatives across the region. This facilitated preparing the nomination and allowed the communities and other stakeholders to be fully integrated in the process.

As all these developments were happening, changes were taking place within UNESCO itself. With each year, it became evident that the WH list did not fairly represent the global contributions to human history and cultural developments. European countries were greatly overrepresented in the WH list, and churches, palaces, monasteries, European cities, and monuments from classical antiquity were far too numerous relative to other kinds of sites. As early as 1984 but with greater commitment since 1994, the WH Committee of UNESCO called for a more diverse and more comprehensive portfolio of WH sites (UNESCO World Heritage Convention 1995; Jokilehto et al. 2005). What also played a key role in this process was Nicholas Conard being asked to serve in an advisory role in UNESCO's search for new WH sites with OUV related to archaeology and human evolution. He first participated in the process in March 2009 in Burgos near the WH site of Atapuerca (Sanz 2011). The Spanish government under the leadership of its UNESCO ambassador María Jesús San Segundo funded a major initiative to create a more balanced representation of sites on the WH list. Nuria Sanz from the UNESCO office in Paris and later from the UNESCO offices in Mexico City and Cairo headed this project from the start. After considerable deliberation this program was named 'Human Evolution: Adaptations, Dispersals and Social Developments', more commonly known as HEADS. Along with Margherita Mussi from Sapienza University in Rome and François Sémah from Musée de l'Homme in Paris, Nicholas Conard has served as one of the main advisors to the project together with Robin Dennell from the University of Exeter, who represented ICOMOS. As part of this process the HEADS team, under Sanz's leadership hosted scientific meetings around the world with the goal of achieving a fairer distribution of WH sites. In this context, the HEADS conference hosted at Schloss Hohentübingen, Germany from February 25 – March 1, 2013 played an important role in advancing the prospects for the sites of the Ach- and Lone Valleys achieving WH status (Smith 2013). Representatives from 13 countries and 25 institutions came together to identify

palaeolithic sites with the highest priority and thus potential WH status in Eurasia. During the conference meetings, working groups addressed key issues in the Department of Early Prehistory and Quaternary Ecology at the University of Tübingen and later in the Heinrich-Fabri-Institut in Blaubeuren. Excursions took the participants to the caves of the Ach- and Lone Valleys. Analogous meetings of the HEADS group included earlier conferences in Addis Ababa, Ethiopia in 2011 (Sanz 2012) and in Jeonggok, South Korea in 2012 (Sanz 2014) to identify the highest priorities for WH sites in Africa and East Asia. The goal for the gathering in Tübingen was to do the same for western Eurasia. The participants of the HEADS conference in Tübingen confirmed that the Swabian caves should be given the highest priority, a conclusion that had already been reached in Burgos in 2009.

The papers from the Tübingen meeting were published in two volumes in 2015, with one volume dedicated entirely to the unique significance and OUV of the caves of the Ach- and Lone Valleys (Sanz 2015a; 2015b). Since in Germany the importance of mobile heritage had been disputed and often rejected, the HEADS team focused on this point during the Tübingen conference and reiterated the key point that mobile heritage may contribute to the arguments for OUV and WH status. Internationally, this conclusion was nothing new, since WH sites from the Cradle of Humankind in South Africa to Atapuerca in Spain as well as many others are based primarily on the mobile finds of fossil hominins and artifacts, not solely on the caves or open-air sites that housed the finds. The support from HEADS and UNESCO played a critical role in facing the challenges of the candidature of the Ach- and Lone Valleys. When the Ach- and Lone Valleys were enlisted in July 2017, it was the first time in Germany that mobile heritage played a central role in the inscription of a WH site. The members of the HEADS team hope that this development will open the opportunity for a serial nomination for Neanderthal sites with fossil remains and for the nomination of the site of Schöningen in Lower Saxony, the latter having been recommended for the German tentative list (Decision of the KMK 2023).

Perhaps most importantly, the discussions about the criteria for achieving WH led to a competition within Germany to establish a new tentative list. Each German state was eligible to nominate up to three potential sites for inscription in the latter. The states prepared 31 sketches for new projects, which were evaluated by a commission with 11 members appointed by the KMK under the leadership of Marie-Theres Albert, professor of Intercultural Studies and UNESCO Chair in Heritage Studies at the University of Cottbus. The LAD prepared the preliminary application with support from the University of Tübingen, the five museums that display the key finds and the many state and regional bodies, municipalities and groups that were affected by the planned WH status. Claus Wolf and Claus-Joachim Kind from the LAD headed the team and submitted the dossier via the Ministry of Economic Affairs, Labour and Housing of Baden-Württemberg to the KMK and the evaluating commission for the German sites. Nicholas Conard and the researchers from the UT supported this work with a wealth of new scientific results. Nuria Sanz' publication series and additional materials provided the evaluating commission with the current UNESCO guidelines and recommendations as well as a statement underlining the role of mobile heritage in defining OUV and WH sites.

On February 22, 2014, the evaluation commission visited key sites, met with the main stakeholders and attended presentations by members of the State Office for Cultural Heritage and by the University of Tübingen at the Lindenau restaurant, Rammingen above the Lone Valley near Hohlenstein. This evaluation was the turning point on the path to WH status. After reviewing all 31 potential projects, the evaluating commission awarded the nomination "Caves with the oldest Ice Age Art" the highest ranking followed by the Jewish Cemetery Altona Königstraße, the Waterworks und Waterpower, Drinking Water and Artistic Fountains in Augsburg, and the Artist Colony Mathildenhöhe in Darmstadt. With the highest possible ranking, the path for the Swabian caves becoming a WH site was open. The earlier opposition to the nomination based in large measure on the debate about the role of mobile heritage for WH sites no longer block the path forward. From here on there was much work to do, but the path to WH status was clear.

Some of the last challenges were related to gaining support from the participating municipalities. The most sensitively issue remaining was to how best to preserve the landscape of the Ach- and Lone Valleys from technological superimposition, such as wind power plants or technological developments that might compromise the OUV of the site. Under the leadership of Claus-Joachim Kind and Claus Wolf, and with the support of Conny Meister and Stephan M. Heidenreich, the LAD and the Ministry of Economic Affairs, Labour and Housing of Baden-Württemberg prepared a prodigious three volume nomination file of 861 pages that formed the basis for the inscription in Kraków. One of the last phases of the application procedure was ICOMOS' evaluation of the project. Marcel Otte from the University of Liège, one of the most senior and most prolific Palaeolithic archaeologists, was named to conduct the review. The visit to the sites and participating institutes took place between August 29 and September 2, 2016. Prof. Otte was part of a commission of experts who assessed the review between September and December 2016. In early December 2016, ICOMOS invited Claus Wolf and Conny Meister from the LAD as well as Denise Beilharz from the Ministry to its headquarter in Paris and inquired about pressing management questions, such as the structural and economic development of the site and its environment. The ICOMOS expert commission that evaluated the Swabian caves formed part of the basis for ICOMOS' strong support for the project at the meeting of the World Heritage Committee in Kraków.

Thanks to the careful and prolonged work of the many people involved in the process, the WH Committee approved the "Caves and Ice Age Art in the Swabian Jura" in the record time of just under 13 minutes on July 9, 2017 (full info: UNESCO World Heritage Convention 2017) (Fig. 16). This step completed the long and complex process that had taken two decades. Without the support of scores of people and dozens of stakeholders, this achievement would not have been possible. Now the general public and all of the people involved in the project can enjoy the fact that the "Caves and Ice Age Art in the Swabian Jura" have been awarded the highest possible cultural recognition and are officially acknowledged for their OUV to all people in all nations. The Cultural Heritage Protection Act of Baden-Württemberg (1972) is the main legal enforcement to ensure the protection of the property. The State Office for Cultural Heritage of Baden-Württemberg administers the property, and institutions including



Fig. 16 | Inscription of the „Caves and Ice Age Art of the Swabian Jura”, 42nd German World Heritage site. Congratulations to the German delegation in Kraków on 7 July 2017 (right foreground: former Minister of State Maria Böhmer, center; former Head of the Permanent Mission of the Federal Republic of Germany to UNESCO Stefan Krawielicki, background: Claus-Joachim Kind, Conny Meister). (Photo: © fot. P. Suder, Narodowy Instytut Dziedzictwa: media@41whckrakow.pl).

the UT may continue to conduct fieldwork and research in the Ach- and Lone Valleys to add to our knowledge of the region's remarkable Ice Age archaeology.

On November 29, 2017, Heiner Scheffold, the Commissioner of the Alb-Donau County, hosted the celebration in Ulm at which the German Minister of State Maria Böhmer presented the UNESCO World Heritage certificate to Governor Winfried Kretschmann and Nicole Hoffmeister-Kraut, the Minister for Economics, Labour and Housing of Baden-Württemberg (see also Conard and Kind 2017). With WH status in place there is much reason to be optimistic that ongoing excavations and research will continue to strengthen the case for the OUV of the caves. The international congress “European Year of Cultural Heritage 2018: People and places from prehistory to present – Perspectives on a sustainable management of Palaeolithic World Heritage sites” in Blaubeuren, October 16–18, 2018 represented another success. The LAD and the Ministry for Economics, Labour and Housing Baden-Württemberg organized this important meeting. Here, the partners from European prehistoric World Heritage Sites intensified their network and defined shared goals for the future. The sites of the Swabian Jura served as the key destinations of excursion for the international audience and seeing the artworks and musical instruments from the region represented highlights during the meeting. In keeping with our successful experience in the Swabian Jura, we hope to encourage Germany and other countries to nominate new prehistoric sites for a World Heritage inscription to help establish a more balanced record of the entirety of the human cultural achievements.

UNESCO World Heritage

As one of the most important instruments of the World Heritage Convention the list includes the most outstanding cultural and natural sites of mankind. The World Heritage Convention reflects the awareness of the international community towards solidarity-based responsibility for our shared heritage. The fundamental pillars of UNESCO – education, science, culture and mutual exchange – are firmly embedded in the basic idea of the World Heritage Convention.

The Federal Republic of Germany ratified the “International Convention on the Protection of the Cultural and Natural Heritage of the World” in 1976. Due to the autonomy of Germany’s federal states in cultural and educational affairs, the latter are responsible for the implementation of the World Heritage Convention. Together, the monument protection authorities of Baden-Württemberg and their regional partners protect and maintain this universal cultural heritage and convey it to the public. In keeping with the recommendations of the HEADS team, we underline the need to maintain a rich tradition of research and outreach at WH sites, so they remain dynamic places of learning and education as well as remarkable witnesses of our shared human history for many generations to come.

For World Heritage Sites in Germany see UNESCO World Heritage Convention. No date. States Parties: Germany. <https://whc.unesco.org/en/statesparties/de>.

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The concept of 'Palaeolithic art' and its study have changed considerably in recent decades. The modern notion of 'art' is cross-culturally and diachronically problematic. The phenomenon cannot be reduced to material visual culture, but also has acoustic, haptic and other dynamic aspects. It must be understood as a variety of processes that can encompass both the everyday and the extraordinary. In this volume, archaeologists, philosophers and anthropologists approach 'Palaeolithic art' from different perspectives, including its conceptualisation, aesthetics, relations to art history and art brut. The contributions deal with the challenge of materiality, evolutionary aspects, physical re-enactment by actors, digital technologies as a means of interpreting art objects, and the protection of cultural heritage. The volume offers innovative insights into past practices and contemporary ideas and approaches related to Palaeolithic art, based on careful empirical research combined with reflective and sophisticated theoretical approaches.

